DEPARTMENT OF CITY PLANNING

RECOMMENDATION REPORT

City Planning Commission

Date: Thursday March 27, 2025
Time: After 8:30 a.m.*
Place: Van Nuys City Hall, Council Chamber, 2nd Floor
1441 Sylvan Street
Van Nuys, CA 91401

And via Teleconference. Information will be provided no later than 72 hours before the meeting on the meeting agenda published at https://planning.lacity.org/about/commissions-boards-hearings and/or by contacting cpc@lacity.org.

Public Hearing: August 28, 2024
Appeal Status: Vesting Zone Change and Height District Change are appealable only by the applicant to the City Council in whole or in part. The Zoning Administrator's Determination and Zoning Administrator's Adjustment are appealable to City Council by any party.

Expiration Date: March 27, 2025
Multiple Approval: Yes

Case No.:	CPC-2023-1254-VZC-HD-ZAD-ZAA
CEQA No.:	ENV-2023-1255-MND
Related Cases:	VTT-84101-1A; CPC-2009-1477-CU-ZV-ZAA-SPR-PA1
Council No.:	12 - John Lee
Plan Area:	Canoga Park - Winnetka - Woodland Hills - West Hills
Specific Plan:	N/A
Certified NC:	West Hills
Existing Zones:	A1-1, RS-1, [Q]C1-1VL, and P1-1VL
Proposed Zones:	A1-1, RS-1(to remain on the Main Campus), and (T)(Q)C2-1 for the North Campus
Land Use Designation:	Very Low Residential, Low Residential, and Neighborhood Commercial
Applicant:	Robert S. Webb, Chaminade College Preparatory
Representative:	Jessica Pakdaman, Rosenheim & Associates, Inc.

PROJECT LOCATION: **7500 North Chaminade Avenue** (7500 North Chaminade Avenue, 23241 West Cohasset Street, 23260 West Saticoy Street, 23217-23255 West Saticoy Street 7619-7629 North Woodlake Avenue)

PROPOSED PROJECT: The project involves the expansion of an existing high school campus with no increase in student enrollment. The revised campus plan would include a total lot area of approximately 25.86 acres, inclusive of: 1) improvements to the existing campus (Main Campus) with a new three-story school building, updated parking areas, remodeled athletic fields, new student quads, and renovated classrooms, student service centers and offices and; 2) an expanded school campus area of approximately 4.83 acres located across Saticoy Street, proposed for new athletic fields, an aquatic center/outdoor swimming pool, accessory facilities/structures and associated surface parking facilities; and 3) a new pedestrian bridge across Saticoy Street. The revised campus plan for the high school would include a total of 196,468 square feet of floor area equating to a floor area ratio (FAR) of approximately 0.17:1 and will have 501 on-site vehicle parking spaces and 78 bicycle parking spaces.

REQUESTED ACTIONS:

1) Pursuant to CEQA Guidelines Section 15074(b), after consideration of the whole of the administrative record, including the Mitigated Negative Declaration, No. ENV-2023-1255-MND, and all comments received, with the imposition of mitigation measures, find that there is no substantial evidence that the Project will have a significant effect on the environment; find that the Mitigated Negative Declaration reflects the independent judgment and analysis of the City; find that the mitigation measures have been made enforceable conditions on the Project; and adopt the Mitigated Negative Declaration and the Mitigation Monitoring Program;

2) Pursuant to Los Angeles Municipal Code (LAMC) Sections 12.32 F and 12.32 Q, a Vesting Zone Change and Height District Change from the [Q]C1-1VL and P-1VL zones to the (T)(Q)C2-1 Zone on the new North Campus;

3) Pursuant to LAMC Section 12.24 X.7, a Zoning Administrator's Determination to allow for existing 8-foot-tall perimeter fences and vehicular gates to remain within the front yards (along Cohasset Street and Keswick Street) and for the construction of a new 8-foot-tall-fence and vehicular gate within the front yard (along Cohasset Street) on the Main Campus, in lieu of the maximum height of 6 feet otherwise permitted in the front yard of the A1 Zone pursuant to LAMC Sections 12.21 C1(g) and 12.22 C.20(f);

4) Pursuant to LAMC Section 12.24 X.22, a Zoning Administrator's Determination, to allow for new structures related to the sports facilities on the new North Campus, including, but not limited to, a score board, netting and netting poles, lights and a pedestrian bridge, ranging in height from approximately 25 to 90 feet, in lieu of the 25-foot, 33-foot and 61-foot Transitional Height Limitations permitted within 0-199 feet of lots zoned RW1 or more restrictive pursuant to LAMC Section 12.21.1 A.10;

5) Pursuant to LAMC Section 12.28, a Zoning Administrator's Adjustment to allow the following:

   a. A maximum building height of 48 feet for the new Multistory Building on the Main Campus, in lieu of 45 feet otherwise permitted in the A1 Zone pursuant to LAMC Section 12.21.1; and

   b. The encroachment of a proposed above-grade pedestrian bridge and associated support structures into the required front and side yard setbacks in the RS and A1 zones on the west side of Saticoy Street, and reduced setbacks along Cohasset Street (front yard) and along the easterly property lines (side yards) in the A1 Zone for existing encroaching structures (bleachers and buildings) to remain on the Main Campus, in lieu of the setbacks otherwise required pursuant to LAMC Sections 12.07.1 C and 12.05 C.

RECOMMENDED ACTIONS:

1) **Find**, pursuant to CEQA Guidelines Section 15074(b), after consideration of the whole of the administrative record, including the Mitigated Negative Declaration, No. ENV-2023-1255-MND, and all comments received, with the imposition of mitigation measures, there is no substantial evidence that the Project will have a significant effect on the environment; **find** the Mitigated Negative Declaration reflects the independent judgment and analysis of the City; **find** the mitigation measures have been made enforceable conditions on the project; and **adopt** the Mitigated Negative Declaration and the Mitigation Monitoring Program;

2) **Recommend** that the City Council **Approve** a Vesting Zone Change and Height District Change from the [Q]C1-1VL and P-1VL zones to the (T)(Q)C2-1 Zone on the new North Campus;

3) **Approve** a Zoning Administrator's Determination to allow for existing 8-foot-tall perimeter fences and vehicular gates to remain within the front yards (along Cohasset Street and Keswick Street) and for the construction of a new 8-foot-tall-fence and vehicular gate within the front yard (along Cohasset Street) on the Main Campus, in lieu of the maximum height of 6 feet otherwise permitted in the front yard of the A1 Zone pursuant to LAMC Sections 12.21 C.1(g) and 12.22 C.20(f);

4) **Approve** a Zoning Administrator's Determination, to allow for new structures related to the sports facilities on the new North Campus, including, but not limited to, a score board, netting and netting poles, lights and a pedestrian bridge, ranging in height from approximately 25 to 90 feet, in lieu of the 25-foot, 33-foot and 61- foot Transitional Height Limitations permitted within 0-199 feet of lots zoned RW1 or more restrictive pursuant to LAMC Section 12.21.1 A.10;

5) **Approve** a Zoning Administrator's Adjustment to allow the following:

   a. A maximum building height of 48 feet for the new Multistory Building on the Main Campus, in lieu of 45 feet otherwise permitted in the A1 Zone pursuant to LAMC Section 12.21.1;

   b. The encroachment of a proposed above-grade pedestrian bridge and associated support structures into the required front and side yard setbacks in the RS and A1 zones on the west side of Saticoy Street, and reduced setbacks along Cohasset Street (front yard) and along the easterly property lines (side yards) in the A1 Zone for existing encroaching structures (bleachers and buildings) to remain on the Main Campus, in lieu of the setbacks otherwise required pursuant to LAMC Sections 12.07.1 C and 12.05 C; and

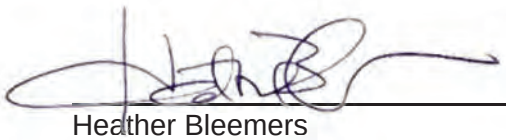
6) **Adopt** the attached Conditions of Approval;

7) **Adopt** the attached Findings;

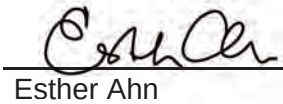
8) **Advise** the applicant that, pursuant to California State Public Resources Code Section 21081.6, the City shall monitor or require evidence that mitigation conditions are implemented and maintained throughout the life of the project and the City may require any necessary fees to cover the cost of such monitoring; and

9) **Advise** the applicant that pursuant to State Fish and Game Code Section 711.4, a Fish and Game Fee and/or Certificate of Game Exemption is now required to be submitted to the County Clerk prior to or concurrent with the Environmental Notice of Determination (NOD) filing.

VINCENT P. BERTONI, AICP
Director of Planning



Heather Bleemers
Senior City Planner



Esther Ahn
City Planner

ADVICE TO PUBLIC: *The exact time this report will be considered during the meeting is uncertain since there may be several other items on the agenda. Written communications may be mailed to the *Commission Secretariat, Room 272, City Hall, 200 North Spring Street, Los Angeles, CA 90012* (Phone No. 213-978-1300). While all written communications are given to the Commission for consideration, the initial packets are sent to the week prior to the Commission's meeting date. If you challenge these agenda items in court, you may be limited to raising only those issues you or someone else raised at the public hearing agendized herein, or in written correspondence on these matters delivered to this agency at or prior to the public hearing. As a covered entity under Title II of the Americans with Disabilities Act, the City of Los Angeles does not discriminate on the basis of disability, and upon request, will provide reasonable accommodation to ensure equal access to these programs, services and activities. Sign language interpreters, assistive listening devices, or other auxiliary aids and/or other services may be provided upon request. To ensure availability of services, please make your request not later than three working days (72 hours) prior to the meeting by calling the Commission Secretariat at (213) 978-1299.

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Exhibits:

Exhibit A – Site Plan, Floor Plans, Elevations, Landscape Plans, Renderings
Exhibit B – Environmental Documents (ENV-2023-1255-MND)
Initial Study
Appendices
- Air Quality and Greenhouse Gas Technical Modeling
- Tree Inventory Report
- Geotechnical Investigation Report
- Phase I Environmental Site Assessment Report
- Noise Technical Modeling
- Transportation Assessment
- LADOT Assessment Letter

Exhibit C – Agency Reports
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PROJECT ANALYSIS

PROJECT SUMMARY

The Chaminade College Preparatory, High School Project is located at 7500 North Chaminade Avenue within the West Hills neighborhood of the San Fernando Valley. The high school campus is located west of the 27 Highway (Topanga Canyon Boulevard), and north of the 101 Freeway. The revised campus plan would include a total lot area of approximately 25.86 acres, inclusive of: 1) a new three-story school building, updated parking areas, remodeled athletic fields, new student quads, and renovated classrooms, student service centers and offices on the existing campus of 21 acres; 2) an expanded school campus area of approximately 4.83 acres located across Saticoy Street, proposed for new athletic fields, an aquatic center/outdoor swimming pool, accessory facilities/structures and associated surface parking facilities; and 3) a new pedestrian bridge across Saticoy Street. The revised campus plan for the high school would include a total of 196,468 square feet of floor area equating to a floor area ratio (FAR) of approximately 0.17:1 and will have 501 on-site vehicle parking spaces and 78 bicycle parking spaces.

Chaminade College Preparatory has been operating the existing private high school campus on the project site (Main Campus) since the 1960s, and currently operates the existing campus under a Conditional Use Permit granted in 2009. Chaminade purchased the North Campus property, which is currently improved with a shopping center, in 2018 with the intent to expand the campus facilities.

The campus expansion plans and Plan Approval grant, under related Case No. CPC-2009-1477-ZV-CU-ZAA-SPR-PA1, facilitate a series of targeted improvements and operational updates aimed at modernizing and expanding the academic, athletic and parking facilities at Chaminade College Preparatory's Main Campus, ensuring its continued service to the community and alignment with contemporary educational and operational standards. While the aforementioned Plan Approval pertains to the Main Campus only, additional entitlements that apply to both the Main and North Campuses are requested under the subject Case No. CPC-2023-1254-VZC-HD-ZAD-ZAA, which involve a Vesting Zone Change and Height District Change specific to the North Campus only, as well as a Zoning Administrator Adjustment and Zoning Administrator Determination that cover both the Main Campus and North Campuses. These additional entitlements were requested through the subject case instead of through the Plan Approval case because they involve new legislative and discretionary actions beyond the scope of the existing Conditional Use Permit and beyond the Plan Approval action. In addition, related Case No. VTT-84101 was filed the merge and re-subdivide the project site into two ground lots. Key elements of the project include the construction of a new 3-story building with administrative, counseling, library, multi-purpose, classroom and laboratory areas, renovation of classrooms, offices and administrative buildings to include expanded student service programming and to incorporate advanced infrastructure and technology and new student quads. These updates will enhance academic offerings and provide improved support for students.

To address athletic and recreational needs, the project also proposes upgraded and new athletic fields and facilities, including efficient stadium lighting on the Main and North Campuses and a state-of-the-art PA system on the North Campus similar to the system currently used on the Main Campus. These upgrades are accompanied by sound and light mitigation measures to minimize impacts on neighboring properties. Sustainability plays a significant role in the project's design, with plans for solar panel installations, EV parking, permeable landscaping, and water-efficient vegetation. These features align with the city's environmental goals and contribute to the campus' overall eco-friendliness.

Additionally, a key objective of the project is to improve pedestrian safety and circulation, and separate pedestrian and vehicular areas internal to the Main Campus. A pedestrian bridge over Saticoy Street will connect the Main and North Campuses, ensuring safe transit for students, staff and visitors. Operational improvements include a revised Traffic Management Plan (TMP) to alleviate congestion during peak hours, with expanded parking facilities on-campus reducing dependence on adjacent streets. Community engagement is prioritized through measures such as appointing a Community Relations representative, operating a 24-hour hotline, and hosting regular updates for the West Hills Neighborhood Council. These initiatives aim to foster transparency and collaboration with local residents.

In summary, the proposed project supports the modernization of Chaminade's educational, athletic and parking facilities, enhances student and staff experiences, and reinforces the school's commitment to sustainability and community integration, ensuring its continued positive impact on the neighborhood. The proposed project's site plan can be seen in **Figure 1**, below.



Figure 1. *Rendering of proposed improvements to the existing Main Campus and new North Campus located to the northeast of Saticoy Street.*

PROJECT BACKGROUND

Project Site

The project site comprises two properties identified as the existing Main Campus and the proposed North Campus bifurcated by Saticoy Street. The Main Campus is comprised of three lots and has a total lot area of approximately 21 acres. The Main Campus has approximately 666 feet of frontage along the west side of Saticoy Street, approximately 273 feet of frontage along the south side of Keswick Street, approximately 636 feet of frontage along the east side of Chaminade Avenue, and approximately 808 feet of frontage along the north side of Cohasset Street. The proposed North Campus is comprised of three lots having a total lot area of approximately 4.83 acres. The proposed North Campus has 788 feet of frontage along the east

side of Saticoy Street and approximately 244 feet of frontage along the west side of Woodlake Avenue.

The existing high school is improved with facilities including, but not limited to, 37 classrooms, administrative and support offices, a library, a student center building that can accommodate 928 seats, a performing arts center with 360 seats, a fine arts building, a campus ministry building, a lighted football field with bleachers with 2,500 seats, a basketball gymnasium with bleachers with 1,000 seats, a baseball field with bleachers, and a pool. The existing buildings on the Main Campus total 156,768 square feet of floor area. In addition, the Main Campus currently provides 462 vehicular parking spaces.

In 2009, under Case No. CPC-2009-1477-CU-ZV-ZAA-SPR, Chaminade College Preparatory, High School received approval for various campus improvements, including the construction of 86,200 square feet of new facilities and the demolition of 40,911 square feet of existing structures. Key additions authorized under the grant included the performing arts center, an auxiliary athletic complex, and a library/student center, as well as the approval of an aquatic complex with a swimming pool. The aquatic complex and swimming pool, however, were never built.

The property on which the North Campus is proposed, is currently improved with a single-story, multi-tenant commercial mini-shopping center and surface parking lot, built between 1962 to 1964. The shopping center is currently occupied with retail, restaurant, dry cleaner, and grocery store tenants.

Surrounding Properties

Main Campus

Surrounding properties to the existing Main Campus are located within the RE11-1 and RS zones and are generally improved with single-family residential uses and a public park. The abutting properties located along the north side of the project site, along and across Keswick Street, and along Atron Avenue to the west, are zoned RE11-1 and improved with single-family residential homes. The properties located to the west of the project site, abutting and across Chaminade Avenue, are zoned RE11-1 and improved with single-family residential homes. The properties located to the south and across Cohasset Street are zoned RE11-1 and improved with a single-family residential homes and Four Oaks Park. The properties to the east and abutting, are zoned RS-1 and improved with single-family residential homes.

North Campus

Surrounding properties to the proposed North Campus are located within the RS-1, [Q]C1.5-1VL, (Q)RD5-1A1-1VL zones, and are generally improved with single-family residential uses and an automotive repair shop. The properties located to the north of the project site and abutting, are zoned RS-1 and improved with single-family residential uses. The properties located to the west and south of the project site across Saticoy Street, are zoned RS-1 and improved with single-family residential uses, as well as an academic building and a surface parking lot associated with the Main Campus. The property directly abutting to the south and east of the project site, at the northwest corner of Saticoy and Woodlake Avenue, is zoned [Q]C1.5-1VL and improved with an automotive repair shop. Finally, the properties located to the east and across Woodlake Avenue are zoned (Q)RD5-1 and A1-1VL and improved with single-family residential homes. An aerial view of the project site with both campuses can be seen in **Figure 2**, below.



Figure 2. *Aerial view of the Existing Main Campus and the Proposed North Campus and the surrounding properties.*

General Plan Land Use Designation and Zoning

The project site is located in the Canoga Park – Winnetka – Woodland Hills – West Hills Community Plan area, one of 35 Community Plans which form the land use element of the General Plan. The project site comprises two main parcels identified as the existing Main Campus and the proposed North Campus bifurcated by Saticoy Street. As shown in **Figure 3** below, the Main Campus is zoned A1-1 and RS-1 and is designated for Very Low and Low Residential land uses, respectively. The new North Campus is currently zoned [Q]C1-1VL and P-1VL and is designated for Neighborhood Commercial land uses. The project is requesting a Vesting Zone Change, under Related Case No. CPC-2023-1254-VZC-HD-ZAD-ZAA, to change the current [Q]C1-1VL and P-1VL zoning of the site of the North Campus to the (T)(Q)C2-1 Zone. The proposed (T)(Q)C2-1 Zone would be consistent with the underlying land use designation. The project site is not located within the boundaries of or subject to any other specific plan, community design overlay, or interim control ordinance. The current zoning of the proposed North Campus contains a permanent Qualified “Q” Condition that restricts development to a floor area ratio (FAR) of 0.5:1. The Vesting Zone Change would effectively remove the permanent Q-Condition, however, the proposed project FAR for the North Campus is approximately 0.05:1 well below the maximum 0.5:1 FAR established by the existing Q-Condition.

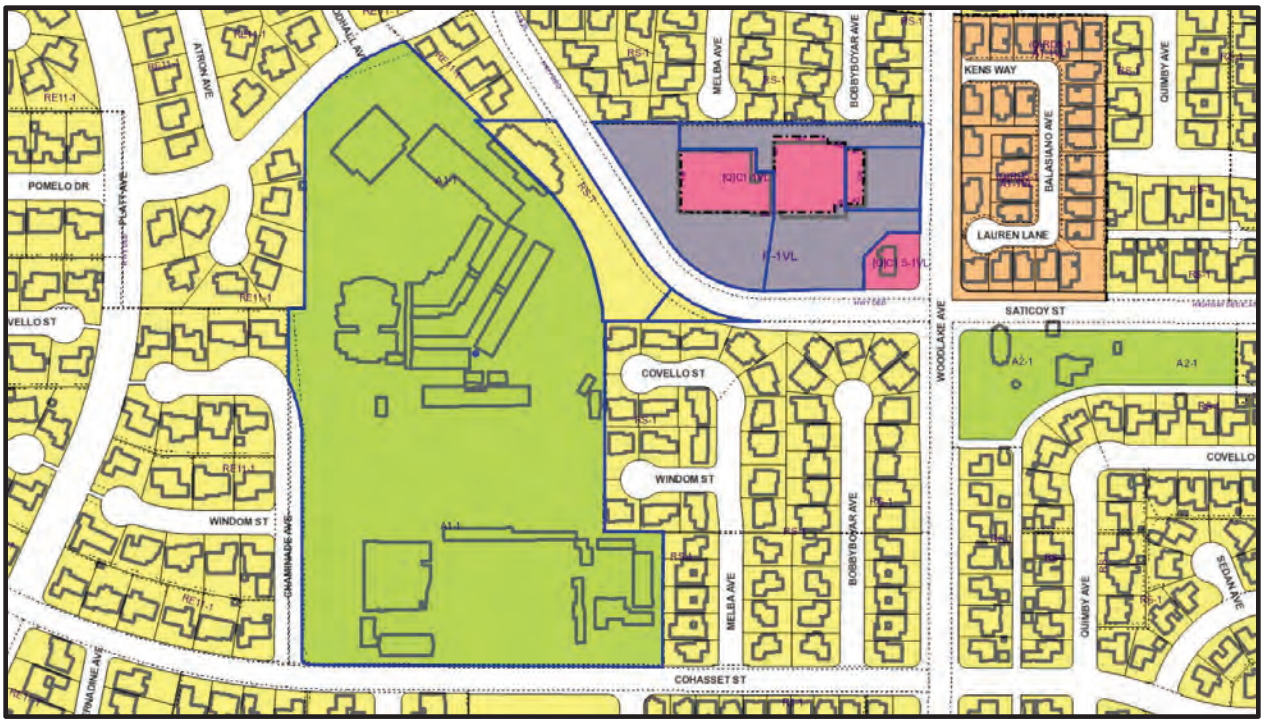


Figure 3. *Current zoning of the subject property.*

Streets

Chaminade Avenue, adjoining the subject property (Main Campus) to the west, is a Local Street – Standard, dedicated to a right-of-way width of 60 feet and is fully improved with asphalt roadway, concrete curb, gutter, and sidewalk.

Cohasset Street, adjoining the subject property (Main Campus) to the south, is a designated Collector Street, dedicated to a varying right-of-way width of 62 to 64 feet and is fully improved with asphalt roadway, concrete curb, gutter, and sidewalk.

Keswick Street, adjoining the subject property (Main Campus) to the northeast, is a designated Local Street – Standard, dedicated to a right-of-way width of 60 feet and is fully improved with improved with asphalt roadway, concrete curb, gutter, and sidewalk.

Saticoy Street, adjoining the subject property (Main Campus and North Campus) to the northeast, and west/south is a designated Avenue II, dedicated to a varying right-of-way width of 68 to 86 feet and is fully improved with improved with asphalt roadway, concrete curb, gutter, and sidewalk.

Woodlake Avenue, adjoining the subject property (North Campus) to the east, is a designated Avenue II, dedicated to a varying right-of-way width of 68 to 73 feet and is fully improved with improved with asphalt roadway, concrete curb, gutter, and sidewalk.

Proposed Improvements

Main Campus

The project proposes both improvements on the Main Campus as well as the addition of the new North Campus. New construction on the Main Campus includes the new Multistory Building, as shown in **Figure 4** below, at the new additional entrance off Saticoy Street, that will include administrative offices, counseling offices, library, multi-purpose room, classrooms, and labs. The

floor area contained within the proposed building totals approximately 60,760 square feet and has a building height of approximately 48 feet within three stories. In addition, the existing single-story buildings located at the southeast corner of the Main Campus will undergo renovation for administrative offices but will not increase in floor area or height. A new surface parking lot will be constructed in place of the existing paved driveway adjacent to the single-story building at the southeast corner of the Main Campus, fronting on Cohasset Street. Lastly, additional improvements to the Main Campus will include minor demolition and resurfacing of the existing baseball field along Cohasset Street, to be reutilized as a softball field, removal of the north surface parking lot, and resurfacing to create a new landscaped quad area adjacent to the current administrative building to be renovated for student service programming.



***Figure 4**. Rendering of the new Multistory Building on the Main Campus.*

North Campus

As shown in **Figure 5** below, improvements on the North Campus include a new athletic field to be used for baseball and soccer, outdoor swimming pool, and associated facilities with surface parking. The athletic field will feature 40-foot-high safety netting along part of the outfield perimeter and a 26-foot-high electric scoreboard located in left-center field along the northern property line, facing Saticoy Street. Additionally, single-story locker rooms, batting cages, and bullpens will be positioned along the first and third baselines. Home and visitor bleachers, accommodating approximately 350 seats, will be situated along both baselines and shaded by a continuous 19-foot-high structure. A 100-square-foot press box will be located behind home plate. The athletic field will be illuminated by eight stadium light standards ranging in height from 70 to 90 feet, with the 70-foot lights placed around the left and right outfields and the taller 80- and 90-foot standards situated along Saticoy Street and next to the new surface parking lot. To the west of the baseball field, a 1,540-square-foot, single-story concession and restroom building is proposed, along with an 86-stall surface parking lot and access to the pedestrian bridge.

To the east of the baseball field, a 25-meter by 25-yard in-ground outdoor pool is proposed, accompanied by four light standards – Two 40-foot-tall lights on to the east and two 50-foot-tall lights on the west. The pool area will also feature a 6,094-square-foot, single-story pool house standing 19 feet tall, along with 15 surface parking stalls. Bleachers will be positioned to the west of the pool, providing seating for approximately 126 spectators. The current four ingress/egress points along Saticoy Street will be reduced to two access points, and the two existing access

points along Woodlake Avenue will be consolidated into a single driveway at the approximate location of the current northern access point.



***Figure 5**. Aerial rendering of the proposed North Campus.*

Pedestrian Bridge

As shown in **Figure 6** below, the proposed pedestrian bridge is a significant feature designed to improve safety and connectivity between the Main Campus and the new North Campus, which are separated by Saticoy Street. This bridge will provide a grade-separated crossing, eliminating the need for students, staff and visitors to cross the busy street at ground level, enhancing pedestrian safety during school hours and large events. The bridge will be constructed with sufficient clearance to allow for vehicular traffic on Saticoy Street, adhering to Los Angeles Department of Transportation (LADOT) standards. It will not only serve to safely connect the two campuses but also improve traffic flow by reducing the number of pedestrian crossings at street level. A revocable permit will be necessary for the pedestrian bridge as it will encroach over the public-right of-way, with the encroaching structure subject to Bureau of Engineering approval and the design of the structure subject to approval by the Department of Cultural Affairs, including the Cultural Affairs Commission.



Figure 6. *A rendering of the pedestrian bridge that would cross over Saticoy Street.*

Landscaping

The total landscaped area for the project will cover approximately 417,146 square feet of lot area, accounting for approximately 37 percent of the overall site area across both the Main and North Campuses. The Main Campus will feature 297,170 square feet of landscaped area. These areas will be concentrated around the building perimeters, parking lots, and along the street frontages. Trees, shrubs, and understory plantings will provide shaded outdoor spaces for students and staff. As shown in **Figure 7** below, the North Campus will feature 119,976 square feet of landscaping, primarily surrounding the new athletic fields, the outdoor pool, and parking areas.

The planting palette consists of a variety of shrubs, perennials, and trees that are intended to provide shading where needed, reduce surface temperatures, as well as maintain compatibility with adjacent residential uses. Trees provide shade and serve as natural buffers around the parking lots and playfields, whereas shrubs and perennials will be used as understory planting to complement the trees and create a natural environment for students and staff to enjoy outdoor spaces. The landscaping plan aims to reduce the urban heat island effect and promote permeable surfaces in parking lots and other hardscaped areas.

Landscaped areas will also be integrated into the main pedestrian entryways, helping to create shaded and welcoming spaces. Student quads and gathering areas will also be enhanced with greenery, offering students outdoor spaces for recreation and interaction. The project will feature landscaping along street frontages and the site's perimeter, with existing landscaping to remain along the Main Campus and new landscaping proposed along the North Campus) to provide visual buffers between the school and nearby residences. These buffers will help mitigate noise and improve privacy for both the school and its neighbors.

The project site, including the existing Main Campus and the proposed North Campus, currently has a total of 364 non-protected significant trees (8 inches or greater in DBH). No protected trees are located on the property. Of 364 non-protected trees on site, 324 trees will be retained, while 40 trees will be removed and replaced 1:1 due to construction impacts. Additionally, 33 street

trees are present, with 32 to be retained and one (1) street tree to be removed and replaced 2:1 due to the installation of the pedestrian bridge. With the 40 new trees to replace those significant trees to be removed, 324 significant trees to remain, and an additional 101 on-site trees with less than 8 inches in DBH to remain, the project will result in a total of 465 trees on the property after completion.



***Figure 7**. North Campus Landscape Plan*

School Operation and Hours

The Chaminade College Preparatory High School Project involves the continued operation and expansion of the existing high school campus, which will serve up to 1,360 students in grades 9 through 12. The project will not increase the current maximum student enrollment but will improve facilities and enhance campus operations.

The proposed hours of operation for Chaminade College Preparatory's new facilities on the North Campus are structured to balance school use and community access while minimizing neighborhood impact. The athletic fields and stadium will operate Monday through Friday from 7:00 a.m. to 9:00 p.m. (with an exception for overtime/extra inning play), with Saturday hours from 8:00 a.m. to 9:00 p.m., and Sunday use limited to 9:00 a.m. to 8:00 p.m. on no more than 15 Sundays per year.

The aquatic complex, which will host swim practices and competitions, will have more restrictive hours, operating Monday through Friday from 8:00 a.m. to 8:00 p.m., and on Saturdays from 10:00 a.m. to 7:00 p.m. No operations will take place on Sundays.

The batting cages on the North Campus will be further restricted and will operate Monday through Saturday from 9:00 a.m. to 7:00 p.m., with no Sunday use permitted.

Community-based athletic organizations' access to the facilities on the North Campus is further restricted, with athletic field rentals limited to 36 days per year, Monday through Saturday from

8:00 a.m. to 6:00 p.m., and no Sunday or holiday rentals. Community-based organizations will have access to aquatic complex limited to daylight hours, ending by 7:00 p.m. on weekdays and 5:00 p.m. on Saturdays. Community member swim hours will be limited to 8:00 a.m. to 6:00 p.m. No community use of the athletic facilities is allowed on Sundays or holidays.

The Chaminade College Preparatory, High School Project includes both the maintenance of the existing public address (PA) system on the Main Campus and the installation of a new PA system for the North Campus. The existing PA system on the Main Campus will continue to be used for daily announcements, event coordination, and emergency communications. As part of the North Campus development, a new PA system will be integrated to provide seamless communication between the two campuses, covering the athletic fields, outdoor areas, and other key locations. This new system will include sound control measures to minimize noise impacts on surrounding residential areas and will have restricted hours of use, particularly for outdoor events.

As part of the updated campus plan, an updated Traffic Management Plan (TMP) will be introduced to address the revised student loading and unloading procedures. Vehicle drop-off and pick-up will continue to take place on-site along the westerly property line of the Main Campus, while bus drop-off and pick-up will remain along the west side of Saticoy Street, adjacent to the campus. Additionally, the project proposes a new passenger loading zone along the north side of Cohasset Street for additional student drop-off and pick-up. Driving students will continue to park in designated lots on the Main Campus, while a new parking lot on the North Campus, located on the westerly side, will be designated for senior and staff parking. Student drop-off and pick-up will not occur on the North Campus.

Access, Circulation, and Parking

The Chaminade College Preparatory Project includes a comprehensive circulation plan for both pedestrian and vehicular access, aimed at enhancing safety, connectivity, and operational efficiency between the Main Campus and the North Campus.

The Main Campus will retain its existing vehicular access points from Cohasset Street, Chaminade Avenue, Keswick Street, and Saticoy Street, which currently serve as the main entrances for staff, students, and visitors. On-site vehicle parking will be distributed across both campuses, with the Main Campus retaining most of its existing parking areas and some areas being reconfigured or resurfaced. Additionally, new surface parking lots will be constructed on the North Campus. In total, the project will provide 501 on-site parking spaces across the Main Campus and the North Campus. The Main Campus will have 400 parking spaces, while the North Campus will provide 101 spaces, with 86 stalls in the west parking area adjacent to the proposed athletic field and 15 stalls in the east parking area near the pool. The project will also provide a total of 78 bicycle parking spaces, including 76 short-term spaces and 2 long-term spaces. To facilitate efficient vehicular circulation, a key component of the project involves maintaining and enhancing access to both campuses from surrounding streets. The TMP will be implemented to streamline drop-off and pick-up operations, minimize traffic disruptions during peak hours, and ensure smooth traffic flow around the school.

A prominent feature of the project is the construction of an approximately 2,650-square-foot pedestrian bridge over Saticoy Street, which will connect the Main Campus to the North Campus. The bridge is designed to improve pedestrian safety by providing a secure route for students, staff, and visitors between the two campuses without needing to cross Saticoy Street, a busy thoroughfare, at street level. The bridge will have stairs and an elevator tower at the east end and will land at grade level on the west end, ensuring accessibility for all users, including those with disabilities. The bridge will also be secured with gates and fencing to control pedestrian access and maintain campus security. As part of the development process, the applicant will also need

to obtain approval from the Bureau of Engineering in the form of a revocable permit because the bridge structure is located over a public right-of-way and will need to ensure that the pedestrian bridge complies with necessary regulations and standards

Overall, the project integrates improved vehicular and pedestrian circulation, as shown in **Figure 8** below, ensuring safe and efficient access to both campuses while enhancing connectivity and reducing traffic conflicts.

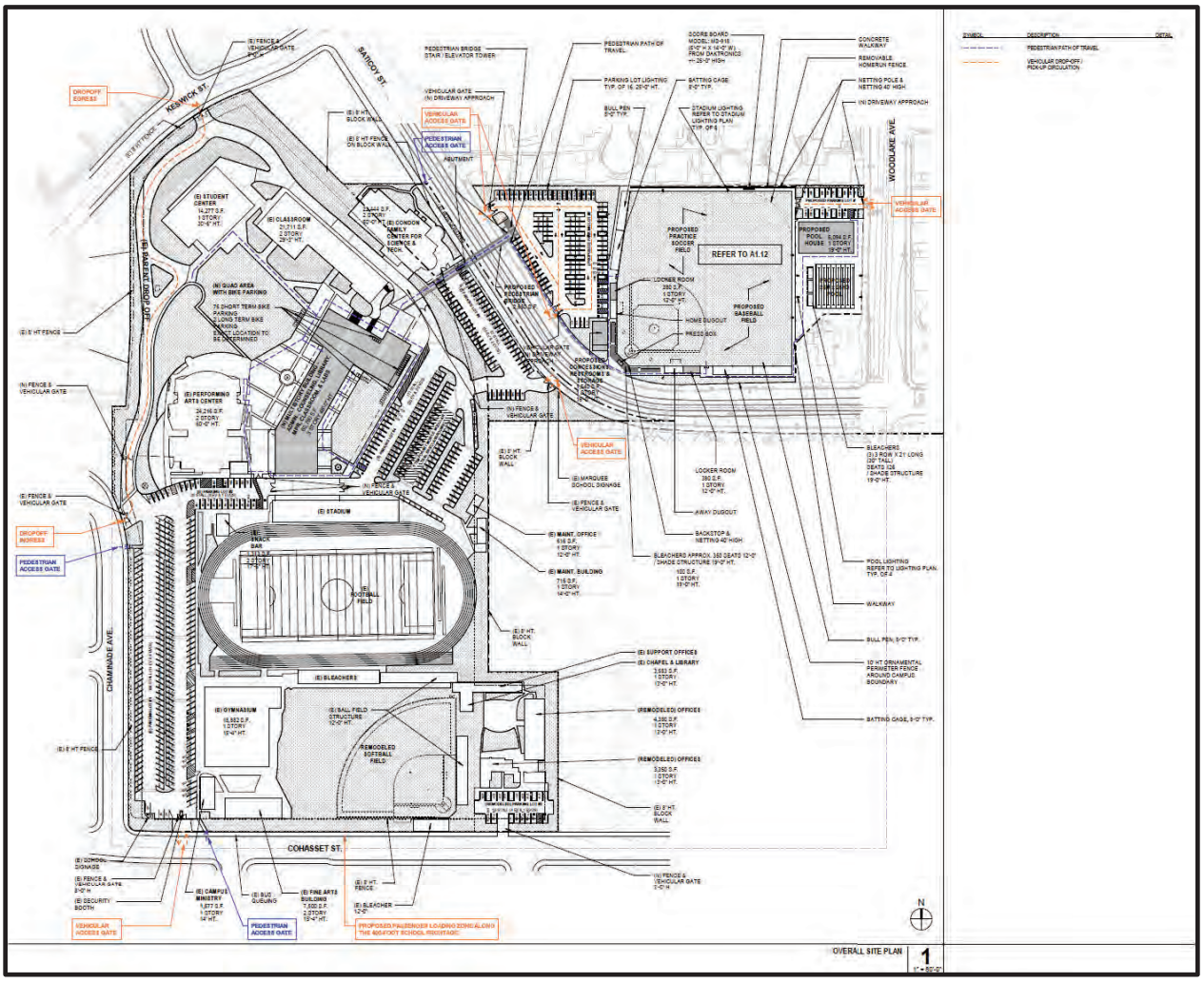


Figure 8. *Proposed Access and Circulation for Main and North Campuses*

Measure JJJ

Per Measure JJJ and per LAMC Section 11.5.11, in order to be eligible for a General Plan amendment, or any zone change or height district change that results in increased allowable residential floor area, density or height, or allows a residential use where previously not allowed, projects with 10 or more residential dwelling units shall be required to provide affordable housing options. The project, however, involves the expansion of an existing private high school campus. The project does not propose any residential uses, and thus, is not subject the requirements under Measure JJJ.

Relevant Cases on the Project Site

Case No. CPC-2009-1477-CU-ZV-ZAA-SPR-PA1 – On February 22, 2023, the applicant filed a Plan Approval application to allow the continued use and operation of an existing high school in the A1 and RS zones and to modify Condition No. 1, 2, 3, 5, 6, 7, 8, 11, 15, 16, 23, 24, 25 and 26 of the original Conditional Use grant under Case No. CPC-2009-1477-CU-ZV-ZAA-SPR.

Case No. VTT-84101 – On September 18, 2024, the Deputy Advisory Agency approved Lots 1 and 2 and denied Lot 3 of Vesting Tentative Tract Map No. 84101, allowing for the merger and re-subdivision of the project site into two (2) ground lots: one for the Main Campus (Lot 1) and one for the North Campus (Lot 2); approved a haul route approval for the export of approximately 17,800 cubic yards from the Main Campus and the export of approximately 720 cubic yards from the North Campus; and approved a Modification of Requirements in conjunction with a Vesting Tentative Tract Map for the waiver of required dedications and street improvements along Cohasset Street.

Case No. CPC-2009-1477-CU-ZV-ZAA-SPR – On November 17, 2009, the City Planning Commission approved a Conditional Use, Variances, an Adjustment and Site Plan Review for Chaminade College Preparatory, High School (Main Campus), located at 7500 Chaminade Avenue, to modernize the school's student center and athletic facilities, allowing for the demolition of existing floor area and construction of new floor area (including a new performing arts center, aquatic complex, student center and associated structures), in conjunction with the continued use and maintenance of the existing school.

Case No. CPC-2000-1301-CU – At its meeting on September 28, 2000, the City Planning Commission approved a Conditional Use Permit, pursuant to LAMC Section 12.24.1, to permit the proposed construction, use and maintenance of a new 25,120 sq. ft., two-story classroom building with 65 surface parking spaces on an undeveloped 1.5 net acre parcel (in conjunction with the continued use and maintenance of the existing total approximate 21.3 acre Chaminade College Preparatory campus), subject to the attached modified Conditions of Approval.

Other Relevant Cases Within 1,500 Feet of the Project Site

There are no relevant cases within 1,500 feet of the project site.

PUBLIC HEARING

A joint public hearing with the Deputy Advisory Agency and Hearing Officer for the proposed project was held on Wednesday, August 28, 2024, via Zoom teleconference. More information on the public hearing is in the Public Hearing and Communications section, on Page P-1.

PROFESSIONAL VOLUNTEER PROGRAM

The proposed project was reviewed by the Urban Design Studio's Professional Volunteer Program (PVP) on December 12, 2023. The resulting comments and suggestions detailed in the following section, Issues and Considerations, focus primarily on the site layout, building design, access and circulation, lighting, and landscaping.

ISSUES AND CONSIDERATIONS

These were either identified during Urban Design Studio's Office Hours, the design review process by PVP, in discussions with the applicant, or in communications with members of the public before, during, or after the public hearing held on August 28, 2024.

Site Layout

Planning staff requested improvements to pedestrian circulation between the Main Campus and the newly expanded North Campus. It was suggested that the project consider utilizing an on-ground pedestrian crossing instead of the proposed pedestrian bridge across Saticoy Street to create a more active street front, accommodate larger event crowds, and reduce isolation of campus areas. The applicant responded that the pedestrian bridge design was chosen primarily for safety reasons, allowing students to cross safely above the busy street. They also noted that the bridge landing will connect directly to essential North Campus facilities, with designated pedestrian paths.

The proposed pedestrian bridge will undergo review by the Bureau of Engineering (BOE) and, if approved, will be authorized through a revocable permit. It must adhere to all applicable design and safety standards to the satisfaction of both BOE and the Department of Transportation (LADOT). Additionally, as part of the revocable permit process, the design of the bridge will undergo review and evaluation by the Department of Cultural Affairs and will be presented to the Cultural Affairs Commission.

Additionally, staff proposed reprogramming the North Campus layout to bring the pool and athletic field closer to the primary circulation routes, improving proximity to key functions like classrooms. The applicant acknowledged the recommendation but indicated that reconfiguring the layout posed practical difficulties due to site constraints.

Building Design

While the overall design of the new buildings was generally praised, PVP members and staff raised concerns regarding the impact of the stadium lights and bleachers on the surrounding residential neighborhoods. They recommended incorporating measures to minimize light spillover and noise impacts, particularly from the North Campus athletic fields. In response, the applicant provided a Technical Lighting Analysis, confirming that the proposed lighting design stays within acceptable thresholds for spillover and intensity. Furthermore, the bleacher locations were selected to maintain distance from nearby homes adjacent to the north.

Concerns about the facade articulation of the proposed Multistory Building on the Main Campus were also raised. Staff recommended better alignment of the building with surrounding open space to create a cohesive quad. The applicant responded by refining facade details, materials, and colors to improve the aesthetic integration with surrounding buildings.

Pedestrian and Vehicular Access and Circulation

Planning staff emphasized the importance of enhancing pedestrian connections on both campuses, particularly regarding safe access from Saticoy Street. Suggestions included the use of varied hardscape materials to visually distinguish pedestrian paths from vehicle routes, especially in parking areas. In respond, the applicant further delineated the locations of proposed paths on the plans to ensure that safe and clear pedestrian routes across both campuses have been incorporated.

Staff also questioned the necessity of the large parking areas, considering the availability of school buses. It was suggested that the parking area could be reduced to enhance pedestrian access and site efficiency. The applicant noted that the parking layout would be largely maintained due to operational needs. The applicant also expressed that the proposed increase in on-site parking is an important objective for area residents and neighbors of the school who have

expressed desires to deter students, faculty, staff or visitors of the school from parking in the surrounding residential streets.

Lighting

There was a strong focus on preventing nighttime light pollution, particularly from the new athletic field lighting on the North Campus. Planning staff and PVP members emphasized the need to protect nearby residential areas from excessive light and ensure compliance with all relevant regulations. The applicant assured that the project would adhere to all standards and that the lighting design had been refined to minimize spillover into adjacent properties.

Landscaping

Planning staff encouraged the inclusion of native trees and landscaping features that could provide shade, year-round habitat, and enhance the stormwater management system. They suggested the addition of permeable paving, bioswales, and other stormwater retention features to comply with the LID Ordinance. The applicant confirmed that applicable LID standards will be followed for stormwater treatment and retention, refined the preliminary landscape plans with additional details on proposed plantings and water usage, and advised that additional landscaping details will be provided on the final landscape plans prior to the issuance of any building permits.

The applicant was also asked to add street trees along Saticoy Street. However, based on previous discussions with Urban Forestry, it was determined that space constraints along the sidewalk made it impractical to include these trees.

The applicant's team addressed many of the key concerns raised by the Urban Design Studio and PVP by refining building designs, and refining the project plans to show internal pathways for safe pedestrian trave, additional landscape details and proposed locations of solar zones for the proposed Multistory Building. Although certain layout changes, such as eliminating the pedestrian bridge, were not adopted, the applicant demonstrated flexibility in project design where possible, and addressed light and noise concerns in response to community feedback.

CONCLUSION

Based on evaluation of the project and information submitted, and the proposed project's compliance with the Canoga Park - Winnetka – Woodland Hills – West Hills Community Plan, the Department of City Planning recommends the City Planning Commission recommend for approval by the City Council the requested Vesting Zone Change and Height District Change; and that the City Planning Commission approve the Zoning Administrator's Determination and Zoning Administrator's Adjustment. Approval of the requests herein will enable improvements to, and the expansion of an existing private high school campus that has operated in the West Hills neighborhood since the early 1960s.

CONDITIONS FOR EFFECTUATING TENTATIVE (T) CLASSIFICATION REMOVAL

Pursuant to LAMC Section 12.32 G, the (T) Tentative Classification shall be removed by posting of guarantees through the B-permit process of the City Engineer to secure the following without expense to the City of Los Angeles, with copies of any approval or guarantees provided to the Department of City Planning for attachment to the subject planning case file.

Dedication(s) and Improvement(s). Prior to the issuance of any building permits, the following public improvements and dedications for streets and other rights of way adjoining the subject property shall be guaranteed to the satisfaction of the Bureau of Engineering, Department of Transportation, Fire Department (and other responsible City, regional and federal government agencies, as may be necessary).

Responsibilities/Guarantees:

Dedications and Improvements herein contained in these conditions which are in excess of street improvements contained in either the Mobility Element 2035 or any future Community Plan amendment or revision may be reduced to meet those plans with the concurrence of the Department of Transportation and the Bureau of Engineering:

1. As a part of early consultation, plan review, and/or project permit review, the applicant/developer shall contact the responsible agencies to ensure that any necessary dedications and improvements are specifically acknowledged by the applicant/developer.

2. **Dedications and Improvements.** Prior to issuance of sign offs for final site plan approval and/or project permits by the Department of City Planning, the applicant/developer shall provide written verification to the Department of City Planning from the responsible agency acknowledging the agency's consultation with the applicant/developer. The required dedications and improvements may necessitate redesign of the project. Any changes to project design required by a public agency shall be documented in writing and submitted for review by the Department of City Planning.

    a. That, a revised map be submitted for information purposes only, prior to the submittal of the final map not showing proposed Lot 3 over the Saticoy Street public right-of-way and the delineation of all required street dedications and easements. This map will be used for final map checking purposes.

    b. No dedications or street improvements shall be required along the subject property’s street frontage on the north side of Cohasset Street.

    c. That, along the west side of Saticoy Street adjoining the subdivision, a 20-foot wide future street be accepted by the final map.

    d. That, additional sidewalk easements be provided across the driveways to comply with ADA requirements along Chaminade Avenue and Keswick Street adjoining the subdivision.

    e. That, the subdivider obtain a revocable permit with the Valley District Office of BOE for the proposed pedestrian bridge over Saticoy Street.

f. That the subdivider make a request to the Valley District Office of BOE to determine the capacity of existing sewers in this area.

Notes: Broken curb and/or gutter includes segments within existing score lines that are depressed or upraised by more than ¼ inch from the surrounding concrete work or are separated from the main body of the concrete piece by a crack through the entire vertical segment and greater than 1/8 inch at the surface of the section.

Non-ADA compliant sidewalk shall include any sidewalk that has a cross slope that exceeds 2% and/or is depressed or upraised by more than ¼ inch from the surrounding concrete work or has full concrete depth cracks that have separations greater than 1/8 inch at the surface. The sidewalk also includes that portion of the pedestrian path of travel across a driveway.

All new sidewalk curb and gutter shall conform to the Bureau of Engineering Standard Plans S410-2, S440-4, S442-5 and S444-0.

Install tree wells with root barriers and plant street trees satisfactory to the City Engineer and the Urban Forestry Division of the Bureau of Street Services. Some tree removal in conjunction with the street improvement project may require Board of Public Works approval. The applicant should contact the Urban Forestry Division for further information (213) 847-3077.

Trees: That Board of Public Works approval shall be obtained prior to the issuance of the Certificate of Occupancy of the development project for the removal of any tree in the existing or proposed public right-of-way. The Bureau of Street Services, Urban Forestry Division is the lead agency for obtaining Board of Public Works approval for the removal of such trees.

Removal of street trees is required in conjunction with the street widening for this project. Please include the tree removal issue in your public hearing notice for this application. Street lighting improvements may be required satisfactory to the Bureau of Street Lighting (BSL). The applicant should contact BSL for further information 213-847-1551.

The Department of Transportation (LADOT) may have additional requirements for dedication and improvements. The applicant should contact LADOT for further information regarding traffic signals, signs, and equipment at 213-482-7024.

Regarding any conflicts with any power poles, the applicant should contact the Department of Water and Power at 213-367-2715.

Regarding any conflicts with fire hydrants, the applicant should contact the Fire Department Hydrants and Access Unit at 213-482-6543.

3. **Street Trees.**

a. Project shall preserve all healthy mature street trees whenever possible. All feasible alternatives in project design should be considered and implemented to retain healthy mature street trees. A permit is required for the removal of any street tree and shall be replaced 2:1 as approved by the Board of Public Works and Urban Forestry Division.

b. When street dedications are required and to the extent possible, the project shall provide larger planting areas for existing street trees to allow for growth and planting of larger stature street trees. This includes and is not limited to parkway installation and/or enlargement of tree wells and parkways.

c. Plant street trees at all feasible planting locations within dedicated streets as directed and required by the Bureau of Street Services, Urban Forestry Division. All tree plantings shall be installed to current tree planting standards when the City has previously been paid for tree plantings. The sub divider or contractor shall notify the Urban Forestry Division at: (213) 847-3077 upon completion of construction for tree planting direction and instructions.

Note: Removal of street trees requires approval from the Board of Public Works. All projects must have environmental (CEQA) documents that appropriately address any removal and replacement of street trees. Contact Urban Forestry Division at: (213) 847-3077 for tree removal permit information.

4. **Street Lighting.** Prior to the recordation of the final map or issuance of the Certificate of Occupancy (C of O), street lighting improvement plans shall be submitted for review and the owner shall provide a good faith effort via a ballot process for the formation or annexation of the property within the boundary of the development into a Street Lighting Maintenance Assessment District. Construct new street lights: one (1) on Cohasset St, and one (1) on Keswick St. If street widening per BOE improvement conditions, relocate and upgrade street lights: four (4) on Cohasset St, three (3) on Chaminade Ave, seven (7) on Saticoy St, two (2) on Woodlake Ave.

Notes:

The quantity of street lights identified may be modified slightly during the plan check process based on illumination calculations and equipment selection.

Conditions set: 1) in compliance with a Specific Plan, 2) by LADOT, or 3) by other legal instrument excluding the Bureau of Engineering conditions, requiring an improvement that will change the geometrics of the public roadway or driveway apron may require additional or the reconstruction of street lighting improvements as part of that condition.

QUALIFIED (Q) CONDITIONS

Pursuant to LAMC Section 12.32 G, the following limitations are hereby imposed upon the use of the subject property (North Campus only), subject to the Qualified (Q) Classification:

1. **Site Development.** Except as modified herein, the project shall be in substantial conformance with the plans and materials stamped Exhibit “A” and attached to the subject case file. No change to the plans will be made without prior review by the Department of City Planning, and written approval by the Director of Planning, with each change being identified and justified in writing. Minor deviations may be allowed in order to comply with provisions of the Municipal Code, the subject conditions, and the intent of the subject permit authorization.

DEVELOPMENT “D” LIMITATIONS

Pursuant to Section 12.32 G.4 of the Municipal Code, the following limitations are hereby imposed upon the use of the subject property (North Campus only), subject to the “D” Development Limitation:

1. **Height.** The maximum permitted height of structures shall be in substantial conformance with the plans and materials stamped Exhibit “A” and attached to the subject case file.

CONDITIONS OF APPROVAL

Pursuant to Sections 12.24 and 12.28 of the Los Angeles Municipal Code, the following conditions are hereby imposed upon the use of the subject property:

Operational Conditions

1. Hours of Operation Shall Observe the Following Limitations, unless otherwise permitted elsewhere in the conditions.

    a. For daytime classroom instruction: 6:30 a.m. to 6:00 p.m., Monday through Friday. Evening classes, occurring no more than four times weekly is to conclude by 10:00 p.m. Saturday classroom instruction is limited to the hours of 8:00 a.m. to 6:00 p.m. No classroom instruction is permitted on Sunday.

    b. For gymnasium use: 6:30 a.m. to 10:00 p.m., Monday through Friday; 8:30 a.m. to 10:00 p.m. on Saturday; and 8:30 a.m. to 8:00 p.m. on Sunday. No Saturday game or practice session shall begin prior to 8:30 a.m. No congregating on the school site for the purpose of these activities shall occur prior to 8:30 a.m. on Saturdays and Sundays. An instructor or school staff member shall be present at the subject site at least one half hour prior to the designated start times to monitor student activities/arrivals to assure that noise impacts on the adjacent neighbors are minimized.

    c. For Athletic Field/Stadium use: Main Campus: Shall have hours of 7:00 a.m. to 10:00 p.m., Monday through Friday; Saturday use is limited to 8:00 a.m. to 9 p.m., and; 9:00 a.m. to 8:00 p.m. on Sunday. No more than 15 Sundays per year will be allowed. North Campus: Shall have the same hours as the Main Campus, except the end time shall be 9:00 p.m. (instead of 10:00 p.m.) on Monday through Friday, with an exception for overtime/extra inning play. Both Campuses: Athletic use is not permitted on national holidays. No congregating on the site for the purpose of these activities shall occur before the permitted hours. An instructor/school staff member shall be present at the subject site at least one-half hour prior to the designated start times to monitor student activities/arrivals to assure that noise impacts on the adjacent neighbors are minimized.

    d. For Aquatic Complex/Pool use: Shall have hours of 8:00 a.m. to 8:00 p.m., Monday through Friday. Saturday use is limited to 10:00 a.m. to 7:00 p.m. Athletic use is not permitted on Sundays or national holidays.

    e. Batting Cages. The batting cages shall be restricted to the sole use of Chaminade students and staff. Main Campus: Shall be limited to 8:00 a.m. to 8:00 p.m., Monday through Saturday. North Campus: Shall be limited to 9:00 a.m. to 7:00 p.m., Monday through Saturday. Both Campuses: No use of the batting cages is permitted on Sundays and national holidays.

    f. Teacher preparations, normal school maintenance, parent conferences with teachers, school board meetings and similar customary school activities cumulatively limited to 451 vehicles on the property at one time, consistent with the minimum parking required per the Conditional Use under Case No. CPC-2009-1477-CU-ZV-ZAA-SPR, or cumulatively limited to 501 vehicles on the property at one time upon full buildout of

the Project approved pursuant to this subject case and Case No. CPC-2023-1254-VZC-HD-ZAD-ZAA, may extend beyond the hours set forth above.

g. Motorized sweeping of the parking lots and driveways and motorized landscape maintenance shall occur only between the hours of 8:00 a.m. and 6:00 p.m., Monday through Saturday.

2. Parking.

a. At least 451 permanent, striped parking spaces shall be provided on the site at all times consistent with the Conditional Use under Case No. CPC-2009-1477-CU-ZV-ZAA-SPR. Upon full buildout of the Project approved pursuant to this subject case and Case No. CPC-2009-1477-CU-ZV-ZAA-SPR-PA1, at least 501 permanent, striped parking spaces shall be provided on-site between the Main Campus and North Campus, consistent with Exhibit "A".

b. The school shall inform parents, students, faculty and staff in writing on an annual basis of all rules regulating school traffic and parking. A copy shall be mailed to the City Planning Department at the same time. The school shall maintain a progressive disciplinary system of enforcement of the involved student(s) from school. The school administration shall maintain a list of license plate numbers of all staff and students permitted to park on campus and shall issue a parking tag to all families to be used when parents visit the school site.

c. Except during special events, all faculty, administrators, other employees and visitors shall be instructed by persons acting on behalf of the school to park on-site at designated locations.

d. Special Event Parking

i. If a special event at the property is expected to attract more than 451 vehicles, or more than 501 vehicles after full buildout of the Project approved pursuant to this subject case and Case No. CPC-2009-1477-CU-ZV-ZAA-SPR-PA1, then off-site parking for vehicles in excess of the 451st vehicle (or in excess of the 501st vehicle after full Project buildout) shall be provided at the West Hills Hospital (located at 7300 Medical Center Drive) and/or other locations which the school may secure, to the satisfaction of the City Planning Department. Those persons attending the event shall be instructed to park in such off-site parking locations (unless playing field parking is allowed on the campus). Note: In the event that the school secures another off-site parking facility in lieu of the existing site, the applicant must notify the City Planning Department, the West Hills Neighborhood Council, the Council Office, and residents within a 500-foot radius, in writing at least 90 days in advance.

ii. A free shuttle bus system shall be used between the off-site parking area(s) and the subject property. Shuttle vehicles shall be of a number and carrying capacity to facilitate the transport of persons to and from the property expeditiously. The use of temporary signage will be used to inform parents, students and visitors to park within the designated off-site area(s) and to use the shuttle system. Note: Text-only temporary signs are permitted for use during the day of the special event, and will be posted and removed at least one half hour prior to the event and removed one half hour after the conclusion of the event.

e. Construction Parking. In the event that construction staging takes place within the parking areas, and if at least 20 spaces are encumbered for construction purposes, Chaminade shall provide an equal number of temporary off-site parking spaces at a secondary site. Off-site parking will not be permitted along adjacent streets. If the secondary site is not immediately adjacent to the campus, a shuttle shall be provided to transport students, staff, and visitors to and from the school.

f. For all games, competitions and swim meets on the North Campus:

i. All Chaminade students, faculty and staff shall be directed to park on the Main Campus.

ii. In advance of each game day, written notice shall be provided to all visiting teams to indicate that vehicles must park on campus (either on the North Campus or across the street on the Main Campus), and that street parking on Keswick Street and other residential streets is not permitted.

3. Traffic Management Program. The school shall implement the updated Traffic Management Program, dated May 4, 2023, to encourage carpooling amongst parents and students, bicycling, the use of school buses, and the use of public transit to reduce vehicular trips to school, and to improve the efficiency of the drop-off and pick-up operations and help minimize any disruptions to non-school traffic flow in the vicinity of the school. A copy of the updated Traffic Management Program shall be provided to the Department of City Planning and the Council Office prior to the issuance of a new certificate of occupancy. A copy shall also be available on-site in the Facilities Office, posted online, sent by email, or regular mail to staff, students, and parents. Components of such efforts shall include:

a. Appointing adult traffic monitors for the program, distribution of literature explaining the program, and maintaining a system to encourage and enable parents to form and participate in carpools.

b. For each day that school is in session and for special events, parking monitors shall be required to be posted at each vehicular access driveway in order to direct traffic and minimize queuing of school visitor, student, and staff vehicles on adjacent residential streets, from blocking the public rights-of-way, private driveways, or otherwise adversely affecting traffic circulation for residents. Likewise they will discourage excessive noise from car horns, car radios, car alarms and loud voices, and to maintain smooth ingress to and egress from the parking areas.

c. Traffic monitors shall be at the school for: (1) 30 minutes prior to the start of school through such time at which the gates are to be closed or have a security guard stationed at the gates; (2) One-half hour prior to the end of school through such time at which the primary gates are to be closed or guarded, and; (3) One hour prior to the beginning of special events through such time at which the primary gates to the campus are to be closed or guarded.

d. Once parking has reached capacity, traffic monitors shall direct traffic away from residential streets, and utilize cones and temporary signage wherever necessary, to re-direct traffic, discourage spillover traffic and parking on adjacent residential streets, and to direct drivers to the secondary parking area (West Hills Hospital), where the free shuttle will transport visitors back to the school. Note: In the event that the school secures another off-site parking facility in lieu of the existing site, the applicant must

notify the City Planning Department, the West Hills Neighborhood Council, the Council Office, and residents within a 500-foot radius, in writing at least 90 days in advance.

e. Provide a safe and secure area for bicycle parking.

f. There shall be no school drop-off or pick-up on the North Campus.

4. The property shall be internally secured when not in use.

a. All driveway gates shall be closed 15 minutes after the morning bell rings and opened 15 minutes before the dismissal bell rings.

b. A security guard or school employee shall be posted at or near the Saticoy Street driveways to monitor student arrival and departure during regular school days when the North Campus gate(s) are open, to ensure use of the pedestrian bridge and control street-level crossing.

c. There shall be a 24/7 security camera monitoring and burglar alarm system.

5. Main Campus: The athletic field lights shall be turned off no later than 11:00 p.m. on contest nights, and no later than 9:00 p.m. on practice nights. North Campus: The athletic facility lights shall be turned off no later than 9:00 p.m. on practice and contest nights, with an exception for overtime/extra inning play. Both Campuses: On nights when the field is not in use, only low-level security lighting shall be permitted.

6. Noise mitigation:

a. An outdoor public address system shall be utilized for emergency purposes, special announcements, and sporting events only. The use of the outdoor public address system shall not be used after 6:00 p.m., unless to notify students, staff, and visitors of emergency purposes, or during sporting events occurring after 6:00 p.m.

b. The existing solid masonry walls at the adjoining property lines, where the school abuts a residence, shall be maintained at the site.

c. Except where designated elsewhere in this determination (special events, marching band practice, etc.), amplified music or loud non-amplified music is not permitted outside.

d. The gymnasium shall contain no operable windows. No doors shall be oriented to the adjacent residences, unless where required by law.

e. Compressors and other equipment which may introduce noise impacts beyond any property line shall be enclosed or otherwise attenuated so as to be inaudible off-site.

f. No exterior bells are permitted outside the hours of daytime classroom instruction detailed under Condition No. 6(a). No exterior bells are permitted on Saturdays or Sundays.

g. Noise levels including, but not limited to, activities such as the use of outdoor public address system or speakers and announcements during sporting events, use of batting cages, and other activities will be subject to the local noise ordinance. All amplified noise must comply with LAMC Section 112.01.

h. Batting cages on the North Campus shall incorporate noise baffling measures.

7. Use Restrictions.

a. Rental or lease of the batting cage facilities or athletic fields located on the school campus is not permitted for any purpose, except as permitted under Condition 5.e. Rental or lease of other on-site facilities is limited to activities solely to the general educational purpose of the institution. [The term "rental of the facilities" is not dependent upon the payment of a fee].

b. Parking on-site shall not be utilized for events or uses occurring at off-site locations, unless the off-site event occurs on a weekend, in the summer, and does not coincide with a Special Event at the school.

c. Filming exclusively for commercial purposes and without active student participation, shall be prohibited on the property. All filming shall be limited between the hours of 8:00 a.m. to 8 p.m., Monday through Friday. The use of artificial light is prohibited.

d. No incidental gaming activities as defined in Section 12.21-A,13, shall be permitted on the site.

e. North Campus Only: The rental or lease of the athletic and parking facilities, and associated structures, for non-Chaminade activities are restricted to the following:

Athletic Fields. Use by community-based organizations shall be limited to 36 days per year, Monday through Saturday, from 8 a.m. to 6 p.m. Use is not permitted on Sundays and national holidays. The rental or lease of the batting cages is not permitted at any time.

Aquatic Complex/Pool. Use by community-based organizations, which shall travel to and from the North Campus by bus, shall be limited to daylight hours only, and to end no later than 7:00 p.m., Monday through Friday, and no later than 5:00 p.m. on Saturdays, with no use of outdoor lighting other than low-level security lighting. For community member swim activities, use hours shall be limited to Monday-Saturday, 8:00 a.m. to 6:00 p.m. Use is not permitted on Sundays and national holidays. A lifeguard must be on duty any time the pool is in use.

For purposes of the above conditions, “community-based organization” shall mean any educational or athletic institution, group or league. “Daylight hours” shall mean hours illuminated by the natural light of day, or from dawn to dusk, year-round, but further limited by the times noted herein.

8. **Plan Approval.** Any deviations from the terms of these conditions or changes to the site plan for the school will require the property owner to file a Plan Approval application and payment of associated fees together with mailing labels for all property owners and tenants within 300 feet of the property. The matter shall be set for public hearing with appropriate notice. The purpose of the Plan Approval shall be to review the effectiveness of, and the level of compliance with, the terms and conditions of this grant, including the effectiveness of the carpool program, the management of circulation impacts of parking associated with special events and any documented noise impacts from parking operations and athletic activities on the surrounding residential properties. Upon review of the effectiveness of and compliance with the conditions, the Director of Planning shall issue a determination. Such determination

may modify the existing terms and conditions, add new terms and conditions or delete one or more of them, all as deemed appropriate. The City Planning Commission may also require one or more subsequent Plan Approval applications, if deemed necessary.

Development Conditions

9. The total development of the new structures shall be limited to the following approximate maximum floor areas as also noted in Exhibit "A":
   On the North Campus:
   Pool House: 6,094 square feet
   Concessions, Restrooms and Storage: 1,540 square feet
   Locker Room (west of new athletic field) 380 square feet
   Locker Room (south of new athletic field) 380 square feet
   Press Box: 100 square feet
   Pedestrian Bridge connecting the Main and North Campuses: 2,650 square feet, also subject to Revocable Permit approval

10. **Building Façade/Materials.** A variety of high-quality exterior building materials, in substantial conformance to the approved Exhibit "A" plans, shall be used. Substitutes of an equal quality shall be permitted, to the satisfaction of the Department of City Planning.

11. **Height of New Buildings and Structures.**

    a. The new Multistory Building located on the Main Campus shall be permitted a maximum building height of 48 feet.

    b. The pedestrian bridge connecting the Main Campus to the North Campus and associated bridge structures shall be permitted a maximum height of 45 feet on the North Campus, subject to Revocable Permit approval.

    c. The pedestrian bridge shall have a minimum clearance above Saticoy Street consistent with the requirement imposed in the revocable permit, subject to LADOT standards for vehicular clearance and pedestrian safety.

    d. The light standards for the stadium/field lighting around the athletic field shall not exceed 90 feet. The eight (8) light standards will range in height from 70 to 90 feet, with the 70-foot standards located along the northern and eastern perimeter of the field, and the taller 80- and 90-foot standards positioned along the southern and eastern perimeter of the field along Saticoy Street and adjacent to the western parking lot.

    e. The light standards for the lighting around the swimming pool shall not exceed 40 feet along the eastern perimeter of the pool along Woodlake Avenue, and shall not exceed 50 feet along the western perimeter of the pool.

    f. The netting, poles and backstop for the athletic field shall be permitted a maximum height of 40 feet.

    g. The parking lot lights shall be permitted a maximum height of 22 feet in the eastern parking lot and 25 feet in the western parking lot.

    h. The scoreboard shall be permitted a maximum height of 26 feet.

12. **Perimeter/Security Fences and Gates.** On the Main Campus, existing (to remain) and new perimeter fences and vehicular gates shall be permitted a maximum height of 8 feet within the front yards (along Cohasset Street and Keswick Street) on the Main Campus. On the North Campus, the perimeter fences and vehicular gates shall be permitted a maximum height of 10 feet.

13. **Setbacks on Main Campus.**

    a. The proposed pedestrian bridge and associated support structures shall be permitted to encroach into the required front and side yard setbacks in the RS and A1 Zones on the west side of Saticoy Street.

    b. Reduced setbacks shall be permitted along Cohasset Street (front yard) and along the eastern property lines (side yards) for the existing encroaching structures (bleachers and buildings) to remain in the A1 Zone as depicted in the plans in Exhibit “A.

14. **Setbacks on North Campus.** No setbacks are required on the North Campus, except as prescribed below.

    a. No new buildings or structures may be located within 15 feet of the northern property line, except for the following as shown on the plans (Exhibit “A”):

        i. 10-foot-tall perimeter fence, with a minimum setback of approximately 1-foot, 4 inches;

        ii. 40-foot-tall poles and netting, with a minimum setback of approximately 2 feet, 10 inches;

        iii. 22-foot-tall to 25-foot-tall parking lot lights, with minimum setbacks of approximately 3 feet, 4 inches and 6 feet-6 inches, respectively;

        iv. A 26-foot-tall score board, with a minimum setback of approximately 6 feet, 8 inches;

        v. 70-foot-tall stadium lights, with a minimum setback of 8 feet, 4 inches; and

        vi. 8-foot-tall bull pen, with a minimum setback of 10 feet.

    b. Along the Woodlake Avenue frontage, pool lights shall be set back a minimum of 12 inches from the property line.

15. **Sustainability**

    a. **Electric Vehicle Parking.** All electric vehicle charging spaces (EV Spaces) and electric vehicle charging stations (EVCS) shall comply with the regulations outlined in Sections 99.04.106 and 99.05.106 of the LAMC.

    b. **Solar Energy Infrastructure.** The Project shall comply with the Los Angeles Municipal Green Building Code, Section 99.05.211, to the satisfaction of the Department of Building and Safety.

16. **Signage.** New on-site signs shall comply with the Municipal Code. Signage entitlements have not been granted as a part of this approval.

Environmental Conditions

17. **Department of Toxic Substances Control.** Property owners shall satisfy any requirements from either the Los Angeles County Fire Department Site Mitigation Unit or the State Department of Toxic Substances Control (DTSC) in relation to potential contamination on the subject site. Prior to the issuance of any clearances by the Department of City Planning (DCP), property owners shall provide to DCP written confirmation from either the County Fire Department or DTSC that establishes the agency's satisfaction that the subject site currently meets the agency's requirements for the proposed use or, alternatively, that establishes the agency's satisfaction with the property owner's contamination testing plan for the proposed use.

Air Quality

18. **MM-AQ-1:** All off-road diesel-powered construction equipment shall meet, at a minimum, USEPA Tier 4 Interim off-road emissions standards, or if such equipment is not commercially available for lease or short-term rental within 50 miles of the Project Site, USEPA Tier 3 off-road emissions standards.

Geology and Soils

19. **MM-GEO-1:** The Project Applicant shall implement the following best practices with respect to paleontology:

    a. **Retain a Qualified Professional Paleontologist:** The Project Applicant shall retain a Qualified Professional Paleontologist (Project Paleontologist), who meets or exceeds the SVP standards, to oversee all regulatory compliance measures and protocols related to paleontological resources.

    b. **Conduct Worker Training:** The Project Paleontologist should develop a Worker Environmental Awareness Program (WEAP) to train the construction crew on the legal requirements for preserving fossil resources, as well as the procedures to follow in the event of a fossil discovery. This training program would be given to the crew before ground-disturbing work commences and would include handouts to be given to new workers as needed.

    c. **Monitor for Paleontological Resources:** Ground disturbances greater than or equal to 3 feet below ground surface with the potential to impact late to middle Pleistocene old alluvial fan deposits (Qof) and/or late Miocene Modelo Formation (Tm) should be monitored full-time. Monitoring should be reduced or ceased once over-excavations into the underlying previously undisturbed deposits have been completed, or if Recent to late Holocene artificial fill (Qaf) is the only geologic units encountered during earthwork activities. Ground disturbances in previously disturbed sediments should not be monitored, regardless of depth.

       Monitoring should be conducted by a paleontological monitor who meets the standards of the SVP (2010) working under the supervision of the Project Paleontologist. The Project Paleontologist may periodically inspect construction activities to adjust the level of monitoring in response to subsurface conditions. In consultation with the lead agency and the Project Applicant, monitoring efforts can be increased, reduced, or ceased entirely if determined adequate by the Project Paleontologist. Paleontological monitoring should include inspection of exposed sedimentary units during active

excavations within sensitive geologic sediments. The monitor should have authority to temporarily divert activity away from exposed fossils to evaluate the significance of the find and, should the fossils be determined significant, professionally and efficiently recover the fossil specimens and collect associated data. Paleontological monitors should record pertinent geologic data and collect appropriate sediment samples from any fossil localities.

d. **Prepare a Paleontological Resources Monitoring Report:** Upon conclusion of ground-disturbing activities, the Project Paleontologist overseeing paleontological monitoring should prepare a final Paleontological Resources Monitoring Report (PRMR) that documents the paleontological monitoring efforts for the Project and describes any paleontological resources discoveries observed and/or recorded during the life of the Project. If paleontological resources are curated, the final PRMR and any associated data pertinent to the curated specimen(s) should be submitted to the designated repository. A copy of the final PRMR should be filed with the lead agency.

Hazards and Hazardous Materials

20. **MM-HAZ-1:** Prior to the issuance of a grading permit, the shallow PCE-impacted soil vapor shall be remediated using soil vapor extraction (SVE) as the primary means of remediation. An SVE remediation system shall be installed consisting of 17 vapor extraction wells. Each vapor extraction well would have a 10-foot screened interval, from five to 15 feet below ground surface, and the wells would be connected to the SVE unit via sub-grade PVC-piping. The soil vapor shall be remediated to the satisfaction of the Los Angeles Fire Department and the Department of Building and Safety.

Noise

21. **MM-NOI-1:** For construction activities occurring on the North Campus, sound barriers rated to achieve a sound attenuation of at least 15 dBA shall be erected to shield 23309 Saticoy Street Residences, Melba Street Cul-de-Sac Residences, and Bobbyboyar Avenue Cul-de-Sac Residences from on-site construction noise activities. Sound barriers shall be at least 15 feet in height and composed of materials rated to achieve a transmission loss of at least 25 dBA, which would correlate with the required 15 dBA of sound attenuation.

22. **MM-NOI-2:** For construction activities occurring on the Main Campus, sound barriers rated to achieve a sound attenuation of at least 15 dBA shall be erected to shield Atron Avenue Cul-de-Sac Residences, Covello Street Cul-de-Sac Residences, and Chaminade Avenue Residences from on-site construction noise activities. Sound barriers shall be at least 15 feet in height and composed of materials rated to achieve a transmission loss of at least 25 dBA, which would correlate with the required 15 dBA of sound attenuation.

23. **MM-NOI-3:** Amplified sound systems for the Project's baseball field/bleachers and outdoor aquatics facility/bleachers shall be acoustically engineered with the following design and performance standards:

    a. Amplified sound levels, as measured at the northern property line of the North Campus, shall not exceed 50 dBA.

    b. Amplified sound systems shall not be operated outside the operational hours established for the North Campus facilities.

c. Speakers shall be directional and oriented away from the northern property line of the North Campus.

d. Non-Chaminade users of the facilities shall not be permitted to utilize the facilities' amplified sound systems.

Transportation

24. **MM-TRANS-1:** Prior to the start of construction, a Construction Traffic Management Plan (CTMP) shall be submitted to LADOT for review and approval. The CTMP will include a Worksite Traffic Control Plan, which will facilitate traffic and pedestrian movement, and minimize the potential conflicts between construction activities, street traffic, bicycles, and pedestrians. The CTMP will include, but not limited to, the following measures:

    a. Maintaining access for land uses in the vicinity of the Project Site during construction.

    b. Schedule construction materials deliveries during off-peak periods to the extent practical.

    c. Organize deliveries and staging of all equipment and materials in the most efficient manner possible, and on-site where possible, to avoid an impact to surrounding roadways.

    d. Coordinate deliveries to ensure trucks do not wait to unload or load and impact surrounding roadways, and if needed, utilize an off-site staging area.

    e. Control truck and vehicle access to the Project Site with flagmen.

    f. Limit lane closures to the maximum extent possible and avoid peak period hours to the extent possible. Where such closures are necessary, the Worksite Traffic Control Plan will identify the location of lane closures and identify all traffic control measures, signs, delineators, and work instructions to be implemented by the construction contractor through the duration of demolition and construction activity.

    g. Parking for construction workers will be provided either on-site or at off-site, off-street locations.

25. **PDF-TRANS-1:** The Project will adhere to the construction sequence shown in Table 3-2, except:

    a. Construction of the new surface parking lot on the North Campus and construction of the pedestrian bridge may interchange in the overall sequence of construction activities, but shall not overlap with each other; and

    b. Demolition of parking lots on the Main Campus and demolition of classroom buildings on the Main Campus may interchange in the overall sequence of construction activities, but shall not overlap with each other.

26. **PDF-TRANS-2:** The Project will prepare a Traffic Management Plan (TMP) to establish operational procedures for traffic flow around the school related to self-driving students and student drop-off and pick-up operations. The purpose of the plan will be to establish operational procedures to improve traffic circulation utilizing the enhanced access points and

parking areas, improve student safety, maximize the efficiency of drop-off and pick-up operations, and reduce delays during those time periods.

Tribal Cultural Resources

27. **MM-TCR-1:** Prior to commencing any ground disturbance activities at the Project Site, the Applicant, or its successor, shall retain one (1) tribal monitor that is qualified to identify subsurface tribal cultural resources. Ground disturbance activities shall include excavating, digging, trenching, plowing, drilling, tunneling, quarrying, grading, leveling, removing peat, clearing, driving posts, augering, backfilling, blasting, stripping topsoil or a similar activity at the Project Site. The qualified tribal monitor shall be approved by the Fernandeño Tataviam Band of Mission Indians.

    If cultural resources are discovered during Project activities, all work in the immediate vicinity of the find (within a 60-foot buffer) shall cease and a qualified archaeologist meeting Secretary of Interior standards shall be retained by the Applicant, or its successor, to assess the find. A qualified archaeologist/archaeological monitor shall be identified as principal personnel who must meet the Secretary of the Interior's Standards and Guidelines for Archeology and have a minimum of 10 years of experience as a principal investigator working with Native American archaeological sites in Southern California. The archaeologist shall ensure that all other personnel associated with and hired for the archaeological monitoring are appropriately trained and qualified. Work on the portions of the Project outside of the buffered area may continue during this assessment period. The Fernandeño Tataviam Band of Mission Indians shall be contacted about any pre-contact and/or post-contact finds and be provided information after the archaeologist makes their initial assessment of the nature of the find, to provide Tribal input with regards to significance and treatment.

28. **MM-TCR-2:** The Lead Agency and/or Applicant shall, in good faith, consult with the Fernandeño Tataviam Band of Mission Indians on the disposition and treatment of any Tribal Cultural Resource encountered during all ground disturbing activities.

29. **MM-TCR-3:** If human remains or funerary objects are encountered during any activities associated with the Project, work in the immediate vicinity (within a 100-foot buffer of the find) shall cease and the County Coroner shall be contacted pursuant to State Health and Safety Code §7050.5 and that code shall be enforced for the duration of the Project.

Administrative Conditions

30. **Approvals, Verification and Submittals**. Copies of any approvals, guarantees or verification of consultations, reviews or approval, plans, etc., as may be required by the subject conditions, shall be provided to the Department of City Planning for placement in the subject file.

31. **Building Plans.** A copy of the first page of this grant and all Conditions and/or any subsequent appeal of this grant and its resultant Conditions and/or letters of clarification shall be printed on the building plans submitted to the Development Services Center and the Department of Building and Safety for purposes of having a building permit issued.

32. **Notations on Plans.** Plans submitted to the Department of Building and Safety for the purpose of processing a building permit application shall include all of the Conditions of Approval herein attached as a cover sheet and shall include any modifications or notations required herein.

33. **Final Plans.** Prior to the issuance of any building permits for the project by the Department of Building and Safety, the applicant shall submit all final construction plans that are awaiting issuance of a building permit by the Department of Building and Safety for final review and approval by the Department of City Planning. All plans that are awaiting issuance of a building permit by the Department of Building and Safety shall be stamped by Department of City Planning staff "Final Plans". A copy of the Final Plans, supplied by the applicant, shall be retained in the subject case file.

34. **Code Compliance.** All area, height and use regulations of the zone classification of the subject property shall be complied with, except wherein these conditions explicitly allow otherwise.

35. **Covenant.** Prior to the issuance of any permits relative to this matter, an agreement concerning all the information contained in these conditions shall be recorded in the County Recorder's Office. The agreement shall run with the land and shall be binding on any subsequent property owners, heirs or assign. The agreement must be submitted to the Department of City Planning for approval before being recorded. After recordation, a copy bearing the Recorder's number and date shall be provided to the Department of City Planning for attachment to the file.

36. **Corrective Conditions.** The authorized use shall be conducted at all times with due regard for the character of the surrounding district, and the right is reserved to the City Planning Commission, or the Director pursuant to Section 12.27.1 of the Municipal Code, to impose additional corrective conditions, if, in the Commission's or Director's opinion, such conditions are proven necessary for the protection of persons in the neighborhood or occupants of adjacent property.

37. **Definition.** Any agencies, public officials or legislation referenced in these conditions shall mean those agencies, public offices, legislation or their successors, designees or amendment to any legislation.

38. **Enforcement.** Compliance with these conditions and the intent of these conditions shall be to the satisfaction of the Department of City Planning and any designated agency, or the agency's successor and in accordance with any stated laws or regulations, or any amendments thereto.

39. **Expedited Processing Section.** Prior to the clearance of any conditions, the applicant shall show proof that all fees have been paid to the Department of City Planning, Expedited Processing Section.

40. **Indemnification and Reimbursement of Litigation Costs**

    Applicant shall do all of the following:

    a. Defend, indemnify and hold harmless the City from any and all actions against the City relating to or arising out of, in whole or in part, the City's processing and approval of this entitlement, including but not limited to, an action to attack, challenge, set aside, void, or otherwise modify or annul the approval of the entitlement, the environmental review of the entitlement, or the approval of subsequent permit decisions, or to claim personal property damage, including from inverse condemnation or any other constitutional claim.

b. Reimburse the City for any and all costs incurred in defense of an action related to or arising out of, in whole or in part, the City's processing and approval of the entitlement, including but not limited to payment of all court costs and attorney's fees, costs of any judgments or awards against the City (including an award of attorney's fees), damages, and/or settlement costs.

c. Submit an initial deposit for the City's litigation costs to the City within 10 days' notice of the City tendering defense to the Applicant and requesting a deposit. The initial deposit shall be in an amount set by the City Attorney's Office, in its sole discretion, based on the nature and scope of action, but in no event shall the initial deposit be less than $50,000. The City's failure to notice or collect the deposit does not relieve the Applicant from responsibility to reimburse the City pursuant to the requirement in paragraph (b).

d. Submit supplemental deposits upon notice by the City. Supplemental deposits may be required in an increased amount from the initial deposit if found necessary by the City to protect the City's interests. The City's failure to notice or collect the deposit does not relieve the Applicant from responsibility to reimburse the City pursuant to the requirement in paragraph (b).

e. If the City determines it necessary to protect the City's interest, execute an indemnity and reimbursement agreement with the City under terms consistent with the requirements of this condition.

The City shall notify the applicant within a reasonable period of time of its receipt of any action and the City shall cooperate in the defense. If the City fails to notify the applicant of any claim, action, or proceeding in a reasonable time, or if the City fails to reasonably cooperate in the defense, the applicant shall not thereafter be responsible to defend, indemnify or hold harmless the City.

The City shall have the sole right to choose its counsel, including the City Attorney's office or outside counsel. At its sole discretion, the City may participate at its own expense in the defense of any action, but such participation shall not relieve the applicant of any obligation imposed by this condition. In the event the Applicant fails to comply with this condition, in whole or in part, the City may withdraw its defense of the action, void its approval of the entitlement, or take any other action. The City retains the right to make all decisions with respect to its representations in any legal proceeding, including its inherent right to abandon or settle litigation.

For purposes of this condition, the following definitions apply:

"City" shall be defined to include the City, its agents, officers, boards, commissions, committees, employees, and volunteers.

"Action" shall be defined to include suits, proceedings (including those held under alternative dispute resolution procedures), claims, or lawsuits. Actions include actions, as defined herein, alleging failure to comply with any federal, state or local law.

Nothing in the definitions included in this paragraph are intended to limit the rights of the City or the obligations of the Applicant otherwise created by this condition.

FINDINGS

General Plan/Charter Findings (Charter Section 556)

1. Charter Section 556: The action is in substantial conformance with the purposes, intent, and provisions of the General Plan.

a. **General Plan Land Use Designation.** The subject property is located within the Canoga Park – Winnetka – Woodland Hills – West Hills Community Plan area which was adopted by the City Council on August 17, 1999. The Community Plan designates the Main Campus for Very Low and Low Residential land uses corresponding to the RE20, RA, RE15, and RE11 zones, and the RE9, RS, R1, RU, and RD6 zones, respectively. The Main Campus is zoned A1-1 and RS-1 and is thus consistent with General Plan's land use designation for the site. The Community Plan designates the site of the new North Campus for Neighborhood Commercial land uses, corresponding to the C1, C1.5, C2, C4, RAS3, and RAS4 zones. The project is requesting a Vesting Zone Change to change the current [Q]C1-1VL and P-1VL zoning of the North Campus to the (T)(Q)C2-1 Zone. The proposed (T)(Q)C2-1 Zone would thus be consistent with the underlying land use designation. The subject property is not located within the boundaries of or subject to any other specific plan, community design overlay, or interim control ordinance. The current zoning of the proposed North Campus contains a permanent Qualified "Q" Condition that restricts development to a floor area ratio (FAR) of 0.5:1. The Vesting Zone Change would effectively remove the permanent Q-Condition, however, the proposed project FAR for the North Campus is well below the maximum 0.5:1 FAR established by existing Q-Condition at approximately 0.05:1.

b. **Land Use Element.** The proposed project complies with applicable provisions of the Los Angeles Municipal Code and the Canoga Park – Winnetka – Woodland Hills – West Hills Community Plan. There are twelve elements of the General Plan. Each of these elements establishes policies that provide for the regulatory environment in managing the City and for addressing environmental concerns and problems. The majority of the policies derived from these Elements are in the form of Code requirements of the Los Angeles Municipal Code.

The Land Use Element of the City's General Plan is divided into 35 Community Plans. As previously stated, the subject property is located within the Canoga Park – Winnetka – Woodland Hills – West Hills Community Plan, which designates the existing Main Campus for Very Low, and Low Residential land uses and the proposed North Campus for Neighborhood Commercial land uses. Both the current A1-1 and RS-1 zoning of Main Campus and the proposed (T)(Q)C2-1 Zone for the new North Campus are consistent with the land use designation for the site.

The proposed project is consistent with the following objective and policy of the **Canoga Park – Winnetka – Woodland Hills – West Hills Community Plan:**

Objective 6-2: Maximize the use of local schools for community use and local open space and parks for school use.

Policy 6-2.1: Encourage the siting of community facilities (libraries, parks, schools and auditoriums) together.

The project enhances the overall functionality and cohesion of Chaminade's High School campus by expanding its facilities in a way that maximizes their use for both educational and extracurricular purposes. The addition of new athletic fields, an aquatic center, and open spaces on the North Campus creates a well-rounded environment that supports the school's sports programs and recreational activities. These new facilities are carefully designed to integrate with the existing Main Campus, providing modern amenities that enhance student experience while utilizing available open space to its fullest potential. By improving connectivity and safety with the proposed pedestrian bridge, the project allows for seamless movement between the two campuses, ensuring that the school's resources are easily accessible.

The project also promotes efficient land use by concentrating new sports and recreational structures in one area, directly adjacent to the Main Campus, which reinforces the sense of a unified educational environment. The location of the new facilities across Saticoy Street connected via the pedestrian bridge ensures that the school maintains a compact, cohesive layout. This thoughtful design supports the school's goal of creating an improved space for both academic and extracurricular activities, making the campus a more desirable place for students and faculty. Therefore, the project is consistent with and will further the achievement of the Community Plan's objective and policy.

The **Framework Element** of the General Plan (Framework Element) was adopted by the City of Los Angeles in December 1996 and re-adopted in August 2001. The Framework Element provides guidance regarding policy issues for the entire City of Los Angeles, including the project site. The Framework Element also sets forth a Citywide comprehensive long-range growth strategy and defines Citywide polices regarding such issues as land use, housing, urban form, neighborhood design, open space, economic development, transportation, infrastructure, and public services. While the Framework Element references the City's participation in working with the Los Angeles Unified School District in the planning and coordination of public schools, it does not specifically address efforts with private schools. To that end, however, allowing the continued use and expansion of a private high school campus, would be consistent with a several important goals, objectives, and policies of the Framework Element, including:

GOAL 9N: Public schools that provide a quality education for all of the city's children, including those with special needs, and adequate school facilities to serve every neighborhood in the city.

Objective 9.32: Work constructively with LAUSD to promote the siting and construction of adequate school facilities phased with growth."

Policy 9.32.1: Work with the Los Angeles Unified School District to ensure that school facilities and programs are expanded commensurate with the City's population growth and development."

The project supports Goal 9N by modernizing and enhancing educational facilities that provide a high-quality learning environment for students. While Chaminade High School is not part of the Los Angeles Unified School District (LAUSD), the project demonstrates a commitment to offering adequate facilities that serve the broader educational needs of the West Hills neighborhood, and the City as a whole. The development of a cohesive, pedestrian-friendly campus, including updated classrooms, athletic fields, and student-centered amenities, reflects an investment in creating a safe, functional, and inclusive environment conducive to learning.

The project aligns with Objective 9.32 by incorporating thoughtful planning to phase the construction and development of facilities in line with community needs and growth patterns. Through careful site design and collaboration with stakeholders, the project ensures that new facilities enhance the existing educational function of the site without overburdening the surrounding residential neighborhood. The addition of modernized buildings and infrastructure ensures that the campus can adequately accommodate its current student body while maintaining compatibility with local growth trends.

The project supports Policy 9.32.1, by expanding school facilities in proportion to community growth and development. The project does not propose an increase in student enrollment, thereby ensuring that the intensity of use remains consistent with the established character of the area. New facilities, such as the multistory classroom building and athletic fields, are scaled and designed to blend harmoniously with the surrounding residential environment. Furthermore, strategic landscaping and thoughtful positioning of buildings minimize potential impacts, such as noise and visual disruption, to neighboring properties.

By addressing the educational and operational needs of the school while respecting the residential context, the project contributes to the City's broader goals of providing accessible, high-quality educational infrastructure. Therefore, the Vesting Zone Change and Height District Change are consistent with the Distribution of Land Use goals, objectives and policies of the General Plan Framework Element.

Zone Change, Height District Change, and "T" and "Q" Classification Findings

2. Pursuant to Section 12.32 C of the LAMC, the zone change and height district change is in conformance with the public necessity, convenience, general welfare, and good zoning practice.

The proposed project involves the expansion and modernization of the existing high school campus in the West Hills neighborhood of the Canoga Park - Winnetka – Woodland Hills – West Hills Community Plan area. The project involves improvements of facilities, including a new three-story multistory building on the Main Campus, as well as the development of new athletic fields, an outdoor swimming pool, and other facilities on the North Campus, located across Saticoy Street. A pedestrian bridge will connect the North and Main Campuses, improving safety and accessibility for students and staff. The project enhances the school's academic and athletic infrastructure while maintaining the current student enrollment capacity of 1,360 students, aiming to modernize facilities and improve campus connectivity without increasing the school's population.

The proposed Vesting Zone Change and Height District Change for the Chaminade High School Project are crucial to meeting the school's evolving educational and recreational needs while ensuring alignment with public necessity, convenience, general welfare, and good zoning practices. These changes specifically involve rezoning the site of the proposed North Campus from the current [Q]C1-1VL and P-1VL zones to the (T)(Q)C2-1 Zone, thereby allowing the school to expand its facilities in a thoughtful and organized manner.

Public Necessity

The expansion facilitated by the Vesting Zone Change and Height District Change addresses the public necessity by providing modern, high-quality educational and athletic facilities to support the current and future needs of Chaminade College Preparatory students. The proposed development will include a 25-meter by 25-yard swimming pool, baseball and soccer fields, and supporting facilities such as locker rooms, bleachers, batting cages, and a

concession stand. These additions are necessary for the school's athletic programs to thrive, helping students engage in physical education and competitive sports while fostering a well-rounded educational experience.

By locating these facilities on the North Campus, the project reduces the need for off-campus travel for sports events, which minimizes traffic and logistical issues. The new on-site facilities ensure that students can practice and compete safely within the school's grounds, meeting a clear public need for better and more integrated facilities.

Convenience

The proposed Vesting Zone Change and Height District Change enhances convenience for students, faculty, and visitors by consolidating Chaminade's facilities into a single, unified campus. The integration of the North and Main Campuses through a proposed pedestrian bridge over Saticoy Street will allow students to move safely between academic and athletic areas, reducing travel time and the risks associated with crossing busy streets. The bridge and newly organized parking areas also streamline drop-offs and pick-ups, improving traffic flow and reducing congestion on nearby streets such as Saticoy Street and Woodlake Avenue.

Furthermore, the reduction in ingress/egress points along Saticoy Street and Woodlake Avenue will simplify access to the campus and contribute to a safer and more efficient traffic system around the school. This consolidation is key to ensuring that the expanded facilities do not negatively impact traffic patterns or create inconvenience for the surrounding residential areas.

General Welfare

The project is designed to enhance the well-being of the surrounding community by replacing an older commercial development with modernized athletic facilities for an existing high school that has been operating in the West Hills neighborhood since the early 1960s. The redevelopment will improve the neighborhood by introducing landscaped open spaces and modern facilities that result in a less intensive use. The project not only serves Chaminade students but also benefits local residents by creating a more attractive and inviting environment. In addition, Chaminade proposes the limited rental or lease of the facilities on the North Campus to the community, including community-based organization.

The proposed project also integrates environmentally friendly designs and infrastructure, including noise mitigation measures, and upgraded landscaping which further supports the community's welfare. These improvements will help ensure that the school's expansion is not disruptive to the nearby residential neighborhoods and instead contributes positively to the local environment.

Good Zoning Practice

The proposed Vesting Zone Change and accompanying Height District Change will result in a site that has unified zoning which reflect good zoning practices by facilitating the development of essential educational and recreational facilities within a residential neighborhood. These changes allow for the construction of necessary elements, such as 70–90-foot light poles for the sports fields, which are vital for the safety and functionality of the campus. The design and scale of these structures are intended to support the new athletic facilities while minimizing their visual impact on the surrounding area, ensuring that the project aligns with the local context.

Additionally, the project's design emphasizes minimizing the impact on neighboring properties by ensuring appropriate setbacks, managing noise, and adhering to all traffic safety requirements. By implementing these measures, the Vesting Zone Change and Height District Change serve as a responsible approach to balancing the school's expansion with the needs of the community.

Tentative "T" and Qualified "Q" Classifications:

The current action, as recommended, has been made contingent upon compliance with new "T" and "Q" conditions of approval imposed herein for the proposed project. As recommended, the Zone Change has been placed in temporary "T" and "Q" Classifications in order to ensure consistency with the General Plan. The "T" Conditions are necessary to ensure the identified dedications, improvements, and actions are undertaken to meet the public's needs, convenience, and general welfare served by the actions required. These actions and improvements will provide the necessary infrastructure to serve the proposed community at this site. The "Q" Conditions limit the scale and scope of future development on the site and require that the applicant adhere to various development, design, and operational considerations; these are all necessary to protect the best interests of the community and to assure a development more compatible with surrounding properties and the overall pattern of development in the community, to secure an appropriate development in harmony with the General Plan, and to prevent or mitigate the potential adverse environmental effects of the subject recommended action. Therefore, the imposition of the included "T" and "Q" Conditions herein are in conformance with the public necessity, convenience, general welfare, and good zoning practice.

Under the concurrent Vesting Tentative Tract Map (Case No. VTT-84101), the project has been granted a waiver of required street dedications and improvements along the frontage of Cohasset Street, meaning no additional changes or expansions to the street are required as part of the project. This decision supports the existing street infrastructure and helps maintain the character of the neighborhood. Additionally, the project has been conditioned to obtain a Revocable Permit from the Bureau of Engineering for the proposed pedestrian bridge over Saticoy Street. The Revocable Permit ensures that while the bridge can function for the school's needs, the city retains control over the public airspace, allowing for future adjustments if traffic conditions, safety concerns, or development needs change.

Therefore, the granting of the requested Vesting Zone Change and Height District Change are in conformity with public necessity, convenience, general welfare, and good zoning practice.

Zoning Administrator's Determination Findings

3. The project will enhance the built environment in the surrounding neighborhood or will perform a function or provide a service that is essential or beneficial to the community, city or region.

The proposed project involves the expansion and modernization of Chaminade High School in the West Hills neighborhood of the Canoga Park - Winnetka – Woodland Hills – West Hills Community Plan area. The project involves improvements of facilities, including a new three-story multistory building on the Main Campus, as well as the development of new athletic fields, an outdoor swimming pool, and other facilities on the North Campus, located across Saticoy Street. A pedestrian bridge will connect the North and Main Campuses, improving safety and accessibility for students and staff. The project enhances the school's academic and athletic infrastructure while maintaining the current student enrollment capacity of 1,360

students, aiming to modernize facilities and improve campus connectivity without increasing the school's population.

The proposed project involves a request for a Zoning Administrator's Determination to allow existing 8-foot-tall perimeter fences and vehicular gates along Cohasset and Keswick Streets, as well as a new 8-foot-tall fencing and gates along Cohasset Street, to remain and be constructed respectively on the Main Campus in lieu of the maximum height of 6 feet otherwise permitted in the front yard of the A1 Zone. Additionally, the applicant is seeking a Zoning Administrator's Determination to allow for new structures related to the sports facilities on the new North Campus, including, but not limited to, a score board, netting and netting poles, lights and a pedestrian bridge, ranging in height from approximately 25 to 90 feet, in lieu of the 25-foot, 33-foot and 61- foot Transitional Height Limitations permitted within 0-199 feet of lots zoned RW1 or more restrictive.

The request for increased fence height, along the project's street frontages is intended to provide adequate security for the school, as well as to provide added privacy to neighboring residents. Although the project is requesting 8-foot high fencing in lieu of the maximum 6 feet otherwise permitted, the proposed fences and gates will be primarily of a decorative wrought-iron material, which will provide transparency and security and will enhance the street frontages of the subject property, consistent with similar requests relating to schools in residential neighborhoods. Additionally, these fences help to clearly define the campus boundaries, contributing to the overall aesthetic order and safety of the neighborhood. This enhanced security and thoughtful design contribute positively to the welfare of the local community, ensuring that the school can function safely while integrating seamlessly into the neighborhood. The fencing and gates, therefore, perform a crucial function by providing both physical security and aesthetic continuity, which are beneficial not only to the school but also to the city and region as they support a safe, well-maintained educational institution.

The Zoning Administrator's Determination to allow taller structures for the North Campus sports facilities, including scoreboards, netting poles, lights, and a pedestrian bridge enhances the school's functionality and provides benefits to the surrounding community. The taller, modern light poles are essential for safe evening sports activities, and will minimize glare, spread, and spillover, protecting nearby residences.

The 30-foot pedestrian bridge, with a stair/elevator tower up to 45 feet on the North Campus side of Saticoy Street, improves safety by allowing students and staff to cross Saticoy Street without interacting with traffic, enhancing pedestrian and traffic safety. These features are essential for the safe and efficient movement between the Main and North Campuses, supporting the school's operations and ensuring secure connectivity for students, faculty, staff, and visitors. Overall, these structures are key to ensuring safety, improving connectivity, and providing community services, benefiting both the school and the neighborhood. As such, the project and the grants herein will enhance the built environment in the surrounding neighborhood or will perform a function or provide a service that is essential and beneficial to the community.

4. The project's location, size, height, operations and other significant features will be compatible with and will not adversely affect or further degrade adjacent properties, the surrounding neighborhood, or the public health, welfare and safety.

The requested grants to allow over-in-height fences and gates on the Main Campus as well as height deviations for accessory structures on the North Campus as previously referenced, will be compatible with and will not negatively impact adjacent properties, the surrounding neighborhood, or public health, welfare, and safety of the community. The granted height deviations will rather enhance safety and security for students, visitors, faculty, and staff, as

well as for the surrounding community and drivers along Saticoy Street.

On the Main Campus, the existing and proposed 8-foot-tall perimeter fences and gates will provide added security for students, faculty, staff, and visitors. Since the existing fences have been in place for several years, the requested Zoning Administrator Determination will not negatively affect adjacent properties. The new fences and gates along Cohasset Street will be designed to match the existing ones, maintaining consistency and compatibility with current campus features. These additions will not degrade the surrounding properties or neighborhood.

On the North Campus, the scoreboard will be one foot taller than the 25-foot transitional height limit, but it will be set back from the northern property line, where the nearest single-family homes are located, and will face south toward Saticoy Street. The proposed lights will also be set back from this property line, and a lighting plan has been developed to prevent any spillover or glare onto nearby homes. Additionally, restrictions on the duration and timing of the lights will be enforced through conditions of approval. The lighting is necessary for evening events and security on the athletic fields, while the netting and netting poles will prevent soccer balls and baseballs from entering neighboring streets or properties. The pedestrian bridge will enhance the safety of both pedestrians crossing the street and drivers on Saticoy Street, promoting public health and safety. Moreover, as part of the Mitigated Negative Declaration for the project, mitigation measures will ensure that any aesthetic or lighting impacts are reduced to a less-than-significant level.

In summary, the project's location, size, height, and operations will be carefully implemented and managed to ensure these features do not adversely impact or degrade the surrounding area, and will, in fact, enhance the safety and functionality of the campus and its relationship with the neighborhood.

5. The project substantially conforms with the purpose, intent and provisions of the General Plan, the applicable community plan, and any specific plan.

The subject property is located within the Canoga Park – Winnetka – Woodland Hills – West Hills Community Plan area which is one of the 35 Community Plans that make up the Land Use Element of the General Plan. The Canoga Park – Winnetka – Woodland Hills – West Hills Community Plan Area Map designates the existing Main Campus for Very Low, and Low Residential land uses and the proposed North Campus for Neighborhood Commercial land uses. Both the current A1-1 and RS-1 zoning of the Main Campus and the proposed (T)(Q)C2-1 Zone for the new North Campus are consistent with the land use designations for the site. The property is not located within the boundaries of or subject to any other specific plan, community design overlay, or interim control ordinance. The current zoning of the proposed North Campus contains a permanent Qualified “Q” Condition that restricts development to a floor area ratio (FAR) of 0.5:1. The Vesting Zone Change would effectively remove the permanent Q-Condition, however, the proposed project FAR for the North Campus is well below the maximum 0.5:1 FAR established by current Q-Condition at approximately 0.05:1.

The proposed project is consistent with the following objective and policy of the **Canoga Park – Winnetka – Woodland Hills – West Hills Community Plan:**

Objective 6-2: Maximize the use of local schools for community use and local open space and parks for school use.

Policy 6-2.1: Encourage the siting of community facilities (libraries, parks, schools and auditoriums) together.

The project enhances the overall functionality and cohesion of Chaminade's High School campus by expanding its facilities in a way that maximizes their use for both educational and extracurricular purposes. The addition of new athletic fields, an aquatic center, and open spaces on the North Campus creates a well-rounded environment that supports the school's sports programs and recreational activities. These new facilities are carefully designed to integrate with the existing Main Campus, providing modern amenities that enhance student experience while utilizing available open space to its fullest potential. By improving connectivity and safety with the proposed pedestrian bridge, the project allows for seamless movement between the two campuses, ensuring that the school's resources are easily accessible.

The project also promotes efficient land use by concentrating new sports and recreational structures in one area, directly adjacent to the Main Campus, which reinforces the sense of a unified educational environment. The location of the new facilities across Saticoy Street connected via the pedestrian bridge ensures that the school maintains a compact, cohesive layout. This thoughtful design supports the school's goal of creating an improved space for both academic and extracurricular activities, making the campus a more desirable place for students and faculty.

The Zoning Administrator's Determination request for the new structures, including netting poles, scoreboards, and lights that exceed standard height limitations, is essential for the project's functionality. These structures support the enhanced athletic facilities, ensuring they meet safety and operational standards, such as preventing sports equipment from reaching nearby residential areas and allowing evening events. By exceeding transitional height limitations, the project enhances community accessibility to these athletic spaces, while ensuring compatibility with the surrounding environment.

The project is further consistent with other elements of the General Plan, including the **Framework Element.** The Framework Element was adopted by the City of Los Angeles in December 1996 and re-adopted in August 2001 and provides guidance regarding policy issues for the entire City of Los Angeles, including the project site. The Framework Element also sets forth a Citywide comprehensive long-range growth strategy and defines Citywide polices regarding such issues as land use, housing, urban form, neighborhood design, open space, economic development, transportation, infrastructure, and public services. While the Framework Element references the City's participation in working with the Los Angeles Unified School District in the planning and coordination of public schools, it does not specifically address efforts with private schools. To that end, however, allowing the continued use and expansion of a private high school campus, would be consistent with a several important goals, objectives, and policies of the Framework Element, including:

GOAL 9N: Public schools that provide a quality education for all of the city's children, including those with special needs, and adequate school facilities to serve every neighborhood in the city.

Objective 9.32: Work constructively with LAUSD to promote the siting and construction of adequate school facilities phased with growth."

Policy 9.32.1: Work with the Los Angeles Unified School District to ensure that school facilities and programs are expanded commensurate with the City's population growth and development."

The project supports **Goal 9N** by modernizing and enhancing educational facilities that

provide a high-quality learning environment for students. While Chaminade High School is not part of the Los Angeles Unified School District (LAUSD), the project demonstrates a commitment to offering adequate facilities that serve the broader educational needs of the West Hills neighborhood, and the City as a whole. The development of a cohesive, pedestrian-friendly campus, including updated classrooms, athletic fields, and student-centered amenities, reflects an investment in creating a safe, functional, and inclusive environment conducive to learning.

The project aligns with **Objective 9.32** by incorporating thoughtful planning to phase the construction and development of facilities in line with community needs and growth patterns. Through careful site design and collaboration with stakeholders, the project ensures that new facilities enhance the existing educational function of the site without overburdening the surrounding residential neighborhood. The addition of modernized buildings and infrastructure ensures that the campus can adequately accommodate its current student body while maintaining compatibility with local growth trends.

The project supports **Policy 9.32.1**, by expanding school facilities in proportion to community growth and development. The project does not propose an increase in student enrollment, thereby ensuring that the intensity of use remains consistent with the established character of the area. New facilities, such as the multistory classroom building and athletic fields, are scaled and designed to blend harmoniously with the surrounding residential environment. Furthermore, strategic landscaping and thoughtful positioning of buildings minimize potential impacts, such as noise and visual disruption, to neighboring properties.

By addressing the educational and operational needs of the school while respecting the residential context, the project contributes to the City's broader goals of providing accessible, high-quality educational infrastructure.

In conclusion, the requested Zoning Administrator's Determination supports the project's alignment with the overarching goals of the General Plan and community plan, ensuring that the new facilities not only meet operational needs but also enhance the safety, functionality, and accessibility of the campus as a whole.

Zoning Administrator's Adjustment Findings

6. **While site characteristics or existing improvements make strict adherence to the zoning regulations impractical or infeasible, the project nonetheless conforms with the intent of those regulations**.

The proposed project involves the expansion and modernization of Chaminade High School in the West Hills neighborhood within the Canoga Park - Winnetka - Woodland Hills - West Hills Community Plan area. The project includes improvements to the Main Campus, such as a new three-story Multistory Building, as well as the development of the North Campus with athletic fields, an aquatic center, additional surface parking, and other facilities, connected by a pedestrian bridge over Saticoy Street. These enhancements aim to improve the school's academic, athletic, and parking infrastructure while maintaining the current student enrollment capacity of 1,360 students, ensuring modernized facilities and campus connectivity without increasing population density.

In conjunction with the project, the applicant is requesting a Zoning Administrator's Adjustment for: 1) a maximum building height of 48 feet for the new Multistory Building on the Main Campus, exceeding the 45-foot height limit in the A1 Zone; 2) the encroachment of a pedestrian bridge and its support structures into the required front and side yard setbacks in the RS and A1 zones; and 3) reduced setbacks for existing encroaching structures, such as

bleachers and buildings, along the front yard on Cohasset Street and the side yards along the eastern property lines, deviating from LAMC Sections 12.07.1 C and 12.05 C.

The requested height adjustment for the 48-foot Multistory Building is necessary due to the site's existing improvements and its irregular layout. The building is located in the northern portion of the Main Campus near the performing arts building and football field, surrounded by taller structures, such as the 60-foot-tall Performing Arts Building and the 50-foot-tall Condon Family Center. The slight height increase is consistent with the scale of the existing campus structures and maintains compatibility with the surrounding built environment. Moreover, the building's placement, away from single-family homes, minimizes any visual or operational impacts on neighboring properties. Adhering strictly to the 45-foot height limit would hinder the efficient use of the site by reducing the building's functionality and capacity to support the school's educational mission.

The requested setback encroachments for the pedestrian bridge across Saticoy Street are similarly justified by the project's need to address site-specific safety and operational challenges. The irregular shape of the property and the separation of the Main and North Campuses necessitate the construction of a grade-separated crossing to ensure safe passage for students, faculty, and visitors. Strict adherence to setback regulations would make the bridge's construction impractical, as its support structures require placement within the setback areas for stability and functionality. The bridge's location and design minimize disruption to neighboring properties while significantly enhancing safety and campus connectivity.

The reduced setbacks requested for existing structures on the Main Campus, such as bleachers and maintenance buildings, are also justified by the site's characteristics and longstanding improvements. These structures, located along Cohasset Street and the eastern property line, have been in place for decades and serve essential school functions. Their continued use within the setback areas avoids unnecessary relocation or reconstruction, which would impose undue burdens on the school without offering significant benefits to the surrounding community. Given the established nature of these improvements, their retention is both practical and compatible with the surrounding area.

In conclusion, the requested adjustments for height and setback encroachments are necessary to accommodate the project's modernization efforts while addressing the unique characteristics and existing improvements of the site. The irregular lot shape, separation of the campuses, and longstanding use of certain structures make strict adherence to zoning regulations impractical. Nonetheless, the project conforms to the intent of these regulations by ensuring compatibility with the surrounding neighborhood, maintaining public safety, and enhancing the functionality of the campus. These adjustments will allow the school to continue serving its students and the community effectively without adversely impacting neighboring properties.

7. The project's location, size, height operations and other significant features will be compatible with and will not adversely affect or further degrade adjacent properties, the surrounding neighborhood, or the public health, welfare, and safety.

The project site encompasses two distinct properties: the Main Campus and the North Campus, separated by Saticoy Street. The Main Campus, covering approximately 21 acres across three lots, currently includes, but is not limited to, 37 classrooms, administrative offices, a library, a student center, a performing arts center, a fine arts building, a campus ministry, a gymnasium, a lighted football field with seating, a baseball field, and surface parking. With a total building area of 156,768 square feet and 462 parking spaces, the Main Campus serves as the primary hub for the school's academic and extracurricular activities. The North Campus,

spanning 4.83 acres, is presently occupied by a commercial shopping center built in the 1960s. The shopping center includes retail shops, restaurants, and a grocery store but will be converted into new athletic and parking facilities under the proposed project.

The project proposes several major improvements. A new 48-foot-tall Multistory Building will be constructed on the Main Campus, adding approximately 60,760 square feet of space for classrooms, administrative offices, and other school functions. Although exceeding the 45-foot height limit, this building is centrally located on the campus, away from nearby single-family homes, to minimize visual and noise impacts on the surrounding residential neighborhood. The height increase is consistent with existing campus structures such as the Performing Arts Building (60 feet in height) and the Condon Family Center (50 feet in height). This new facility is designed to enhance the school's educational offerings without increasing the student population, which remains capped at 1,360.

A pedestrian bridge will be constructed to connect the Main Campus and the North Campus, providing a safe, above-grade crossing over Saticoy Street. The bridge, with a maximum height of 30 feet and with an elevator tower rising to 45 feet on the North Campus side, will eliminate the need for at-grade pedestrian crossings, significantly improving safety for students, staff, and visitors. The bridge will require setback encroachments into the RS and A1 zones; however these adjustments are necessary to ensure the structural stability of the bridge and elevator tower. Additionally, the bridge will help ease vehicular traffic along Saticoy Street by reducing the number of pedestrians crossing at street level during school hours and large events.

On the North Campus, the commercial shopping center will be replaced with athletic facilities, including soccer and baseball fields, an outdoor swimming pool, and support buildings. These new facilities will support the school's extracurricular activities without increasing enrollment. To minimize impacts on the surrounding neighborhood, the fields will during limited hours as prescribed in related Case No. CPC-2009-1477-CU-ZV-ZAA-SPR-PA1. Noise levels will be managed in accordance with local ordinances, with sound systems and stadium operations designed to limit disruptions to nearby residences.

The project also involves maintaining existing structures within reduced setback areas on the Main Campus, including bleachers, offices, and maintenance buildings. These structures, which have been in place for decades, serve essential school functions and will remain compatible with the surrounding residential area. Keeping these facilities in their current locations avoids unnecessary disruptions to campus operations while maintaining the school's functionality.

Extensive landscaping will be incorporated along the perimeter of the new North Campus and maintained along the existing Main Campus to serve as visual and noise buffers, enhancing privacy for neighboring properties while creating a pleasant environment for students and staff. The project also provides 501 parking spaces and 78 bicycle parking spaces across both campuses, ensuring adequate parking capacity without causing congestion on nearby streets.

The project includes comprehensive mitigation measures, such as noise and light management plans, to address potential impacts on the surrounding community. These measures, combined with thoughtful campus design, ensure that the project remains compatible with the neighborhood.

The requested Zoning Administrator's Adjustment, including the increased height and setback encroachments, is necessary to enhance the campus's functionality while minimizing potential disruptions to the surrounding area. The design, scale, and operations of the project have

been carefully planned to integrate seamlessly with the existing campus and neighborhood environment, maintaining public health, safety, and welfare.

8. The project is in substantial conformance with the purpose, intent and provisions of the General Plan, the applicable community plan, and any specific plan.

The General Plan is the City's roadmap for future growth and development. The General Plan Elements establish goals, policies, purposes, and programs that provide for the regulatory environment in managing the City, and for addressing environmental concerns and problems. The majority of the policies derived from these elements are implemented in the form of Municipal Code requirements. The General Plan is comprised of the Framework Element, seven state-mandated elements, and four additional elements. The Framework Element establishes the broad overall policy and direction for the General Plan.

The subject property is located within the Canoga Park – Winnetka – Woodland Hills – West Hills Community Plan area which is one of the 35 Community Plans that make up the Land Use Element of the General Plan. The Canoga Park – Winnetka – Woodland Hills – West Hills Community Plan Area Map designates the existing Main Campus for Very Low, and Low Residential land uses and the proposed North Campus for Neighborhood Commercial land uses. Both the current A1-1 and RS-1 zoning of the Main Campus and the proposed (T)(Q)C2-1 Zone for the new North Campus are consistent with the land use designations for the site. The property is not located within the boundaries of or subject to any other specific plan, community design overlay, or interim control ordinance. The current zoning of the proposed North Campus contains a permanent Qualified "Q" Condition that restricts development to a floor area ratio (FAR) of 0.5:1. The Vesting Zone Change would effectively remove the permanent Q-Condition, however, the proposed project FAR for the North Campus is well below the maximum 0.5:1 FAR established by the current Q-Condition at approximately 0.05:1.

The proposed project is consistent with the following objective and policy of the **Canoga Park – Winnetka – Woodland Hills – West Hills Community Plan:**

Objective 6-2: Maximize the use of local schools for community use and local open space and parks for school use.

Policy 6-2.1: Encourage the siting of community facilities (libraries, parks, schools and auditoriums) together.

The project enhances the functionality and cohesion of Chaminade's High School campus by expanding its facilities to support both educational and extracurricular purposes. New athletic fields, an aquatic center, and open spaces on the North Campus will enhance the school's sports programs and recreational activities. These facilities integrate seamlessly with the Main Campus, providing modern amenities and utilizing available space efficiently. The proposed pedestrian bridge improves connectivity and safety, enabling easy movement between the two campuses and ensuring the school's resources are accessible and cohesive.

The Zoning Administrator's Adjustment grant allows for the construction of a 48-foot Multistory Building, exceeding the 45-foot height limit in the A1 Zone. This modest height increase supports the school's need for expanded academic facilities without overwhelming the surrounding environment, which includes existing multi-story buildings. Additionally, the adjustment permits encroachments into required setbacks for the pedestrian bridge and existing structures, including bleachers and buildings, to remain on the Main Campus. These adjustments facilitate the project's goal of maintaining a unified, compact campus layout that promotes efficient land use and improved safety for students and staff.

The project is further consistent with other elements of the General Plan, including the **Framework Element.** The Framework Element was adopted by the City of Los Angeles in December 1996 and re-adopted in August 2001 and provides guidance regarding policy issues for the entire City of Los Angeles, including the project site. The Framework Element also sets forth a Citywide comprehensive long-range growth strategy and defines Citywide polices regarding such issues as land use, housing, urban form, neighborhood design, open space, economic development, transportation, infrastructure, and public services. While the Framework Element references the City's participation in working with the Los Angeles Unified School District in the planning and coordination of public schools, it does not specifically address efforts with private schools. To that end, however, allowing the continued use and expansion of a private high school campus, would be consistent with a several important goals, objectives, and policies of the Framework Element, including:

GOAL 9N: Public schools that provide a quality education for all of the city's children, including those with special needs, and adequate school facilities to serve every neighborhood in the city.

Objective 9.32: Work constructively with LAUSD to promote the siting and construction of adequate school facilities phased with growth."

Policy 9.32.1: Work with the Los Angeles Unified School District to ensure that school facilities and programs are expanded commensurate with the City's population growth and development."

The project supports **Goal 9N** by modernizing and enhancing educational facilities that provide a high-quality learning environment for students. While Chaminade High School is not part of the Los Angeles Unified School District (LAUSD), the project demonstrates a commitment to offering adequate facilities that serve the broader educational needs of the West Hills neighborhood, and the City as a whole. The development of a cohesive, pedestrian-friendly campus, including updated classrooms, athletic fields, and student-centered amenities, reflects an investment in creating a safe, functional, and inclusive environment conducive to learning.

The project aligns with **Objective 9.32** by incorporating thoughtful planning to phase the construction and development of facilities in line with community needs and growth patterns. Through careful site design and collaboration with stakeholders, the project ensures that new facilities enhance the existing educational function of the site without overburdening the surrounding residential neighborhood. The addition of modernized buildings and infrastructure ensures that the campus can adequately accommodate its current student body while maintaining compatibility with local growth trends.

The project supports **Policy 9.32.1**, by expanding school facilities in proportion to community growth and development. The project does not propose an increase in student enrollment, thereby ensuring that the intensity of use remains consistent with the established character of the area. New facilities, such as the multistory classroom building and athletic fields, are scaled and designed to blend harmoniously with the surrounding residential environment. Furthermore, strategic landscaping and thoughtful positioning of buildings minimize potential impacts, such as noise and visual disruption, to neighboring properties.

By addressing the educational and operational needs of the school while respecting the residential context, the project contributes to the City's broader goals of providing accessible,

high-quality educational infrastructure. In conclusion, the requested Zoning Administrator's Adjustment supports the project's alignment with the overarching goals of the General Plan and Framework Element, ensuring that the new facilities enhance safety, functionality, and accessibility while preserving neighborhood compatibility. For the reasons stated above and as conditioned herein, the project substantially conforms with the purpose, intent, and provisions of the General Plan and Community Plan.

No Net Loss of Housing Element Sites Findings

9. Pursuant to California Government Code section 65863(b)(2), the LADBS / LACP finds the following:

The proposed project (North Campus – 23217-23255 Saticoy Street and 7619-7629 Woodlake Avenue) is located on parcels identified in the Inventory of Sites prepared for the 2021-2029 Housing Element, which was anticipated to accommodate 0.22 Lower Income units. The proposed project does not include any residential dwelling units. Therefore, the proposed project would result in fewer units by income category than those identified in the Housing Element. Since the project will result in less units than the Housing Element anticipates, the City must make written findings supported by substantial evidence of both of the following:

(A) The reduction is consistent with the adopted general plan, including the housing element.

Pursuant to Government Code (GC) Section 65863(b)(1)(A), the City finds the reduced density is consistent with the adopted general plan, including the housing element. The City's 2021-2029 Housing Element took the approach of identifying a wide array of sites with potential for housing development in its Inventory of Adequate Sites for Housing (Appendix 4.1). The capacity methodology used to determine the number of units by income category resulted in an anticipated development potential for each site that is well below its zoned capacity, as there was found to be an extremely low likelihood of redevelopment into housing on each site. In addition, there are many factors which make it difficult to identify precisely which sites will develop with housing over the 8-year period. The description of this approach in Chapter 4 of the Housing Element clearly anticipates that not all sites identified using this model will redevelop with their identified development potential; "rather, the much more likely outcome is that a smaller number of sites are developed with their expected build out" (page 154). As a result, the Housing Element's Inventory or Sites includes a total of just 42,764 new units anticipated on these sites over 8 years, distributed over 198,139 potential sites. Redevelopment below expected capacities (and non-development within the planning period) is fully anticipated by the Housing Element given the large number of sites and low capacities assigned to each. This created a significant "buffer" for compliance with Government Code Sec. 65863 that was anticipated to be sustained by the continued availability for redevelopment on other sites that far exceeds stated capacities, as further evidenced by section (B) below.

(B) The remaining sites identified in the housing element are adequate to meet the requirements of Section 65583.2 and to accommodate the jurisdiction's share of the regional housing need pursuant to Section 65584. The finding shall include a quantification of the remaining unmet need for the jurisdiction's share of the regional housing need at each income level and the remaining capacity of sites identified in the housing element to accommodate that need by income level.

Pursuant to Government Code (GC) Section 65863(b)(2), the City finds that while the proposed project would result in fewer units by income category than those identified in the Inventory of Sites prepared for the 2021-2029 Housing Element, the remaining sites identified in the Housing Element of the General Plan are adequate to meet the requirements of GC Section 65583.2 and to accommodate the jurisdiction's share of the regional housing need pursuant to GC Section 65584. Based on the sites inventory and inventory of candidate sites included in the 2021-2029 Housing Element of the General Plan, as well as the most recent Annual Progress Report on the Housing Element submitted to the California Department of Housing and Community Development (HCD) as of May 1, 2024, the City's remaining RHNA Allocation for the 2021-2029 Planning period is as follows: 111,247 Very Low Income Units, 65,133 Low Income Units, 74,766 Moderate Income Units, and 153,459 Above-Moderate Income Units. As of April 1, 2024, the City has a remaining capacity of 111,247 Very Low Income Units, 65,133 Low Income Units, 74,766 Moderate Income Units, and 153,459 Above-Moderate Income Units. The excess Above-Moderate Income Unit capacity may accommodate both Moderate and Above-Moderate Unit RHNA Allocations. Therefore, the City finds that there are adequate remaining sites in the Housing Element to accommodate the remaining RHNA Allocation for the planning period, and in compliance with the requirements of GC 65583.2.

Environmental Findings

10. **Environmental Finding.** Pursuant to CEQA Guidelines Section 15074(b), after consideration of the whole of the administrative record, including the Mitigated Negative Declaration, No. ENV-2023-1255-MND ("Mitigated Negative Declaration"), and all comments received, with the imposition of mitigation measures, there is no substantial evidence that the project will have a significant effect on the environment.

11. **Flood Insurance.** The National Flood Insurance Program rate maps, which are a part of the Flood Hazard Management Specific Plan adopted by the City Council by Ordinance No. 172,081, have been reviewed and it has been determined that this project is located in Zone C, areas of minimal flooding.

PUBLIC HEARING AND COMMUNICATIONS

A joint public hearing for the Chaminade College Preparatory, High School Project was held on Wednesday, August 28, 2024, via Zoom teleconference. The hearing was conducted in two parts: the Deputy Advisory Agency addressed the Vesting Tentative Tract Map (Case No. VTT-84101), while the Hearing Officer received public testimony on behalf of the City Planning Commission for the related cases, CPC-2023-1254-VZC-HD-ZAD-ZAA and CPC-2009-1477-CU-ZV-ZAA-SPR-PA1. The joint hearing allowed for public testimony and discussion of the project under both sets of cases.

1. Attendees

   Between 40 to 50 individuals attended the virtual public hearing, including the applicant, the applicant's representatives, the applicant's environmental consultants, various members of the public including local residents, and labor union members, as well as representatives from the Council Office and West Hills Neighborhood Council. Agency representatives from Bureau of Engineering, Bureau of Street Lighting, and the Department of Recreation and Parks were also in attendance for the Deputy Advisory Agency portion of the hearing.

2. Applicant Testimony

   The applicant's team presented the proposed project via PowerPoint and discussed the following:

   - The project aims to modernize and update existing facilities, improve educational experiences, and focus on enhancing student wellness by creating new athletic and counseling facilities.
   - Efforts to modernize classrooms, multi-use buildings, and the gymnasium on the main campus are central to the plan.
   - Conversion of the existing baseball field into a girls' softball field and renovation of adjacent parking lots and office spaces are included.
   - A new multi-story building will be constructed to include a Counseling Center, library, classrooms, labs, and administrative offices.
   - New outdoor quads and a campus courtyard will provide additional open spaces.
   - Across Saticoy Street, the new North Campus will house athletic facilities such as multi-purpose athletic fields, and an aquatic center with a pool and associated buildings (restrooms, bleachers, concessions).
   - The plan includes two new parking lots providing 101 parking spaces along Saticoy Street and Woodlake Avenue.
   - A pedestrian bridge over Saticoy Street will connect the North Campus with the main campus to ensure safe pedestrian movement and security.
   - Overall, the campus will provide 501 parking spaces, exceeding the 451 spaces required under the existing Conditional Use Permit.
   - During construction, six temporary classrooms will be installed, displacing 39 parking spaces temporarily. However, these spaces will be provided by the new parking lot across the street before the temporary classrooms are installed.
   - The school will always maintain at least 451 parking spaces during the construction phase, adhering to existing requirements.
   - Despite the physical expansion, the applicant confirmed that there would be no increase in the school's maximum student enrollment.

- Project renderings were presented showing the proposed multi-story building, North Campus, and the pedestrian bridge.
- Feedback from the community and the Cultural Affairs Commission led to design updates for the pedestrian bridge, including a warmer design that pays homage to West Hills.
- The applicant's request for a Vesting Tentative Tract Map including a request for an airspace lot for the pedestrian bridge. The airspace lot would provide permanent authorization for the bridge, allowing for safer student crossings.
- The applicant was initially opposed to the alternative of obtaining a revocable permit for the bridge as it could lead to the removal of the bridge in the future by the city.
- The applicant requested waivers for some street improvements and dedications, including the removal of the requirement for new street lights along Keswick Street and Cohasset Street, as these improvements would impose financial and logistical burdens without being essential to the project.
- Extensive community outreach was conducted, including two community open houses and eight presentations and meetings with the West Hills Neighborhood Council and local residents.
- The project has received 127 support letters and 169 petition signatures from the local community, showing substantial backing for the project.
- The applicant emphasized that the project is designed to enhance student safety, improve educational facilities, and beautify the neighborhood.
- The applicant noted the school's commitment to academic excellence and community engagement, with the goal of improving the surrounding area while maintaining the school's mission.

3. Public Testimony

- Approximately 20 to 30 members of the public spoke at the public hearing, including both supporters and opponents of the Chaminade high school expansion project. Speakers included local residents, parents and alumni of Chaminade High School, labor union members, as well as representatives from the Council Office and West Hills Neighborhood Council.

- A Council Office representative (Dan Rosales) contributed testimony in support of the project, stating that the applicant and their representatives conducted extensive community outreach. Mr. Rosales stated that the applicant worked with the West Hills Neighborhood Council on the modified conditions of approval, which the Council Office is comfortable with. He also expressed the importance of the pedestrian bridge for safety and security. No testimony was given by identified members of the West Hills Neighborhood Council during the public hearing itself. However, there were references to extensive meetings and coordination with the West Hills Neighborhood Council which were held prior to the hearing. These meetings contributed to shaping the conditions proposed by the applicant, which were then submitted for review.

Support:

- Chaminade parents and alumni expressed strong support for the project, praising the school's educational values and commitment to student development. They emphasized that the expanded facilities would enhance students' overall experience and reduce the need for students to leave campus for sporting events, which could help mitigate traffic and noise.

- Some local residents and community leaders expressed optimism about the project, believing that the new facilities would improve the neighborhood's aesthetics and property values. Several supporters highlighted the environmental sustainability measures, such as the school's efforts to mitigate noise and incorporate greener designs.

Opposition:

- Several residents living near the school expressed concerns about increased traffic on Woodlake Avenue and Keswick Street. Some residents believe that the project will exacerbate already significant traffic congestion during school drop-off and pick-up periods. Noise from the proposed swimming pool and athletic fields was also cited as a major issue, with suggestions for additional sound walls or enclosures.

- Several residents cited concerns about the accuracy of the data used in the applicant's traffic studies and indicated that the traffic estimates provided by the applicant may be underreported.

- Representatives from CREED LA, spoke in opposition, emphasizing that the Mitigated Negative Declaration Report prepared for the project was insufficient under CEQA. They argued that the project would result in significant environmental impacts, particularly with regard to noise pollution during construction and soil contamination.

- Representatives from other various labor groups such as Local 433 Ironworkers and Plumbers and Pipefitters Local 761 expressed disappointment that the project did not include commitments to hire local workers or offer union wages. They urged the Planning Commission to reject the project unless guarantees for local hiring and fair wages were included.

4. Applicant Response

The applicant's team responded to public comments made during the hearing by addressing several key concerns:

- **Traffic and Noise Concerns**: The applicant clarified that traffic data used in their study was accurate and based on local surveys from the local shopping center. The applicant's team acknowledged concerns expressed by members of the community about noise from athletic events and construction and explained that phased construction and noise mitigation plans would be in place to reduce the impact. Demolition and construction phases would be carefully planned to avoid overlapping activities that could increase noise levels.

- **Construction Phasing**: In response to concerns about the impact of construction on parking availability, the applicant assured that during construction, parking would remain above the required minimum of 451 spaces. Temporary classrooms displacing some parking spaces would be offset by the new parking lots across the street. The applicant emphasized that construction would be phased to minimize disruption, with specific measures in place to control traffic and noise during each stage of development.

- **Soil Contamination**: Regarding environmental concerns, the applicant reassured the public that soil vapor mitigation would be handled through a plan approved by the LA County Fire Department's site mitigation unit, ensuring safety standards are met. The

team reassured the public that remediation efforts for any detected contaminants would be closely monitored and completed in accordance with expert recommendations.

The applicant concluded by reiterating their commitment to ensuring the project is developed in a way that minimizes disruption to the surrounding community.

5. Closing Comments

The Hearing Officer asked the applicant's team to provide additional details regarding the potential soil contamination at the proposed North Campus site, which had previously housed a gas station and auto repair shop. Additionally, the Hearing Officer asked for more information about the project's haul route procedures and construction staging to ensure minimal disruption to the surrounding community.

Additional Communications

Approximately 20 individuals emailed staff requesting to be placed on the interested parties list, and to receive a copy of the project's Mitigated Negative Declaration Report.

Planning Staff received over 290 letters and petitions signatures in support of the proposed project. These letters/petitions came from various individuals, including Chaminade alumni and parents, local residents, and local business owners. The supporters expressed enthusiasm for the proposed modernization and expansion of the school's facilities, highlighting the improvements in educational infrastructure, athletic facilities, parking, and pedestrian safety. Additionally, many of the project's supporters emphasized the long-term benefits to the community, particularly the proposed pedestrian bridge and enhanced security measures.

Planning staff received a letter from the West Hills Neighborhood Council dated September 21, 2023, addressed to the applicant. In the letter, the West Hills Neighborhood Council (WHNC) states that many constituents would support an expansion of classrooms and library to the North campus if done appropriately with respect for the surrounding neighborhood but would prefer new athletic facilities and operations to be limited to the Main Campus. The letter also cites concerns with increased noise, traffic, and environmental impacts as a result of the proposed project. WHNC raised issues with the accuracy of the traffic analysis, noise from extended facility hours, and the height of proposed lighting structures. The WHNC recommended limiting operating hours, enforcing stricter noise and lighting regulations, and maintaining adequate setbacks from residential properties to minimize the project's negative impact on the community.

Planning staff received a letter from the West Hills Neighborhood Council dated April 19, 2024, addressed to the applicant, Chaminade College Preparatory. The letter addressed several key concerns of the community, including environmental hazards and health risks, lighting, noise, traffic and parking, as well as construction operations. Additionally, the letter provided several conditions recommended by the West Hills Neighborhood Council to be incorporated into the Staff Recommendation Report to the City Planning Commission.

Staff received a WHNC Response Letter dated July 12, 2024 to the project's Mitigated Negative Declaration Report. The Response Letter cites key objections by the WHNC with regard to the following: the project's lighting and setbacks, traffic and parking, Noise, air quality and hazardous waste, as well as the proposed construction timeline and operations.

Planning staff received a final letter from the WHNC dated August 28, 2024 stating that after extensive examination of the proposal and careful study of best practices to ensure due regard for the character of the surrounding community and quality of life for the adjoining residents, the

WHNC voted to support the project proposal with conditions, at a Special Zoning & Planning meeting held on August 22, 2024. The conditions were attached to the letter. The letter acknowledges that numerous meetings were held with the WHNC Zoning & Planning Committee, a Zoning sub-committee, Council District 12, community members and Chaminade over the past year regarding the expansion of Chaminade high school.

Planning staff did not receive any written communications from the Council Office leading up to the CPC meeting.

EXHIBIT A

Plans

CHAMINADE COLLEGE PREPARATORY, HIGH SCHOOL

CAMPUS PLAN

7500 CHAMINADE AVE, WEST HILLS, CA 91304



AGENCY APPROVAL:

CHAMINADE COLLEGE PREPARATORY

HMC Architects

3561001000

3546 CONCOURS STREET
ONTARIO, CA 91764
909 989 9979 / www.hmcarchitects.com

Δ	DESCRIPTION	DATE

OWNER
Chaminade College Preparatory
10210 OAKDALE AVE / CHATSWORTH, CA 91311
PHONE (818) 366-9284

ARCHITECT
HMC Architects
3546 CONCOURS STREET / ONTARIO, CA 91764
T (909) 989-9979 / WWW.HMCARCHITECTS.COM

FACILITY:

7500 Chaminade Ave,
West Hills, CA 91304

PROJECT:
CHAMINADE COLLEGE PREPARATORY HIGH SCHOOL

SHEET NAME:
COVER SHEET

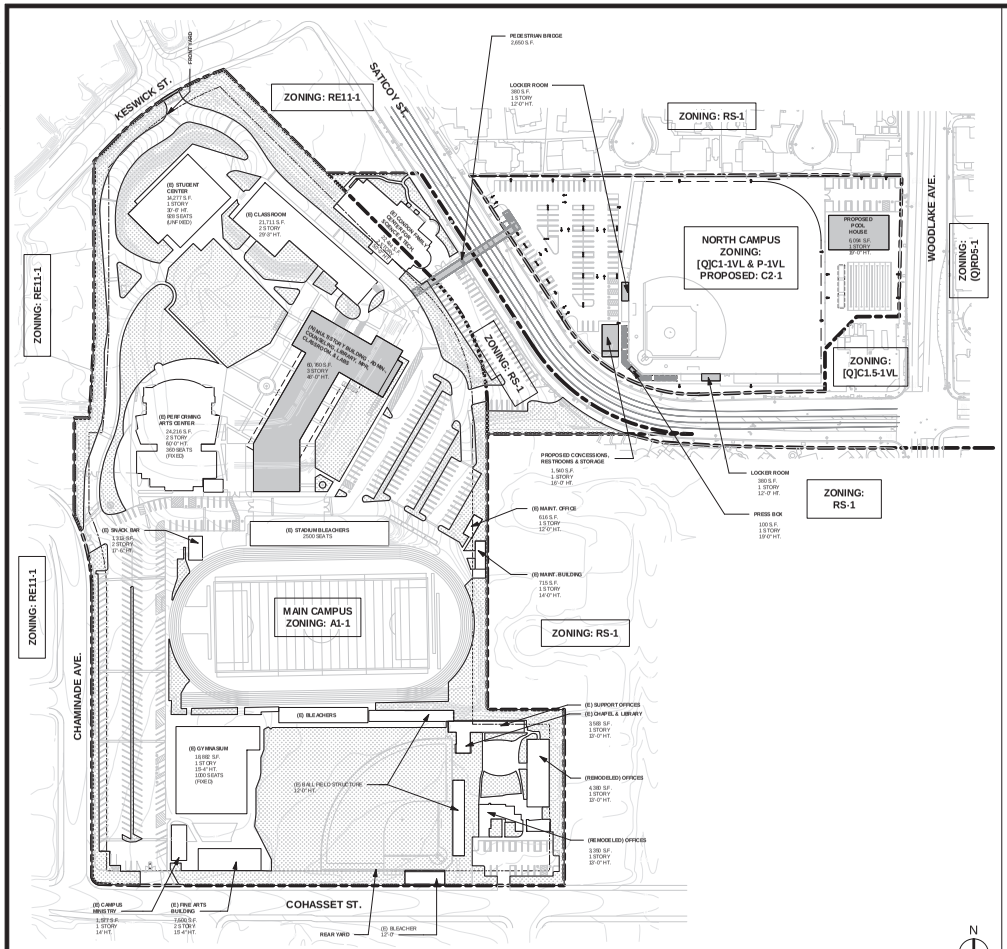
CAMPUS PLAN

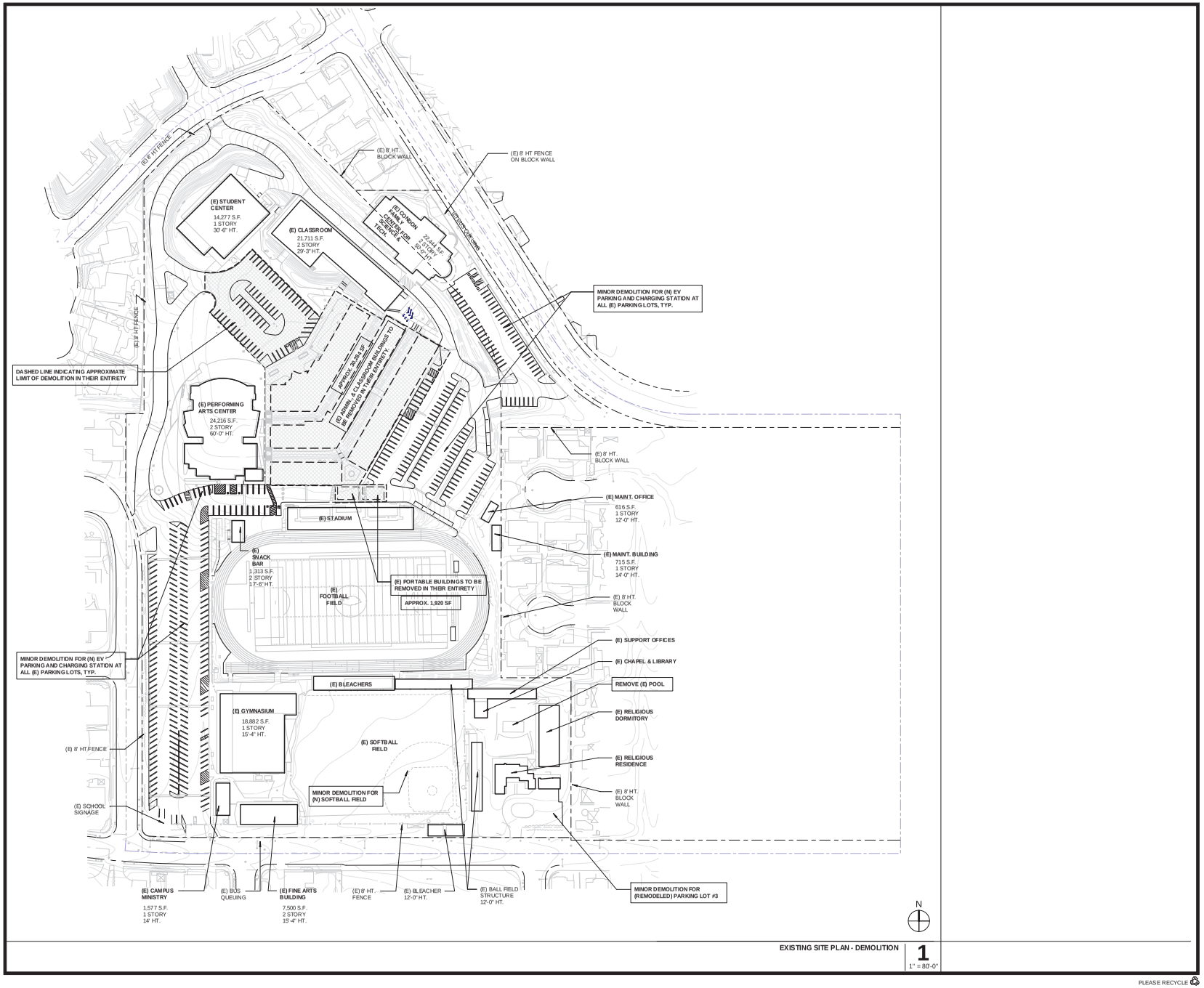
DATE: 02/01/2024 | CLIENT PROJ NO:

SHEET:

G0.10

PLEASE RECYCLE


KESWICK ST.
SATICOY ST.
WOODLAKE AVE.
CHAMINADE AVE.
COHASSET ST.
ZONING: RE11-1
ZONING: RS-1
ZONING: [Q]C1.5-1VL
ZONING: (Q)RD5-1
NORTH CAMPUS ZONING: [Q]C1-1VL & P-1VL PROPOSED: C2-1
MAIN CAMPUS ZONING: A1-1
PEDESTRIAN BRIDGE 2,650 S.F.
LOCKER ROOM 380 S.F. 1 STORY 12'-0" HT.
(E) STUDENT CENTER 14,277 S.F. 1 STORY 35'-0" HT. 926 SEATS EXIST (VED)
(E) CLASSROOM 21,711 S.F. 2 S TORY 29'-0" HT.
(E) CLASSROOM 24,216 S.F. 2 S TORY 60'-0" HT. 360 SEATS (TIX ED)
(E) 1ST FLOOR CLASSROOMS (E) MU. CLASSROOMS & LOBBY (E) 2ND FLOOR CLASSROOMS & LOBBY
(E) 1ST FLOOR CLASSROOMS (E) 2ND FLOOR CLASSROOMS & LOBBY
(E) 1ST FLOOR CLASSROOMS & LOBBY (E) 2ND FLOOR CLASSROOMS



EXISTING SITE PLAN - DEMOLITION

1
1" = 80'-0"

PLEASE RECYCLE

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West Hills, CA 91304

PROJECT:

CHAMINADE COLLEGE PREPARATORY HIGH SCHOOL

SHEET NAME:

EXISTING SITE PLAN - DEMOLITION

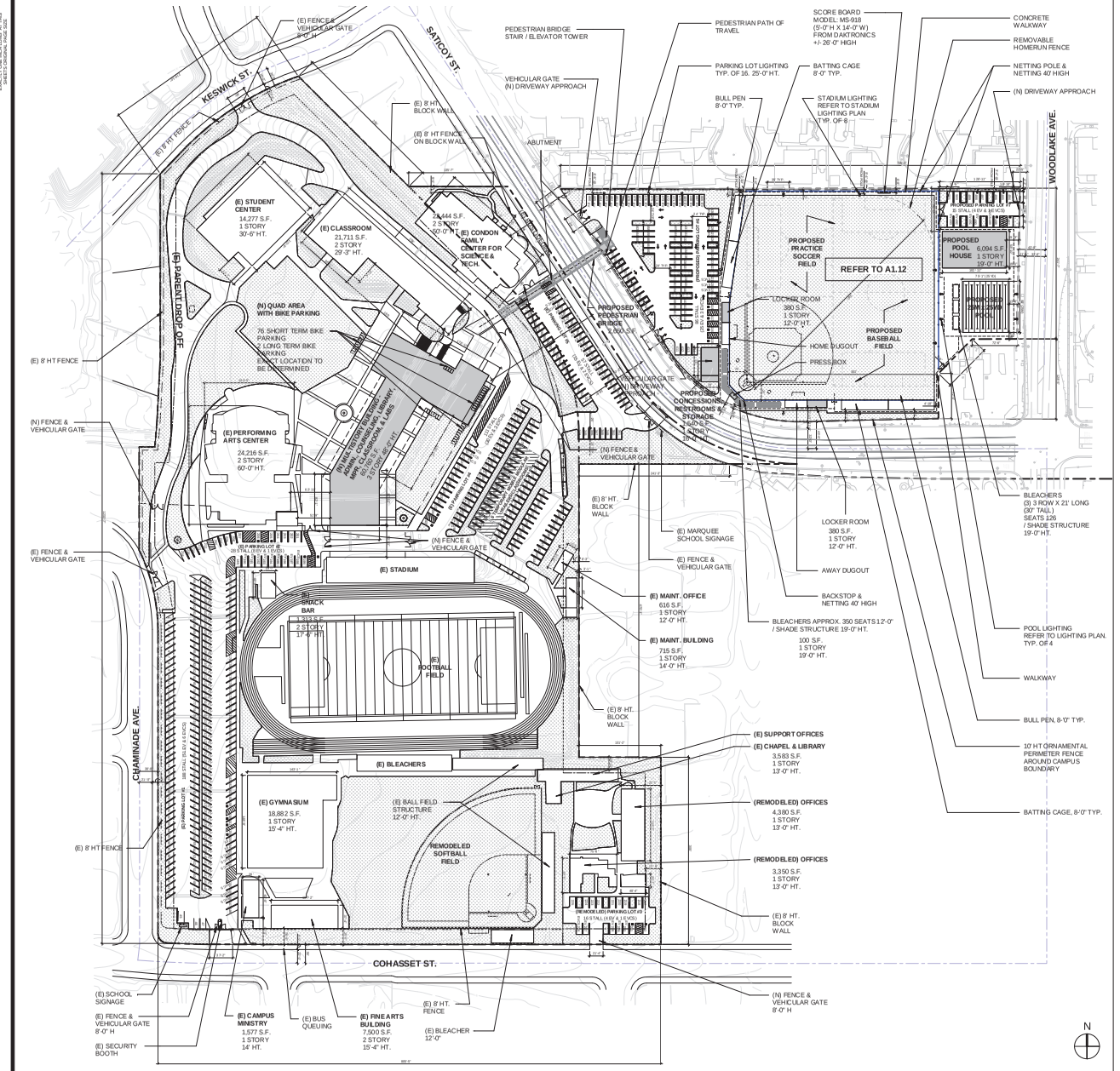
CAMPUS PLAN

DATE: 02/01/2024

CLIENT PROJ NO:

SHEET:

A1.10



OVERALL SITE PLAN | 1 | 1" = 80'-0"

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PROJECT:

CHAMINADE COLLEGE PREPARATORY HIGH SCHOOL

SHEET NAME:

OVERALL SITE PLAN

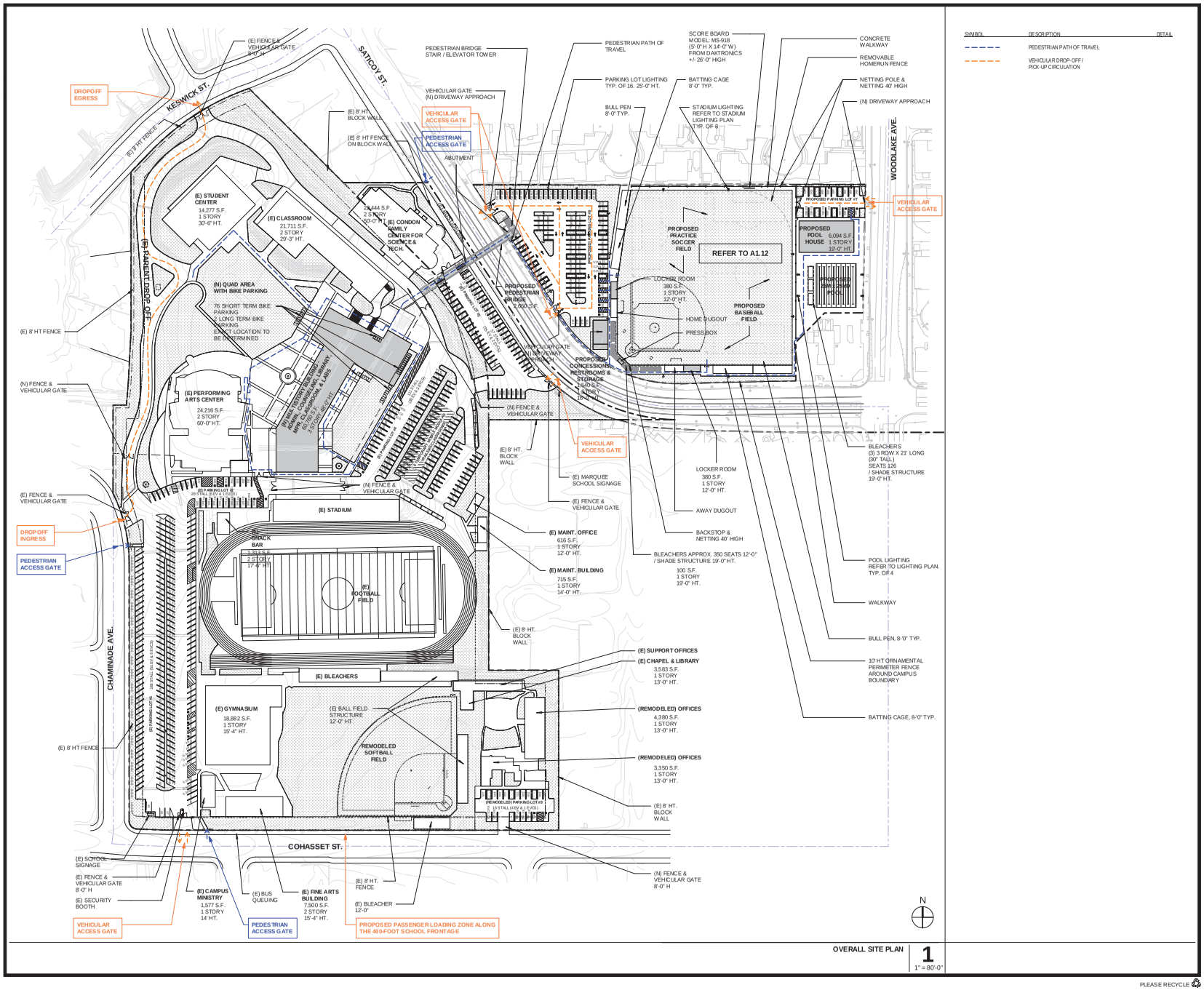
CAMPUS PLAN

DATE: 09240224 | CLIENT PROJ NO:

SHEET:

A1.11

PLEASE RECYCLE



OVERALL SITE PLAN | 1 | 1" = 80'-0"

SYMBOL	DESCRIPTION	DETAIL
	PEDESTRIAN PATH OF TRAVEL	
	VEHICULAR DROP- OFF / PICK-UP CIRCULATION	

AGENCY APPROVAL:

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PROJECT:

CHAMINADE COLLEGE PREPARATORY HIGH SCHOOL

SHEET NAME:

OVERALL SITE PLAN - CIRCULATION

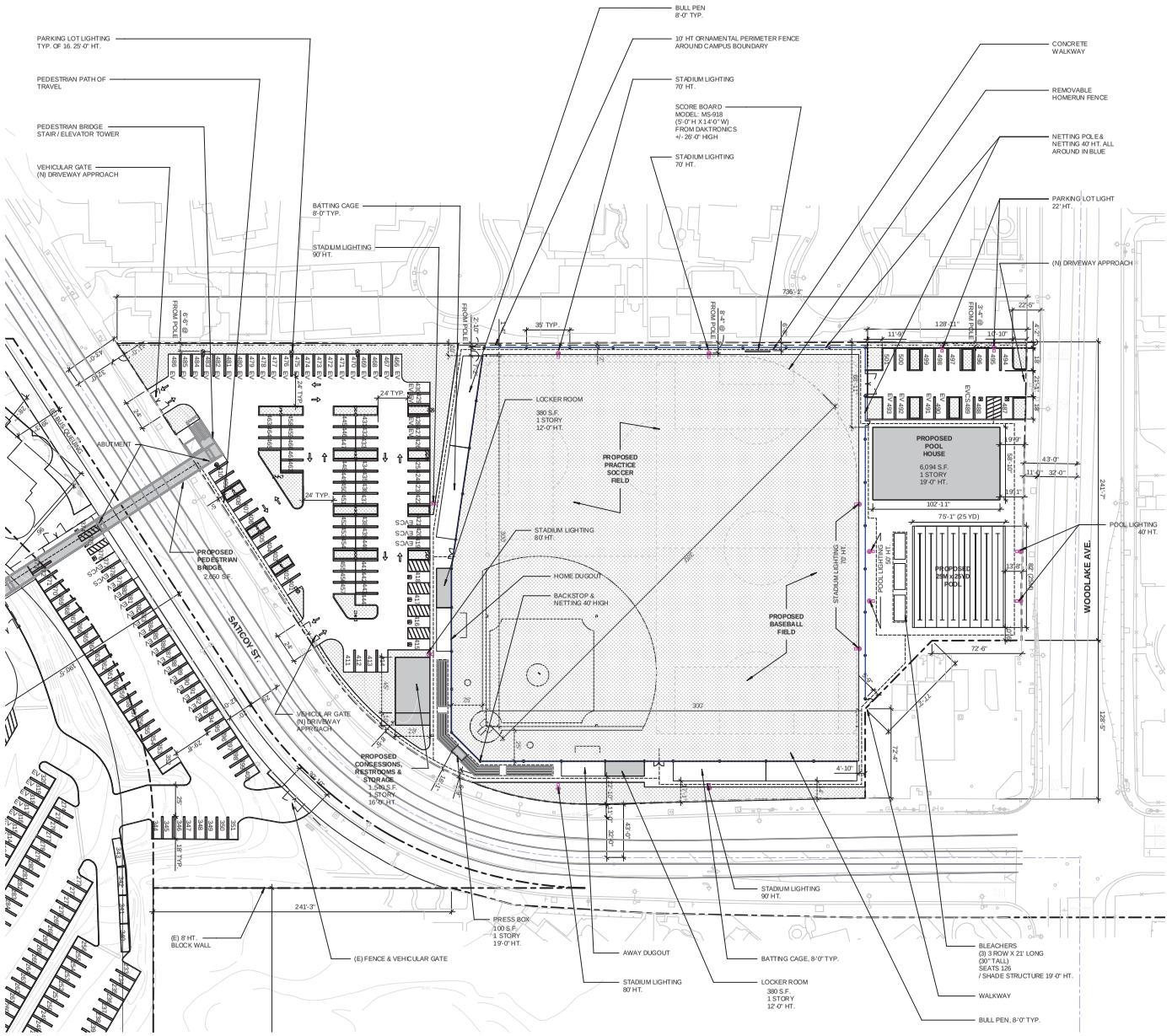
CAMPUS PLAN

DATE: 10/24/2024 | CLIENT PROJ NO:

SHEET:

A1.11C

PLEASE RECYCLE



ENLARGED SITE PLAN - NORTH CAMPUS **1** 1" = 40'-0"

PLEASE RECYCLE

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FACILITY:

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PROJECT:

CHAMINADE COLLEGE PREPARATORY HIGH SCHOOL

SHEET NAME:

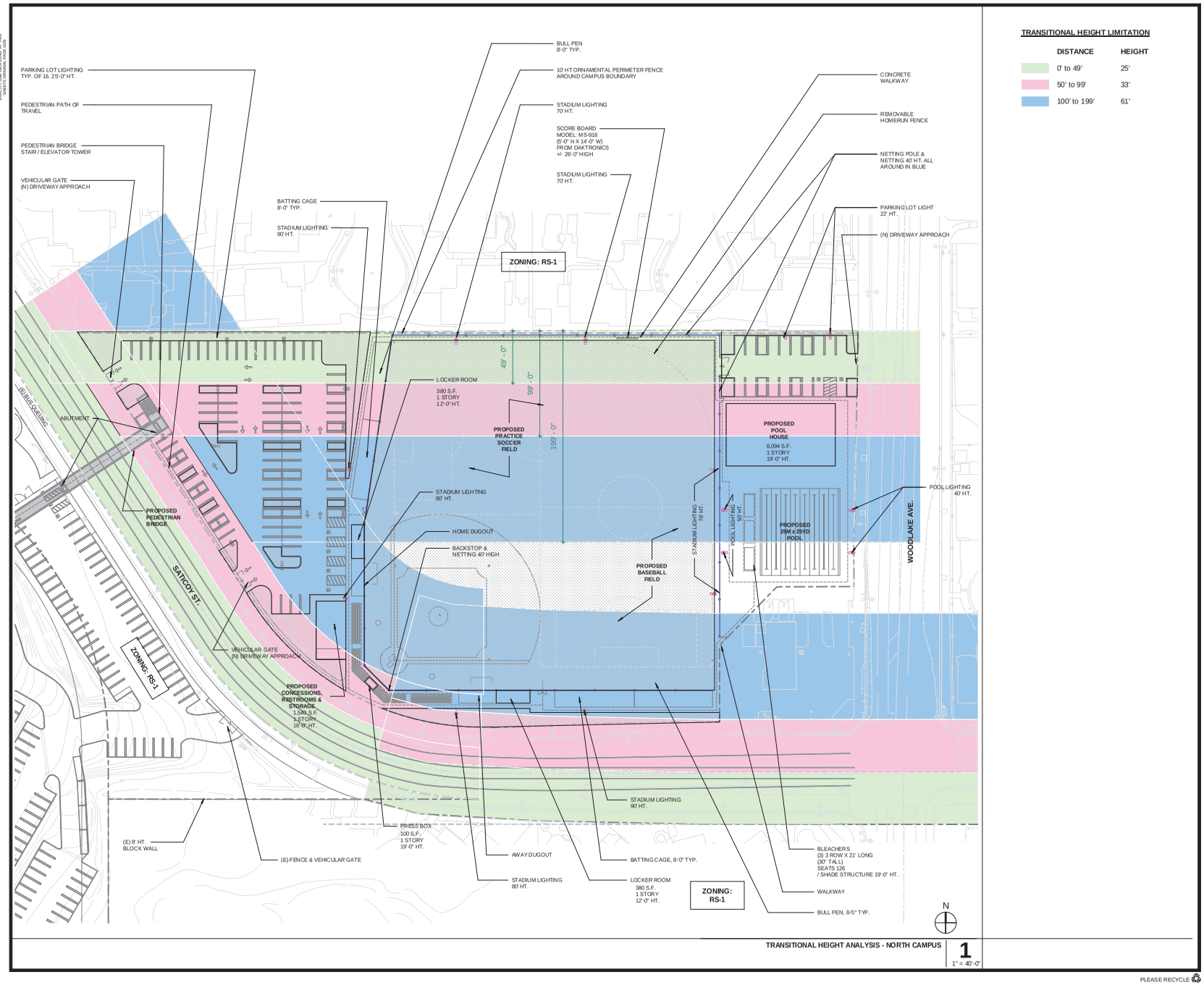
ENLARGED SITE PLAN - NORTH CAMPUS

CAMPUS PLAN

DATE: 02/01/2024 | CLIENT PROJ NO:

SHEET:

A1.12



TRANSITIONAL HEIGHT LIMITATION

	DISTANCE	HEIGHT
	0' to 49'	25'
	50' to 99'	33'
	100' to 199'	61'

TRANSITIONAL HEIGHT ANALYSIS - NORTH CAMPUS

1
1" = 40'-0"

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West Hills, CA 91304

PROJECT:

CHAMINADE COLLEGE PREPARATORY HIGH SCHOOL

SHEET NAME:

TRANSITIONAL HEIGHT ANALYSIS - NORTH CAMPUS

CAMPUS PLAN

DATE: 02/01/2024

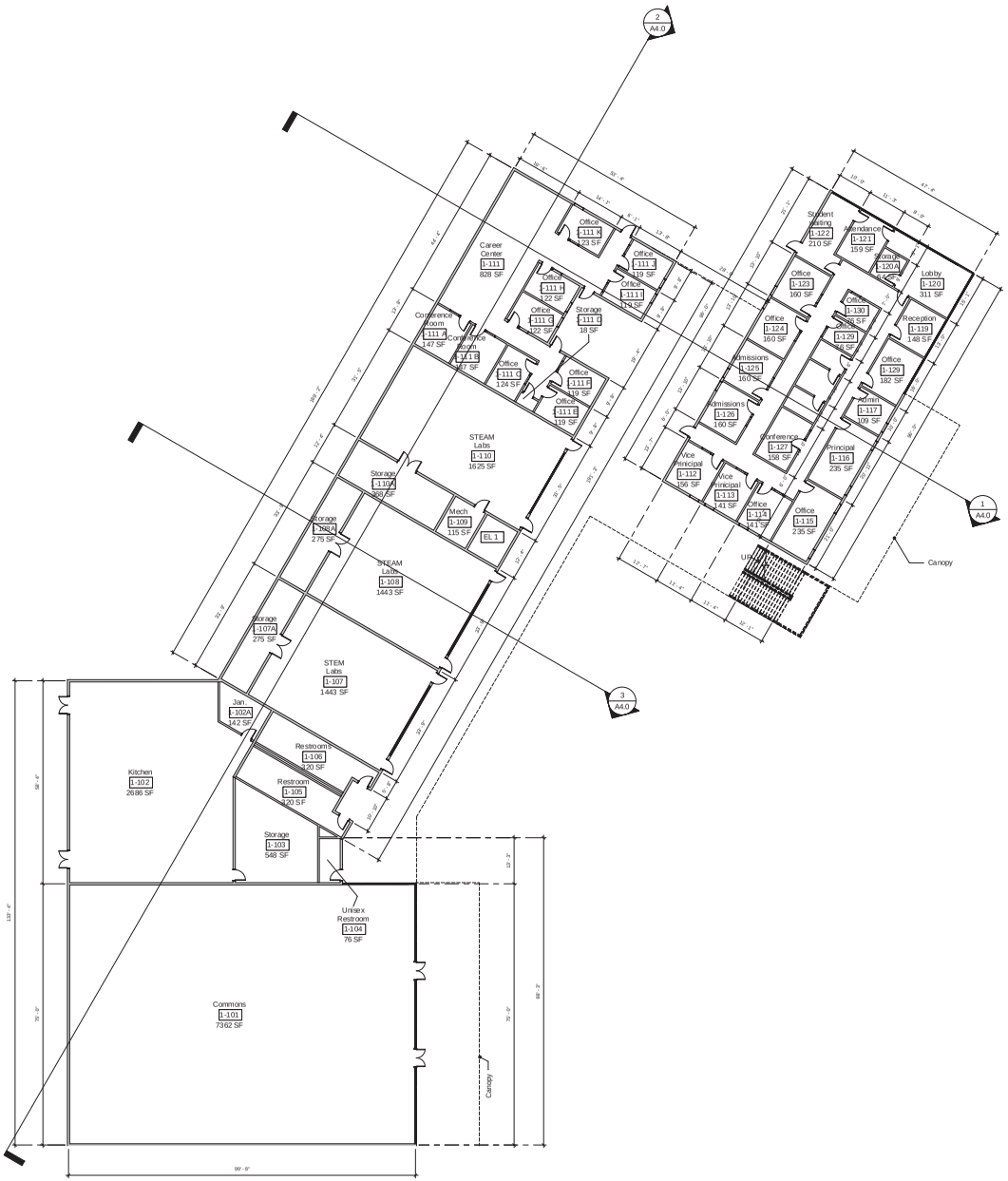
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PLEASE RECYCLE

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(N) MULTISTORY BUILDING - FIRST FLOOR PLAN

1 1/16" = 1'-0"

N

PLEASE RECYCLE

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PROJECT:

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(N) MULTISTORY BUILDING - FIRST FLOOR PLAN

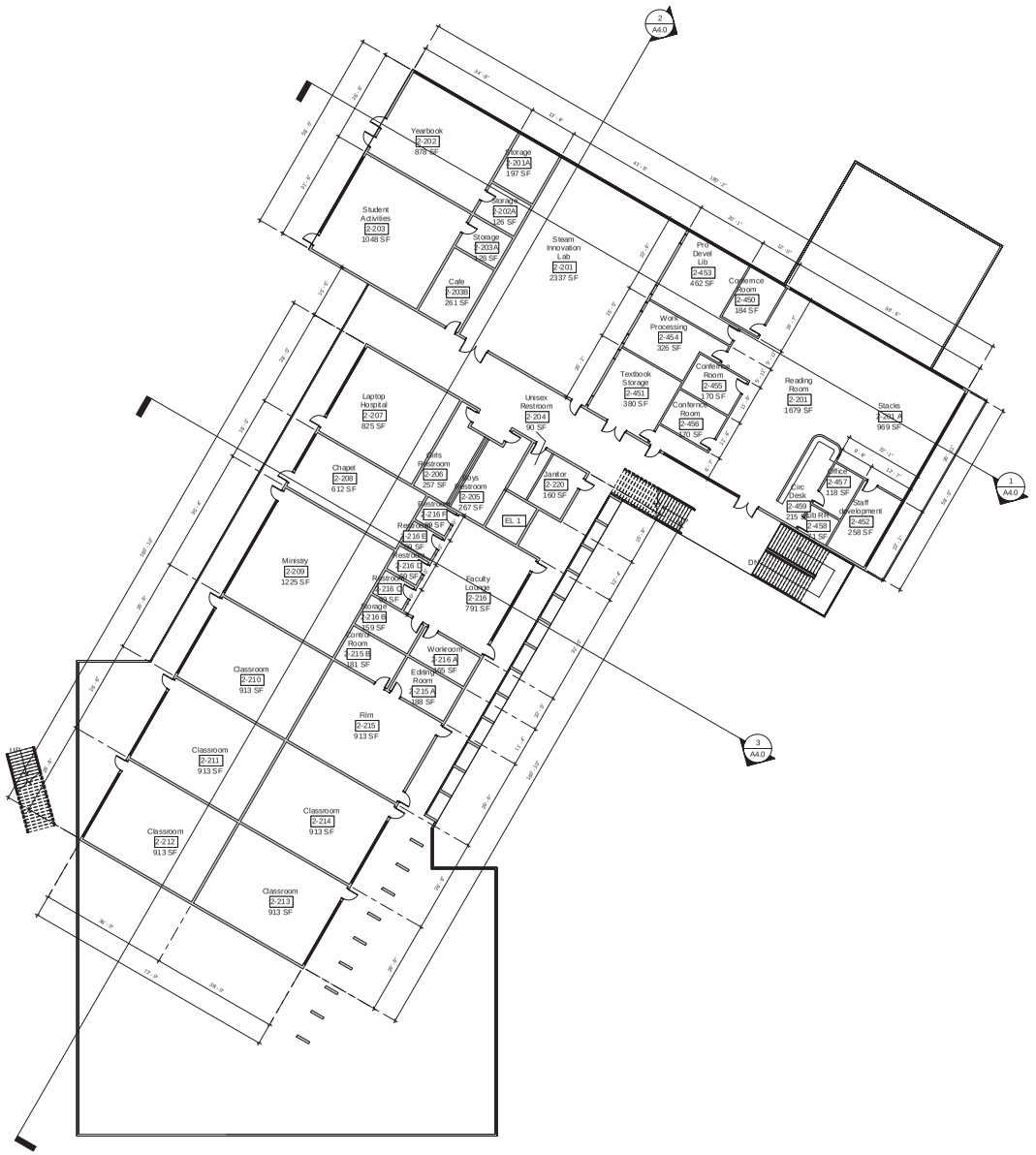
CAMPUS PLAN

DATE: 02/01/2024

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A2.0



N

(N) MULTISTORY BUILDING - SECOND FLOOR PLAN

1

1/16" = 1'-0"

PLEASE RECYCLE

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PROJECT:

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SHEET NAME:

(N) MULTISTORY BUILDING - SECOND FLOOR PLAN

CAMPUS PLAN

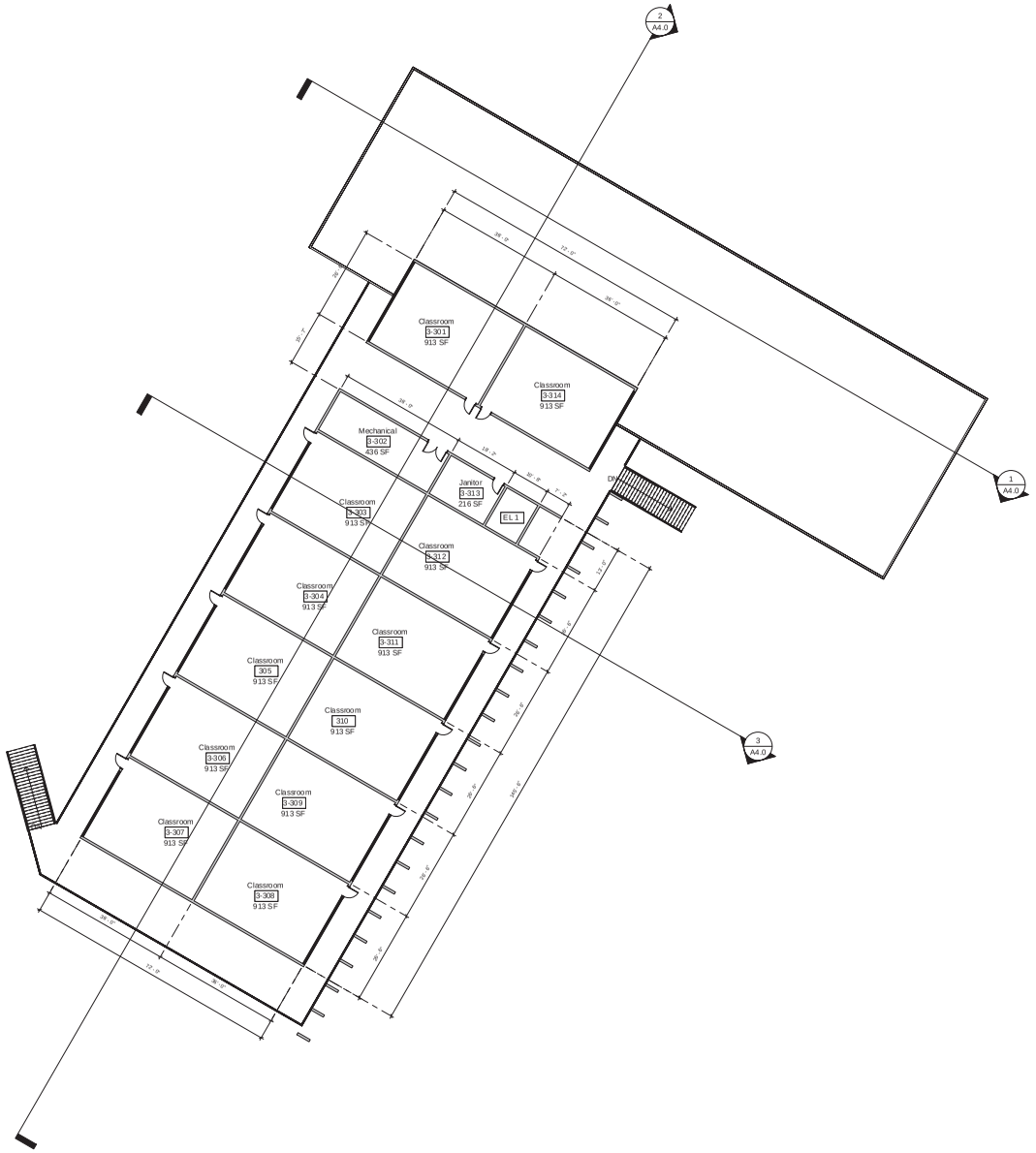
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(N) MULTISTORY BUILDING - THIRD FLOOR PLAN

1
1/16" = 1'-0"

PLEASE RECYCLE

AGENCY
APPROVAL:

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COLLEGE PREPARATORY

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PROJECT:

CHAMINADE COLLEGE PREPARATORY HIGH SCHOOL

SHEET NAME:

(N) MULTISTORY BUILDING - THIRD FLOOR PLAN

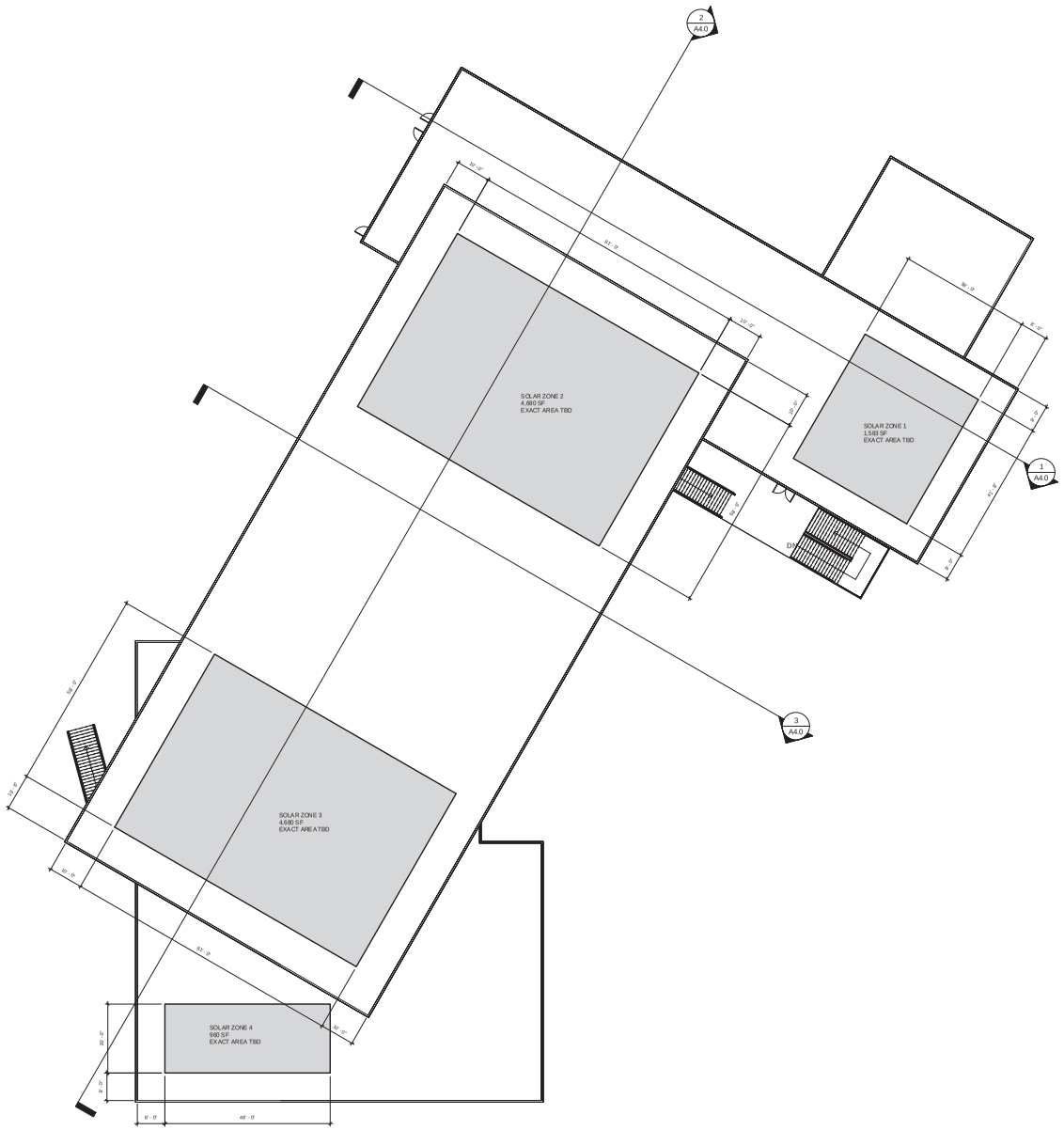
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DATE: 02/01/2024

CLIENT PROJ NO:

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A2.2



(N) MULTISTORY BUILDING - SECOND FLOOR PLAN

1
1/16" = 1'-0"

N

PLEASE RECYCLE

AGENCY APPROVAL:

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West Hills, CA 91304**

PROJECT:

CHAMINADE COLLEGE PREPARATORY HIGH SCHOOL

SHEET NAME:

(N) MULTISTORY BUILDING - ROOF PLAN

CAMPUS PLAN

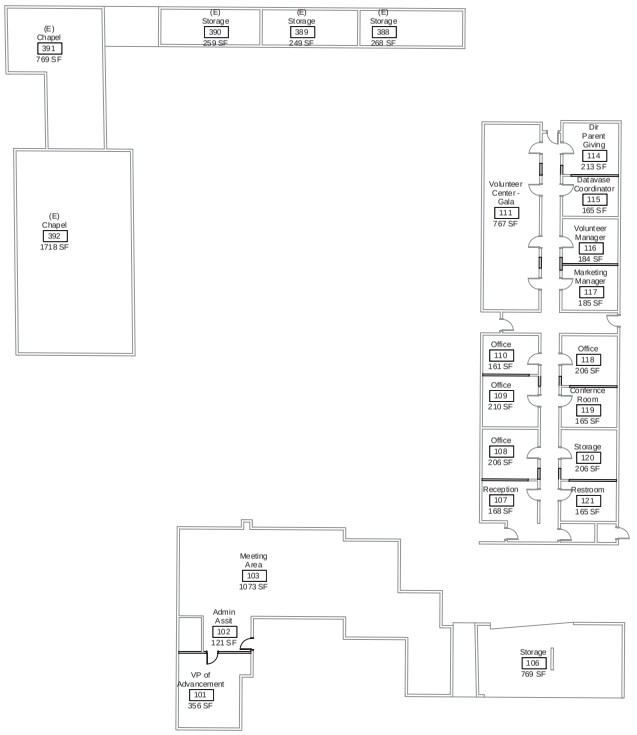
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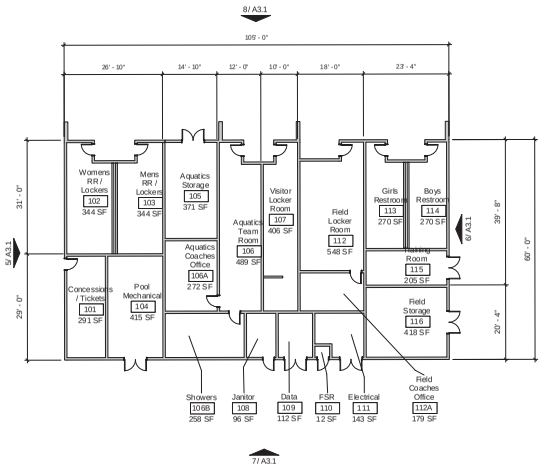
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A2.3

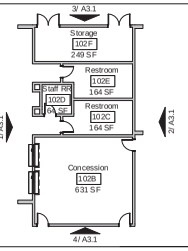
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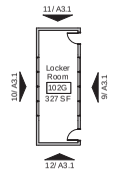
MAIN CAMPUS - REMODELED OFFICES **2** 1/16" = 1'-0"



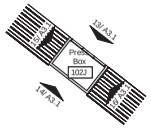
NORTH CAMPUS - POOL HOUSE - FLOOR PLAN **1** 1/16" = 1'-0"



NORTH CAMPUS - CONCESSION, RESTROOMS & STORAGE **3** 1/16" = 1'-0"



NORTH CAMPUS - LOCKER ROOM **5** 1/16" = 1'-0"



NORTH CAMPUS - PRESS BOX **4** 1/16" = 1'-0"

PLEASE RECYCLE

AGENCY APPROVAL:

CHAMINADE COLLEGE PREPARATORY

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FACILITY:

7500 Chaminade Ave,
West Hills, CA 91304

PROJECT:

CHAMINADE COLLEGE PREPARATORY HIGH SCHOOL

SHEET NAME:

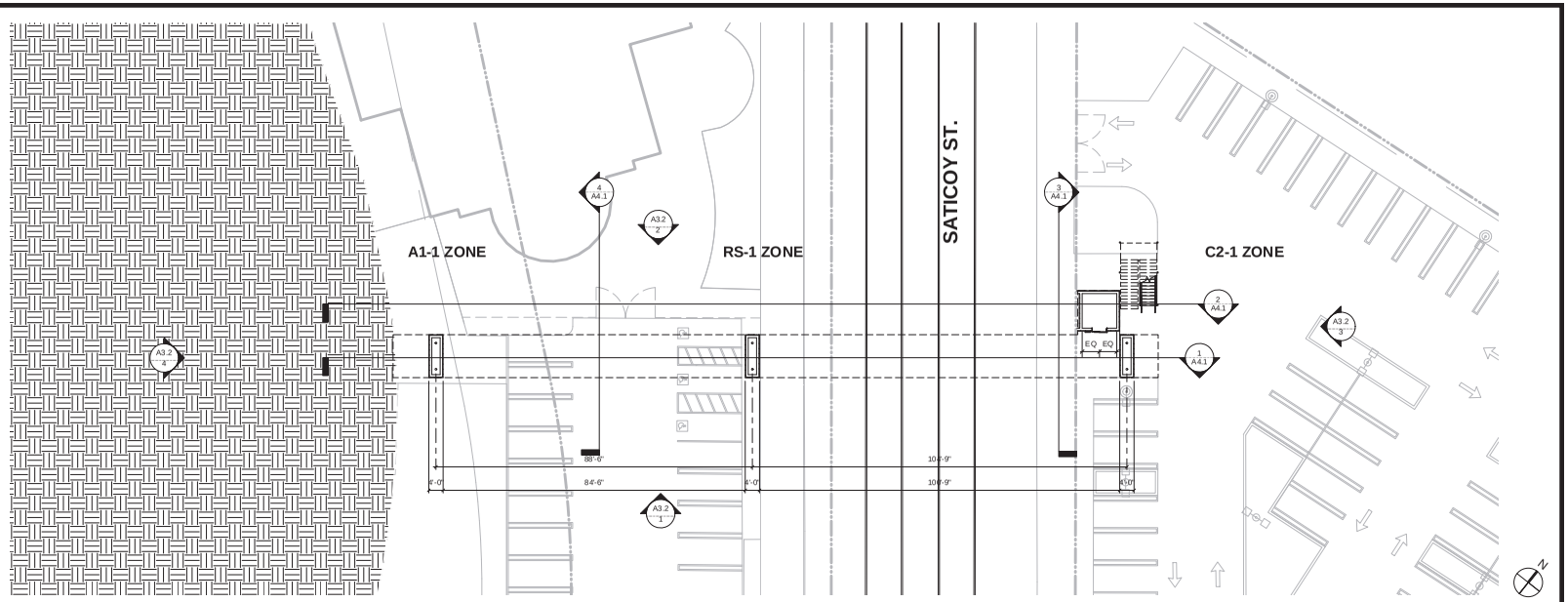
(N) POOL HOUSE, CONCESSIONS, LOCKER ROOM, PRESS BOX & REMODELED OFFICE - FLOOR PLANS

CAMPUS PLAN

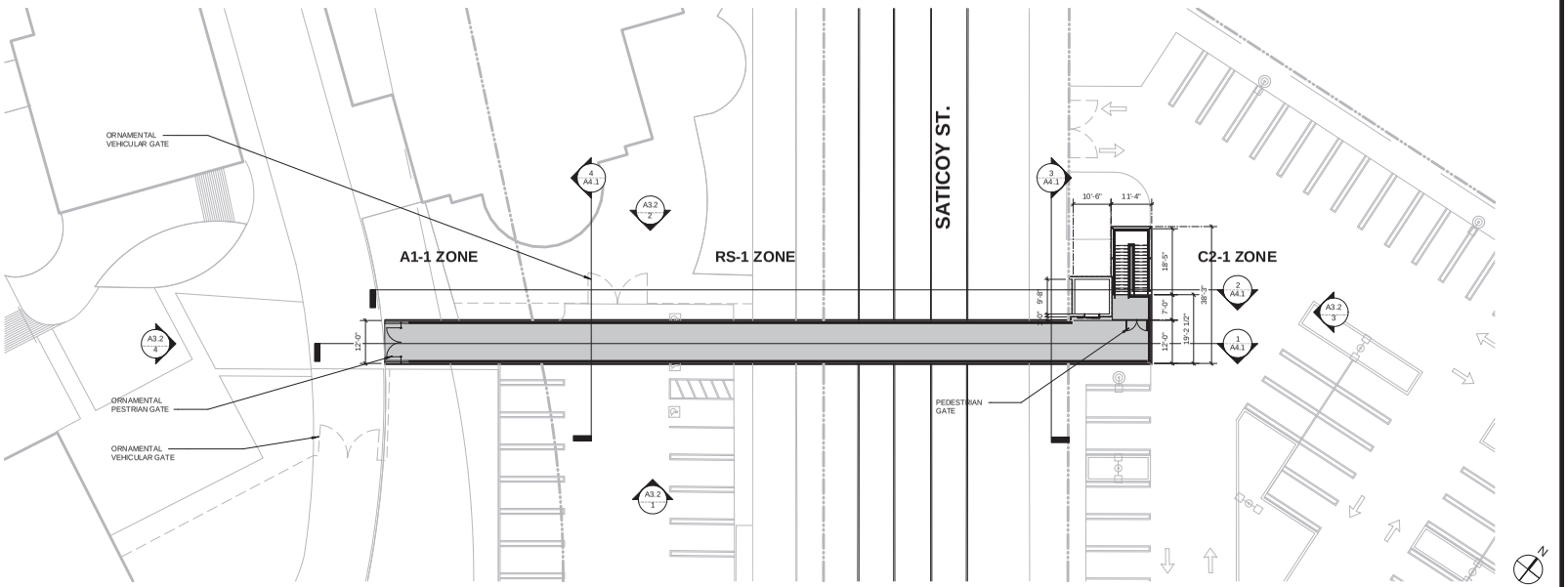
DATE: 02/01/2024 | CLIENT PROJ NO:

SHEET:

A2.4



PEDESTRIAN BRIDGE - GROUND FLOOR | 1 | 1/16" = 1'-0"



PEDESTRIAN BRIDGE - BRIDGE LEVEL | 2 | 1/16" = 1'-0"

PLEASE RECYCLE

AGENCY APPROVAL:

CHAMINADE COLLEGE PREPARATORY

HMC Architects

3561-003-000

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West Hills, CA 91304

PROJECT:

CHAMINADE COLLEGE PREPARATORY HIGH SCHOOL

SHEET NAME:

(N) PEDESTRIAN BRIDGE FLOOR PLAN

CAMPUS PLAN

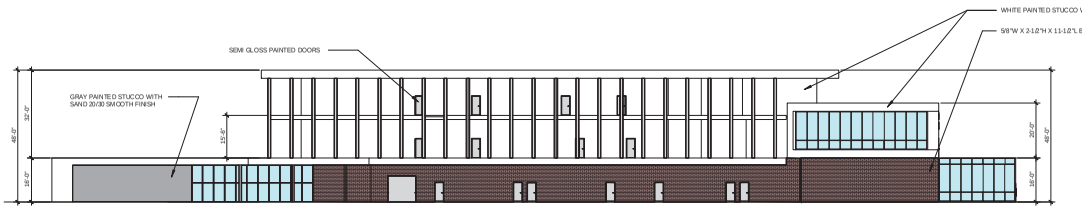
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CLIENT PROJ NO:

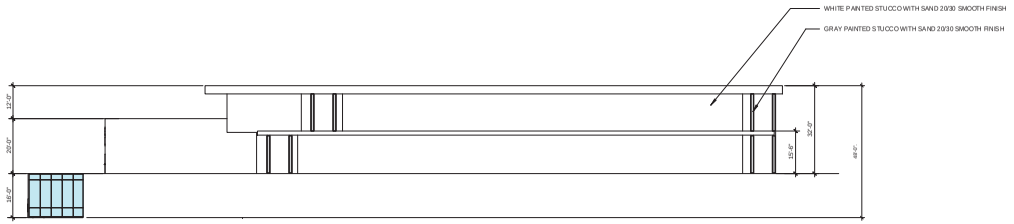
SHEET:

A2.5

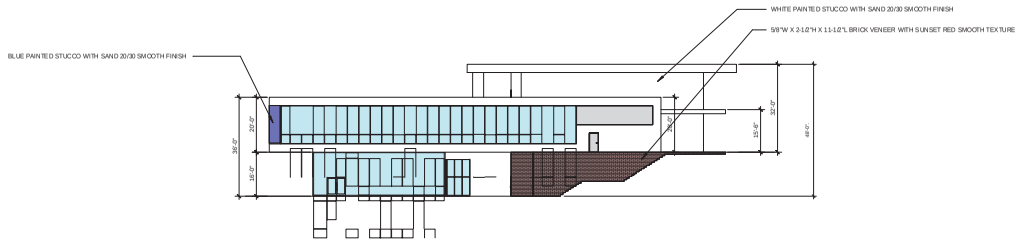
THE LINE SHOWN ABOVE IS EXACTLY ONE INCH LONG ON ORIGINAL PLOTS SHEETS ORIGINAL PAGE SIZE



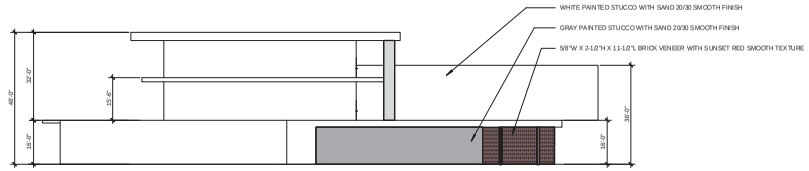
EAST ELEVATION 4
1/16" = 1'-0"



WEST ELEVATION 3
1/16" = 1'-0"



NORTH ELEVATION 2
1/16" = 1'-0"



SOUTH ELEVATION 1
1/16" = 1'-0"

PLEASE RECYCLE

AGENCY APPROVAL:

CHAMINADE COLLEGE PREPARATORY

HMC Architects

3561001000

3546 CONCOURS STREET
ONTARIO, CA 91764
909 989 9979 / www.hmcarchitects.com

Δ	DESCRIPTION	DATE

FACILITY:

7500 Chaminade Ave,
West Hills, CA 91304

PROJECT:

CHAMINADE COLLEGE PREPARATORY HIGH SCHOOL

SHEET NAME:

(N) MULTISTORY BUILDING - ELEVATION

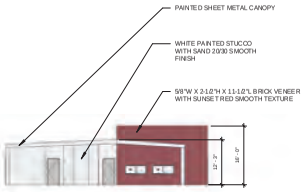
CAMPUS PLAN

DATE: 02/01/2024 | CLIENT PROJ NO:

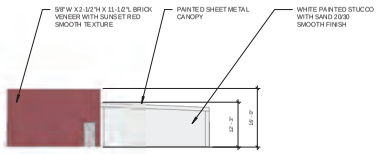
SHEET:

A3.0

THE LINE SHOWN ABOVE IS EXACTLY ONE INCH ON ORIGINAL SHEETS ORIGINAL PAGE SIZE



1 CONCESSION, RESTROOMS & STORAGE ELEVATION 1
1/16" = 1'-0"



2 CONCESSION, RESTROOMS & STORAGE ELEVATION 2
1/16" = 1'-0"



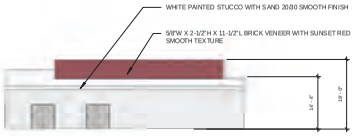
3 CONCESSION, RESTROOMS & STORAGE ELEVATION 3
1/16" = 1'-0"



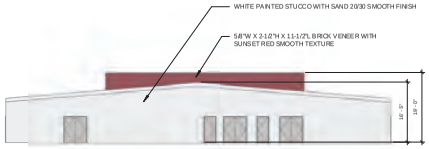
4 CONCESSION, RESTROOMS & STORAGE ELEVATION 4
1/16" = 1'-0"



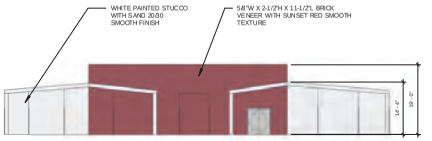
5 POOL HOUSE ELEVATION 1
1/16" = 1'-0"



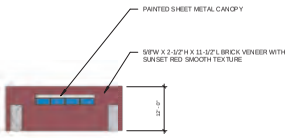
6 POOL HOUSE ELEVATION 2
1/16" = 1'-0"



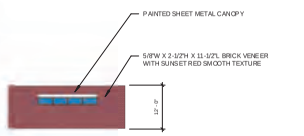
7 POOL HOUSE ELEVATION 3
1/16" = 1'-0"



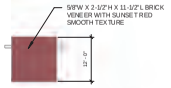
8 POOL HOUSE ELEVATION 4
1/16" = 1'-0"



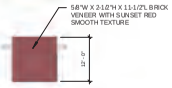
9 LOCKER ROOM ELEVATION 1
1/16" = 1'-0"



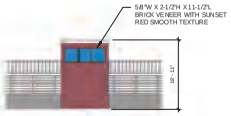
10 LOCKER ROOM ELEVATION 2
1/16" = 1'-0"



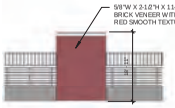
11 LOCKER ROOM ELEVATION 3
1/16" = 1'-0"



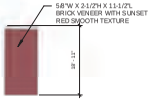
12 LOCKER ROOM ELEVATION 4
1/16" = 1'-0"



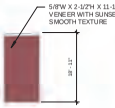
13 PRESS BOX ELEVATION 1
1/16" = 1'-0"



14 PRESS BOX ELEVATION 2
1/16" = 1'-0"



15 PRESS BOX ELEVATION 3
1/16" = 1'-0"



16 PRESS BOX ELEVATION 4
1/16" = 1'-0"

AGENCY APPROVAL:

CHAMINADE COLLEGE PREPARATORY

HMC Architects

3561001000

3546 CONCOURS STREET
ONTARIO, CA 91764
909 989 9979 / www.hmcarchitects.com

Δ	DESCRIPTION	DATE

FACILITY:

7500 Chaminade Ave,
West Hills, CA 91304

PROJECT:

CHAMINADE COLLEGE PREPARATORY HIGH SCHOOL

SHEET NAME:

(N) POOL HOUSE, CONCESSIONS, LOCKER ROOM & PRESS BOX - ELEVATIONS

CAMPUS PLAN

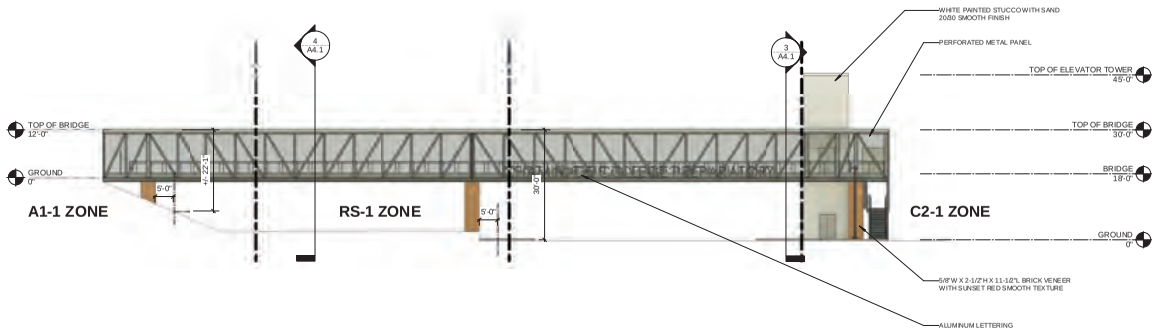
DATE: 02/01/2024

CLIENT PROJ NO:

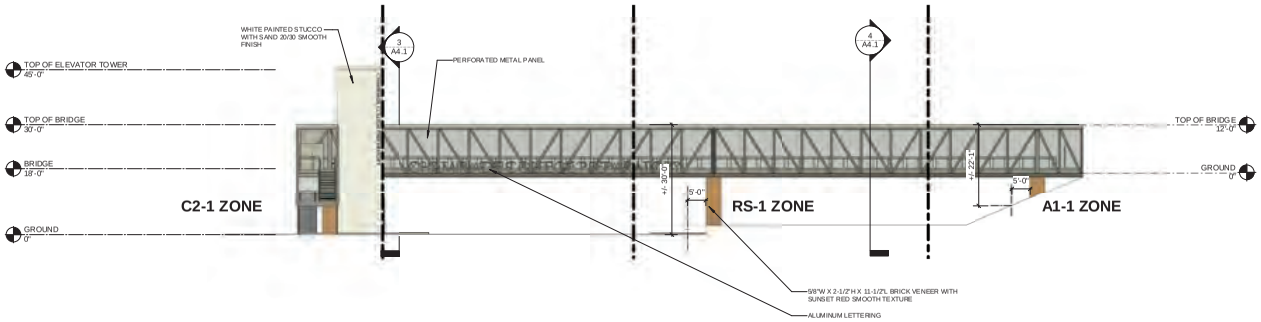
SHEET:

A3.1

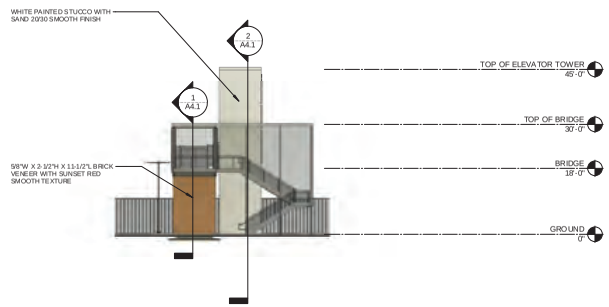
PLEASE RECYCLE



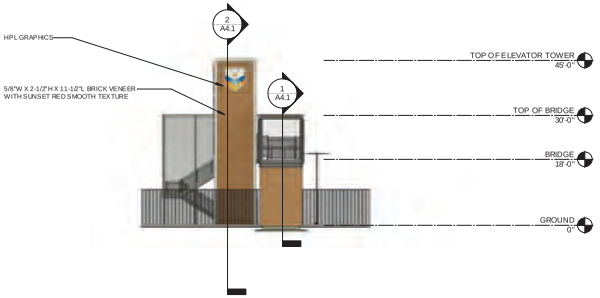
ELEVATION A | 1 | 1/16" = 1'-0"



ELEVATION B | 2 | 1/16" = 1'-0"



ELEVATION C | 3 | 1/16" = 1'-0"



ELEVATION D | 4 | 1/16" = 1'-0"

PLEASE RECYCLE

AGENCY APPROVAL:

CHAMINADE COLLEGE PREPARATORY

HMC Architects

3561-003-000

3546 CONCOURS STREET
ONTARIO, CA 91764
909 989 99 79 / www.hmcarchitects.com

Δ	DESCRIPTION	DATE

FACILITY:

7500 Chaminade Ave,
West Hills, CA 91304

PROJECT:

CHAMINADE COLLEGE PREPARATORY HIGH SCHOOL

SHEET NAME:

(N) PEDESTRIAN BRIDGE ELEVATION

CAMPUS PLAN

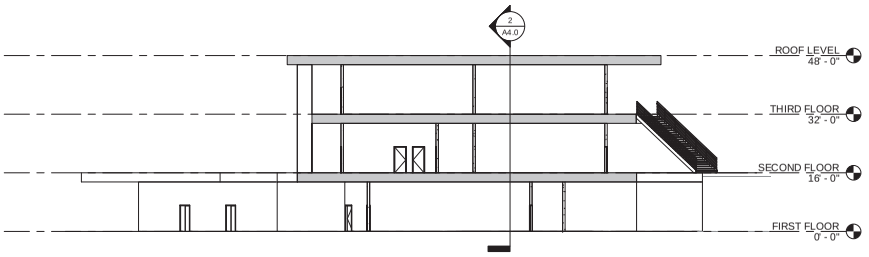
DATE: 02/01/2024

CLIENT PROJ NO:

SHEET:

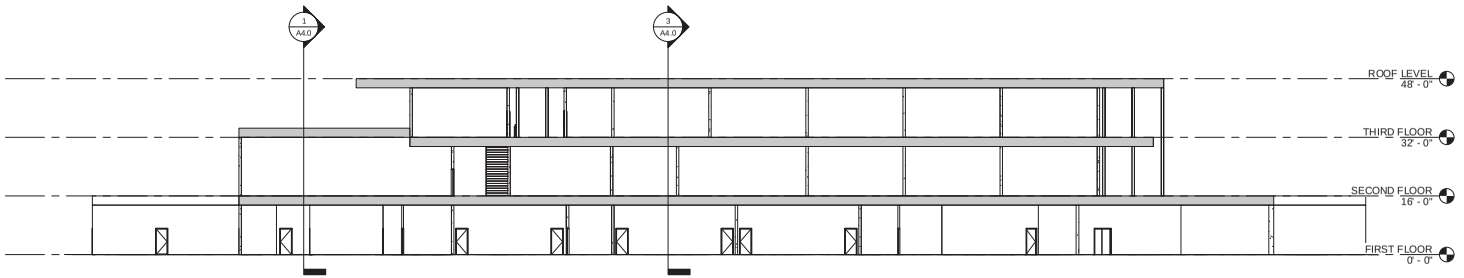
A3.2

THE LINE SHOWN ABOVE IS EXACTLY ONE INCH LONG ON ORIGINAL PLANS. IF NOT 1" ADJUST SCALE ACCORDINGLY



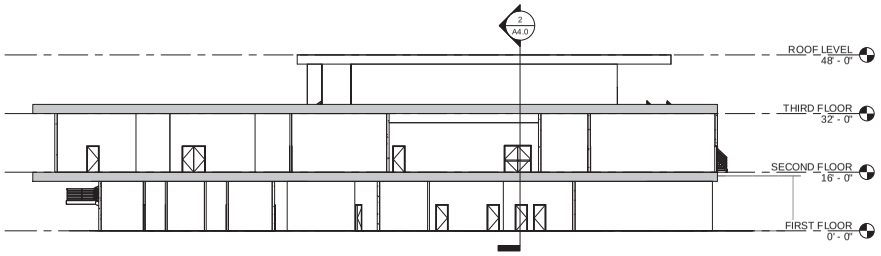
(N) MULTISTORY BUILDING - SECTION 3

3
1/16" = 1'-0"



(N) MULTISTORY BUILDING - SECTION 2

2
1/16" = 1'-0"



(N) MULTISTORY BUILDING - SECTION 1

1
1/16" = 1'-0"

PLEASE RECYCLE

AGENCY APPROVAL:

CHAMINADE COLLEGE PREPARATORY

HMC Architects

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ONTARIO, CA 91764
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Δ	DESCRIPTION	DATE

FACILITY:

7500 Chaminade Ave,
West Hills, CA 91304

PROJECT:

CHAMINADE COLLEGE PREPARATORY HIGH SCHOOL

SHEET NAME:

(N) MULTISTORY BUILDING - SECTIONS

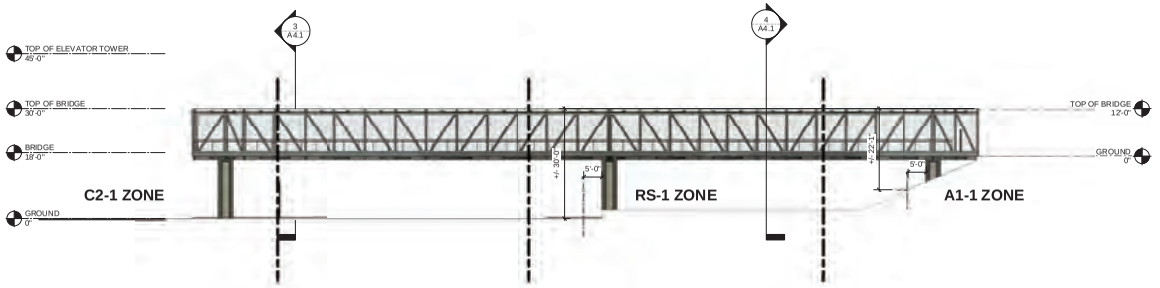
CAMPUS PLAN

DATE: 02/01/2024

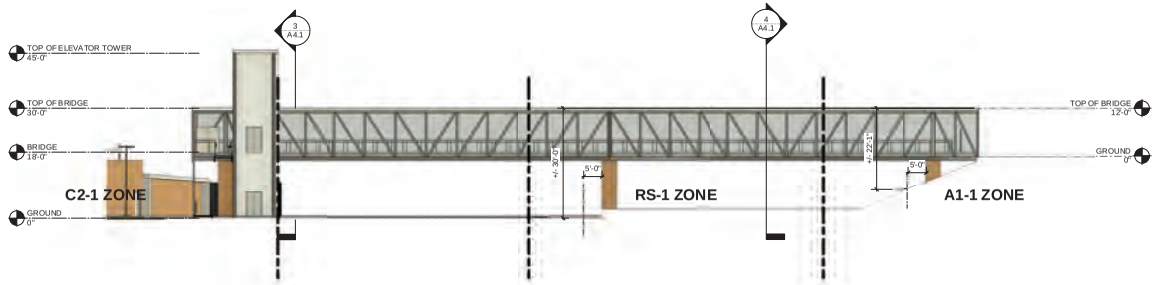
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SHEET:

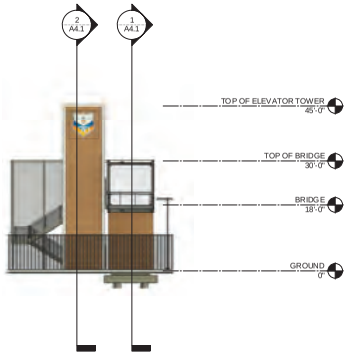
A4.0



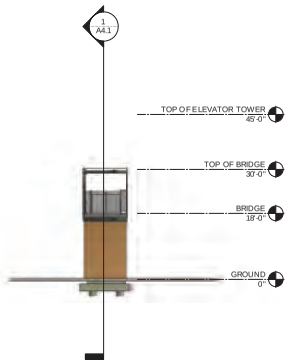
SECTION A 1 1/16" = 1'-0"



SECTION B 2 1/16" = 1'-0"



SECTION C 3 1/16" = 1'-0"



SECTION D 4 1/16" = 1'-0"

PLEASE RECYCLE

AGENCY APPROVAL:

CHAMINADE COLLEGE PREPARATORY

HMC Architects

3561-003-000

3546 CONCOURS STREET
ONTARIO, CA 91764
909 989 99 79 / www.hmcarchitects.com

Δ	DESCRIPTION	DATE

FACILITY:

7500 Chaminade Ave,
West Hills, CA 91304

PROJECT:

CHAMINADE COLLEGE PREPARATORY HIGH SCHOOL

SHEET NAME:

(N) PEDESTRIAN BRIDGE SECTION

CAMPUS PLAN

DATE: 02/01/2024

CLIENT PROJ NO:

SHEET:

A4.1

THE LINE SHOWN ABOVE IS 1" LONG ON ORIGINAL ARCH D SHEETS ORIGINAL PAGE SIZE



(N) MULTISTORY BUILDING - VIEW **01**

PLEASE RECYCLE

AGENCY APPROVAL:

CHAMINADE COLLEGE PREPARATORY

HMC Architects

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ONTARIO, CA 91764
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Δ	DESCRIPTION	DATE



FACILITY:

7500 Chaminade Ave,
West Hills, CA 91304

PROJECT:

CHAMINADE COLLEGE PREPARATORY HIGH SCHOOL

SHEET NAME:

RENDERINGS - MAIN CAMPUS

CAMPUS PLAN

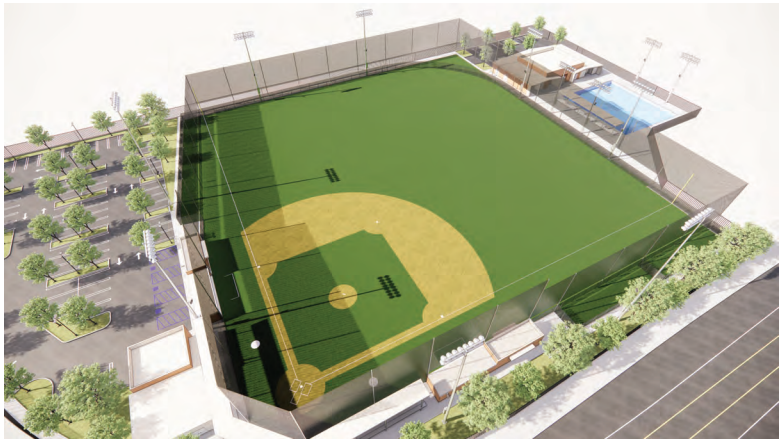
DATE: 02/01/2024

CLIENT PROJ NO:

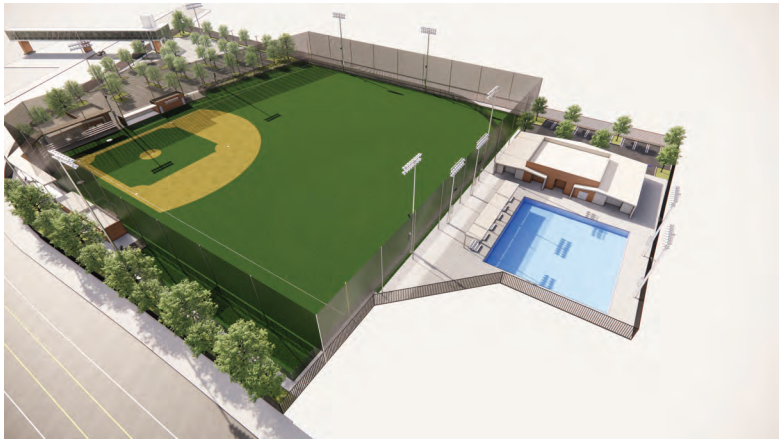
SHEET:

A5.0

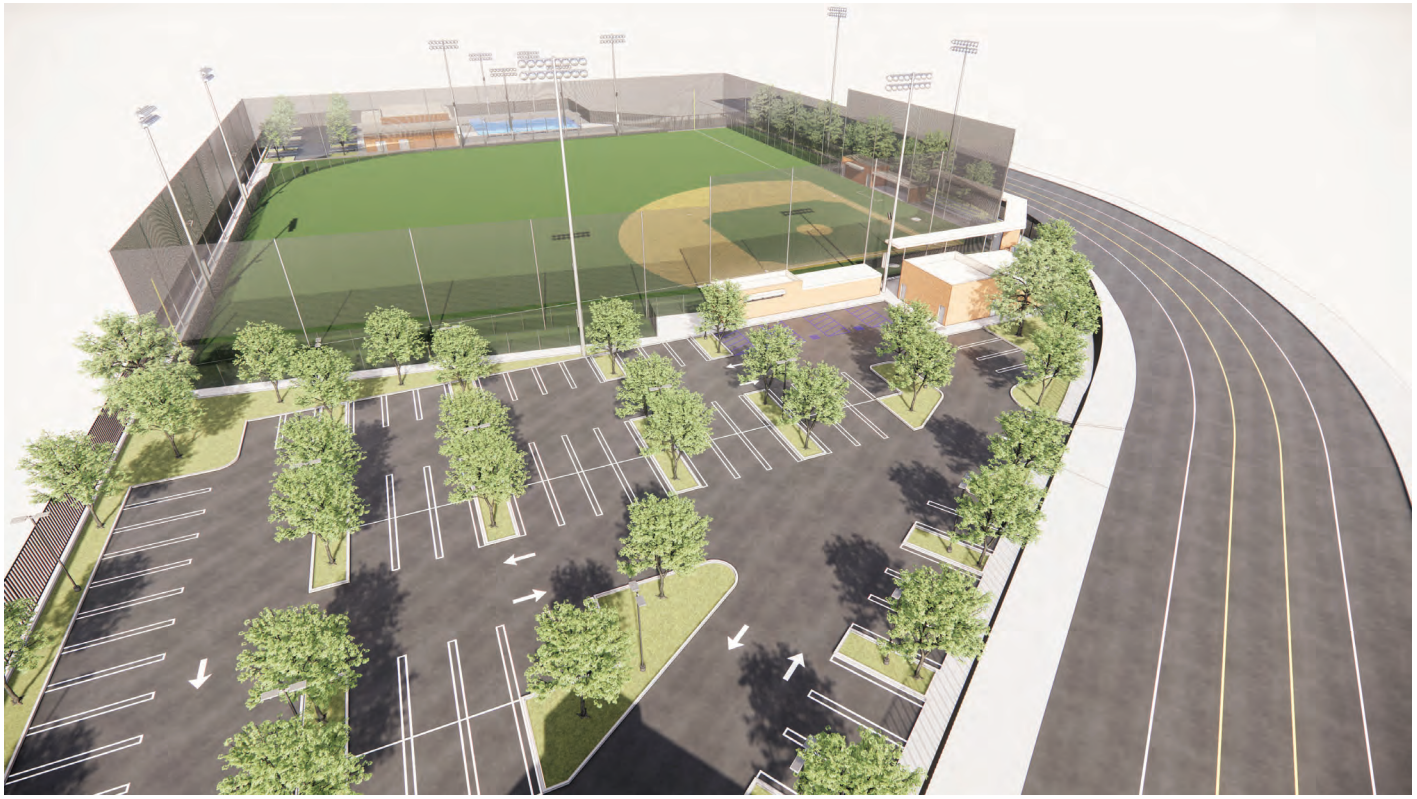
THE LINE SHOWN ABOVE IS EXACTLY 1" LONG WHEN PLOTTED ON SHEETS ORIGINAL PAGE SIZE



NORTH CAMPUS - VIEW **01**



NORTH CAMPUS - VIEW **02**



NORTH CAMPUS - VIEW **03**

AGENCY APPROVAL:

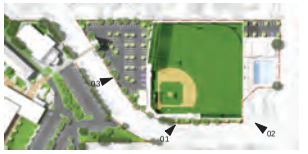
CHAMINADE COLLEGE PREPARATORY

HMC Architects

3561001000

3546 CONCOURS STREET
ONTARIO, CA 91764
909 989 9979 / www.hmcarchitects.com

Δ	DESCRIPTION	DATE



FACILITY:

**7500 Chaminade Ave,
West Hills, CA 91304**

PROJECT:

CHAMINADE COLLEGE PREPARATORY HIGH SCHOOL

SHEET NAME:

RENDERINGS - NORTH CAMPUS

CAMPUS PLAN

DATE: 02/01/2024 | CLIENT PROJ NO:

SHEET:

A5.1

PLEASE RECYCLE

THE LINE SHOWN ABOVE IS EXACTLY 3" LONG WHEN PLOTTED ON ORIGINAL PAGE SIZE SHEETS



PEDESTRIAN BRIDGE - VIEW **01**



PEDESTRIAN BRIDGE - VIEW **02**



PEDESTRIAN BRIDGE - VIEW **03**

PLEASE RECYCLE

AGENCY APPROVAL:

CHAMINADE COLLEGE PREPARATORY

HMC Architects

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ONTARIO, CA 91764
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Δ	DESCRIPTION	DATE



FACILITY:

7500 Chaminade Ave,
West Hills, CA 91304

PROJECT:

CHAMINADE COLLEGE PREPARATORY HIGH SCHOOL

SHEET NAME:

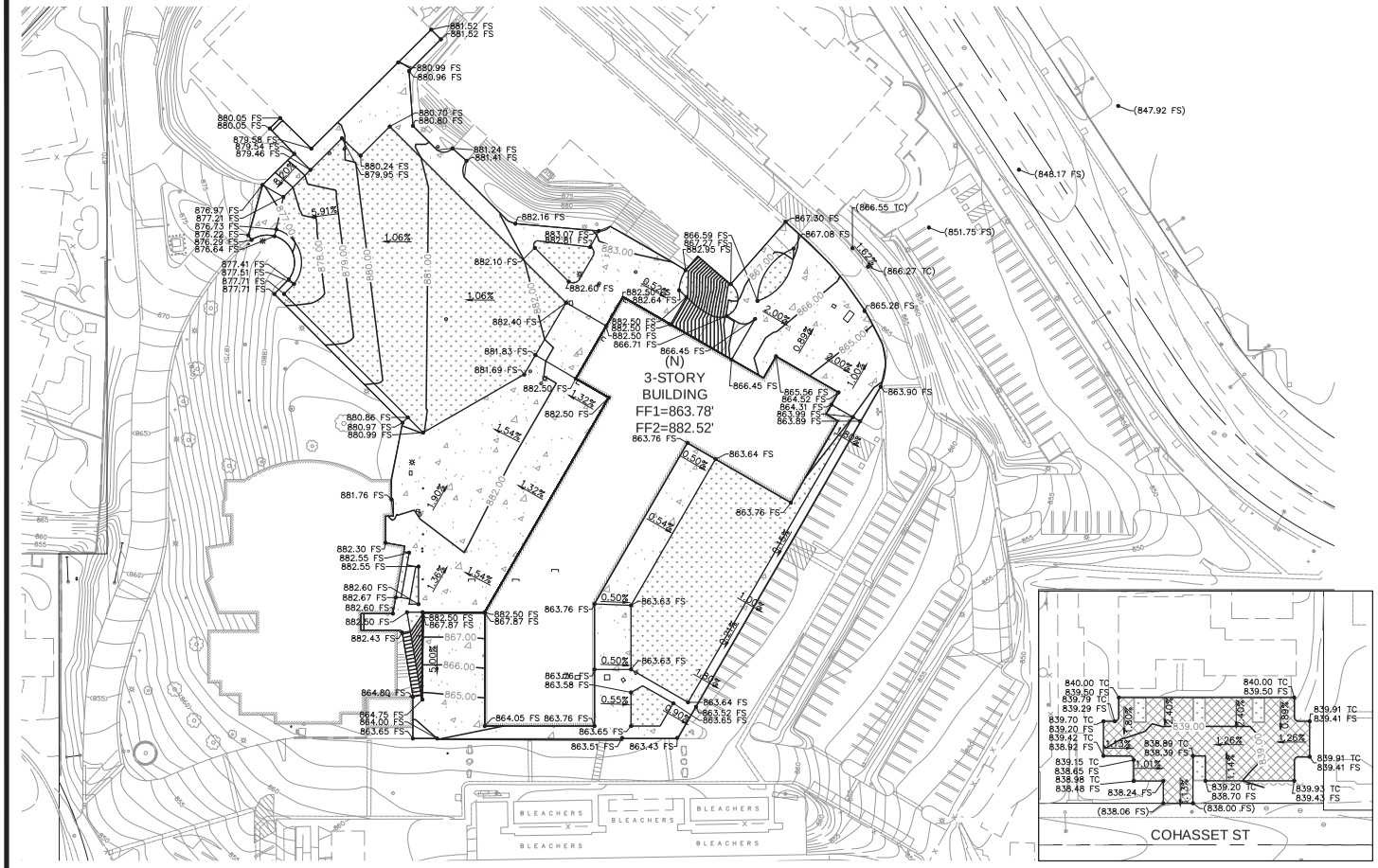
RENDERINGS - PEDESTRIAN BRIDGE

CAMPUS PLAN

DATE: 02/01/2024 | CLIENT PROJ NO:

SHEET:

A5.2



ESTIMATED EARTHWORK QUANTITY

ESTIMATED CUT = 18,764 CY
ESTIMATED FILL = 964 CY
NET VOLUME = 17,800 CY (EXPORT)

NOTES:

1. ESTIMATED EARTHWORK ABOVE IS BASED ON DESIGN FINISH GRADES TO EXISTING GRADES IN SURVEY. THE ESTIMATED EARTHWORK DOES NOT CONSIDER THE THICKNESS OF EACH PAVEMENT MATERIAL OR THE REMOVAL OF ANY UNSUITABLE MATERIAL.
2. THE ESTIMATED EARTHWORK QUANTITIES DO NOT INCLUDE SHRINKAGE FACTORS DUE TO COMPACTION.
3. THE CONTRACTOR SHALL CALCULATE HIS OWN EARTHWORK QUANTITIES NECESSARY FOR HIS BID AND WORK. VCA IS NOT RESPONSIBLE AND LIABLE FOR THE CONTRACTOR'S EARTHWORK CALCULATIONS.
4. ESTIMATED EARTHWORK QUANTITIES ABOVE ASSUME THAT ALL ON-SITE MATERIALS ARE SUITABLE FOR BACKFILLING. HOWEVER, ACTUAL EXISTING ON-SITE MATERIALS AND IMPORTED MATERIALS MUST FIRST BE APPROVED BY THE GEOTECHNICAL ENGINEER PRIOR TO INSTALLATION, REMOVAL, OR REPLACEMENT.
5. CONTRACTOR SHALL REFER TO GEOTECHNICAL REPORT ALL OTHER REQUIREMENTS THAT MAY BE REQUIRED IN ORDER TO CALCULATE THE CUT AND FILL QUANTITIES.

SHEET NOTES:

1. ALL GRADING SHALL BE PERFORMED IN ACCORDANCE WITH THE REQUIREMENTS OF THE JURISDICTIONAL AGENCIES.
2. PROVIDE A HAUL ROUTE AS REQUIRED BY THE JURISDICTIONAL AGENCIES.
3. NO GRADING WORK SHALL BE PERFORMED AT ANY TIME WITHOUT AN EROSION CONTROL SYSTEM APPROVED BY ENGINEER. BETWEEN NOVEMBER 1 AND APRIL 15, ANY GRADING WORK SHALL BE PERFORMED WITH AN EROSION CONTROL SYSTEM APPROVED BY THE ENGINEER AND THE JURISDICTIONAL DISTRICT.
4. CONSTRUCT DESIGN GRADES SHOWN ON PLAN. CONSTRUCT STRAIGHT GRADES BETWEEN INDICATED ELEVATIONS UNLESS INTERRUPTED BY A GRADE CHANGE LINE. ANY DEVIATIONS FORM THE GRADING PLAN MUST HAVE PRIOR APPROVAL OF THE ARCHITECT.
5. CONTRACTOR SHALL RECOMPACT THE TOP 12" OF THE PAVING SUB GRADE TO 95% MAXIMUM RELATIVE DENSITY.
6. THE CONTRACTOR SHALL NOT BEGIN THE PAVING OPERATION UNTIL THE SUB GRADE HAS BEEN APPROVED BY THE DISTRICT RETAINED GEOTECHNICAL ENGINEER AND IOR.
7. THE CONTRACTOR IS ADVISED THAT THE APPROVAL OF THIS PLAN DOES NOT WAIVE THE REQUIREMENTS FOR EXCAVATIONS CONTAINED IN THE STATE CONSTRUCTION SAFETY ORDERS ENFORCED BY THE STATE DIVISION OF INDUSTRIAL SAFETY.
8. NO FILL TO BE PLACED, UNTIL THE GEOTECHNICAL ENGINEER OR IOR HAS INSPECTED AND APPROVED THE BOTTOM OF EXCAVATION.
9. ALL FILL OR BACK FILL SHALL BE COMPACTED BY MECHANICAL MEANS TO A MINIMUM 95% RELATIVE COMPACTION AS DETERMINED BY THE ASTM D-1557. ALL FILL INSTALLATION SHALL REQUIRE CERTIFICATION BY THE GEOTECHNICAL ENGINEER PRIOR TO FOUNDATION INSTALLATION.

SITE GRADING PLAN
MAIN CAMPUS

40 20 0 40 80

SCALE: 1" = 40'

PLEASE RECYCLE

AGENCY APPROVAL:

3561001000

3546 CONCOURS STREET
ONTARIO, CA 91764
909 989 9979 / www.hmcarchitects.com

Δ	DESCRIPTION	DATE

REGISTERED PROFESSIONAL ENGINEER
ENGELIO C. KOMAN
No. C36079
Exp. 6/30/24
CIVIL
STATE OF CALIFORNIA

VCA ENGINEERS INC
CIVIL • STRUCTURAL
1041 S. Garfield Avenue, Suite 210
Alhambra, CA 91801
Tel. 323.729.6098
Fax. 323.729.6043

FACILITY:

7500 Chaminade Ave,
West Hills, CA 91304

PROJECT:

CHAMINADE HIGH SCHOOL CUP

SHEET NAME: **SITE GRADING PLAN MAIN CAMPUS**

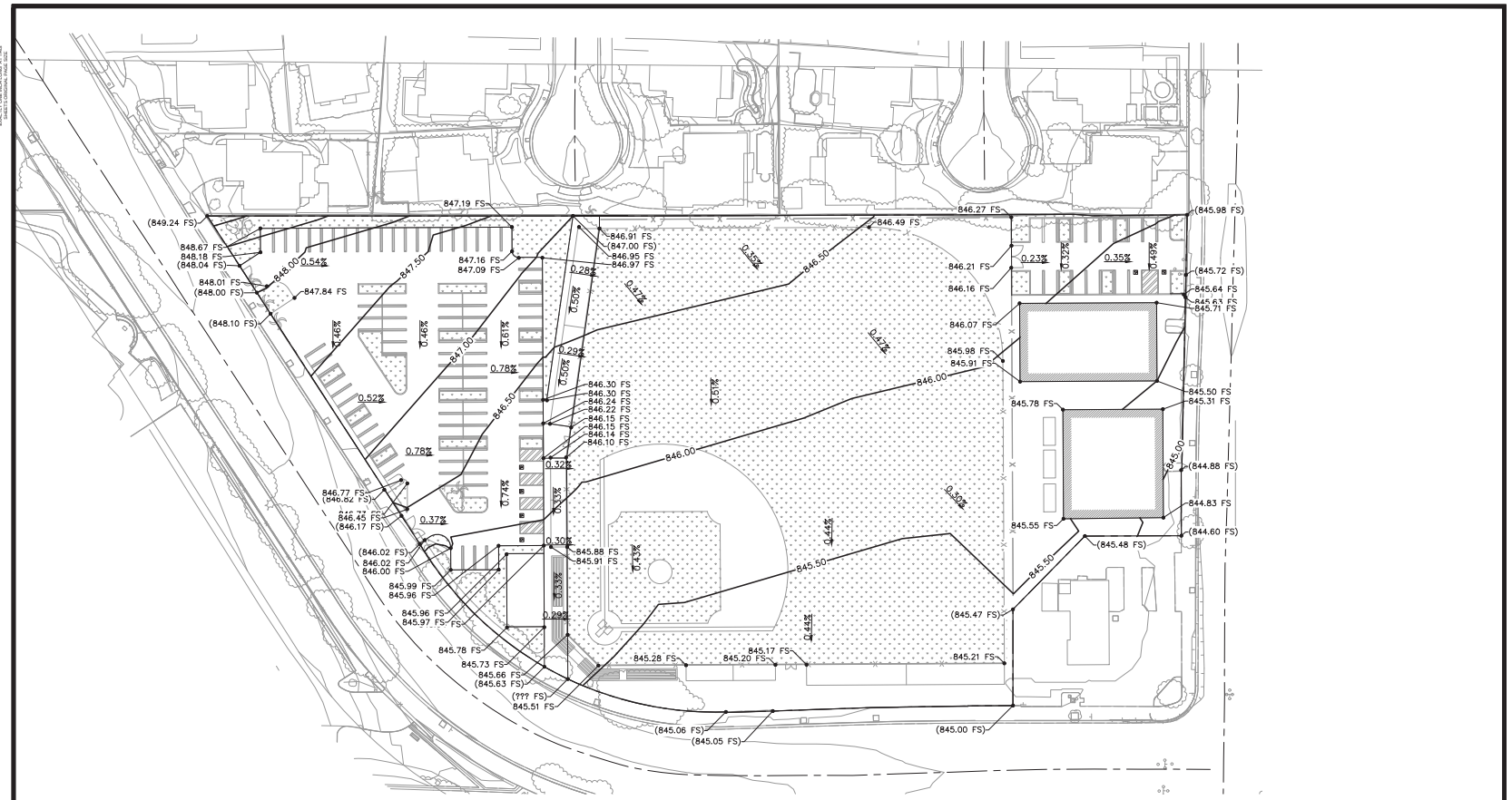
CAMPUS PLAN

DATE: 02/01/2024

CLIENT PROJ NO:

SHEET:

C-3.0



ESTIMATED EARTHWORK QUANTITY

ESTIMATED CUT = 1,577 CY
ESTIMATED FILL = 857 CY
NET VOLUME = 720 CY (EXPORT)

NOTES:

1. ESTIMATED EARTHWORK ABOVE IS BASED ON DESIGN FINISH GRADES TO EXISTING GRADES IN SURVEY. THE ESTIMATED EARTHWORK DOES NOT CONSIDER THE THICKNESS OF EACH PAVEMENT MATERIAL OR THE REMOVAL OF ANY UNSUITABLE MATERIAL.
2. THE ESTIMATED EARTHWORK QUANTITIES DO NOT INCLUDE SHRINKAGE FACTORS DUE TO COMPACTION.
3. THE CONTRACTOR SHALL CALCULATE HIS OWN EARTHWORK QUANTITIES NECESSARY FOR HIS BID AND WORK. VCA IS NOT RESPONSIBLE AND LIABLE FOR THE CONTRACTOR'S EARTHWORK CALCULATIONS.
4. ESTIMATED EARTHWORK QUANTITIES ABOVE ASSUME THAT ALL ON-SITE MATERIALS ARE SUITABLE FOR BACKFILLING. HOWEVER, ACTUAL EXISTING ON-SITE MATERIALS AND IMPORTED MATERIALS MUST FIRST BE APPROVED BY THE GEOTECHNICAL ENGINEER PRIOR TO INSTALLATION, REMOVAL, OR REPLACEMENT.
5. CONTRACTOR SHALL REFER TO GEOTECHNICAL REPORT ALL OTHER REQUIREMENTS THAT MAY BE REQUIRED IN ORDER TO CALCULATE THE CUT AND FILL QUANTITIES.

SHEET NOTES:

1. ALL GRADING SHALL BE PERFORMED IN ACCORDANCE WITH THE REQUIREMENTS OF THE JURISDICTIONAL AGENCIES.
2. PROVIDE A HAUL ROUTE AS REQUIRED BY THE JURISDICTIONAL AGENCIES.
3. NO GRADING WORK SHALL BE PERFORMED AT ANY TIME WITHOUT AN EROSION CONTROL SYSTEM APPROVED BY ENGINEER. BETWEEN NOVEMBER 1 AND APRIL 15, ANY GRADING WORK SHALL BE PERFORMED WITH AN EROSION CONTROL SYSTEM APPROVED BY THE ENGINEER AND THE JURISDICTIONAL DISTRICT.
4. CONSTRUCT DESIGN GRADES SHOWN ON PLAN. CONSTRUCT STRAIGHT GRADES BETWEEN INDICATED ELEVATIONS UNLESS INTERRUPTED BY A GRADE CHANGE LINE. ANY DEVIATIONS FORM THE GRADING PLAN MUST HAVE PRIOR APPROVAL OF THE ARCHITECT.
5. CONTRACTOR SHALL RECOMPACT THE TOP 12" OF THE PAVING SUB GRADE TO 95% MAXIMUM RELATIVE DENSITY.
6. THE CONTRACTOR SHALL NOT BEGIN THE PAVING OPERATION UNTIL THE SUB GRADE HAS BEEN APPROVED BY THE DISTRICT RETAINED GEOTECHNICAL ENGINEER AND IOR.
7. THE CONTRACTOR IS ADVISED THAT THE APPROVAL OF THIS PLAN DOES NOT WAIVE THE REQUIREMENTS FOR EXCAVATIONS CONTAINED IN THE STATE CONSTRUCTION SAFETY ORDERS ENFORCED BY THE STATE DIVISION OF INDUSTRIAL SAFETY.
8. NO FILL TO BE PLACED, UNTIL THE GEOTECHNICAL ENGINEER OR IOR HAS INSPECTED AND APPROVED THE BOTTOM OF EXCAVATION.
9. ALL FILL OR BACK FILL SHALL BE COMPACTED BY MECHANICAL MEANS TO A MINIMUM 95% RELATIVE COMPACTION AS DETERMINED BY THE ASTM D-1557. ALL FILL INSTALLATION SHALL REQUIRE CERTIFICATION BY THE GEOTECHNICAL ENGINEER PRIOR TO FOUNDATION INSTALLATION.

SITE GRADING
PLAN-BASEBALL FIELD

40 20 0 40 80
SCALE: 1" = 40'

PLEASE RECYCLE

AGENCY APPROVAL:

3561001000

3546 CONCOURS STREET
ONTARIO, CA 91764
909 989 9979 / www.hmcarchitects.com

Δ	DESCRIPTION	DATE

REGISTERED PROFESSIONAL ENGINEER
ANGELO C. KOMAN
No. C36079
Exp. 6/30/24
CIVIL
STATE OF CALIFORNIA

VCA ENGINEERS INC
CIVIL • STRUCTURAL
1041 S. Garfield Avenue, Suite 210
Alhambra, CA 91801
Tel. 323.729.6098
Fax. 323.729.6043

FACILITY:

7500 Chaminade Ave,
West Hills, CA 91304

PROJECT:

CHAMINADE HIGH SCHOOL CUP

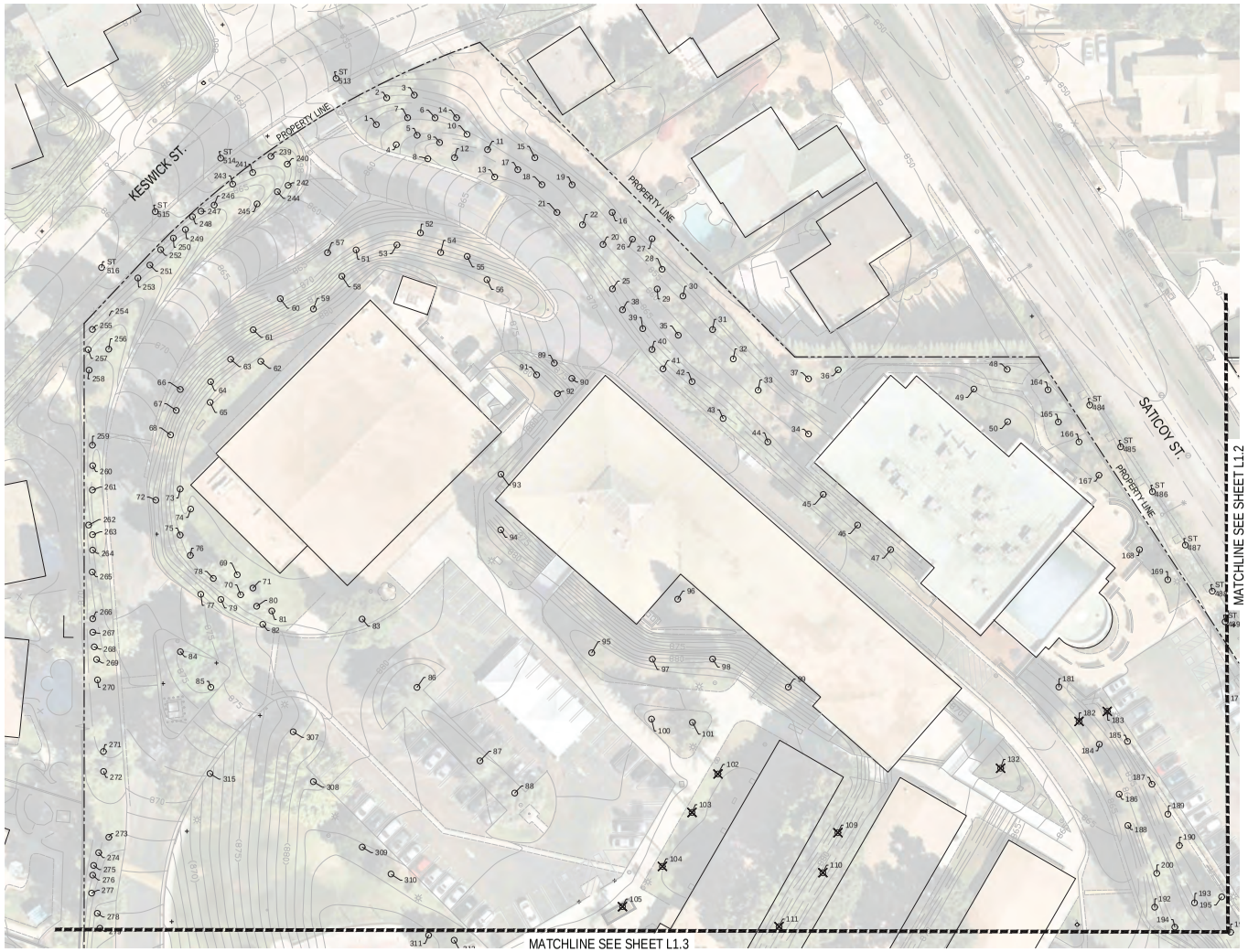
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SITE GRADING
PLAN-BASEBALL FIELD
CAMPUS PLAN

DATE 02/01/2024 | CLIENT PROJ NO:

SHEET:

C-3.1



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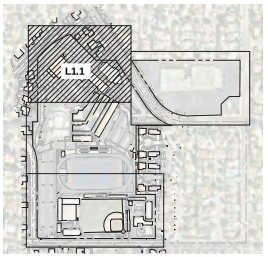
30' 15' 0' 30'

LEGEND

EXISTING TREE TO REMAIN

EXISTING TREE TO BE REMOVED

NOTE: SEE SHEETS L1.5, L1.6 AND L1.7 FOR EXISTING TREE TABLE AND CALCULATIONS.



KEY MAP: NTS

PLEASE RECYCLE

AGENCY APPROVAL:

CHAMINADE COLLEGE PREPARATORY

HMC Architects

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SPURLOCK LANDSCAPE ARCHITECTS

Δ	DESCRIPTION	DATE

KEYNOTES

FACILITY:

7500 CHAMINADE AVE.
WEST HILLS, CA 91304

PROJECT:

CHAMINADE COLLEGE PREP HIGH SCHOOL CUP

SHEET NAME:

EXISTING TREE SURVEY

CAMPUS PLAN

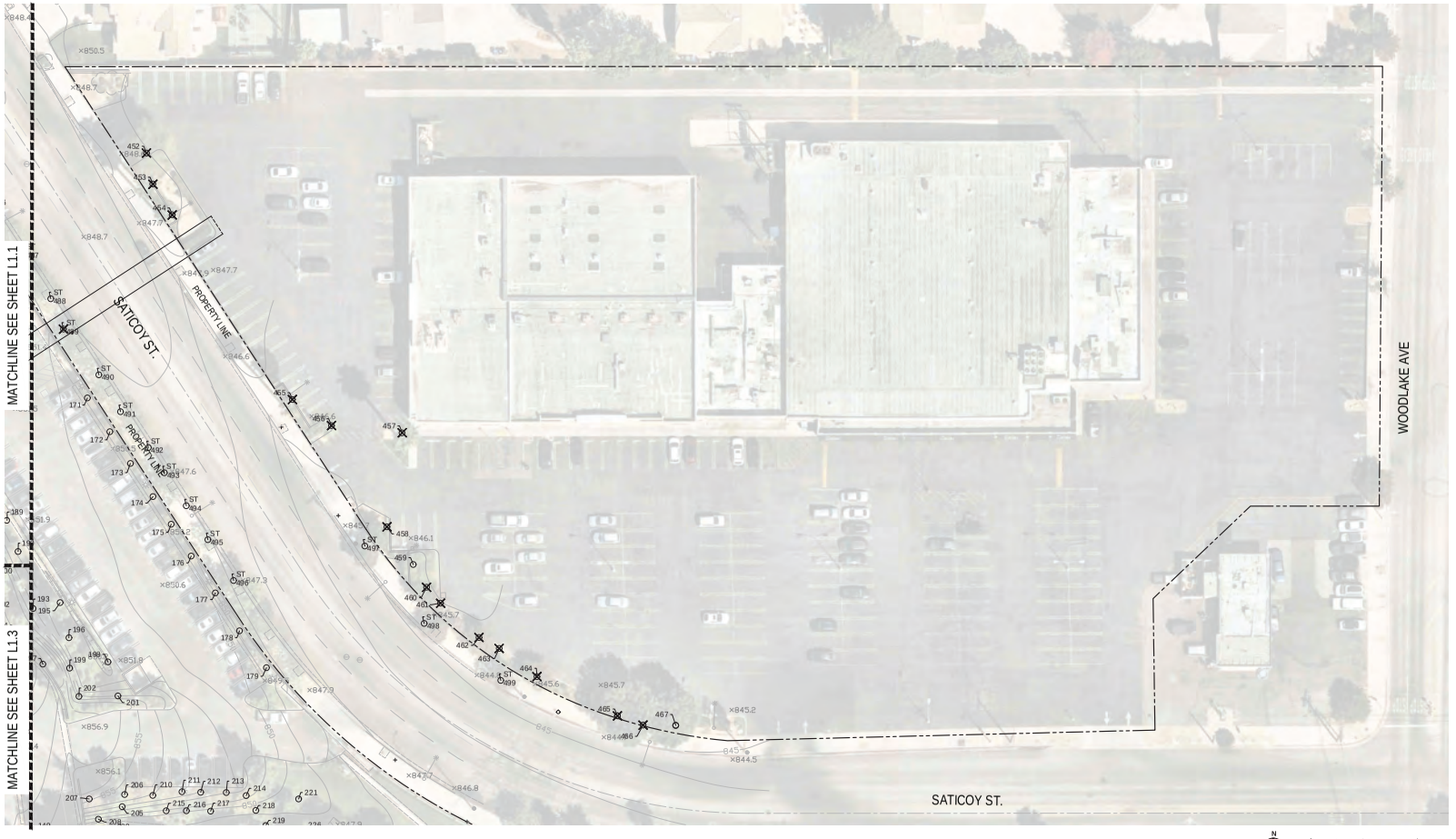
DATE: 02/01/2024

CLIENT PROJ NO:

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L1.1

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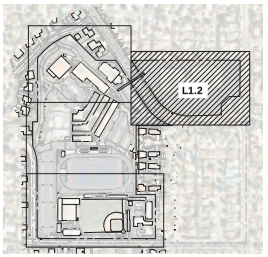


LEGEND

EXISTING TREE TO REMAIN

EXISTING TREE TO BE REMOVED

NOTE: SEE SHEETS L1.5, L1.6 AND L1.7 FOR EXISTING TREE TABLE AND CALCULATIONS.



KEY MAP: NTS

PLEASE RECYCLE

AGENCY APPROVAL:

CHAMINADE COLLEGE PREPARATORY

HMC Architects

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SPURLOCK LANDSCAPE ARCHITECTS

Δ	DESCRIPTION	DATE

KEYNOTES

FACILITY:

7500 CHAMINADE AVE.
WEST HILLS, CA 91304

PROJECT:

CHAMINADE COLLEGE PREP HIGH SCHOOL CUP

SHEET NAME:

EXISTING TREE SURVEY

CAMPUS PLAN

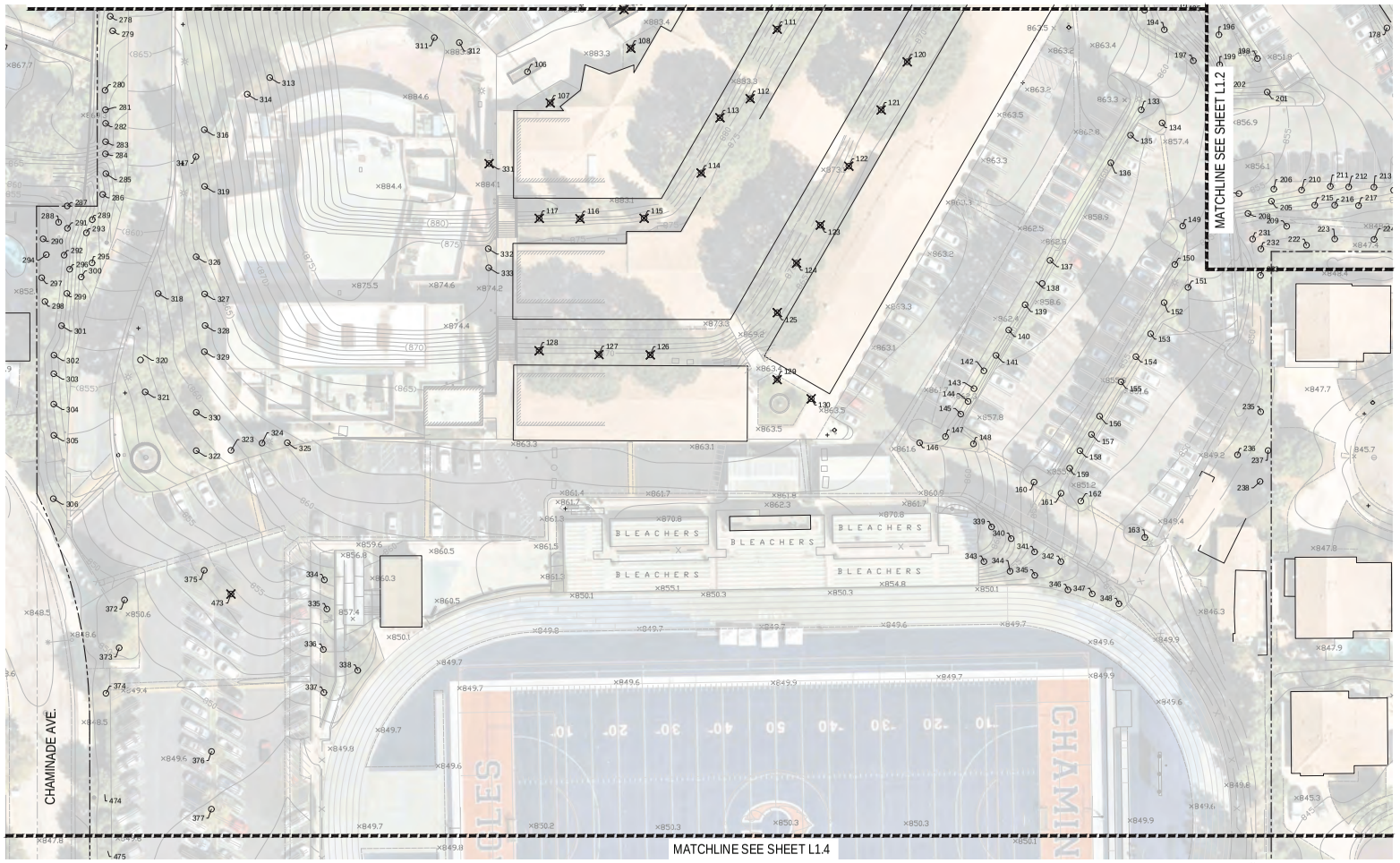
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CLIENT PROJ NO:

SHEET:

L1.2

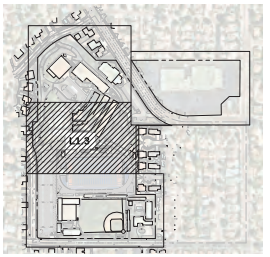
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LEGEND

- EXISTING TREE TO REMAIN
- EXISTING TREE TO BE REMOVED

NOTE: SEE SHEETS L1.5, L1.6 AND L1.7 FOR EXISTING TREE TABLE AND CALCULATIONS.



KEY MAP: NTS

PLEASE RECYCLE

AGENCY APPROVAL:

CHAMINADE COLLEGE PREPARATORY

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SPURLOCK LANDSCAPE ARCHITECTS

Δ	DESCRIPTION	DATE

KEYNOTES

FACILITY:

7500 CHAMINADE AVE.
WEST HILLS, CA 91304

PROJECT:

CHAMINADE COLLEGE PREP HIGH SCHOOL CUP

SHEET NAME:

EXISTING TREE SURVEY

CAMPUS PLAN

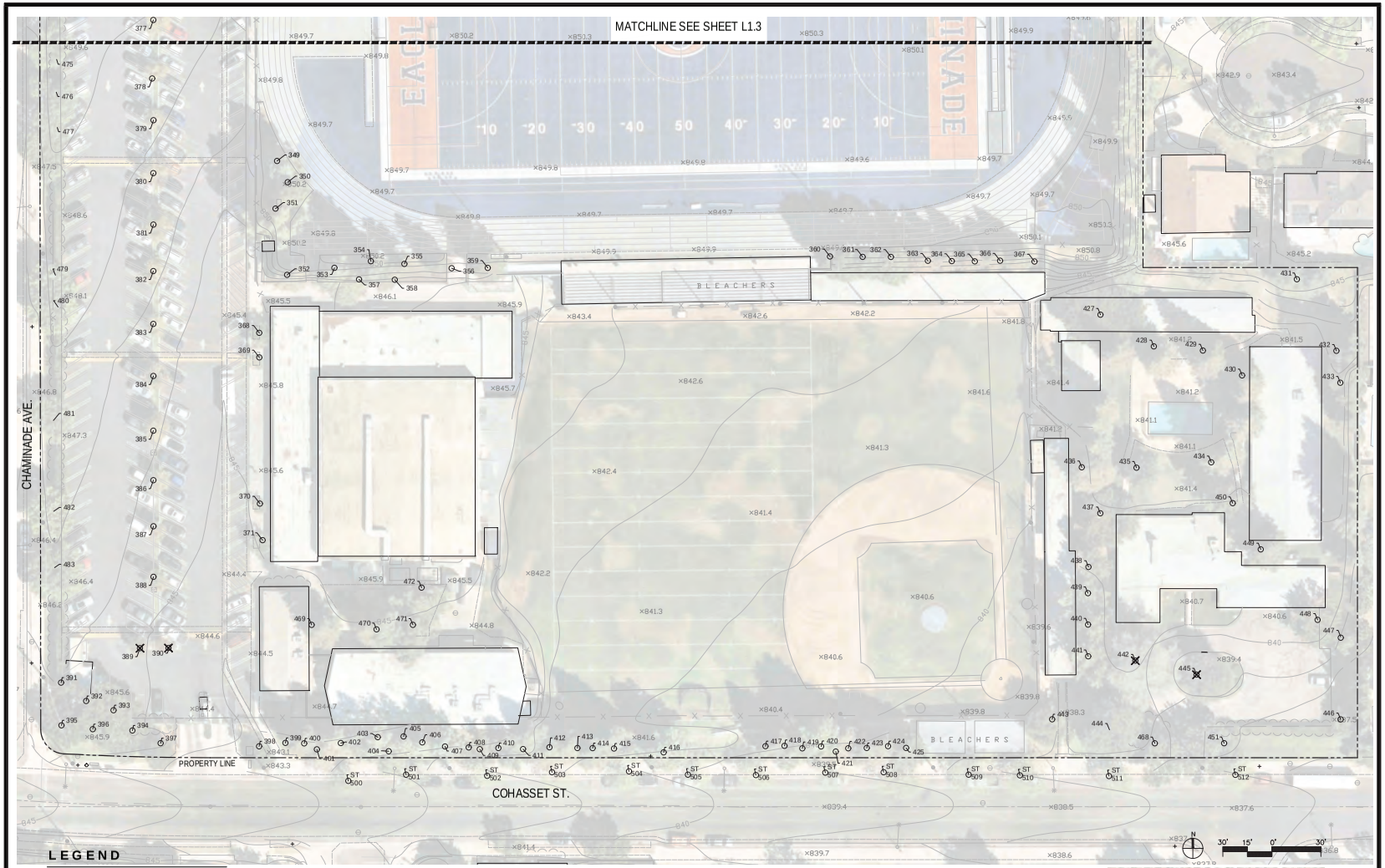
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L1.3

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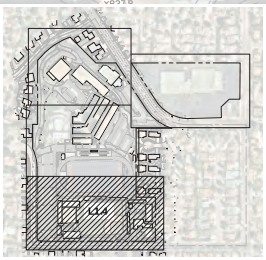


LEGEND

EXISTING TREE TO REMAIN

EXISTING TREE TO BE REMOVED

NOTE: SEE SHEETS L1.5, L1.6 AND L1.7 FOR EXISTING TREE TABLE AND CALCULATIONS.



KEY MAP: NTS

AGENCY APPROVAL:

CHAMINADE COLLEGE PREPARATORY

HMC Architects

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ONTARIO, CA 91764
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SPURLOCK LANDSCAPE ARCHITECTS

Δ	DESCRIPTION	DATE

KEYNOTES

FACILITY:

7500 CHAMINADE AVE.
WEST HILLS, CA 91304

PROJECT:

CHAMINADE COLLEGE PREP HIGH SCHOOL CUP

SHEET NAME:

EXISTING TREE SURVEY

CAMPUS PLAN

DATE: 02/01/2024

CLIENT PROJ NO:

SHEET:

L1.4

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PLEASE RECYCLE

EXISTING TREE TABLE

NOTE: SEE L1.7 FOR EXISTING TREE CALCULATIONS

TREE ID	NAME	DBH (IN")	EXIST TO REMAIN	EXIST TO REMOVE
1	COAST REDWOOD	12	X	
2	COAST REDWOOD	20	X	
3	COAST REDWOOD	12	X	
4	COAST REDWOOD	15	X	
5	COAST REDWOOD	12	X	
6	COAST REDWOOD	14	X	
7	COAST REDWOOD	14	X	
8	COAST REDWOOD	14	X	
9	COAST REDWOOD	13	X	
10	COAST REDWOOD	12	X	
11	COAST REDWOOD	12	X	
12	CALIFORNIA PEPPER	5*	X	
13	CALIFORNIA PEPPER	4*	X	
14	COAST REDWOOD	12	X	
15	CANARY ISLAND PINE	14	X	
16	CANARY ISLAND PINE	14	X	
17	CANARY ISLAND PINE	18	X	
18	CANARY ISLAND PINE	15	X	
19	CANARY ISLAND PINE	20	X	
20	CANARY ISLAND PINE	20	X	
21	CANARY ISLAND PINE	19	X	
22	CANARY ISLAND PINE	16	X	
23	NO EXISTING TREE			
24	NO EXISTING TREE			
25	CANARY ISLAND PINE	19	X	
26	CANARY ISLAND PINE	18	X	
27	CANARY ISLAND PINE	18	X	
28	CANARY ISLAND PINE	14	X	
29	CANARY ISLAND PINE	14	X	
30	COAST REDWOOD	16	X	
31	COAST REDWOOD	10	X	
32	COAST REDWOOD	11	X	
33	COAST REDWOOD	12	X	
34	COAST REDWOOD	12	X	
35	COAST REDWOOD	20	X	
36	COAST REDWOOD	12	X	
37	CANARY ISLAND PINE	10	X	
38	CANARY ISLAND PINE	18	X	
39	CANARY ISLAND PINE	14	X	
40	CANARY ISLAND PINE	19	X	
41	CANARY ISLAND PINE	19	X	
42	CALIFORNIA PEPPER	5*	X	
43	CALIFORNIA PEPPER	6*	X	
44	CALIFORNIA PEPPER	6*	X	
45	CALIFORNIA PEPPER	25	X	
46	CALIFORNIA PEPPER	8,8	X	
47	CALIFORNIA PEPPER	12	X	
48	CAMPHOR	9	X	
49	CAMPHOR	9	X	
50	CAMPHOR	8	X	
51	COAST REDWOOD	14	X	
52	COAST REDWOOD	14	X	
53	COAST REDWOOD	19	X	
54	COAST REDWOOD	19	X	
55	COAST REDWOOD	18	X	
56	COAST REDWOOD	18	X	
57	CANARY ISLAND PINE	19	X	
58	CANARY ISLAND PINE	19	X	
59	CANARY ISLAND PINE	5	X	
60	CANARY ISLAND PINE	12	X	
61	SWEET GUM	8	X	
62	CANARY ISLAND PINE	2*	X	
63	CANARY ISLAND PINE	2*	X	
64	CANARY ISLAND PINE	3*	X	
65	CANARY ISLAND PINE	3*	X	
66	CANARY ISLAND PINE	4*	X	
67	CANARY ISLAND PINE	4*	X	
68	CANARY ISLAND PINE	16	X	
69	MEXICAN FAN PALM	16	X	
70	MEXICAN FAN PALM	16	X	
71	MEXICAN FAN PALM	16	X	
72	WINDMILL PALM	16	X	
73	WINDMILL PALM	16	X	
74	MEXICAN FAN PALM	16	X	
75	MEXICAN FAN PALM	16	X	
76	MEXICAN FAN PALM	16	X	
77	MEXICAN FAN PALM	16	X	
78	MEXICAN FAN PALM	16	X	
79	MEXICAN FAN PALM	16	X	
80	MEXICAN FAN PALM	16	X	
81	WINDMILL PALM	4*	X	
82	WINDMILL PALM	5*	X	
83	JACARANDA	20	X	
84	JACARANDA	20	X	
85	STONE PINE	18	X	
86	DEODAR CEDAR	20	X	
87	DEODAR CEDAR	15	X	
88	SILVER DOLLAR GUM	22	X	
89	CITRUS	5*	X	
90	CITRUS	6*	X	
91	CITRUS	7*	X	
92	AVOCADO	6*	X	
93	SWEET GUM	14	X	
94	COAST REDWOOD	31	X	
95	COAST REDWOOD	32	X	
96	COAST REDWOOD	30	X	
97	COAST REDWOOD	30	X	
98	COAST REDWOOD	30	X	
99	COAST REDWOOD	30	X	
100	COAST REDWOOD	24	X	
101	SWEET GUM	18	X	
102	QUEEN PALM	9		X
103	QUEEN PALM	11		X
104	QUEEN PALM	11		X
105	WINDMILL PALM	7*		X
106	WINDMILL PALM	7*	X	
107	QUEEN PALM	12		X
108	QUEEN PALM	12		X
109	STONE PINE	40		X
110	STONE PINE	29		X
111	STONE PINE	30		X
112	STONE PINE	35		X
113	STONE PINE	30		X
114	STONE PINE	30		X
115	COAST REDWOOD	18		X
116	COAST REDWOOD	20		X
117	COAST REDWOOD	24		X
118	NO EXISTING TREE			
119	NO EXISTING TREE			
120	CANARY ISLAND PINE	20		X
121	STONE PINE	40		X
122	STONE PINE	30		X
123	STONE PINE	30		X
124	STONE PINE	27		X
125	STONE PINE	25		X
126	STONE PINE	30		X
127	STONE PINE	30		X
128	STONE PINE	30		X
129	GOLDEN TRUMPET	6*		X
130	PURPLE LEAF PLUM	5*		X
131	NO EXISTING TREE			
132	COAST REDWOOD	21		X
133	CANARY ISLAND PINE	15	X	
134	COAST REDWOOD	13	X	
135	CANARY ISLAND PINE	17	X	
136	CANARY ISLAND PINE	15	X	
137	CANARY ISLAND PINE	18	X	
138	CANARY ISLAND PINE	19	X	
139	CANARY ISLAND PINE	17	X	
140	CANARY ISLAND PINE	18	X	
141	CANARY ISLAND PINE	22	X	
142	CANARY ISLAND PINE	4*	X	
143	CANARY ISLAND PINE	3*	X	
144	CANARY ISLAND PINE	3*	X	
145	CANARY ISLAND PINE	4*	X	
146	COAST REDWOOD	17	X	
147	COAST REDWOOD	11	X	
148	COAST REDWOOD	14	X	
149	MELALEUCA	7*	X	
150	SWEET GUM	9	X	
151	SWEET GUM	4*	X	
152	SWEET GUM	6*	X	
153	CANARY ISLAND PINE	23	X	
154	COAST REDWOOD	18	X	
155	COAST REDWOOD	18	X	
156	COAST REDWOOD	11	X	
157	SWEET GUM	5*	X	
158	SWEET GUM	6*	X	
159	SWEET GUM	7*	X	
160	SWEET GUM	6*	X	
161	CANARY ISLAND PINE	13	X	
162	SWEET GUM	6*	X	
163	PAPERBARK	7,4,4	X	
164	LONDON PLANE	9	X	
165	CANARY ISLAND PINE	16	X	
166	LONDON PLANE	12	X	
167	CANARY ISLAND PINE	9	X	
168	LONDON PLANE	12	X	
169	CAMPHOR	9	X	
170	NO EXISTING TREE			
171	LONDON PLANE	7*	X	
172	LONDON PLANE	7*	X	
173	LONDON PLANE	6*	X	
174	LONDON PLANE	5*	X	
175	LONDON PLANE	6*	X	
176	LONDON PLANE	6*	X	
177	LONDON PLANE	6*	X	
178	LONDON PLANE	7*	X	
179	LONDON PLANE	7*	X	
180	NO EXISTING TREE			
181	COAST REDWOOD	10	X	
182	COAST REDWOOD	10		X
183	COAST REDWOOD	10		X
184	COAST REDWOOD	11	X	
185	COAST REDWOOD	11	X	
186	COAST REDWOOD	11	X	
187	COAST REDWOOD	12	X	
188	COAST REDWOOD	12	X	
189	COAST REDWOOD	12	X	
190	COAST REDWOOD	12	X	
191	NO EXISTING TREE			
192	CANARY ISLAND PINE	13	X	
193	CANARY ISLAND PINE	13	X	
194	CANARY ISLAND PINE	13	X	
195	CANARY ISLAND PINE	14	X	
196	CANARY ISLAND PINE	14	X	
197	CANARY ISLAND PINE	14	X	
198	CANARY ISLAND PINE	15	X	
199	CANARY ISLAND PINE	15	X	
200	CANARY ISLAND PINE	15	X	
201	SWEET GUM	6*	X	
202	SWEET GUM	5*	X	
203	NO EXISTING TREE			
204	NO EXISTING TREE			
205	COAST REDWOOD	16	X	
206	SWEET GUM	6*	X	
207	SWEET GUM	8	X	
208	CANARY ISLAND PINE	22	X	
209	CANARY ISLAND PINE	22	X	
210	LONDON PLANE	6*	X	
211	LONDON PLANE	6*	X	
212	LONDON PLANE	7*	X	
213	LONDON PLANE	8	X	
214	LONDON PLANE	8	X	
215	CAMPHOR	3*	X	
216	CAMPHOR	3*	X	
217	CAMPHOR	3*	X	
218	CAMPHOR	3*	X	
219	CAMPHOR	3*	X	
220	NO EXISTING TREE			
221	CITRUS	18	X	
222	CAMPHOR	12	X	
223	CAMPHOR	13	X	
224	CAMPHOR	14	X	
225	BRAZILIAN PEPPER	13	X	
226	BRAZILIAN PEPPER	17	X	
227	BRAZILIAN PEPPER	18	X	
228	BRAZILIAN PEPPER	20	X	
229	BRAZILIAN PEPPER	22	X	
230	BRAZILIAN PEPPER	21	X	
231	PAPERBARK	9	X	
232	PAPERBARK	10	X	
233	PAPERBARK	13	X	
234	PAPERBARK	16	X	
235	CANARY ISLAND PINE	13	X	
236	CANARY ISLAND PINE	13	X	
237	CANARY ISLAND PINE	13	X	
238	CANARY ISLAND PINE	13	X	
239	CANARY ISLAND PINE	13	X	
240	CANARY ISLAND PINE	13	X	
241	CANARY ISLAND PINE	17	X	
242	CANARY ISLAND PINE	17	X	
243	CANARY ISLAND PINE	17	X	
244	CANARY ISLAND PINE	17	X	

TN

PLEASE RECYCLE

AGENCY APPROVAL:

CHAMINADE COLLEGE PREPARATORY

HMC Architects

3561003-000

3546 CONCOURS STREET
ONTARIO, CA 91764
909 989 9979 / www.hmcarchitects.com

SPURLOCK LANDSCAPE ARCHITECTS

Δ	DESCRIPTION	DATE

KEYNOTES

FACILITY:

7500 CHAMINADE AVE.
WEST HILLS, CA 91304

PROJECT:

CHAMINADE COLLEGE PREP HIGH SCHOOL CUP

SHEET NAME:

EXISTING TREE SURVEY

CAMPUS PLAN

DATE: 02/01/2024

CLIENT PROJ NO:

SHEET:

L1.5

11/29/2021 5:13:25 PM

EXISTING TREE TABLE

NOTE: SEE L1.7 FOR EXISTING TREE CALCULATIONS

TREE ID	NAME	DBH (IN")	EXIST TO REMAIN	EXIST TO REMOVE
245	CANARY ISLAND PINE	17	X	
246	CANARY ISLAND PINE	10	X	
247	CANARY ISLAND PINE	10	X	
248	CANARY ISLAND PINE	10	X	
249	CANARY ISLAND PINE	10	X	
250	CANARY ISLAND PINE	17	X	
251	CANARY ISLAND PINE	10	X	
252	CANARY ISLAND PINE	10	X	
253	CANARY ISLAND PINE	10	X	
254	CANARY ISLAND PINE	16	X	
255	CANARY ISLAND PINE	16	X	
256	CANARY ISLAND PINE	17	X	
257	CANARY ISLAND PINE	18	X	
258	CANARY ISLAND PINE	19	X	
259	COAST REDWOOD	13	X	
260	COAST REDWOOD	13	X	
261	COAST REDWOOD	14	X	
262	CANARY ISLAND PINE	12	X	
263	CANARY ISLAND PINE	12	X	
264	CANARY ISLAND PINE	12	X	
265	CANARY ISLAND PINE	12	X	
266	CANARY ISLAND PINE	18	X	
267	CANARY ISLAND PINE	18	X	
268	CANARY ISLAND PINE	20	X	
269	CANARY ISLAND PINE	16	X	
270	CANARY ISLAND PINE	13	X	
271	CANARY ISLAND PINE	4*	X	
272	CANARY ISLAND PINE	4*	X	
273	CANARY ISLAND PINE	16	X	
274	CANARY ISLAND PINE	16	X	
275	CANARY ISLAND PINE	16	X	
276	CANARY ISLAND PINE	16	X	
277	CANARY ISLAND PINE	16	X	
278	CANARY ISLAND PINE	16	X	
279	COAST REDWOOD	14	X	
280	CANARY ISLAND PINE	5*	X	
281	CANARY ISLAND PINE	5*	X	
282	CANARY ISLAND PINE	5*	X	
283	CANARY ISLAND PINE	5*	X	
284	CANARY ISLAND PINE	22	X	
285	CANARY ISLAND PINE	22	X	
286	CANARY ISLAND PINE	20	X	
287	CANARY ISLAND PINE	5*	X	
288	CANARY ISLAND PINE	5*	X	
289	CANARY ISLAND PINE	17	X	
290	CANARY ISLAND PINE	17	X	
291	CANARY ISLAND PINE	17	X	
292	CANARY ISLAND PINE	17	X	
293	CANARY ISLAND PINE	17	X	
294	CANARY ISLAND PINE	17	X	
295	CANARY ISLAND PINE	17	X	
296	CANARY ISLAND PINE	17	X	
297	CANARY ISLAND PINE	17	X	
298	CANARY ISLAND PINE	17	X	
299	CANARY ISLAND PINE	22	X	
300	CANARY ISLAND PINE	22	X	
301	CANARY ISLAND PINE	5*	X	
302	CANARY ISLAND PINE	5*	X	
303	CANARY ISLAND PINE	5*	X	
304	COAST REDWOOD	6*	X	
305	COAST REDWOOD	8	X	
306	COAST REDWOOD	14	X	
307	COAST REDWOOD	20	X	
308	EVERGREEN ASH	25	X	
309	EVERGREEN ASH	10	X	
310	EVERGREEN ASH	9	X	
311	CRAPE MYRTLE	6*	X	
312	CRAPE MYRTLE	6*	X	
313	CRAPE MYRTLE	5*	X	
314	CRAPE MYRTLE	6*	X	
315	STONE PINE	43	X	
316	EVERGREEN ASH	16	X	
317	EVERGREEN ASH	12	X	
318	CANARY ISLAND PINE	14	X	
319	EVERGREEN ASH	12	X	
320	EVERGREEN ASH	12	X	
321	CANARY ISLAND PINE	12	X	
322	CANARY ISLAND PINE	21	X	
323	MELALEUCA	11	X	
324	MELALEUCA	21	X	
325	MELALEUCA	11,8	X	
326	CRAPE MYRTLE	5*	X	
327	CRAPE MYRTLE	5*	X	
328	CRAPE MYRTLE	5*	X	
329	CRAPE MYRTLE	5*	X	
330	CRAPE MYRTLE	5*	X	
331	MELALEUCA	11		X
332	MELALEUCA	8	X	
333	MELALEUCA	10	X	
334	CRAPE MYRTLE	5*	X	
335	CRAPE MYRTLE	4*	X	
336	CRAPE MYRTLE	3*	X	
337	CRAPE MYRTLE	4*	X	
338	DESERT MUSEUM PALO VERDE	15	X	
339	CANARY ISLAND PINE	22	X	
340	CANARY ISLAND PINE	25	X	
341	CANARY ISLAND PINE	18	X	
342	CANARY ISLAND PINE	14	X	
343	CANARY ISLAND PINE	12	X	
344	CANARY ISLAND PINE	10	X	
345	CANARY ISLAND PINE	23	X	
346	CANARY ISLAND PINE	18	X	
347	CANARY ISLAND PINE	19	X	
348	CANARY ISLAND PINE	19	X	
349	CANARY ISLAND PINE	21	X	
350	CANARY ISLAND PINE	20	X	
351	CANARY ISLAND PINE	27	X	
352	COAST REDWOOD	24	X	
353	CANARY ISLAND PINE	22	X	
354	CANARY ISLAND PINE	18	X	
355	CANARY ISLAND PINE	18	X	
356	COAST REDWOOD	16	X	
357	COAST REDWOOD	11	X	
358	COAST REDWOOD	16	X	
359	COAST REDWOOD	23	X	
360	CANARY ISLAND PINE	29	X	
361	CANARY ISLAND PINE	29	X	
362	CANARY ISLAND PINE	22	X	
363	COAST REDWOOD	20	X	
364	COAST REDWOOD	14	X	
365	COAST REDWOOD	14	X	
366	COAST REDWOOD	10,10,6	X	
367	COAST REDWOOD	18	X	
368	GOLD MEDALLION	6*	X	
369	GOLD MEDALLION	4*	X	
370	GOLD MEDALLION	4*	X	
371	GOLD MEDALLION	7*	X	
372	COAST REDWOOD	25	X	
373	COAST REDWOOD	25	X	
374	COAST REDWOOD	25	X	
375	CRAPE MYRTLE	5*	X	
376	LONDON PLANE	5*	X	
377	LONDON PLANE	6*	X	
378	LONDON PLANE	5*	X	
379	LONDON PLANE	5*	X	
380	LONDON PLANE	6*	X	
381	LONDON PLANE	4*	X	
382	LONDON PLANE	5*	X	
383	LONDON PLANE	4*	X	
384	LONDON PLANE	6*	X	
385	LONDON PLANE	6*	X	
386	LONDON PLANE	4*	X	
387	LONDON PLANE	4*	X	
388	LONDON PLANE	4*	X	
389	CRAPE MYRTLE	4*		X
390	CRAPE MYRTLE	4*		X
391	JUNIPER	31	X	
392	JUNIPER	23	X	
393	JUNIPER	20	X	
394	JUNIPER	24	X	
395	CRAPE MYRTLE	3*	X	
396	CRAPE MYRTLE	3*	X	
397	CRAPE MYRTLE	6*	X	
398	CRAPE MYRTLE	5*	X	
399	COAST REDWOOD	22	X	
400	COAST REDWOOD	16	X	
401	COAST REDWOOD	20	X	
402	SWEET GUM	13	X	
403	CANARY ISLAND PINE	20	X	
404	CANARY ISLAND PINE	12	X	
405	CANARY ISLAND PINE	13	X	
406	CANARY ISLAND PINE	13	X	
407	CANARY ISLAND PINE	18	X	
408	SWEET GUM	7*	X	
409	SWEET GUM	8	X	
410	SWEET GUM	13	X	
411	COAST REDWOOD	24	X	
412	COAST REDWOOD	13	X	
413	COAST REDWOOD	16	X	
414	COAST REDWOOD	18	X	
415	COAST REDWOOD	25	X	
416	CANARY ISLAND PINE	10	X	
416A	CANARY ISLAND PINE	23	X	
417	COAST REDWOOD	22	X	
418	CANARY ISLAND PINE	12	X	
419	CANARY ISLAND PINE	16	X	
420	CANARY ISLAND PINE	20	X	
421	COAST REDWOOD	14	X	
422	COAST REDWOOD	18	X	
423	COAST REDWOOD	16	X	
424	COAST REDWOOD	20	X	
425	COAST REDWOOD	22	X	
426	JAPANESE ZELKOVA	17	X	
427	CANARY ISLAND PINE	14	X	
428	COAST REDWOOD	12	X	
429	COAST REDWOOD	11	X	
430	COAST REDWOOD	13	X	
431	CANARY ISLAND PINE	14	X	
432	CANARY ISLAND PINE	10	X	
433	CANARY ISLAND PINE	12	X	
434	COAST REDWOOD	23	X	
435	COAST REDWOOD	17	X	
436	COAST REDWOOD	14	X	
437	CAROB	35	X	
438	SWEETGUM	12	X	
439	SWEETGUM	12	X	
440	SWEETGUM	19	X	
441	SWEETGUM	10	X	
442	DEODAR CEDAR	23	X	
443	CRAPE MYRTLE	6*	X	
444	SOUTHERN MAGNOLIA	22	X	
445	OLIVE	20,20,18	X	
446	CITRUS	10	X	
447	CITRUS	8	X	
448	JUNIPER	30	X	
449	REDWOOD	38	X	
450	SWEETGUM	14	X	
451	JUNIPER	30	X	
452	DESERT MUSEUM PALO VERDE	22		X
453	MEXICAN FAN PALM	18		X
454	MEXICAN FAN PALM	18		X
455	MEXICAN FAN PALM	18		X
456	MEXICAN FAN PALM	18		X
457	MEXICAN FAN PALM	18		X
458	CAROLINA CHERRY	7*		X
459	DESERT MUSEUM PALO VERDE	7*	X	
460	CRAPE MYRTLE	MULTI– 8'+		X
461	CRAPE MYRTLE	MULTI– 8'+		X
462	CRAPE MYRTLE	MULTI– 8'+		X
463	CRAPE MYRTLE	MULTI– 8'+		X
464	CRAPE MYRTLE	MULTI – 12'+		X
465	EVERGREEN ASH	24		X
466	EVERGREEN ASH	17		X
467	EVERGREEN ASH	20,22	X	
468	JUNIPER	30	X	
469	REDWOOD	24	X	
470	REDWOOD	14	X	
471	CANARY ISLAND PINE	18	X	
472	CANARY ISLAND PINE	18	X	
473	CRAPE MYRTLE	5*		X
474	RAYWOOD ASH	18	X	
475	RAYWOOD ASH	20	X	
476	RAYWOOD ASH	24	X	
477	RAYWOOD ASH	22	X	
478	NO EXISTING TREE			
479	RAYWOOD ASH	16	X	
480	RAYWOOD ASH	22	X	
481	RAYWOOD ASH	20	X	
482	RAYWOOD ASH	20	X	
483	RAYWOOD ASH	24	X	

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AGENCY APPROVAL:

CHAMINADE COLLEGE PREPARATORY

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ONTARIO, CA 91764
909 989 9979 / www.hmcarchitects.com

SPURLOCK LANDSCAPE ARCHITECTS

Δ	DESCRIPTION	DATE

KEYNOTES

FACILITY:

7500 CHAMINADE AVE.
WEST HILLS, CA 91304

PROJECT:

CHAMINADE COLLEGE PREP HIGH SCHOOL CUP

SHEET NAME:

EXISTING TREE SURVEY

CAMPUS PLAN

DATE: 02/01/2024

CLIENT PROJ NO:

SHEET:

L1.6

TREE ID	NAME	DBH (IN")	EXIST TO REMAIN	EXIST TO REMOVE
ST484	PINK DAWN	8	X	
ST485	PINK DAWN	8	X	
ST486	PINK DAWN	11	X	
ST487	PINK DAWN	11	X	
ST488	PINK DAWN	11	X	
ST489	PINK DAWN	11		X
ST490	PINK DAWN	10	X	
ST491	PINK DAWN	10	X	
ST492	PINK DAWN	11	X	
ST493	PINK DAWN	5*	X	
ST494	PINK DAWN	12	X	
ST495	PINK DAWN	10	X	
ST496	PINK DAWN	12	X	
ST497	CRAPE MYRTLE	6*	X	
ST498	CRAPE MYRTLE	7*	X	
ST499	CRAPE MYRTLE	12@1	X	
ST500	PINK DAWN	6*	X	
ST501	PINK DAWN	6*	X	
ST502	PINK DAWN	6*	X	
ST503	PINK DAWN	6*	X	
ST504	PINK DAWN	6*	X	
ST505	PINK DAWN	6*	X	
ST506	PINK DAWN	6*	X	
ST507	PINK DAWN	6*	X	
ST508	PINK DAWN	6*	X	
ST509	PINK DAWN	6*	X	
ST510	PINK DAWN	6*	X	
ST511	PINK DAWN	6*	X	
ST512	PINK DAWN	6*	X	
ST513	AFRICAN SUMAC	7*	X	
ST514	AFRICAN SUMAC	8	X	
ST515	BRADFORD PEAR	12	X	
ST516	EVERGREEN PEAR	10	X	

TREE CALCULATIONS

STREET TREES:
TOTAL EXISTING STREET TREES TO REMAIN: 32 (16 SIGNIFICANT)
TOTAL EXISTING STREET TREES TO BE REMOVED: 1

SITE TREES:
TOTAL EXISTING SITE TREES: 472
EXISTING SITE TREES TO REMAIN: 425
EXISTING SITE TREES TO BE REMOVED: 47

TOTAL NON-PROTECTED TREES OVER 8" DBH: 364
NON-PROTECTED TREES OVER 8" DBH TO REMAIN: 324
NON-PROTECTED TREES OVER 8" DBH TO BE REMOVED (REQUIRE 1:1 REPLACEMENT): 40

TOTAL PROTECTED TREES OVER 4" DBH: 0
TOTAL PROTECTED SHRUBS 4" OR GREATER: 0

TOTAL REQUIRED REPLACEMENT TREES: (1:1 REPLACEMENT): 40
REQUIRED REPLACEMENT NON-PROTECTED TREES: 40
REQUIRED REPLACEMENT PROTECTED TREES: 0

NOTE: * TREES LESS THAN 8" DBH ARE NON-SIGNIFICANT TREES, SEE TREE REPORT PREPARED BY THE TREE RESOURCE, DATED MARCH 7, 2023, FOR FURTHER INFORMATION ON EXISTING TREES.

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AGENCY APPROVAL:

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SPURLOCK LANDSCAPE ARCHITECTS

Δ	DESCRIPTION	DATE

KEYNOTES

FACILITY:
7500 CHAMINADE AVE.
WEST HILLS, CA 91304

PROJECT:
CHAMINADE COLLEGE PREP HIGH SCHOOL CUP

SHEET NAME:
EXISTING TREE SURVEY

CAMPUS PLAN

DATE: 02/01/2024 | CLIENT PROJ NO:

SHEET:
L1.7



LANDSCAPE LEGEND

SEE SHEET L2.5 FOR FULL PLANTING LEGEND

TREES

- SPECIMEN TREE
- COURTYARD TREE
- ACCENT TREE
- BUFFER / PARKING LOT TREE

UNDERSTORY

- COURTYARD
- ENTRY / ACCENT
- BUFFER SCREENING / PARKING LOT
- NATURAL TURF
- GRASSCRETE

PROPOSED IMPROVEMENTS

1. VEHICULAR PAVING
2. PEDESTRIAN PAVING
3. SECURITY FENCE
4. PEDESTRIAN GATE
5. VEHICULAR GATE
6. SHADE STRUCTURE
7. FIRE ACCESS
8. BUILDING TO BE RENOVATED
9. NEW BUILDING
10. PARKING LOT RESTRIPING AND RENOVATION
11. NEW PARKING
12. NEW STAIRS
13. ARTIFICIAL TURF ATHLETIC FIELDS
14. PROPOSED LOADING AREA

PA PLANTING AREA

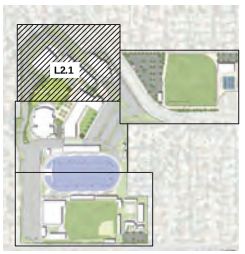
EXISTING TO REMAIN

- EXISTING TREE
- EXISTING TURF TO REMAIN
- EXISTING PLANTING AREAS TO REMAIN

A. EXISTING PEDESTRIAN PAVING
B. EXISTING VEHICULAR PAVING
C. EXISTING LOADING AREA
D. EXISTING DROP-OFF
E. EXISTING BUILDING
F. EXISTING SITE WALL
G. EXISTING FENCE
H. EXISTING TRACK AND FIELD
I. REMODELED ARTIFICIAL TURF ATHLETIC FIELDS

J. EXISTING PARKING AREA
K. EXISTING GATE TO REMAIN
L. EXISTING RAMP
M. EXISTING STAIRS

30' 15' 0' 30'



KEY MAP: NTS

PLEASE RECYCLE

AGENCY APPROVAL:

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SPURLOCK LANDSCAPE ARCHITECTS

Δ	DESCRIPTION	DATE

KEYNOTES

FACILITY:

7500 CHAMINADE AVE.
WEST HILLS, CA 91304

PROJECT:

CHAMINADE COLLEGE PREP HIGH SCHOOL CUP

SHEET NAME:

LANDSCAPE PLAN

CAMPUS PLAN

DATE: 02/01/2024

CLIENT PROJ NO:

SHEET:

L2.1

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LANDSCAPE LEGEND

SEE SHEET L2.5 FOR FULL PLANTING LEGEND

TREES

- SPECIMEN TREE
- COURTYARD TREE
- ACCENT TREE
- BUFFER / PARKING LOT TREE

UNDERSTORY

- COURTYARD
- ENTRY / ACCENT
- BUFFER SCREENING / PARKING LOT
- NATURAL TURF
- GRASSCRETE

PROPOSED IMPROVEMENTS

1. VEHICULAR PAVING
2. PEDESTRIAN PAVING
3. SECURITY FENCE
4. PEDESTRIAN GATE
5. VEHICULAR GATE
6. SHADE STRUCTURE
7. FIRE ACCESS
8. BUILDING TO BE RENOVATED
9. NEW BUILDING
10. PARKING LOT RESTRIPING AND RENOVATION
11. NEW PARKING
12. NEW STAIRS
13. ARTIFICIAL TURF ATHLETIC FIELDS
14. PROPOSED LOADING AREA

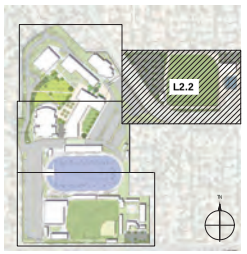
PA PLANTING AREA

EXISTING TO REMAIN

- EXISTING TREE
- EXISTING TURF TO REMAIN
- EXISTING PLANTING AREAS TO REMAIN

A. EXISTING PEDESTRIAN PAVING
B. EXISTING VEHICULAR PAVING
C. EXISTING LOADING AREA
D. EXISTING DROP-OFF
E. EXISTING BUILDING
F. EXISTING SITE WALL
G. EXISTING FENCE
H. EXISTING TRACK AND FIELD
I. REMODELED ARTIFICIAL TURF ATHLETIC FIELDS

J. EXISTING PARKING AREA
K. EXISTING GATE TO REMAIN
L. EXISTING RAMP
M. EXISTING STAIRS



KEY MAP: NTS

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SPURLOCK LANDSCAPE ARCHITECTS

Δ	DESCRIPTION	DATE

KEYNOTES

FACILITY:
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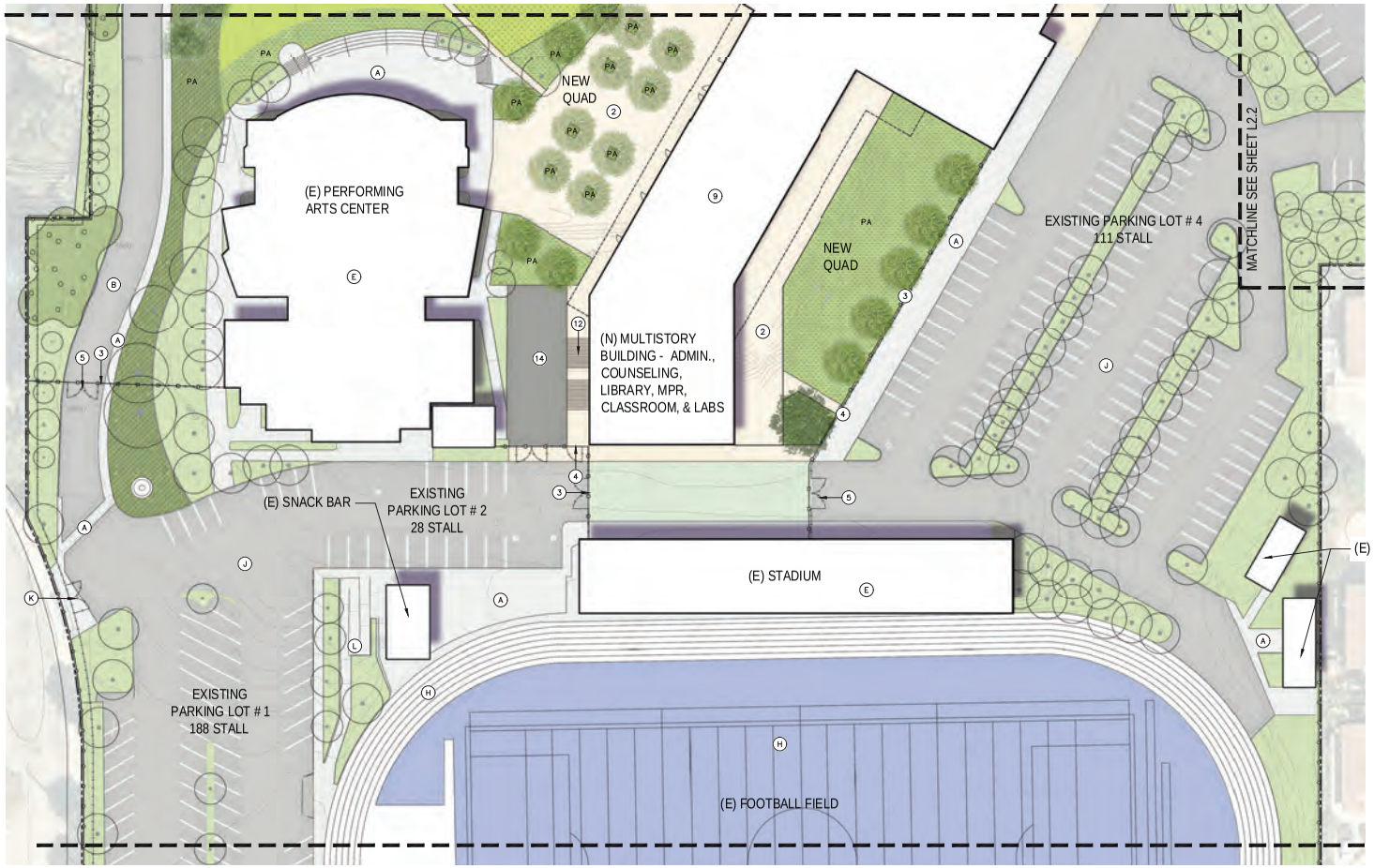
PROJECT:
CHAMINADE COLLEGE PREP HIGH SCHOOL CUP

SHEET NAME:
LANDSCAPE PLAN

CAMPUS PLAN

DATE: 02/01/2024 | CLIENT PROJ NO:

SHEET:
L2.2



LANDSCAPE LEGEND

SEE SHEET L2.5 FOR FULL PLANTING LEGEND

TREES

- SPECIMEN TREE
- COURTYARD TREE
- ACCENT TREE
- BUFFER / PARKING LOT TREE

UNDERSTORY

- COURTYARD
- ENTRY / ACCENT
- BUFFER SCREENING / PARKING LOT
- NATURAL TURF
- GRASSCRETE

PROPOSED IMPROVEMENTS

1. VEHICULAR PAVING
2. PEDESTRIAN PAVING
3. SECURITY FENCE
4. PEDESTRIAN GATE
5. VEHICULAR GATE
6. SHADE STRUCTURE
7. FIRE ACCESS
8. BUILDING TO BE RENOVATED
9. NEW BUILDING
10. PARKING LOT RESTRIPING AND RENOVATION
11. NEW PARKING
12. NEW STAIRS
13. ARTIFICIAL TURF ATHLETIC FIELDS
14. PROPOSED LOADING AREA

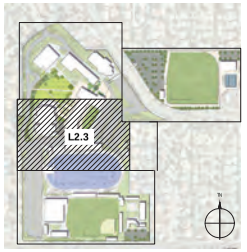
PA PLANTING AREA

EXISTING TO REMAIN

- EXISTING TREE
- EXISTING TURF TO REMAIN
- EXISTING PLANTING AREAS TO REMAIN

A. EXISTING PEDESTRIAN PAVING
B. EXISTING VEHICULAR PAVING
C. EXISTING LOADING AREA
D. EXISTING DROP-OFF
E. EXISTING BUILDING
F. EXISTING SITE WALL
G. EXISTING FENCE
H. EXISTING TRACK AND FIELD
I. REMODELED ARTIFICIAL TURF ATHLETIC FIELDS
J. EXISTING PARKING AREA
K. EXISTING GATE TO REMAIN
L. EXISTING RAMP
M. EXISTING STAIRS

30' 15' 0' 30'



KEY MAP: NTS

PLEASE RECYCLE

AGENCY APPROVAL:

CHAMINADE COLLEGE PREPARATORY

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SPURLOCK LANDSCAPE ARCHITECTS

Δ	DESCRIPTION	DATE

KEYNOTES

FACILITY:
7500 CHAMINADE AVE.
WEST HILLS, CA 91304

PROJECT:
CHAMINADE COLLEGE PREP HIGH SCHOOL CUP

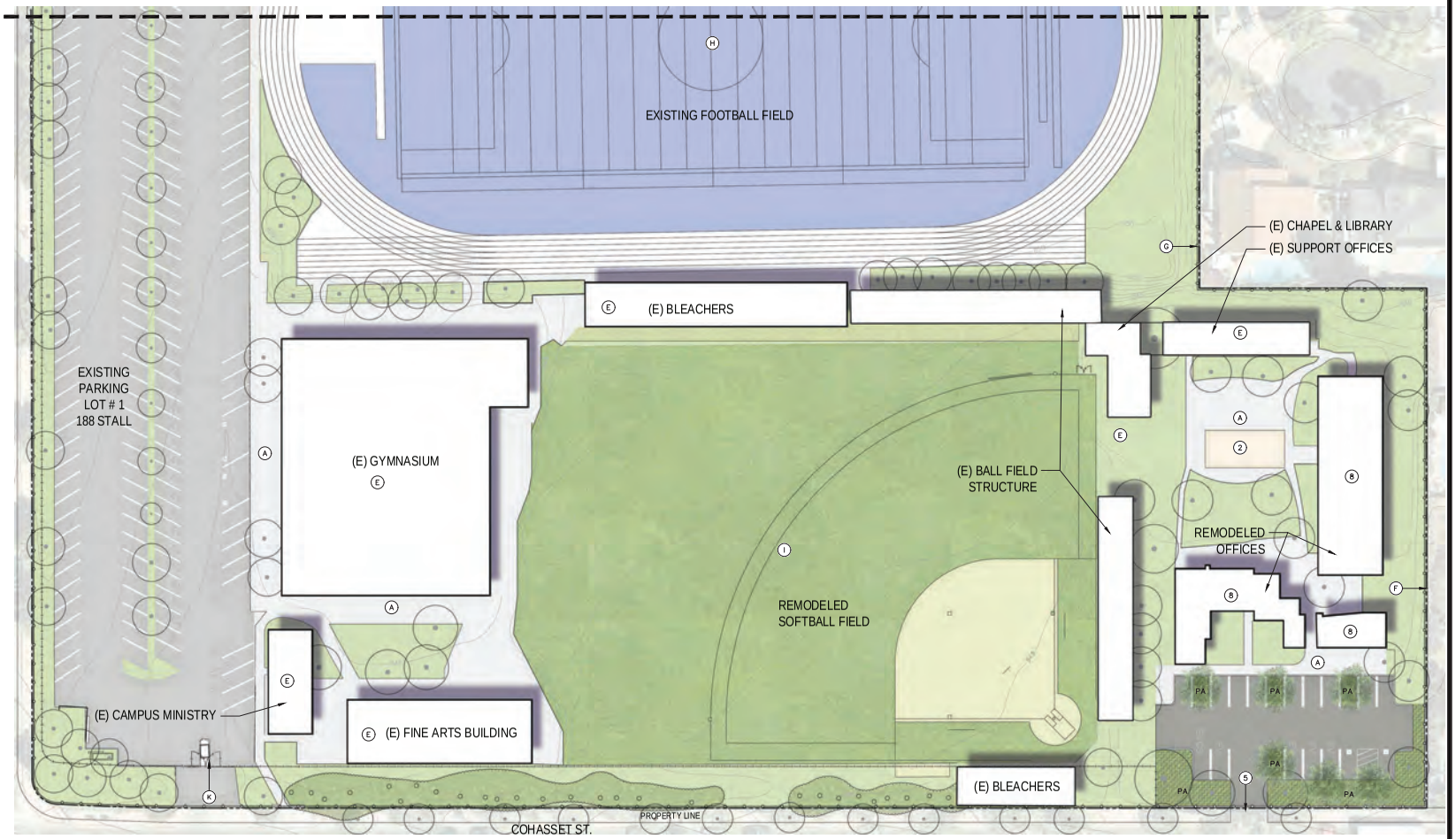
SHEET NAME:
LANDSCAPE PLAN

CAMPUS PLAN

DATE: 02/01/2024
CLIENT PROJ NO:

SHEET:
L2.3

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LANDSCAPE LEGEND

SEE SHEET L2.5 FOR FULL PLANTING LEGEND

TREES

- SPECIMEN TREE
- COURTYARD TREE
- ACCENT TREE
- BUFFER / PARKING LOT TREE

UNDERSTORY

- COURTYARD
- ENTRY / ACCENT
- BUFFER SCREENING / PARKING LOT
- NATURAL TURF
- GRASSCRETE

PROPOSED IMPROVEMENTS

1. VEHICULAR PAVING
2. PEDESTRIAN PAVING
3. SECURITY FENCE
4. PEDESTRIAN GATE
5. VEHICULAR GATE
6. SHADE STRUCTURE
7. FIRE ACCESS
8. BUILDING TO BE RENOVATED
9. NEW BUILDING
10. PARKING LOT RESTRIPING AND RENOVATION
11. NEW PARKING
12. NEW STAIRS
13. ARTIFICIAL TURF ATHLETIC FIELDS
14. PROPOSED LOADING AREA

PA PLANTING AREA

EXISTING TO REMAIN

- EXISTING TREE
- EXISTING TURF TO REMAIN
- EXISTING PLANTING AREAS TO REMAIN

A. EXISTING PEDESTRIAN PAVING
B. EXISTING VEHICULAR PAVING
C. EXISTING LOADING AREA
D. EXISTING DROP-OFF
E. EXISTING BUILDING
F. EXISTING SITE WALL
G. EXISTING FENCE
H. EXISTING TRACK AND FIELD
I. REMODELED ARTIFICIAL TURF ATHLETIC FIELDS
J. EXISTING PARKING AREA
K. EXISTING GATE TO REMAIN
L. EXISTING RAMP
M. EXISTING STAIRS



KEY MAP: NTS

PLEASE RECYCLE

AGENCY APPROVAL:

CHAMINADE COLLEGE PREPARATORY

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SPURLOCK LANDSCAPE ARCHITECTS

Δ	DESCRIPTION	DATE

KEYNOTES

FACILITY:

7500 CHAMINADE AVE.
WEST HILLS, CA 91304

PROJECT:

CHAMINADE COLLEGE PREP HIGH SCHOOL CUP

SHEET NAME:

LANDSCAPE PLAN

CAMPUS PLAN

DATE: 02/01/2024

CLIENT PROJ NO:

SHEET:

L2.4

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LANDSCAPE LEGEND

PROPOSED IMPROVEMENTS

TREES	QUANTITY	BOTANICAL NAME	COMMON NAME	WATER NEEDS
COURTYARD TREE	27	MID-LARGE SIZE CANOPY TREE FOR SHADING OF PEDESTRIAN AREAS. INCLUDES A MIX OF DECIDUOUS AND EVERGREEN TREES WITH POTENTIAL FOR SEASONAL INTEREST SUCH AS:		
		ULMUS PARVIFLORA	CHINESE EVERGREEN ELM	MODERATE
		GEIJERA PARVIFLORA	AUSTRALIAN WILLOW	LOW
		FRAXINUS ANGUSTIFOLIA 'RAYWOOD'	RAYWOOD ASH	MODERATE
		PISTACHIA CHINENSIS	CHINESE PISTACHE	MODERATE
		SEARSOA LANCEA	AFRICAN SUMAC	LOW
ACCENT TREE	7	SMALL SCALE TREES WITH SEASONAL INTEREST AND FORM SUCH AS:		
		LAGERSTROMEIA SPECIES	CRAPE MYRTLE	MODERATE
		CERCIS OCCIDENTALIS	WESTERN REDBUD	LOW
		ARBUTUS 'MARINA'	STRAWBERRY TREE	LOW
		CHIONANTHUS RETUSUS	CHINESE FRINGE TREE	MODERATE
SPECIMEN TREE	3	LARGE SCALE TREE FOR SHADING OF PEDESTRIAN AREAS SUCH AS:		
		QUERCUS SUBER	CORK OAK	LOW
		TIPUANA TIPU	TIPU TREE	LOW
		PINUS PINEA	ITALIAN STONE PINE	LOW
		AFROCARPOS FALCATUS	FERN PINE	MODERATE
BUFFER/ PARKING LOT TREE	47	MID-LARGE SIZE CANOPY TREES FOR SCREENING AND SHADING VEHICULAR AREAS SUCH AS		
		ULMUS PARVIFLORA	CHINESE EVERGREEN ELM	MODERATE
		TIPUANA TIPU	TIPU TREE	LOW
		SEARSOA LANCEA	AFRICAN SUMAC	LOW

UNDERSTORY PLANTING	BOTANICAL NAME	COMMON NAME	
COURTYARD	DROUGHT TOLERANT SHRUBS AND GROUNDCOVERS WITH SEASON INTEREST FOR USE IN HIGH TRAFFIC PEDESTRIAN AREAS, SUCH AS:		
	ACHILLEA MILLEFOLIUM	YARROW	LOW
	ARCTOSTAPHYLOS 'HOWARD MCMINN'	HOWARD MCMINN MANZANITA	LOW
	BACCHARIS PILULARIS	COYOTE BRUSH	LOW
	LOMANDRA LONGIFOLIA	DWARF MAT RUSH	LOW
	PENNISETUM SPECIES	FOUNTAIN GRASS	LOW
	SALIVA SPECIES	SAGE	LOW
	TRACHELOSPERMUM JASMINOIDES	STAR JASMINE	MODERATE
	WESTRINGIA 'MUNDI'	LOW COAST ROSEMARY	LOW
	VERBENA 'DE LA MINA'	VERBENA LILACINA 'DE LA MINA'	LOW
ENTRY/ ACCENT	DROUGHT TOLERANT SHRUBS, GROUNDCOVERS AND ORNAMENTAL GRASSES WITH FLOWERING ACCENT, COLOR, TEXTURE AND STRUCTURED FORM SUCH AS:		
	ALOE SPECIES	ALOE	LOW
	BOUGAINVILLEA SPECIES	BOUGAINVILLEA	LOW
	CHONDROPETALUM TECTORUM	SMALL CAPE RUSH	LOW
	FESTUCA MAIREI	ATLAS FESCUE	LOW
	KECKIELLA CORDIFOLIA	CLIMBING PENSTEMON	LOW
	PENSTEMON SPECTABILIS	SHOWY PENSTEMON	LOW
	ROSEMARINUS SPECIES	ROSEMARY	LOW
	SALVIA SPECIES	SAGE	LOW
BUFFER SCREENING/ PARKING LOT	DROUGHT TOLERANT EVERGREEN SHRUBS AND GROUNDCOVERS FOR USE AS BACKGROUND PLANTING AND/OR SCREENING OF VEHICULAR AND SERVICE AREAS, SUCH AS:		
	BACCHARIS PILULARIS	COYOTE BRUSH	LOW
	CARRISSA MACROCARPA	NATAL PLUM	LOW
	DURANTA ERECTA 'GOLD MOUND'	GOLD MOUND DURANTA	MODERATE
	MYRICA CALIFORNICA	PACIFIC WAX MYRTLE	LOW
	RAHMNUS 'EVE CASE'	COFFEEBERRY	VERY LOW
NATURAL TURF			
GRASSCRETE	LOW WATER, SHORT ORNAMENTAL GRASSES, SUCH AS:		
	CAREX DIVULSA	GRASSLAND SEDGE	LOW
	FESTUCA RUBRA 'MOLATE'	CREEPING RED FESCUE	HIGH
	NASSELLA PULCHRA	PURPLE NEEDLE GRASS	VERY LOW

PROPOSED IMPROVEMENTS

1. VEHICULAR PAVING
2. PEDESTRIAN PAVING
3. SECURITY FENCE
4. PEDESTRIAN GATE
5. VEHICULAR GATE
6. SHADE STRUCTURE
7. FIRE ACCESS
8. BUILDING TO BE RENOVATED
9. NEW BUILDING
10. PARKING LOT RESTRIPING AND RENOVATION
11. NEW PARKING
12. NEW STAIRS
13. ARTIFICIAL TURF ATHLETIC FIELDS
14. PROPOSED LOADING AREA

PA PLANTING AREA

EXISTING TO REMAIN

- EXISTING TREE
- EXISTING TURF TO REMAIN
- EXISTING PLANTING AREAS TO REMAIN
- A EXISTING PEDESTRIAN PAVING
- B EXISTING VEHICULAR PAVING
- C EXISTING LOADING AREA
- D EXISTING DROP-OFF
- E EXISTING BUILDING
- F EXISTING SITE WALL
- G EXISTING FENCE
- H EXISTING TRACK AND FIELD
- I REMODELED ARTIFICIAL TURF ATHLETIC FIELDS
- J EXISTING PARKING AREA
- K EXISTING GATE TO REMAIN
- L EXISTING RAMP
- M EXISTING STAIRS

TREE CALCULATIONS

DESCRIPTION	QUANTITY PROVIDED	TOTAL REQUIRED
EXISTING SITE TREES TO REMAIN	425	
PROPOSED TREES		
– REPLACEMENT TREES FOR NON-PROTECTED TREES WITH 8" OR GREATER DBH (1:1 REQUIRED REPLACEMENT)	69	40
– REPLACEMENT TREES FOR PROTECTED TREES WITH 4" OR GREATER DBH (4:1 REQUIRED REPLACEMENT)	0	0
TOTAL SITE TREES	494	
TOTAL PARKING LOT TREES* (1 REQUIRED FOR EVERY 4 STALLS)	142	123

*PARKING LOT TREES ARE ALL REPLACEMENT TREES FOR REMOVAL OF PROTECTED TREES WITH 8" OR GREATER DBH

AGENCY APPROVAL:

CHAMINADE COLLEGE PREPARATORY

HMC Architects

3561003-000

3546 CONCOURS STREET
ONTARIO, CA 91764
909 989 9979 / www.hmcarchitects.com

SPURLOCK LANDSCAPE ARCHITECTS

Δ	DESCRIPTION	DATE

KEYNOTES

FACILITY:

7500 CHAMINADE AVE.
WEST HILLS, CA 91304

PROJECT:

CHAMINADE COLLEGE PREP HIGH SCHOOL CUP

SHEET NAME:

LANDSCAPE LEGEND

CAMPUS PLAN

DATE: 02/01/2024

CLIENT PROJ NO:

SHEET:

L2.5

TN

PLEASE RECYCLE

11/29/2021 5:13:25 PM

EXHIBIT B

Environmental Documents

CITY OF LOS ANGELES
DEPARTMENT OF CITY PLANNING
CITY HALL 200 NORTH SPRING STREET LOS ANGELES CA 90012

Mitigated Negative Declaration

Chaminade College Preparatory, High School Project

Case Number: ENV-2023-1255-MND

Project Location: 7500 North Chaminade Avenue, 23241 West Cohasset Street, 23260 West Saticoy Street, 23217-23255 West Saticoy Street, and 7619-7629 North Woodlake Avenue, West Hills, CA 91304

Community Plan Area: Canoga Park – Winnetka – Woodland Hills – West Hills

Council District: 12—Lee

Project Description: The Project Applicant proposes to update and expand the existing high school campus with a revised campus plan located at 7500 North Chaminade Avenue, 23241 West Cohasset Street, 23260 West Saticoy Street, 23217-23255 West Saticoy Street, and 7619-7629 North Woodlake Avenue in West Hills (the Project Site). The revised campus plan (the Project) would include a total lot area of approximately 25.86 acres, inclusive of: 1) a new three-story school building (Multistory Building), updated parking areas, remodeled athletic fields, new student quads, and renovated classrooms, student service centers and offices on the existing campus located on approximately 21.03 acres in the A1-1 and RS-1 zones, at 7500 North Chaminade Avenue, 23241 West Cohasset Street, and 23260 West Saticoy Street (Main Campus); 2) an expanded school campus area of approximately 4.83 acres located across Saticoy Street, at 23217-23255 West Saticoy Street and North 7619-7629 Woodlake Avenue, proposed for new athletic fields, an aquatic center/outdoor swimming pool, accessory facilities/structures and associated surface parking facilities, in the proposed C2-1 Zone (the North Campus); and 3) a new pedestrian bridge across Saticoy Street. No increase in the maximum permitted student enrollment (1,360 students) is proposed. Upon Project completion, the revised campus plan for the high school would include a total of approximately 196,468 square feet of floor area equating to a floor area ratio (FAR) of 0.17:1 and will have 501 on-site vehicle parking spaces and 78 bicycle parking spaces (76 short-term spaces and 2 long-term spaces). Grading for the North Campus would require approximately 720 cubic yards of soil export, and grading for the Main Campus would require approximately 17,800 cubic yards of soil export.

PREPARED FOR:
The City of Los Angeles
Department of City Planning

PREPARED BY:
CAJA Environmental Services, LLC
9410 Topanga Canyon Blvd., Suite 101
Chatsworth, CA 91311

APPLICANT:
Chaminade College Preparatory
7500 Chaminade Avenue
West Hills, CA 91304

June 2024

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1 INTRODUCTION

An application for the proposed Chaminade College Preparatory, High School Project (Project) has been submitted to the City of Los Angeles (City) Department of City Planning for discretionary review. The Department of City Planning, as Lead Agency, has determined that the Project is subject to the California Environmental Quality Act (CEQA) and that the preparation of an Initial Study and Mitigated Negative Declaration (IS/MND) is required. Thus, this document has been prepared in compliance with the relevant provisions of CEQA and the State CEQA Guidelines as implemented by the City. Based on the analysis provided in this IS/MND, the City has concluded that with implementation of the identified mitigation measures, the Project would not result in any significant environmental impacts. The IS/MND is an informational document and is required to be adopted by the decision maker prior to Project approval by the City.

1.1 PURPOSE OF AN INITIAL STUDY

CEQA was enacted in 1970 with several basic purposes, including: (1) to inform governmental decision makers and the public about the potential significant environmental effects of proposed projects; (2) to identify ways that environmental damage can be avoided or significantly reduced; (3) to prevent significant, avoidable damage to the environment by requiring changes in projects through the use of feasible alternatives or mitigation measures;[1] and (4) to disclose to the public the reasons behind a project's approval even if significant environmental effects are anticipated.

An Initial Study is a preliminary analysis conducted by the Lead Agency, in consultation with other agencies (responsible or trustee agencies, as applicable), to determine whether there is substantial evidence that a project may have a significant effect on the environment. If the Initial Study shows that there is no substantial evidence, in light of the whole record before the agency, that the project may have a significant effect on the environment, the Lead Agency shall prepare a Negative Declaration. If the Initial Study identifies potentially significant effects but revisions have been made by or agreed to by the applicant that would avoid the effects or mitigate the effects to a point where clearly no significant effects would occur, a Mitigated Negative Declaration is appropriate. If the Initial Study concludes that neither a Negative Declaration or Mitigated Negative Declaration is appropriate, an Environmental Impact Report (EIR) is normally required.[2]

[1] The study of alternatives to a project is only required as part of an Environmental Impact Report.

[2] State CEQA Guidelines Section 15063(b)(1) identifies the following three options for the Lead Agency when there is substantial evidence that the project may cause a significant effect on the environment: "(A) Prepare an EIR, or (B) Use a previously prepared EIR which the Lead Agency determines would adequately analyze the project at hand, or (C) Determine, pursuant to a program EIR, tiering, or another appropriate process, which of a project's effects were adequately examined by an earlier EIR or negative declaration.

1.2 CEQA PROCESS

In compliance with the State CEQA Guidelines, the City, as the Lead Agency for the Project, will provide opportunities for the public to participate in the environmental review process. Throughout the CEQA process, an effort will be made to inform, contact, and solicit input on the Project from various government agencies and the general public, including stakeholders and other interested parties.

At the onset of the environmental review process, the City has prepared this Initial Study to determine whether the Project may have a significant effect on the environment. The analysis contained herein determined that with mitigation, the Project would not have a significant effect on the environment. Therefore, an IS/MND was determined to be the appropriate CEQA document.

1.3 ORGANIZATION OF THE IS/MND

This IS/MND is organized into four sections as follows:

1 INTRODUCTION

Describes the purpose and content of the IS/MND and provides an overview of the CEQA process.

2 EXECUTIVE SUMMARY

Provides Project information, identifies key areas of environmental concern, and includes a determination as to whether the Project may have a significant effect on the environment.

3 PROJECT DESCRIPTION

Provides a description of the Project and its environmental setting, including specific characteristics of the Project and a list of discretionary actions.

4 EVALUATION OF ENVIRONMENTAL IMPACTS

Contains the completed Initial Study Checklist and discussion of the environmental factors that would be potentially affected by the Project. This Section also includes mitigation measures that will be implemented to reduce impacts to less than significant levels. In accordance with Public Resources Code Section 21064.5 and CEQA Guidelines Sections 15064(f)(2) and 15070(b), the mitigation measures contained in Section 4 have been agreed to by the Applicant.

2 EXECUTIVE SUMMARY

PROJECT TITLE	**CHAMINADE COLLEGE PREPARATORY, HIGH SCHOOL PROJECT**
ENVIRONMENTAL CASE NO.	**ENV-2023-1255-MND**
RELATED CASES	CPC-2009-1477-CU-ZV-ZAA-SPR-PA1, CPC-2023-1254-VZC-HD-ZAD-ZAA, VTT-84101

PROJECT LOCATION	**7500 NORTH CHAMINADE AVENUE, 23241 WEST COHASSET STREET, 23260 WEST SATICOY STREET, 23217-23255 WEST SATICOY STREET, 7619-7629 NORTH WOODLAKE AVENUE, WEST HILLS, CA 91304**
COMMUNITY PLAN AREA	CANOGA PARK – WINNETKA – WOODLAND HILLS – WEST HILLS COMMUNITY PLAN
GENERAL PLAN DESIGNATION	VERY LOW RESIDENTIAL AND LOW RESIDENTIAL (MAIN CAMPUS) AND NEIGHBORHOOD COMMERCIAL (NORTH CAMPUS)
ZONING	EXISTING: A1-1 AND RS-1 (MAIN CAMPUS) AND [Q]C1-1VL AND P-1VL (NORTH CAMPUS) PROPOSED: A1-1 AND RS-1 (MAIN CAMPUS; NO CHANGE) AND C2-1 (NORTH CAMPUS)
COUNCIL DISTRICT	12 – JOHN LEE

LEAD CITY AGENCY	**City of Los Angeles Department of City Planning**
STAFF CONTACT	TREVOR MARTIN
ADDRESS	200 N. SPRING STREET, ROOM 763
PHONE NUMBER	213-978-1341
EMAIL	TREVOR.MARTIN@LACITY.ORG

APPLICANT	**CHAMINADE COLLEGE PREPARATORY**
ADDRESS	7500 NORTH CHAMINADE AVENUE WEST HILLS, CA 91304

PHONE NUMBER	818-347-8305

PROJECT DESCRIPTION

See Section 3. PROJECT DESCRIPTION.

ENVIRONMENTAL SETTING

See Section 3. PROJECT DESCRIPTION.

OTHER PUBLIC AGENCIES WHOSE APPROVAL IS REQUIRED

(e.g. permits, financing approval, or participation agreement)

The Project may need additional discretionary and ministerial permits and approvals that may be deemed necessary, including, but not limited to, temporary street closure permits; haul route; demolition, grading, and building permits; street tree removal permits; and sign permits.

CALIFORNIA NATIVE AMERICAN CONSULTATION

Yes.

Note: Conducting consultation early in the CEQA process allows tribal governments, lead agencies, and project proponents to discuss the level of environmental review, identify and address potential adverse impacts to tribal cultural resources, and reduce the potential for delay and conflict in the environmental review process. (See Public Resources Code section 21080.3.2.) Information may also be available from the California Native American Heritage Commission's Sacred Lands File per Public Resources Code section 5097.96 and the California Historical Resources Information System administered by the California Office of Historic Preservation. Please also note that Public Resources Code section 21082.3(c) contains provisions specific to confidentiality.

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist on the following pages.

☐ Aesthetics	☐ Greenhouse Gas Emissions	☐ Public Services
☐ Agriculture & Forestry Resources	☐ Hazards & Hazardous Materials	☐ Recreation
☐ Air Quality	☐ Hydrology / Water Quality	☐ Transportation
☐ Biological Resources	☐ Land Use / Planning	☐ Tribal Cultural Resources
☐ Cultural Resources	☐ Mineral Resources	☐ Utilities / Service Systems
☐ Energy	☐ Noise	☐ Wildfire
☐ Geology / Soils	☐ Population / Housing	☐ Mandatory Findings of Significance

DETERMINATION

(To be completed by the Lead Agency)

On the basis of this initial evaluation:

☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

☒ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions on the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

☐ I find the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☐ I find the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Trevor Martin	City Planner
PRINTED NAME	**TITLE**
Trevor Martin	6/7/2024
SIGNATURE	**DATE**

EVALUATION OF ENVIRONMENTAL IMPACTS

1) A brief explanation is required for all answers except "No Impact" answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question. A "No Impact" answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A "No Impact" answer should be explained where it is based on project-specific factors as well as general standards (e.g., the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis).

2) All answers must take account of the whole action involved, including off-site as well as on-site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.

3) Once the lead agency has determined that a particular physical impact may occur, then the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. "Potentially Significant Impact" is appropriate if there is substantial evidence that an effect may be significant. If there are one or more "Potentially Significant Impact" entries when the determination is made, an EIR is required.

4) "Negative Declaration: Less Than Significant With Mitigation Incorporated" applies where the incorporation of a mitigation measure has reduced an effect from "Potentially Significant Impact" to "Less Than Significant Impact." The lead agency must describe the mitigation measures, and briefly explain how they reduce the effect to a less than significant level (mitigation measures from "Earlier Analysis," as described in (5) below, may be cross referenced).

5) Earlier analysis must be used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR, or negative declaration. Section 15063 (c)(3)(D). In this case, a brief discussion should identify the following:

    a) Earlier Analysis Used. Identify and state where they are available for review.

    b) Impacts Adequately Addressed. Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.

    c) Mitigation Measures. For effects that are "Less Than Significant With Mitigation Measures Incorporated," describe the mitigation measures which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.

6) Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). Reference to a previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated

7) Supporting Information Sources: A sources list should be attached, and other sources used or individuals contacted should be cited in the discussion.

8) This is only a suggested form, and lead agencies are free to use different formats; however, lead agencies should normally address the questions from this checklist that are relevant to a project's environmental effects in whichever format is selected.

9) The explanation of each issue should identify:

    a) The significance criteria or threshold, if any, used to evaluate each question; and

    b) The mitigation measure identified, if any, to reduce the impact to less than significance.

3 PROJECT DESCRIPTION

3.1 PROJECT SUMMARY

The Project Applicant, Chaminade College Preparatory, proposes to update and expand the existing high school campus with a revised campus plan located at 7500 North Chaminade Avenue, 23241 West Cohasset Street, 23260 West Saticoy Street, 23217-23255 West Saticoy Street, and 7619-7629 North Woodlake Avenue in West Hills (the Project Site). The revised campus plan (the Project) would include a total lot area of approximately 25.86 acres, inclusive of: 1) a new three-story school building (Multistory Building), updated parking areas, remodeled athletic fields, new student quads, renovated classrooms, student service centers, and offices on the existing campus located on approximately 21.03 acres in the A1-1 and RS-1 zones, at 7500 North Chaminade Avenue, 23241 West Cohasset Street, and 23260 West Saticoy Street (Main Campus); 2) an expanded school campus area of approximately 4.83 acres located across Saticoy Street, at 23217-23255 West Saticoy Street and 7619-7629 North Woodlake Avenue, proposed for new lighted athletic fields, bleachers, an outdoor swimming pool, accessory facilities/structures, and associated surface parking facilities, in the proposed C2-1 Zone (the North Campus); and 3) a new pedestrian bridge connecting the Main Campus and North Campus across Saticoy Street. No increase in the maximum permitted student enrollment (1,360 students) is proposed. Upon Project completion, the Project would include a total of approximately 196,468 square feet of floor area equating to a floor area ratio (FAR) of 0.17:1 and will have 501 on-site surface vehicle parking spaces and 78 bicycle parking spaces (76 short-term spaces and 2 long-term spaces).

3.2 ENVIRONMENTAL SETTING

3.2.1 Project Location

The Project Site is located in the northwest San Fernando Valley in the West Hills community of the City of Los Angeles. The Project Site, which includes the Main Campus (Assessor Parcel Numbers (APNs) 2027-005-002 and -009) and North Campus (APNs 2027-005-005, -006 and -007) as described above, is bifurcated by Saticoy Street and comprised of six parcels which total approximately 25.86 acres of lot area. The Main Campus is approximately 21.03 gross acres in lot area with approximately 666 feet of frontage along the west side of Saticoy Street, approximately 273 feet of frontage along the south side of Keswick Street, approximately 636 feet of frontage along the east side of Chaminade Avenue, and approximately 808 feet of frontage along the north side of Cohasset Street. The North Campus is approximately 4.83 gross acres in lot area with approximately 788 feet of frontage along the east side of Saticoy Street and approximately 244 feet of frontage along the west side of Woodlake Avenue. The Main Campus is currently improved with a range of single-story and multiple story buildings within the existing high school campus, inclusive of academic and administrative buildings, and sports fields and

facilities. The proposed North Campus is currently improved with a one-story, multi-tenant commercial shopping center and surface parking lot, built between 1962 to 1964. The shopping center is currently occupied with retail, restaurant, and grocery store tenants.

The Main Campus is located within the A1-1 and RS-1 zones with a General Plan land use designation of Very Low Residential and Low Residential, and the North Campus is currently located in the [Q]C1-1VL and P-1VL zones with a land use designation of Neighborhood Commercial. Chaminade College Preparatory was established over 70 years ago, and its high school has been operating at the Main Campus location since the 1960s.

3.2.2 Surrounding Land Uses

The following provides a summary of the uses surrounding the Project Site:

Main Campus

Surrounding properties to the existing Main Campus are located within the RE11-1 and RS-1 zones and are generally improved with single-family residential uses and a public park. The abutting properties located along the north side of the Project Site, along and across Keswick Street, and along Atron Avenue to the west, are zoned RE11-1 and improved with single-family residential homes. The properties located to the west of the Project Site, abutting and across Chaminade Avenue, are zoned RE11-1 and improved with single-family residential homes. The properties located to the south and across Cohasset Street are zoned RE11-1 and improved with a single-family residential homes and Four Oaks Park. The properties to the east and abutting, are zoned RS-1 and improved with single-family residential homes.

North Campus

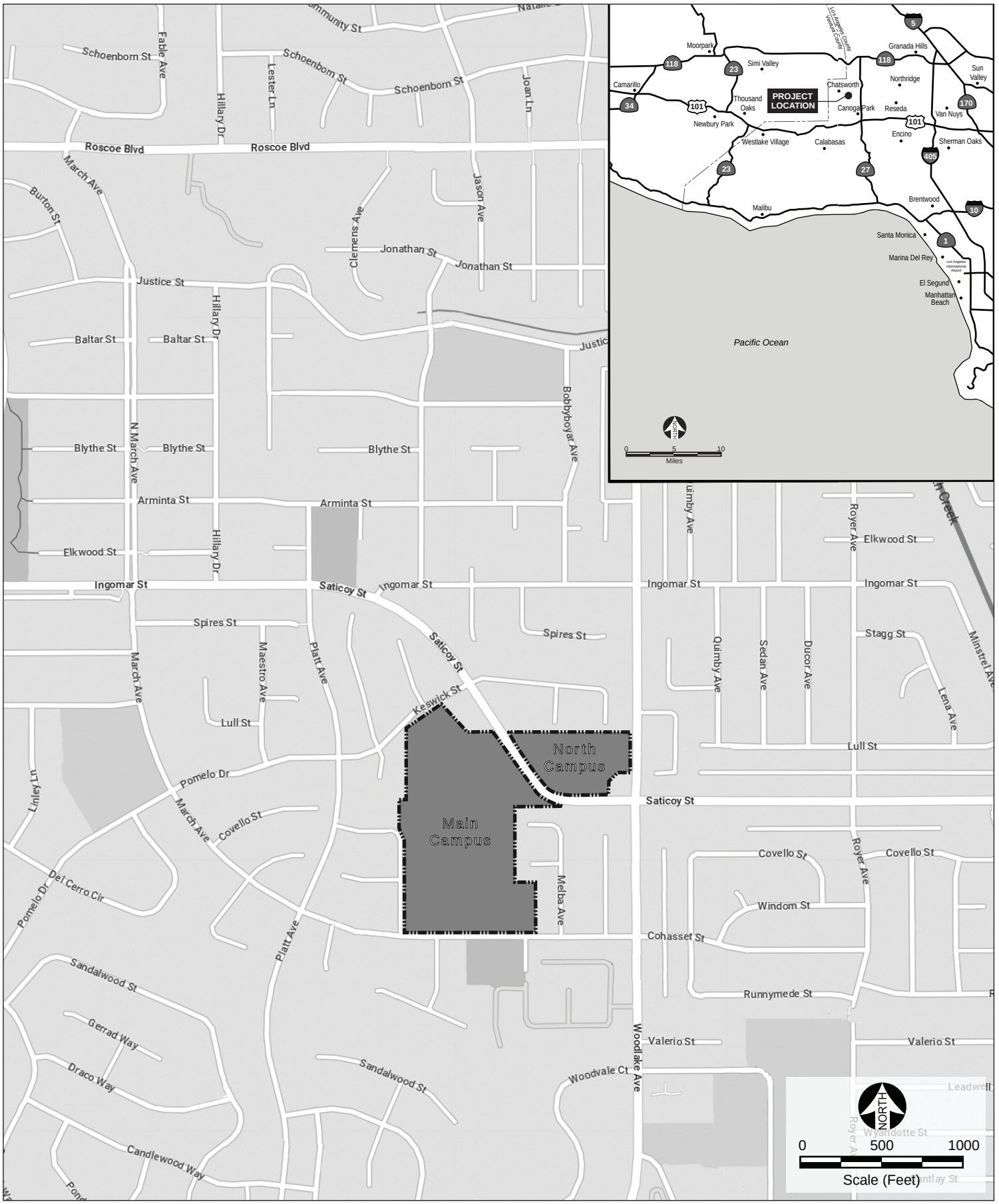
Surrounding properties to the proposed North Campus are located within the RS-1, [Q]C1.5-1VL, (Q)RD5-1A1-1VL Zones, and are generally improved with single-family residential uses and an automotive repair shop. The properties located to the north of the Project Site and abutting, are zoned RS-1 and improved with single-family residential uses. The properties located to the west and south of the Project Site across Saticoy Street, are zoned RS-1 and improved with single-family residential uses, as well as an academic building and a surface parking lot associated with the Main Campus. The property directly abutting to the south and east of the Project Site, at the northwest corner of Saticoy and Woodlake Avenue, is zoned [Q]C1.5-1VL and improved with an automotive repair shop. Finally, the properties located to the east and across Woodlake Avenue are zoned (Q)RD5-1 and A1-1VL and improved with single-family residential homes.

3.2.3 Transit Services

Within a 0.25-mile radius of the Project Site, transit services in the Project area are provided by the Los Angeles County Metropolitan Transportation Authority (Metro). Metro operates local bus routes 152, 162, 165, and 169 in the vicinity of the Project Site.

3.2.4 Existing Facilities

The existing high school encompasses approximately 21.03 acres on the Main Campus, with facilities including 37 classrooms, administrative and support offices, a library, a student center building that can accommodate 928 seats, a performing arts center with 360 seats, a fine arts building, a campus ministry building, a lighted football field with bleachers with 2,500 seats, a basketball gymnasium with bleachers with 1,000 seats, a baseball field with bleachers, and a pool. The existing buildings on the Main Campus total 156,768 square feet of floor area. In addition, the Main Campus currently provides 462 parking spaces.



Legend

Project Site

Source: Google Maps 2023.

Figure 3-1
Regional Location Map



Legend

Project Site

Source: Google Maps 2023.

Figure 3-2
Aerial Map

3.3 PROJECT DESCRIPTION

3.3.1 Project Overview

The Project is an updated, comprehensive, and cohesive revised campus plan for the existing high school, integrating both the existing Main Campus and the new North Campus area. The revised campus plan is designed to establish a new entrance for the campus from Saticoy Street, create a cohesive campus outdoor gathering area, improve upon the safety and security of the campus, modernize student service facilities, modernize classrooms including the technology serving the classrooms, provide for an enhanced sports program, and improve campuswide connectivity and circulation. The Project includes changes to the existing Main Campus and the integration of the new North Campus. The changes to the Main Campus include a partial demolition of existing surface parking lots, the demolition of approximately 32,204 square feet of existing classroom buildings (17 classrooms), including the removal of existing portable buildings, and the addition of approximately 60,760 square feet of new floor area within the new Multistory Building to include new administrative, counseling, library, multi-purpose, classroom and laboratory areas with 19 new classrooms (for a net increase of 2 classrooms), renovation of existing offices, and the addition of EV parking and charging stations within most of the existing surface parking lots. It should be noted that six mobile modular trailers/classrooms will be temporarily located on the Main Campus during construction, until the construction of the new Multistory Building is completed.

The expansion of the high school to the North Campus on the east side of Saticoy Street includes the demolition of the existing commercial structures on-site totaling approximately 53,929 square feet of floor area and the demolition of the existing surface parking lot. The expansion to the North Campus includes the development of approximately 8,494 square feet of floor area within a proposed pool house, locker rooms, and structures to house covered bleachers, restrooms, concessions, and storage. The balance of the North Campus site would include proposed new lighted athletic fields, a new outdoor pool, and two new proposed surface parking lots.

3.3.2 New Construction and Campus Changes

New construction on the Main Campus includes the new Multistory Building at the new additional entrance off Saticoy Street, that would include administrative offices, counseling offices, library, multi-purpose room, classrooms, and labs. The floor area contained within the proposed building totals approximately 60,760 square feet and has a height of approximately 48 feet within three stories. In addition, the existing single-story buildings located at the southeast corner of the Main Campus would undergo renovation for administrative offices but would not increase in floor area or height. A new surface parking lot would be constructed in place of the existing paved driveway adjacent to the single-story building at the southeast corner of the Main Campus, fronting on Cohasset Street. Finally, additional improvements to the Main Campus would include minor demolition and resurfacing of the existing baseball field along Cohasset Street, to be reutilized as a softball field, removal of the north surface parking lot, and resurfacing to create a new

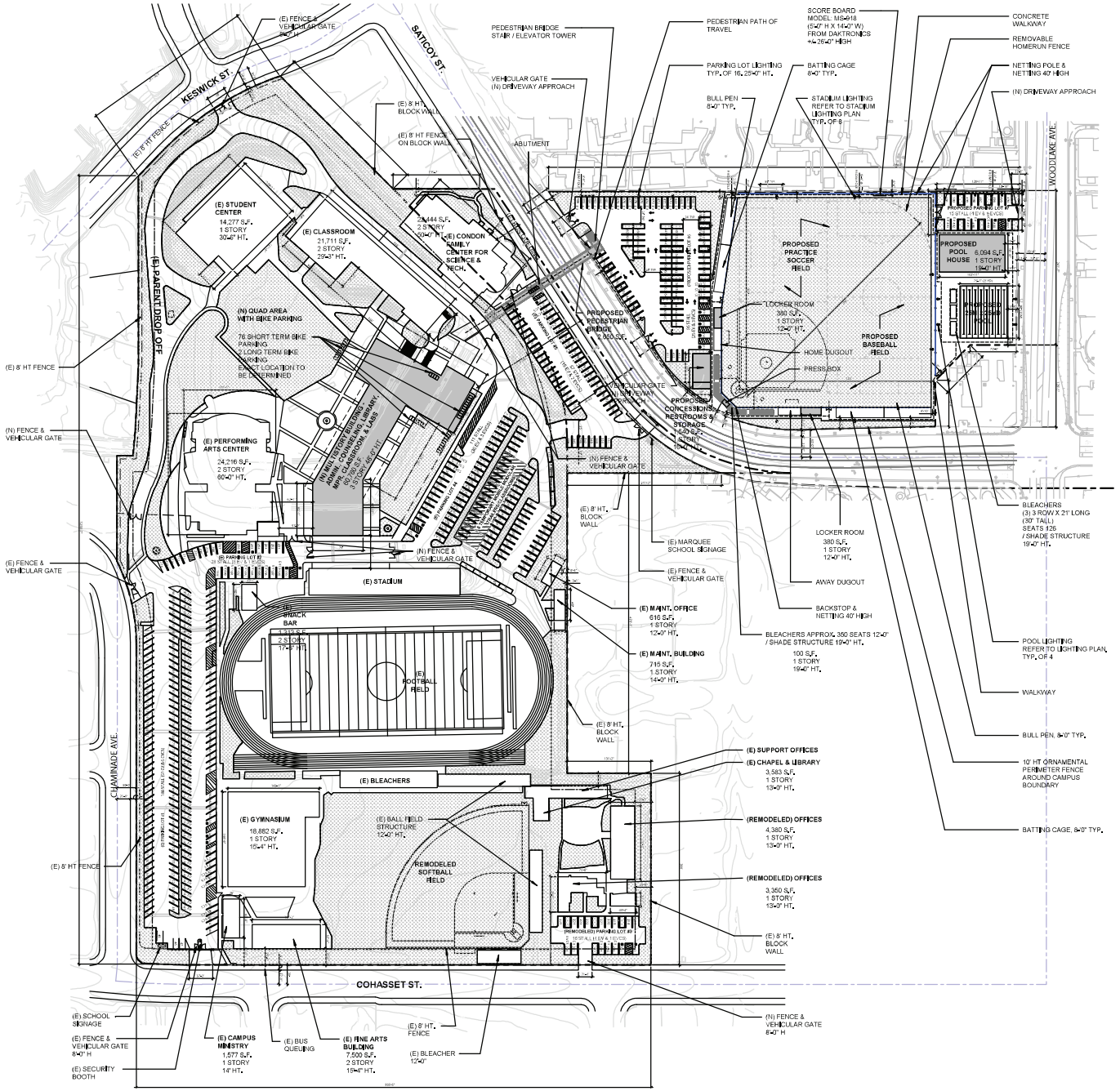
landscaped quad area adjacent to the current administrative building to be renovated for student service programming.

To facilitate the construction of the new Multistory Building, six existing classrooms will be removed and relocated into six temporary double-wide mobile modular trailers located in the parking lot south of the proposed location of the new Multistory Building. These temporary classrooms will be installed upon completion of the first phase of North Campus construction and remain in use until occupancy of the new Multistory Building, at which time they will be removed. Parking spaces displaced by these temporary classrooms will be available in the new surface parking lot on the North Campus, prior to the installation of the modular trailers.

Improvements on the North Campus include new athletic fields, outdoor swimming pool, associated facilities, and surface parking. The new athletic fields, to be used for baseball and soccer, would have a 40-foot-high safety netting along a portion of the outfield perimeter and a 26-foot-high electric scoreboard facing Saticoy Street located in left-center outfield, both along the northern property line. There would also be single-story locker rooms, batting cages, and bull pens located along the first and third base lines. Home and visitor bleachers would be along the first base line and third base line, providing approximately 350 seats with a continuous shade structure reaching 19 feet in height, and a press box of approximately 100 square feet would be located behind home plate. Eight stadium light standards ranging in height from 70 to 90 feet are proposed, with the 70-foot light standards located along the perimeter of left and right outfields, with 80- and 90-foot light standards along Saticoy Street and adjacent to the new surface parking lot. To the west of the baseball field is a proposed 1,540 square foot single-story concession and restroom building (16 feet in height) as well as an 86-stall surface parking lot and entrance to the pedestrian bridge. To the east of the baseball field is a proposed 25-meter x 25-yard, in-ground outdoor pool, with four 40-foot-high light standards, a single-story (19-foot tall), 6,094-square foot pool house and 15 surface parking stalls. Bleachers are proposed west of the pool providing approximately 126 seats. Additionally, there would be a public address system on the new North Campus, similar to the public address system currently used on the Main Campus. Figures 3-3 and 3-4 provide the Project site plans, Figure 3-5 provides a rendering of the new Multistory Building on the Main Campus, Figure 3-6 provides renderings of the new North Campus, and Figure 3-7 provides a rendering of the high school campus upon completion of the Project.

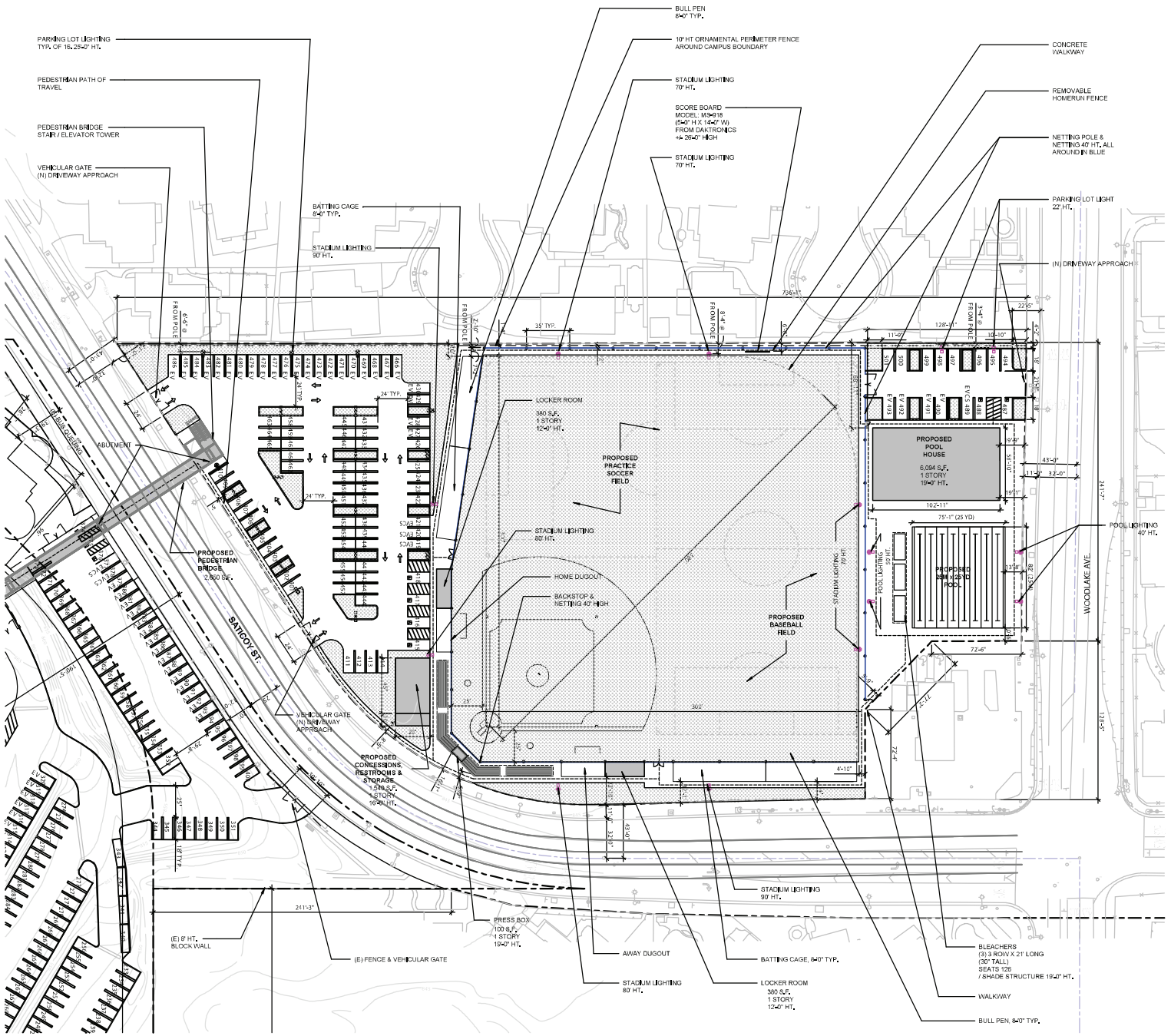
A new 2,650-square-foot pedestrian bridge is proposed over Saticoy Street, to connect the North Campus on the east side of Saticoy Street to the Main Campus on the west side of Saticoy Steet. The bridge would allow students, student athletes, faculty, staff, and visitors a safe pedestrian access and connection to the North Campus sports facilities. The North Campus would be secured with gates and fencing along the Saticoy Street frontage and around the campus perimeter to prevent pedestrians from crossing Saticoy Street to access the North Campus. Pedestrians would access the pedestrian bridge at the new surface parking lot on the North Campus and at the new entrance to the high school located on the west side of Saticoy Street on the Main Campus. A stair and elevator tower associated with the pedestrian bridge is proposed on the North Campus side of the bridge (east side of Saticoy Street). The Main Campus side of

the bridge (west side of Saticoy Street) would have an ornamental pedestrian gate for access at ground level on the Main Campus. The bridge abutments and gate landings would be located entirely on-site (on the Main and North Campuses) and out of the public right-of-way. The elevator tower on the North Campus would reach a maximum height of 45 feet as measured from lowest adjacent grade on the North Campus. The bridge itself, however, would reach a maximum height of 30 feet (as measured from lowest adjacent grade on the North Campus and as measured from the street) and a maximum height of 12 feet as measured from lowest adjacent grade on the Main Campus (as the bridge landing on the Main Campus is at a higher elevation and grade than grade level at the North Campus). Minimum vehicular clearance under the pedestrian bridge will be as required by the City of Los Angeles. Figures 3-8 and 3-9 provide elevations and renderings, respectively, of the proposed pedestrian bridge.



Source: HMC Architects, 2024.

Figure 3-3
Site Plan



Source: HMC Architects, 2024.

Figure 3-4
North Campus Site Plan

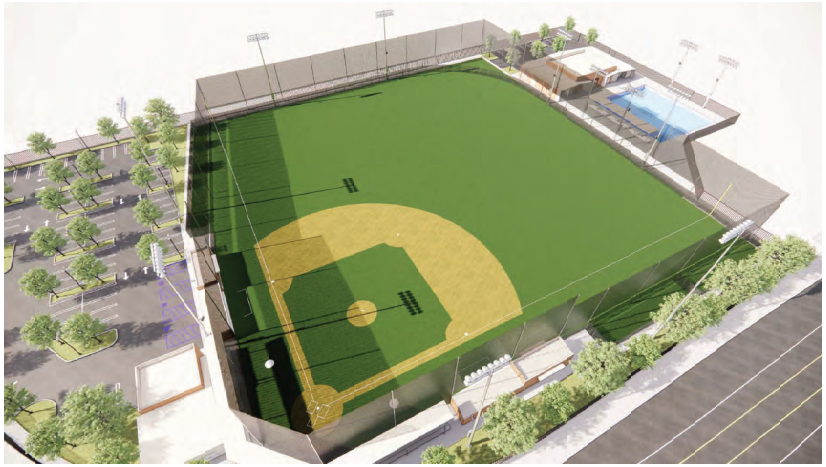




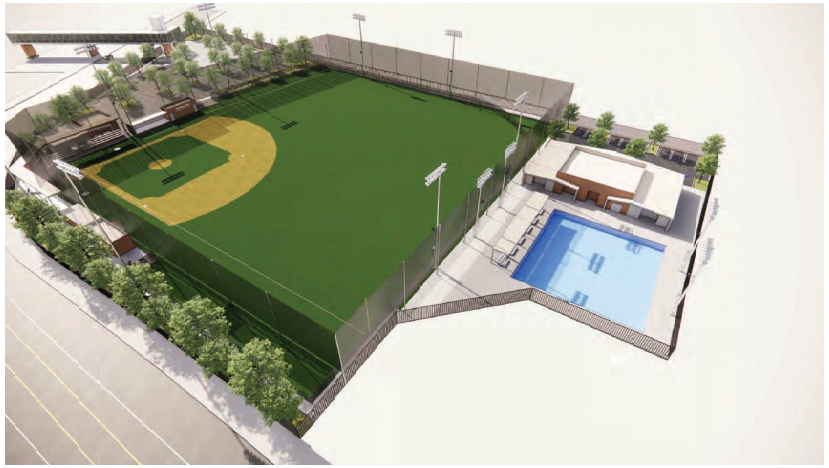
FACILITY:

Source: HMC Architects, 2024.

Figure 3-5
Multistory Building Rendering



NORTH CAMPUS - VIEW 01



NORTH CAMPUS - VIEW 02



NORTH CAMPUS - VIEW 03



FACILITY:

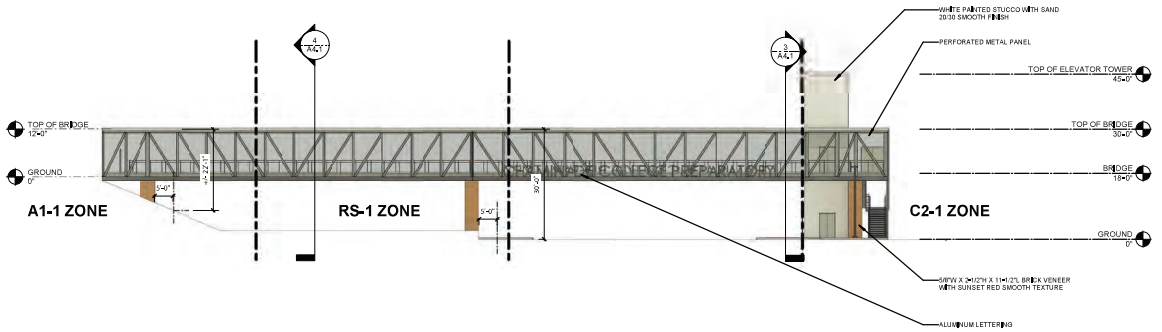
Source: HMC Architects, 2024.

Figure 3-6
North Campus Renderings

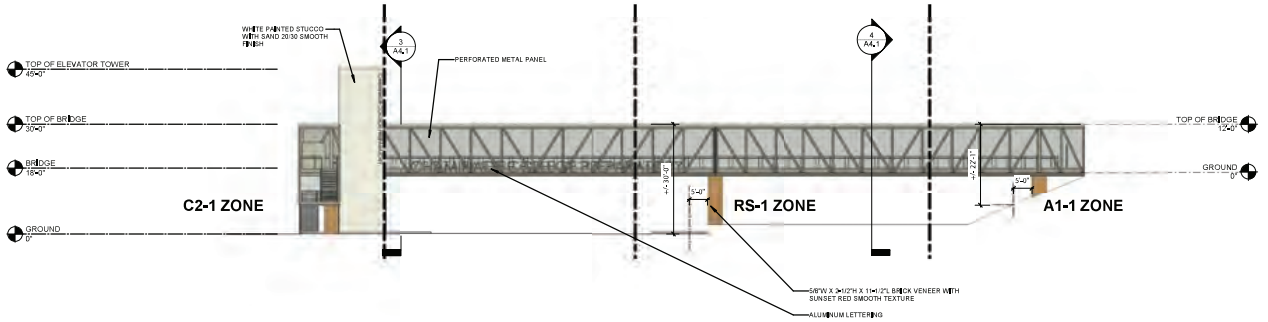


Source: HMC Architects, 2024.

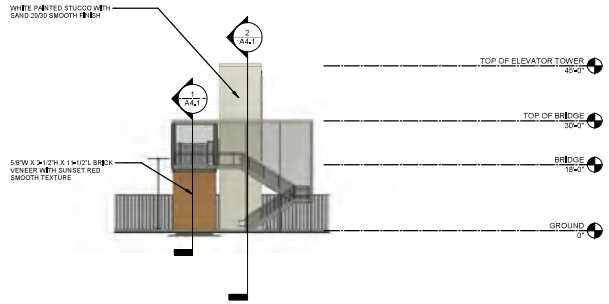
Figure 3-7
Project Rendering



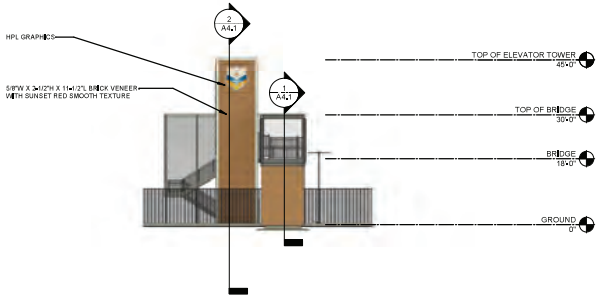
ELEVATION A



ELEVATION B



ELEVATION C



ELEVATION D

Source: HMC Architects, 2024.

Figure 3-8
Pedestrian Bridge Elevations



PEDESTRIAN BRIDGE - VIEW 01



PEDESTRIAN BRIDGE - VIEW 02



PEDESTRIAN BRIDGE - VIEW 03



FACILITY:

Source: HMC Architects, 2024.

Figure 3-9
Pedestrian Bridge Renderings

3.3.3 Floor Area

The Project would result in a total proposed floor area of approximately 196,468 square feet, representing a net increase of 28,556 square feet of floor area on the Main Campus (from the existing developed structures). Overall, however, the Project would result in a net decrease of approximately 14,229 square feet of floor area, including the demolition of the existing commercial structures on the site of the new North Campus as well as demolition of existing school structures on the Main Campus. It is important to note that although the physical expansion would result in a net increase of lot area with the addition of the 4.83-acre North Campus, the maximum permitted student enrollment of 1,360 students would remain the same. Table 3-1, below, provides a summary of the existing and proposed floor area.

Table 3-1
Floor Area Summary

Use	Size
Main Campus	
Existing high school campus floor area	156,768 sf
Existing floor area to be demolished [a]	(32,204 sf)
New floor area to be added [b]	60,760 sf
Net Total	185,324 sf (increase of 28,556 sf)
New North Campus	
Existing commercial floor area (all to be demolished)	(53,929 sf)
New Project floor area [c]	8,494 sf
Net Total	Reduction of 45,435 sf
Pedestrian Bridge	
New Project floor area	2,650 sf
Total Net Project Floor Area	196,468 sf (reduction of 14,229 sf)

Notes:
[a] Floor area to be demolished on the Main Campus includes 17 classrooms, including the removal of existing portable buildings.
[b] Floor area to be added on the Main Campus includes a new Multistory Building to include new administrative, counseling, library, multi-purpose, classroom, and laboratory areas with 19 new classrooms (for a net increase of 2 classrooms). This does not include six temporary mobile modular trailers/classrooms that will be located on the Main Campus until the Multistory Building is ready for occupancy.
[c] Floor area to be added on the new North Campus includes a pool house, locker rooms, and structures to house restrooms, bleachers, concessions, and storage.
[d] No increase in the maximum permitted student enrollment (1,360 students) is proposed.

3.3.4 Vehicle Access

The Main Campus is currently accessible from Cohasset Street, Chaminade Avenue, Keswick Street, and Saticoy Street. The Project would maintain these access points for the Main Campus. For the North Campus, there are currently six access points for the existing commercial center,

which would be reduced to three access points for the Project as follows: four existing access points along Saticoy Street would be reduced to two access points for the Project; and two access points along Woodlake Avenue would be reduced to one access point at the approximate location of the existing north access point.

3.3.5 Vehicle and Bicycle Parking

There are currently 462 vehicle parking stalls on the existing Main Campus, and after development of the Project, the total number of vehicle parking stalls would increase to approximately 501 stalls within the surface parking lots across both campuses. The Main Campus will include 400 parking stalls and the North Campus will include 101 stalls with 86 stalls in a north parking area and 15 stalls in a parking lot adjacent to the swimming pool area. The Project would also provide 78 bicycle parking spaces, including 76 short-term spaces and 2 long-term spaces.

3.3.6 Trees

As discussed in greater detail in Section 4 of this IS/MND, a tree report was prepared by a certified arborist in accordance with the City's Tree Preservation Ordinance No. 186,873, and this report is included as Appendix C-1 to this IS/MND. The tree report identified the following: 1) 33 parkway street trees; 2) 364 non-protected significant trees with eight-inch diameter at breast height (DBH) or greater on the Project Site; and 3) 108 non-protected non-significant trees (less than eight inches DBH) on the Project Site. None of these trees are protected species as defined by the City's Protected Tree Ordinance. The Project would result in the removal of 40 non-protected significant trees and seven non-protected non-significant trees from the Project Site, and would retain the remaining on-site trees. The Project would also retain the parkway street trees, with the exception of one tree (Street Tree No. 489), which would be removed to construct the pedestrian bridge. The existing significant trees that would be removed as part of the Project would be replaced according to the Urban Forestry Division requirements (the non-significant trees that would be removed would not require replacement).

3.3.7 Lighting

Light is regularly generated on the Main Campus, including from lighted sporting events (e.g., athletic meets and games, etc.) and vehicle travel (e.g., student pick-up/drop-off). The existing Conditional Use Permit requires existing athletic lighting on the Main Campus to be turned off by 11:00 PM on game nights and by 9:00 PM for practices. Low-level security lighting is provided on all nights. No changes are proposed to the existing lighting on the Main Campus, and the allowable hours for the existing lighting for athletic events would also remain unchanged.

On the North Campus, eight stadium light standards ranging in height from 70 to 90 feet are proposed, with the 70-foot light standards located along the perimeter of left and right outfields, with 80- and 90-foot light standards along Saticoy Street and adjacent to the new surface parking lot. In addition, four 40-foot-high light standards would be placed near the outdoor pool. The lighting for the North Campus would be subject to the same restrictions as the existing lighting on

the Main Campus. Therefore, the new lights on the North Campus would be turned off by 11:00 PM on game nights and by 9:00 PM for practices. Low-level security lighting would also be provided on all nights.

3.3.8 Fencing

The Main Campus would retain the existing eight-foot-tall fence, gates, and block wall currently securing the campus perimeter. In addition, new fencing and vehicular gates, to be located along the northwest drive aisle and parent drop-off area along Chaminade Avenue and at the southeastern access point along Cohasset Street, would be provided on the Main Campus to complete the perimeter security. A new 10-foot-high ornamental fence and gates would be provided around the perimeter of the North Campus to secure the campus and prevent pedestrian crossing across Saticoy Street.

3.3.9 School Operations

The new facilities will service existing students, faculty, staff, and visitors. No increase in permitted enrollment is requested, nor would the Project require additional faculty or staff. Sports programming will remain substantially similar to existing programs with some activities/games that currently occur on the Main Campus shifting to the North Campus, except that the new outdoor pool will allow an expanded swim program including practices, classes, and meets, and would be made available on a limited basis to the local community. The following provides a summary of new activities at the North Campus (not including existing school events that would shift from the Main Campus to the North Campus):

- 10 high school swim competitions per year
- 10 middle school swim competitions per year
- Swim practice for other schools (limited to February through April)
- Swim lessons and water exercise classes daily
- Local community swimming (if there are no other activities at the pool)
- Local non-school athletic groups (limited to May through December)

The hours of operation for the North Campus would be more restrictive than the usage hours allowed by the school's current Conditional Use Permit for the Main Campus. The North Campus hours of operations would be:

- Athletic fields/stadium: Monday – Friday, 7:00 AM – 9:00 PM (with exception for overtime/extra inning play); Saturday, 8:00 AM – 9:00 PM; and Sunday, 9:00 AM – 8:00 PM (no more than 15 Sundays per year).

- Aquatic complex/pool: Monday – Friday, 8:00 AM – 8:00 PM; and Saturday 10:00 AM – 7:00 PM. No use is permitted on Sundays.

- Batting cage: Monday – Saturday, 7:00 AM – 8:00 PM. No use is permitted on Sundays.

Rental or lease of the North Campus athletic facilities would be subject to more restrictive day and hour limitations:

- Athletic fields/stadium: Use by community-based athletic organizations shall be limited to 36 days annually, Monday through Saturday, 8:00 AM – 6:00 PM. Use is not permitted on Sundays and national holidays. The rental or lease of the batting cages is not permitted at any time.

- Aquatic complex/pool: Use by community-based organizations, which shall travel to and from the North Campus by bus, shall be limited to daylight hours and end no later than 7:00 PM, Monday through Friday, and no later than 5:00 PM on Saturdays. For community member swim activities, use hours shall be limited to Monday through Saturday, 8:00 AM – 6:00 PM. Use is not permitted on Sundays and national holidays.

Additional parking is provided to enhance on-site parking, especially for the expanded swim program, and to improve circulation. No changes are proposed to the existing school transportation program, which includes school busses and facilitation of carpooling for siblings and neighbors. Existing overflow parking for special events (currently provided at West Hills Hospital) will continue as needed.

As discussed above, lighting at the North Campus will be used for night practices and night games and meets. The lighting for the North Campus would be subject to the same restrictions as the existing lighting on the Main Campus. Therefore, the new lights on the North Campus would be turned off by 11:00 PM on game nights and by 9:00 PM for practices. There would be no change to the lighting on the Main Campus.

3.3.10 Construction Assumptions

Full Project implementation is estimated by 2035, and there is currently no exact schedule or sequence of construction activities or phasing, though it would be necessary for some activities to occur before others. Certain Project elements may be phased. For example, grading of the North Campus would have to occur before construction of the new North Campus athletic and pool facilities, demolition of existing classroom buildings would have to occur before construction of the new Multistory Building on the Main Campus, etc. Table 3-2, below, presents a sequence of the Project's construction activities showing which construction activities/phases may overlap. Project Design Feature 1 (PDF 1), provided later in this section, incorporates the construction sequence shown in Table 3-2.

Table 3-2
Construction Sequence

Construction Activity	Sequence									
	1	2	3	4	5	6	7	8	9	10
North Campus – Demolition†	X									
North Campus – Grading†		X								
North Campus – Construction of new surface parking lot			X							
North Campus – Construction of pedestrian bridge				X						
North Campus – Construction of new athletic fields and ancillary facilities†					X	X	X	X		
North Campus – Construction of new pool facilities†										X
Main Campus – Parking Lot Demolition†					X					
Main Campus – Classroom Demolition†						X				
Main Campus – Multistory Building Grading†							X			
Main Campus – Multistory Building Construction†								X	X	X
Main Campus – Construction of upper-level student quad									X	
Main Campus – Renovation of surface parking lot along Cohasset Street									X	
Main Campus – Renovations to existing athletics facilities, classroom buildings, and administrative offices.								X	X	X

† Denotes construction activities chosen for detailed construction emissions modeling.
Source: Project Applicant.

Grading for the North Campus would require approximately 720 cubic yards of export, and grading for the Main Campus would require approximately 17,800 cubic yards of export. Therefore, a Haul Route would be required as part of the City's permit process. The haul route would likely be as follows, subject to Los Angeles Department of Transportation (LADOT) approval:

- Loaded trucks leaving the Project Site would travel west on Saticoy Street, west on Ingomar Street, south on Valley Circle Boulevard, and west on Long Valley Road to the Ventura Freeway (US 101) on-ramps.

- Empty trucks returning to the Project Site would exit the Ventura Freeway at Mulholland/Valley Circle Boulevard, travel east on Calabasas Road, north on Valley Circle Boulevard, east on Ingomar Street, and east on Saticoy Street.

3.3.8 Project Design Features

The following Project Design Features (PDFs) are included as part of the Project:

PDF-1 The Project will adhere to the construction sequence shown in Table 3-2, except:

- Construction of the new surface parking lot on the North Campus and construction of the pedestrian bridge may interchange in the overall sequence of construction activities, but shall not overlap with each other; and

- Demolition of parking lots on the Main Campus and demolition of classroom buildings on the Main Campus may interchange in the overall sequence of construction activities, but shall not overlap with each other.

PDF-2 The Project will prepare a Traffic Management Plan (TMP) to establish operational procedures for traffic flow around the school related to self-driving students and student drop-off and pick-up operations. The purpose of the plan will be to establish operational procedures to improve traffic circulation utilizing the enhanced access points and parking areas, improve student safety, maximize the efficiency of drop-off and pick-up operations, and reduce delays during those time periods.

3.4 REQUESTED PERMITS AND APPROVALS

The list below includes the anticipated requests for approval of the Project. The Mitigated Negative Declaration will analyze impacts associated with the Project and will provide environmental review sufficient for all necessary entitlements and public agency actions associated with the Project. The discretionary entitlements, reviews, permits and approvals required to implement the Project include, but are not necessarily limited to, the following:

1. Pursuant to Los Angeles Municipal Code (LAMC) Sections 12.32 F and 12.32 Q, a Vesting Zone Change and Height District Change from the [Q]C1-1VL and P-1VL zones to the (T)(Q)C2-1 Zone on the new North Campus;

2. Pursuant to LAMC Section 12.24 X.7, a Zoning Administrator's Determination to allow for existing 8-foot-tall perimeter fences and vehicular gates to remain within the front yards (along Cohasset Street and Keswick Street) and for the construction of a new 8-foot-tall fence and vehicular gate within the front yard (along Cohasset Street) on the Main Campus, in lieu of the maximum height of 6 feet otherwise permitted in the front yard of the A1 Zone pursuant to LAMC Section 12.22 C.20(f);

3. Pursuant to LAMC Section 12.24 X.22, a Zoning Administrator's Determination, to allow for new structures related to the sports facilities on the new North Campus, including, but not limited to, a score board, netting and netting poles, lights and a pedestrian bridge, ranging in height from approximately 25 to 90 feet, in lieu of the 25-foot, 33-foot and 61-foot Transitional Height Limitations permitted within 0-199 feet of lots zoned RW1 or more restrictive pursuant to LAMC Section 12.21.1 A.10;

4. Pursuant to LAMC Section 12.28, a Zoning Administrator's Adjustment to allow the following:

    a. A maximum building height of 48 feet for the new Multistory Building on the Main Campus, in lieu of 45 feet otherwise permitted in the A1 Zone pursuant to LAMC Section 12.21.1; and

    b. The encroachment of a proposed above-grade pedestrian bridge and associated support structures into the required front and side yard setbacks in the RS and A1 zones on the west side of Saticoy Street, and reduced setbacks along Cohasset Street (front yard) and along the easterly property lines (side yards) in the A1 Zone for existing encroaching structures (bleachers and buildings) to remain on the Main Campus, in lieu of the setbacks otherwise required pursuant to LAMC Sections 12.07.1 C and 12.05 C;

5. Pursuant to LAMC Sections 17.03 and 17.15, a Vesting Tentative Tract Map for the merger and re-subdivision of the project site into two (2) ground lots: one for the Main Campus (Lot 1) and one for the North Campus (Lot 2); and one (1) airspace lot (Lot 3) for the vacation of a portion of public right-of-way along Saticoy Street to allow for the construction of a pedestrian bridge connecting the Main Campus to the North Campus;

6. Pursuant to LAMC Section 17.13, a haul route approval for the export of approximately 17,800 cubic yards from the Main Campus and the export of approximately 720 cubic yards from the North Campus;

7. Pursuant to LAMC Section 17.11, a Modification of Requirements in conjunction with a Vesting Tentative Tract Map for the waiver of required dedications and street improvements along Cohasset Street, and for the waiver of a requirement to remove existing driveways and construct new ADA compliant driveways on the Main Campus;

8. Pursuant to LAMC Section 12.24 M, a Plan Approval to allow the continued use and operation of an existing High School in the A1 and RS zones and the expansion of the High School to the property located across the street (North Campus), and to modify certain conditions of the original Conditional Use grant under Case No. CPC-2009-1477-CU-ZV-ZAA-SPR; and

9. Other discretionary and ministerial permits and approvals that may be deemed necessary, including, but not limited to, demolition permits, temporary street closure permits, grading permits, excavation permits, foundation permits, building permits, street tree removal permits, and haul route permits.

3.5 RELATED PROJECTS

In this IS/MND, cumulative impact analyses are provided for each environmental issue discussed in Section 4 (Environmental Impact Analysis) and can be found in each respective subsection of Section 4. As stated in the Transportation Assessment prepared for the Project (included in Appendix H-1 of this IS/MND), according to LADOT, no related projects have been identified within one-half mile of the Project Site.

4 ENVIRONMENTAL IMPACT ANALYSIS

I. AESTHETICS

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Except as provided in Public Resources Code Section 21099 would the project:				
a. Have a substantial adverse effect on a scenic vista?	☐	☐	☒	☐
b. Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	☒
c. In nonurbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	☐	☐	☒	☐
d. Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☒	☐

The analysis in this section is based in part on the following, which is included in Appendix A of this IS/MND:

- Technical Lighting Analysis, HLB Lighting Design, September 27, 2023.

a. Have a substantial adverse effect on a scenic vista?

Less Than Significant Impact. A significant impact would occur if a project introduced incompatible scenic elements within a field of view containing a scenic vista or substantially block views of an existing scenic vista. As described in the City of Los Angeles CEQA Thresholds Guide, panoramic views or vistas provide visual access to a large geographic area, for which the field of view can be wide and extend into the distance. Panoramic views are usually associated with vantage points looking out over a section of urban or natural area, which provide a geographical orientation not commonly available. Examples of panoramic views might include an urban skyline,

valley, mountain range, the ocean, or other water bodies. The Project Site is located in an urbanized portion of Los Angeles, in an area containing residential, commercial, and institutional uses. Views in the vicinity of the Project Site are largely constrained by the existing structures on the Project Site and structures on adjacent parcels, although views of mountains to the north are currently available from some vantage points. With respect to height, the new Multistory Building proposed at 48 feet tall, as measured from the lowest adjacent grade located 5 feet from the proposed building, or "Grade (Adjacent Ground Level)" as defined in Los Angeles Municipal Code (LAMC) Section 12.03, would be compatible with the existing buildings on the Main Campus and would be shorter than the two tallest existing buildings, which are the Performing Arts Center with a height of 60 feet and the Condon Family Center for Science and Technology which has a height of 50 feet. The new building structures proposed on the North Campus would be one-story and would range in height from 12 feet to 19 feet, with associated necessary structures (i.e. lights, score board, netting poles, etc.) proposed at taller heights, ranging from 26 feet to 90 feet, all as measured from lowest adjacent grade. The pedestrian bridge is proposed to reach a maximum height of 30 feet, as measured from lowest adjacent grade on the North Campus and as measured from the street, and a maximum height of 12 feet as measured from lowest adjacent grade on the Main Campus (as the bridge landing on the Main Campus is at a higher elevation and grade than grade level at the North Campus). The top of the elevator tower proposed on the east side of Saticoy Street will reach a maximum height of 45 feet, as measured from lowest adjacent grade on the North Campus. While the Project would add new buildings to both the Main Campus and the North Campus, the height of the new buildings would be compatible with the existing buildings on the Project Site and in the surrounding area, and views of the mountains to the north would continue to be available in the Project area. In addition, while the pedestrian bridge and associated structures on the North Campus (lights, score board, and netting poles) would be taller than some of the existing and proposed buildings, these structures would not be of such a size as to block views of the mountains to the north. Therefore, Project impacts with respect to scenic vistas would be less than significant.

b. Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?

No Impact. A significant impact would occur only where scenic resources within a state scenic highway would be damaged or removed by a project. The Project Site is not located within a state scenic highway.[1] The nearest state designated scenic highway is Topanga Canyon Boulevard (State Route 27), which is approximately 1.6 miles from the Project Site. Therefore, no impact would occur.

[1] California Department of Transportation, List of Eligible and Officially Designated State Scenic Highways, https://dot.ca.gov/-/media/dot-media/programs/design/documents/desig-and-eligible-aug2019_a11y.xlsx, accessed June 15, 2023.

c. In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?

Less Than Significant Impact. The Project Site is located within an urbanized area, and thus, the following analysis will focus on whether the Project will conflict with any applicable zoning and/or other regulations governing scenic quality. As discussed below under "Land Use," the Project Site is located within the Canoga Park – Winnetka – Woodland Hills – West Hills Community Plan Area and the Project would be consistent with the existing land use designations for both the Main Campus (Very Low Residential and Low Residential) and North Campus (Neighborhood Commercial). A portion of the Community Plan Area is subject to the Mulholland Scenic Parkway Specific Plan. However, the Project is not located within the boundaries of this Specific Plan and would not conflict with this plan. The Canoga Park – Winnetka – Woodland Hills – West Hills Community Plan does not contain any other policies with regard to scenic quality.

With respect to zoning, the North Campus is currently located in the [Q]C1-1VL and P-1VL zones, and the Applicant is proposing a Vesting Zone Change and Height District Change on the North Campus to the C2-1 Zone, which corresponds to the existing Neighborhood Commercial land use designation of the North Campus. The private school use is permitted by-right within the C2 Zone and approval of the Zone Change would allow the expansion of the existing high school, which has been operating at its current location for over six decades, to integrate additional area for athletic facilities that are needed to serve the existing student population. However, the Zone Change would not result in any impacts with respect to scenic quality. Therefore, the Project would not conflict with any applicable zoning or other regulations governing scenic quality, and this impact would be less than significant.

d. Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

Less Than Significant Impact. A significant impact may occur if a project were to introduce new sources of light or glare on or from the Project Site which would be incompatible with the area surrounding the Project Site, or which pose a safety hazard to motorists utilizing adjacent streets.

Existing Conditions

Project Site

The Main Campus is currently developed with a private high school campus containing educational, athletic, performing arts, administrative, and religious facilities. Light is regularly generated by the daily use of these facilities, including from lighted sporting events (e.g., athletic meets and games, etc.) and vehicle travel (e.g., student pick-up/drop-off). The existing Conditional Use Permit requires existing athletic lighting on the Main Campus to be turned off by

11:00 PM on game nights and by 9:00 PM for practices. Low-level security lighting is provided on all nights.

The North Campus is developed with a shopping center that contains a grocery store, restaurants, and other commercial uses, as well as surface parking for these uses. Light associated with these uses include parking light lighting, car lights from patrons, and trucks.

Light-Sensitive Receptors

The Main Campus and North Campus sites are surrounded by predominantly residential uses, many of which directly abut the two sites. For example, single-family homes are located directly north of the North Campus site along Saticoy Street, Melba Street, and Bobbyboyar Avenue. Single-family homes are also located directly west of the Main Campus along Woodhall Avenue, Keswick Street, and Atron Avenue.

A map showing the location of the Project and the nearby residential uses is included in Appendix G of this IS/MND.

Project Impacts

Artificial Light

An adverse impact would occur if a project created a substantial new source of artificial light that would adversely affect the surrounding area. Artificial light may be generated from individual (i.e., point) sources as well as from indirect sources of reflected light. Uses such as residences, hospitals, and hotels are considered light sensitive since they are typically occupied by persons who are subject to disturbance by bright light sources during evening hours.

The North Campus portion of the Project will include new lighting for the athletic fields and supporting facilities and parking areas, to include eight stadium light standards ranging in height from 70 to 90 feet, with the 70-foot light standards located along the perimeter of left and right outfields, and with 80- and 90-foot light standards along Saticoy Street and adjacent to the new surface parking lot. In addition, four 40-foot-high light standards would be placed near the outdoor pool. The lighting for the North Campus would be subject to the same restrictions as the existing lighting on the Main Campus. Therefore, the new lights on the North Campus would be turned off by 11:00 PM on game nights and by 9:00 PM for practices. Low-level security lighting would be provided on all nights.

As discussed above, light is regularly generated on the Main Campus, including from lighted sporting events (e.g., athletic meets and games, etc.) and vehicle travel (e.g., student pick-up/drop-off). The existing Conditional Use Permit requires existing athletic lighting on the Main Campus to be turned off by 11:00 PM on game nights and by 9:00 PM for practices. Low-level security lighting is provided on all nights. No changes are proposed to the existing lighting on the

Main Campus, and the allowable hours for the existing lighting for athletic events would also remain unchanged.

A Technical Lighting Analysis (included in Appendix A of this IS/MND) was prepared to assess the lighting impacts associated with the new athletic fields and supporting facilities on the proposed North Campus. As discussed in the Technical Lighting Analysis, the existing uses on the proposed North Campus site currently emit very low light levels with minimum light spill onto immediately adjacent residential properties and greater spill into adjacent public rights-of-way.

The following thresholds are used in the Technical Lighting Analysis to determine the impacts of the proposed improvements on the North Campus:

- Maximum Intensity: Section 93.0117 of the Los Angeles Municipal Code (LAMC), "Lighting Impacting Residential Property," states that "No person shall construct, establish, create, or maintain any stationary exterior light sources that may cause [property containing a residential unit] to...receive direct glare from the light source." Direct glare is defined as glare "resulting from high luminance or insufficiently shielded light sources that is in the field of view." There is an exemption from the above restriction for tennis court exterior lighting provided that the luminaire has a light intensity of less than 25,000 cd/m2. Because the LAMC does not contain a metric for any other sports facility, the Technical Lighting Analysis applies the cutoff metric of 25,000 cd/m2 to the Project's sporting field and facilities.

- Light Spill: Section 93.0117 of the LAMC states that "Light Sources shall be designed and maintained so as to produce not more than two footcandles of illumination as measured at the property line of the nearest residentially zoned property..."

Lighting design analysis for the proposed sport field and adjacent pool was conducted by the proposed lighting manufacturer. The proposed lighting design for the sports field calls for eight poles supporting sport lighting equipment surrounding the recreational field. These poles would range in height from 70 feet to 90 feet and contain between five and ten directional luminaires per pole. These luminaires are mounted at varying heights and range from 500 watts to 1,430 watts. Additionally, four smaller poles are proposed to be located at the exterior pool. These poles would range in height from 40 feet to 50 feet and contain three luminaires each. These luminaires range in wattage from 400 watts to 580 watts. All proposed luminaires are light emitting diode (LED) with a standard 5700K color temperature, 75CRI, and estimated lifespan of L90 >120,000hrs.

Maximum intensity was calculated by the manufacturer to capture potential brightness and glare. Calculation points were placed along Saticoy Street, which bounds the North Campus property to the south and west, with the points specifically located on the sidewalk across the right-of-way and closest to the existing residential uses. Calculation points were also placed along the north property line of the North Campus, abutting the existing residential properties. The maximum intensity values for the proposed design are 11,448 candelas (cd) and 24,736 cd at the Saticoy

Street and northern property lines, respectively. These values both fall below the established threshold of significance for maximum intensity of 25,000cd/m2.

The anticipated illuminance, both horizontal and vertical, along the various property lines was reported by the manufacturer to capture potential spill light. Additionally, horizontal illuminance calculation points were placed extending beyond the property line to the north to capture potential spill light onto the adjacent residential properties. These calculation points were placed at grade with a spacing of five feet by five feet, extending approximately 160 feet to the north of the property line. The maximum spill light value along Saticoy Street is 0.72 footcandles (fc), whereas the maximum light spill to the north of the Project Site is 1.9 fc. These values fall below the threshold of significance of 2.0 fc of illumination at the property line of the nearest residentially-zoned property.

In conclusion, the proposed sports lighting design for the North Campus does demonstrate an increase in both spill light and maximum intensity in comparison to the existing lighting conditions at the North Campus. However, the proposed design does not exceed the threshold of significance outlined for maximum intensity nor does it exceed the threshold for spill light for the land immediately adjacent to the North Campus property lines. In addition, as discussed above, there would be no changes to the existing sports lighting on the Main Campus. Therefore, Project impacts with respect to lighting would be less than significant.

Glare

An adverse impact would occur if a project created a substantial new source of glare that would adversely affect day or nighttime views in the area. Glare is a common phenomenon in the Southern California area due mainly to the occurrence of a high number of days per year with direct sunlight and the highly urbanized nature of the region, which results in a large concentration of potentially reflective surfaces. Potential reflective surfaces in the Project vicinity include automobiles traveling and parked on streets or in surface parking lots, exterior building windows, and surfaces of brightly painted buildings. Glare currently exists at the Project Site from windows of the existing buildings as well as automobiles parked in the surface parking lots. The Project would provide a similar amount of glare as currently exists at the Project Site (from the windows of the new buildings as well as automobiles parked in the proposed surface parking lots). In addition, all exterior windows and glass used on Project building surfaces would be non-reflective or treated with an anti-reflective coating to minimize glare. Therefore, glare from the Project Site would be similar to the existing uses, and the Project would not create a substantial new source of glare, and this impact would be less than significant.

Cumulative Impacts

No related projects have been identified within one-half mile of the Project Site. However, like the Project, any other development projects would be subject to applicable development standards, which results in individual review of the visual character of each project, to ensure consistency with design standards and that individual projects are compatible with existing land uses.

Therefore, although development of the Project in combination with other development projects could result in a general intensification of land uses in an already urbanized area of the City, the Project would not combine with any other development projects to generate a significant cumulative impact with respect to scenic vistas, views, or visual character.

As it relates to light and glare, development of the Project in combination with other development projects could result in an intensification of land uses in an already urbanized area of the City that currently maintains an elevated level of ambient light and glare. As such, the Project and any other development projects could contribute to ambient light levels within the surrounding area. However, this is a heavily urbanized area and the presence of additional nighttime illumination resulting from the Project or any other development projects would not represent a substantial alteration to the existing nighttime visual environment. For these reasons, cumulative aesthetics impacts would be less than significant.

II. AGRICULTURE AND FORESTRY RESOURCES

In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment Project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☒
b. Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒
c. Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	☐	☐	☐	☒
d. Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒
e. Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☒

a. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?

No Impact. A significant impact may occur if a project were to result in the conversion of State-designated agricultural land from agricultural use to another non-agricultural use. The California Department of Conservation, Division of Land Protection, lists Prime Farmland, Unique Farmland, and Farmland of Statewide Importance under the general category of "Important Farmland" in California. While the existing high school campus is zoned A1-1 and RS-1, the high school has been at its current location on the Main Campus since the 1960s. In addition, the North Campus is currently zoned [Q]C1-1VL and P-1VL and is developed with a shopping center and associated surface parking. The Site is designated Urban and Built-up Land and is not included in the Prime Farmland, Unique Farmland, or Farmland of Statewide Importance category.[2] Therefore, no impact would occur.

b. Conflict with existing zoning for agricultural use, or a Williamson Act contract?

No Impact. A significant impact may occur if a project were to result in the conversion of land zoned for agricultural use or under a Williamson Act Contract from agricultural use to non-agricultural use. The Williamson Act of 1965 allows local governments to enter into agreements with local landowners with the purpose of trying to limit specific parcels of land to agricultural or other related open space use.[3] No Williamson Act contract applies to the Project Site. While the Main Campus is zoned A1-1 and RS-1, the high school has operated on this Site since the 1960s. The North Campus is zoned [Q]C1-1VL and P-1VL. Therefore, no impact would occur.

c. Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?

No Impact. A significant impact may occur if a project were to cause the rezoning of forest land or timberland. The Project Site is currently zoned A1-1 and RS-1 (Main Campus) and [Q]C1-1VL and P-1VL (North Campus) and is not zoned for forest land or timberland. Therefore, no impact would occur.

d. Result in the loss of forest land or conversion of forest land to non-forest use?

No Impact. A significant impact may occur if a project were to result in the loss of forest land or the conversion of forest land to a non-forest use. The Project Site is currently zoned A1-1 and

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[2] State of California Department of Conservation, Farmland Mapping and Monitoring Program, https://maps.conservation.ca.gov/DLRP/CIFF/, June 13, 2023.

[3] State of California Department of Conservation, Williamson Act Program, website: http://www.conservation.ca.gov/dlrp/lca/Pages/index.aspx, accessed June 2, 2023.

RS-1 (Main Campus) and [Q]C1-1VL and P-1VL (North Campus) and is developed with the existing high school campus and shopping center with associated surface parking. The Project Site is not used as forest land, and therefore, the Project would not result in the loss of forest land or conversion of forest land to non-forest use, and no impact would occur.

e. Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use?

No Impact. A significant impact may occur if a project results in the conversion of farmland to another non-agricultural use or conversion of forest land to non-forest use. The Project Site is in an urbanized area of the City and the Project Site is currently developed with the existing high school campus (Main Campus) and shopping center (North Campus). The Project Site does not contain any agricultural or forest land. As such, the Project would not result in the conversion of farmland to a non-agricultural use or the conversion of forest land to a non-forest use, and no impact would occur.

Cumulative Impacts

As described above, the Project would not result in any impacts related to agricultural and forestry resources, and the Project area is developed with urban land uses. In addition, no related projects have been identified within one-half mile of the Project Site. Therefore, no cumulative impacts would occur with respect to agricultural and forestry resources.

III. AIR QUALITY

Where available, the significance criteria established by the South Coast Air Quality Management District (SCAQMD) may be relied upon to make the following determinations.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a. Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☒	☐
b. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?	☐	☐	☒	☐
c. Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐
d. Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	☐	☐	☐	☒

The analysis in this section is based on the following, which is included in Appendix B of this IS/MND:

- Air Quality and Greenhouse Gas Emissions Technical Modeling, Noah Tanski Environmental Consulting (NTEC), May 2023.

Regulatory Framework

Federal

Clean Air Act

The Federal Clean Air Act (CAA) was first enacted in 1955 and has been amended numerous times in subsequent years, with the most recent amendments occurring in 1990. At the federal level, the United States Environmental Protection Agency (USEPA) is responsible for implementing some portions of the CAA (e.g., certain mobile source and other requirements). Other portions of the CAA (e.g., stationary source requirements) are implemented by state and local agencies. In California the California Clean Air Act (CCAA) is administered by the California Air Resources Board (CARB) at the state level and by the air quality management districts and air pollution control districts at the regional and local levels.

The CAA governs the establishment, review, and revision, as appropriate, of the National Ambient Air Quality Standards (NAAQS), which provide protection for the nation's public health and the environment. NAAQS are based on quantitative characterizations of exposures and associated risks to human health and the environment. The 1990 amendments to the CAA identify specific emission reduction goals for areas not meeting the NAAQS. These amendments require both a demonstration of reasonable further progress towards attainment and the incorporation of additional sanctions for failure to attain or to meet interim milestones. NAAQS have been established for seven major air pollutants: carbon monoxide (CO), nitrogen dioxide (NO_2), ozone (O_3), $PM_{2.5}$ (particulate matter, 2.5 microns), PM_{10} (particulate matter, 10 microns), sulfur dioxide (SO_2), and lead (Pb).

The CAA requires USEPA to designate areas as attainment, nonattainment, or maintenance (previously nonattainment and currently attainment) for each criteria pollutant based on whether the NAAQS have been achieved. The federal standards are shown in Table III-1. USEPA has classified the Los Angeles County portion of the South Coast Air Basin (Basin) as a nonattainment area for O_3, $PM_{2.5}$, and lead.

Table III-1
State and Federal Ambient Air Quality Standards and Attainment for L.A. County

Pollutant	Averaging Period	California		Federal	
		Standard	Attainment Status	Standard	Attainment Status
Ozone – O_3	1-hour	0.09 ppm (180 µg/m^3)	Non-attainment	-	-
	8-hour	0.070 ppm (137 µg/m^3)	Non-attainment	0.070 ppm (137 µg/m^3)	Non-attainment
Respirable Particulate Matter – PM_{10}	24-hour	50 µg/m^3	Non-attainment	150 µg/m^3	Attainment
	Annual Arithmetic Mean	20 µg/m^3	Non-attainment	-	-
Fine Particulate Matter – $PM_{2.5}$	24-hour	-	-	35 µg/m^3	Non-attainment
	Annual Arithmetic Mean	12 µg/m^3	Non-attainment	12 µg/m^3	Non-attainment
Carbon Monoxide – CO	1-hour	20 ppm (23 mg/m^3)	Attainment	35 ppm (40 mg/m^3)	Attainment
	8-hour	9.0 ppm (10 mg/m^3)	Attainment	9 ppm (10 mg/m^3)	Attainment
Nitrogen Dioxide – NO_2	1-hour	0.18 ppm (338 µg/m^3)	Attainment	100 ppb (188 µg/m^3)	Attainment
	Annual Arithmetic Mean	0.030 ppm (57 µg/m^3)	Attainment	53 ppb (100 µg/m^3)	Attainment

Table III-1
State and Federal Ambient Air Quality Standards and Attainment for L.A. County

Pollutant	Averaging Period	California		Federal	
		Standard	Attainment Status	Standard	Attainment Status
Sulfur Dioxide – SO_2	1-hour	0.25 ppm (655 µg/m^3)	Attainment	75 ppb (196 µg/m^3)	Attainment
	24-hour	0.04 ppm (105 µg/m^3)	Attainment	-	-
Lead – Pb	30-day average	1.5 µg/m^3	Attainment	-	-
	Calendar Quarter	-	-	0.15 µg/m^3	Non-attainment

Source: Maps of State and Federal Area Designations, https://ww2.arb.ca.gov/resources/documents/maps-state-and-federal-area-designations. Accessed May 12, 2023.

State

California Clean Air Act

In addition to being subject to the requirements of the CAA, air quality in California is also governed by more stringent regulations under the CCAA. In California the CCAA is administered by CARB at the state level and by the air quality management districts and air pollution control districts at the regional and local levels. CARB, which became part of the California Environmental Protection Agency in 1991, is responsible for meeting the state requirements of the CAA, administering the CCAA, and establishing the California Ambient Air Quality Standards (CAAQS). The CCAA, as amended in 1992, requires all air districts in the State to achieve and maintain the CAAQS. CAAQS are generally more stringent than their corresponding NAAQS and incorporate additional standards for sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particles. CAAQS define clean air: they represent the maximum amount of a pollutant averaged over a specified period of time that can be present in outdoor air without any harmful effects on people or the environment.

The CCAA requires CARB to designate areas within California as either attainment or nonattainment for each criteria pollutant based on whether the CAAQS thresholds have been achieved. Under the CCAA, areas are designated as nonattainment for a pollutant if air quality data shows that a state standard for the pollutant was violated at least once during the previous three calendar years. Exceedances that are affected by highly irregular or infrequent events are not considered violations of a state standard and are not used as a basis for designating areas as nonattainment. Under the CCAA, the non-desert Los Angeles County portion of the Basin is designated as a nonattainment area for O_3, PM_{10}, and $PM_{2.5}$. The State standards and attainment/non-attainment are also shown in Table III-1, above.

California Air Toxics Program

CARB's Air Toxics Program was established in 1983 in response to the adoption of AB 1807, the Toxic Air Contaminant Identification and Control Act. AB 1807 directs CARB and the State Office of Environmental Health Hazard Assessment (OEHHA) to identify toxic air contaminants (TACs) and determine whether any regulatory action is necessary to reduce their risks to public health. Substances formally identified as TACs include diesel particulate matter and environmental tobacco smoke.

Air Quality and Land Use Handbook

Released by CARB in 2005, the *Air Quality and Land Use Handbook: A Community Health Perspective* provides recommendations regarding the siting of new sensitive land uses near potential sources of TACs (e.g., freeways, distribution centers, rail yards, ports, refineries, chrome plating facilities, dry cleaners, and gas stations), as well as the siting of new TAC sources in proximity to existing sensitive land uses.[4] The recommendations are advisory and should not necessarily be interpreted as defined "buffer zones"; if a project or sensitive land uses are within the siting distance, CARB recommends further analysis.

Regional

South Coast Air Quality Management District

The Project Site is located within the 6,745-square-mile South Coast Air Basin (Basin). The Basin includes all of Orange County and the non-desert portions of Los Angeles, Riverside, and San Bernardino counties. It is bounded by the Pacific Ocean to the west; the San Gabriel, San Bernardino, and San Jacinto Mountains to the north and east; and the San Diego County line to the south. The South Coast Air Quality Management District (SCAQMD) is the agency principally responsible for air pollution control in the Basin. Specifically, SCAQMD is responsible for planning, implementing, and enforcing programs designed to attain and maintain CAAQS established by CARB and NAAQS established by the USEPA. All projects in the SCAQMD jurisdiction are subject to SCAQMD rules and regulations, including, but not limited to, the following:

- Rule 401 Visible Emissions: This rule prohibits air discharge that results in a plume that is as dark as or darker than what is designed as No. 1 Ringelmann Chart by the United States Bureau of Mines for an aggregate of three minutes in any one hour.

- Rule 402 Nuisance: This rule prohibits the discharge of "such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of people or the public, or which endanger the comfort, repose, health or safety of

[4] CARB, Air Quality and Land Use Handbook, A Community Health Perspective, April 2005.

any such persons or the public, or which cause, or have a natural tendency to cause, injury or damage to business or property."

- Rule 403 Fugitive Dust: This rule mandates that projects reduce the amount of particulate matter entrained in the ambient air as a result of fugitive dust sources by requiring actions to prevent, reduce, or mitigate fugitive dust emissions from any active operation, open storage pile, or disturbed surface area.

2022 Air Quality Management Plan

The 2022 Air Quality Management Plan (2016 AQMP) was adopted in December 2022 and represents the most updated regional blueprint for achieving federal air quality standards. It relies on emissions forecasts based on demographic and economic growth projections provided by the Southern California Association of Governments' (SCAG) 2020-2045 Regional Transportation Plan/Sustainable Communities Strategy (2020-2045 RTP/SCS).

Southern California Association of Governments

SCAG is the regional planning agency for Los Angeles, Orange, Ventura, Riverside, San Bernardino, and Imperial Counties that is tasked with addressing regional issues relating to transportation, the economy, community development, and the environment. As the federally designated Metropolitan Planning Organization (MPO) for the six-county Southern California region, SCAG is required by law to ensure that transportation activities conform to, and are supportive of, regional and state air quality plan goals to attain NAAQS. Additionally, SCAG is a co-producer, along with the SCAQMD, of the transportation strategy and transportation control measure sections of the Basin's AQMP. The 2020-2045 RTP/SCS (Connect SoCal), SCAG's latest long-range plan, continues to recognize that transportation investments and future land use patterns are inextricably linked, and acknowledges how this relationship can help the region make choices that sustain existing resources while expanding efficiency, mobility, and accessibility for people across the region. In short, the 2020-2045 RTP/SCS offers a blueprint for how Southern California can grow more sustainably. To this end, the 2020-2045 RTP/SCS land use pattern continues the trend of focusing new housing and employment in the region's High Quality Transit Areas (HQTAs) and aims to enhance and build out the region's transit network. At the time of the 2016-2040 RTP/SCS, HQTAs accounted for just 3 percent of total land in the SCAG region, but they are projected to accommodate 46 percent of the region's future household growth and 55 percent of the region's future employment growth by 2040.[5] HQTAs are a cornerstone of land use planning best practice in the SCAG region, and studies by the California Department of Transportation, the USEPA, and the Metropolitan Transportation Commission have found that

[5] SCAG, Final 2016-2040 RTP/SCS, April 2017. HQTAs are defined as areas within one-half mile of a fixed guideway transit stop or a bus transit corridor where buses pick up passengers at a frequency of every 15 minutes or less during peak commuting hours.

focusing development in areas served by transit can result in local, regional, and statewide benefits including reduced air pollution and energy consumption.

Local

City of Los Angeles General Plan Air Quality Element

The City's General Plan Air Quality Element identifies policies and strategies for advancing the City's clean air goals. The Air Quality Element acknowledges the interrelationships among transportation and land use planning in meeting the City's mobility and air quality goals. The Air Quality Element includes six key goals:

Goal 1: Good air quality in an environment of continued population growth and healthy economic structure.

Goal 2: Less reliance on single-occupant vehicles with fewer commute and non-work trips.

Goal 3: Efficient management of transportation facilities and system infrastructure using cost-effective system management and innovative demand management techniques.

Goal 4: Minimize impacts of existing land use patterns and future land use development on air quality by addressing the relationship between land use, transportation, and air quality.

Goal 5: Energy efficiency through land use and transportation planning, the use of renewable resources and less-polluting fuels and the implementation of conservation measures including passive measures such as site orientation and tree planting.

Goal 6: Citizen awareness of the linkages between personal behavior and air pollution and participation in efforts to reduce air pollution.

Pollutants and Effects

State and Federal Criteria Pollutants

Air quality is measured by the ambient air concentrations of seven pollutants that have been identified by the USEPA due to their potentially harmful effects on public health and the environment. These "criteria air pollutants" include carbon monoxide, ground-level ozone, nitrogen dioxide, sulfur dioxide, particulate matter ten microns or less in diameter, particulate matter 2.5 microns or less in diameter, and lead. The following descriptions of each criteria air

pollutant and their health effects are based on information provided by the USEPA and the SCAQMD.[6,7]

Carbon Monoxide – CO

CO is a colorless and odorless gas that is released when something is burned. Outdoors, the greatest sources of CO are cars, trucks, and other vehicles or machinery that burn fossil fuels. Unvented kerosene and gas space heaters, leaking chimneys and furnaces, and gas stoves can release CO and affect air quality indoors. Breathing air with elevated concentrations of CO reduces the amount of oxygen that can be transported via the blood stream and can lead to weakened heart contractions; as a result, CO inhalation can be particularly harmful to people with chronic heart disease. At moderate concentrations, CO inhalation can cause nausea, dizziness, and headaches. High concentrations of CO may be fatal; however, such conditions are not likely to occur outdoors.

Ozone – O_3

O_3 is a colorless gas that is formed when volatile organic compounds (VOCs) and nitrogen oxides (NO_X) undergo slow photochemical reactions in the presence of ultraviolet sunlight. The greatest source of VOC and NO_X emissions is automobile exhaust. O_3 concentrations are generally highest during the summer months when direct sunlight, light wind, and warm temperatures are favorable to its formation. Elevated levels of O_3 irritate the lungs and airways and may cause throat and chest pain, as well as coughing, thereby increasing susceptibility to respiratory infections and reducing the ability to exercise. Effects are more severe in people with asthma and other respiratory ailments. Long-term exposure may lead to the scarring of lung tissue and reduced lung efficiency.

Nitrogen Dioxide – NO_2

NO_2 is primarily a byproduct of fossil fuel combustion and is therefore emitted by automobiles, power plants, and industrial facilities. The principal form of nitrogen oxide produced by fossil fuel combustion is nitric oxide (NO), which reacts quickly to form NO_2, creating the mixture of NO and NO_2 commonly called NO_X. NO_2 absorbs blue light and results in reduced visibility and a brownish-red cast to the atmosphere. NO_2 also contributes to the formation of PM_{10}. Nitrogen oxides irritate the nose and throat and increase susceptibility to respiratory infections, especially in people with asthma. Longer exposures to elevated concentrations of NO_2 may even contribute to the development of asthma. The principal concern of NO_X is as a precursor to the formation of ozone.

[6] USEPA, Criteria Air Pollutants, www.epa.gov/criteria-air-pollutants.

[7] SCAQMD, Final 2012 Air Quality Management Plan, February 2013.

Sulfur Dioxide – SO_2

Sulfur oxides (SO_X) are compounds of sulfur and oxygen molecules. SO_2 is the pre-dominant form found in the lower atmosphere and is a product of burning sulfur or sulfur-containing materials. Major sources of SO_2 include power plants, large industrial facilities, diesel vehicles, and oil-burning residential heaters. SO_2 may aggravate lung diseases, especially bronchitis. It also constricts breathing passages, especially in asthmatics and people involved in moderate to heavy exercise. SO_2 may cause wheezing, shortness of breath, and coughing. High levels of particulates appear to worsen the effect of SO_2, and long-term exposure to both pollutants leads to higher rates of respiratory illnesses.

Particulate Matter (PM_{10} and $PM_{2.5}$)

The human body naturally prevents the entry of larger particles into itself. However, smaller particles less than 10 microns (PM_{10}) or even less than 2.5 microns ($PM_{2.5}$) in diameter can enter the body and become trapped in the nose, throat, and upper respiratory tract. Here, these particulates may aggravate existing heart and lung diseases, affect the body's defenses against inhaled materials, and damage lung tissue. Those most sensitive to PM_{10} and $PM_{2.5}$ include children, the elderly, and those with chronic lung and/or heart disease.

Lead – Pb

Airborne lead is emitted from industrial facilities and from the sanding or removal of old lead-based paint. Smelting and other metal processing activities are the primary sources of lead emissions. The lead effects most commonly encountered in current populations are neurological effects in children and cardiovascular effects in adults (e.g., high blood pressure and heart disease). Infants and young children are especially sensitive to even low levels of lead, which may contribute to behavioral problems, learning deficits, and lowered IQ.

Toxic Air Contaminants

Toxic air contaminants (TACs) refer to a diverse group of "non-criteria" air pollutants that can affect human health but have not had ambient air quality standards established for them. This is not because they are fundamentally different from the pollutants discussed above, but because their effects tend to be local rather than regional. CARB and OEHHA determine if a substance should be formally identified, or "listed," as a TAC in California. A complete list of these substances is maintained on CARB's website.[8] SCAQMD has not set regulatory guidance for TACs concerning construction sites or established localized or regional thresholds for their emissions.

One key TAC is diesel particulate matter (diesel PM), which is emitted in diesel engine exhaust. Released in 2021 by the SCAQMD, the Multiple Air Toxics Exposure Study V (MATES V) determined that about 88 percent of the carcinogenic risk from air toxics in the Basin is attributable

[8] CARB, Toxic Air Contaminant Identification List, www.arb.ca.gov/toxics/id/taclist.htm, last reviewed by CARB July 18, 2011.

to mobile source emissions. Of the three carcinogenic TACs that constitute the majority of the known health risk from motor vehicle traffic – diesel PM from primarily trucks, and benzene and 1,3-butadiene from passenger vehicles – diesel PM is responsible for the greatest potential cancer risk from vehicle traffic.[9] Overall, diesel PM was found to account for, on average, about 50 percent of the air toxics risk in the Basin.[10] In addition to its carcinogenic potential, diesel PM also may contribute to increased respiratory and cardiovascular hospitalizations, worsened asthma and other respiratory symptoms, decreased lung function in children, and premature death for people already with heart or lung disease. Those most vulnerable to the non-cancer health effects of diesel PM are children whose lungs are still developing and the elderly who may have other chronic health problems.[11]

Volatile Organic Compounds

Volatile organic compounds (VOCs) are typically formed from the combustion of fuels and/or released through the evaporation of organic liquids. Some VOCs are also classified by the state as toxic air contaminants, though there are no VOC-specific ambient air quality standards. Once emitted, VOCs can mix in the air with other pollutants (e.g. NO_X, CO, SO_2…) and contribute to the formation of photochemical smog.

Existing Conditions

As discussed earlier, the Project is located within the 6,745-square-mile South Coast Air Basin that includes all of Orange County and the non-desert portions of Los Angeles, Riverside, and San Bernardino Counties. Air quality within the Basin is influenced by a wide range of emissions sources, such as dense population centers, heavy vehicular traffic, and industry. These sources in addition to the topography and climate of Southern California combine to make the Basin an area of high air pollution potential. Particularly, ambient pollution concentrations recorded in the Los Angeles County portion of the Basin are among the highest in the four counties comprising the Basin. The USEPA has classified Los Angeles County as a nonattainment area for O_3, $PM_{2.5}$, and lead, meaning that the Basin does not meet NAAQS for these pollutants. Additionally, this portion of the Basin also does not meet CAAQS for O_3, PM_{10}, and $PM_{2.5}$. Table III-1, above, summarizes State and National Ambient Air Quality Standards and the attainment status for Los Angeles County with respect to each criteria pollutant.

Air Quality Monitoring Data

The SCAQMD monitors air quality conditions at 38 source receptor areas (SRAs) throughout the Basin. The Project is located in SCAQMD's SRA No. 6, "West San Fernando Valley." Table III-2 shows pollutant levels, State and federal standards, and the number of exceedances recorded in

[9] CARB, Air Quality and Land Use Handbook: A Community Health Perspective, April 2005.

[10] SCAQMD, Multiple Air Toxics Exposure Study in the South Coast Air Basin (MATES V), 2021.

[11] CARB, Overview: Diesel Exhaust & Health, ww2.arb.ca.gov/resources/overview-diesel-exhaust-and-health.

SRA No. 6 from 2019 through 2021. As shown, the one-hour State standard for O_3 was exceeded 6 times during this three-year period, and the federal standard was exceeded 11 times. CO, NO_2, and $PM_{2.5}$ levels did not exceed their respective CAAQS or NAAQS during this period. Data for PM_{10}, SO_2, and lead is not available for this period.

Table III-2
Ambient Air Quality Data – SRA No. 6 "West San Fernando Valley"

Pollutants and State and Federal Standards	Maximum Concentrations and Frequencies of State/Federal Standards Exceedance		
	2019	2020	2021
Ozone – O_3			
Maximum 1-hour Concentration (ppm)	0.101	0.142	0.110
Days > 0.09 ppm (State 1-hour standard)	1	14	4
Days > 0.070 ppm (Federal 8-hour standard)	6	49	31
Carbon Monoxide – CO			
Maximum 1-hour Concentration (ppm)	2.6	2.0	2.6
Days > 20 ppm (State 1-hour standard)	0	0	0
Maximum 8-hour Concentration (ppm)	2.2	1.7	1.9
Days > 9.0 ppm (State 8-hour standard)	0	0	0
Nitrogen Dioxide – NO_2			
Maximum 1-hour Concentration (ppb)	0.0644	0.0572	0.0542
Days > 0.18 ppm (State 1-hour standard)	0	0	0
PM_{10}			
Maximum 24-hour Concentration (µm/m^3)	N/A	N/A	N/A
Days > 50 µg/m^3 (State 24-hour standard)	N/A	N/A	N/A
$PM_{2.5}$			
Maximum 24-hour Concentration (µg/m^3)	30.00	27.60	55.50
Days > 35 µg/m^3 (Federal 24-hour standard)	0	0	3
Sulfur Dioxide – SO_2			
Maximum 24-hour Concentration (ppb)	N/A	N/A	N/A
Days > 0.04 ppm (State 24-hour standard)	N/A	N/A	N/A
Lead - Pb			
Maximum Monthly Average Concentration (µg/m^3)	N/A	N/A	N/A
Maximum 3-Month Rolling Averages (µg/m^3)	N/A	N/A	N/A

N/A = data not available
ppm = parts per million of air, by volume
µg/m^3 = micrograms per cubic meter
Source: SCAQMD Historical Data By Year, www.aqmd.gov/home/air-quality/air-quality-data-studies/historical-data-by-year. Accessed May 12, 2023.

Existing Health Risk

The Multiple Air Toxics Exposure Study V (MATES V) is the latest air toxics monitoring and evaluation study conducted in the Air Basin. In short, MATES V is a modeling effort to characterize

risk from air toxics across the Air Basin. Based on the MATES V model, the calculated cancer risk from air toxics in the Project's zip code (91304) is approximately 301 in one million, which is lower than the Air Basin's average risk of 454 per one million. The air toxics risk in the Project's zip code is less than it is for 84.0% of the population with the air basin.[12]

The OEHHA, on behalf of the California Environmental Protection Agency (CalEPA), provides a screening tool called CalEnviroScreen that identifies which California communities are disproportionately burdened by, and vulnerable to, multiple sources of pollution. The tool ranks census tracts in California based on potential exposures to pollutants, adverse environmental conditions, socioeconomic factors, and prevalence of certain health conditions. According to the Draft CalEnviroScreen 4.0, the Main Campus' census tract is ranked 39th percentile. The tract's pollution-specific burden, irrespective of other factors, is ranked 48th percentile. The North Campus' census tract is ranked 35th percentile, while its pollution-specific burden is ranked 32nd percentile.[13]

Sensitive Receptors

Some land uses are considered more sensitive to changes in air quality than others, depending on the population groups and the activities involved. Generally speaking, sensitive land uses, or sensitive receptors, are those where sensitive individuals are most likely to spend time. Individuals most susceptible to poor air quality include children, the elderly, athletes, and those with cardiovascular and chronic respiratory diseases. As a result, land uses sensitive to air quality may include schools (i.e., elementary schools or high schools), child care centers, parks and playgrounds, long-term health care facilities, rehabilitation facilities, convalescent facilities, retirement facilities, residences, and athletic facilities. For the purposes of CEQA analyses, the SCAQMD considers a sensitive receptor to be a receptor such as a residence, hospital, or convalescent facility where it is possible that an individual could remain for 24 hours. The SCAQMD does not consider commercial and industrial facilities to be sensitive receptors because employees do not typically remain onsite at such facilities for 24 hours, but are present for shorter periods (such as eight hour shifts). However, the SCAQMD suggests that localized significance thresholds (LSTs) based on shorter averaging periods, such as the NO_2 and CO LSTs, may also be applied to receptors such as commercial and industrial facilities since it is reasonable to assume that workers at these sites may be present for up to eight hours.[14] The Project is located in a residential neighborhood and is surrounded by numerous residential land uses, many of which abut the Main Campus and North Campus sites. For example, single-family homes are located directly north of the North Campus site along Saticoy Street, Melba Street, and

[12] SCAQMD, Multiple Air Toxics Exposure Study V, MATES Data Visualization Tool, https://experience.arcgis.com/experience/79d3b6304912414bb21ebdde80100b23/page/home/?data_id=dataSource_105-a5ba9580e3aa43508a793fac819a5a4d%3A207&views=view_1. Accessed May 12, 2023.

[13] Office of Environmental Health Hazard Assessment, CalEnviroScreen 4.0. https://experience.arcgis.com/experience/11d2f52282a54ceebcac7428e6184203/page/CalEnviroScreen-4_0/. Accessed May 12, 2023.

[14] SCAQMD, Final Localized Significance Threshold Methodology, June 2003. Revised July 2008.

Bobbyboyar Avenue. Single-family homes are also located directly west of the Main Campus along Woodhall Avenue, Keswick Street, and Atron Avenue.

Existing Project Site Emissions

The Main Campus site is currently developed with a private high school campus containing educational, athletic, performing arts, administrative, and religious facilities. The North Campus site is developed with an approximately 53,929 square foot commercial building that contains a grocery store, restaurants, and other commercial uses, as well as surface parking for these uses. Existing emissions related to these uses have been estimated for informational purposes and are shown in Table III-3.

Table III-3
Existing Project Site Regional and Localized Operational Emissions

Emissions Source	Emissions in lbs per day					
	VOC	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
Shopping Plaza with Supermarket						
Area	1.70	0.02	2.34	<0.01	<0.01	<0.01
Energy	0.01	0.13	0.11	<0.01	0.01	0.01
Mobile Sources	9.58	9.72	93.0	0.19	6.46	1.25
Subtotal:	11.29	9.87	95.45	0.19	6.47	1.26
Private High School[B]						
Area	5.76	0.07	8.04	<0.01	0.01	0.01
Energy	0.06	1.01	0.85	0.01	0.08	0.08
Mobile Sources	12.5	12.0	111	0.21	6.87	1.34
Subtotal:	18.32	13.08	119.89	0.22	6.96	1.43
Total Existing Regional Emissions:[C]	**29.61**	**22.95**	**215.34**	**0.41**	**13.43**	**2.69**
Total Existing Localized Emissions:	**7.46**	**0.09**	**10.38**	**<0.01**	**0.01**	**0.01**

Notes:

[A] "Shopping Plaza with Supermarket" land use assumed the following land use types and sizes in CalEEMod:

- Supermarket – 27,000 square feet
- Strip Mall – 26,929 square feet
- Parking Lot – 3.59 acres

[B] "Private High School" land use assumed the following land use and size in CalEEMod:

- High School – 21.3 acres, 185,324 building square feet.

[C] Some figures may not add up properly due to rounding.

Source: Air Quality Technical Modeling, Noah Tanski Environmental Consulting (NTEC), May 2023, included in Appendix B of this IS/MND.

a. Would the project conflict with or obstruct implementation of the applicable air quality plan?

Less Than Significant Impact. The following analysis assesses the Project's consistency with the SCAQMD 2022 AQMP and SCAG's latest 2020-2045 RTP/SCS. As discussed earlier, the 2022 AQMP's projections for achieving state and federal air quality goals are based on population, housing, and employment trend assumptions in the previous 2020-2045 RTP/SCS, which are themselves largely based on growth forecasts from local governments like the City of Los Angeles; therefore a project is consistent with the 2022 AQMP, in part, if it is consistent with the population, housing, and employment assumptions and smart growth policies that were used in the formation of the AQMP.

The Project's development would not exceed the growth assumptions of the 2020-2045 RTP/SCS and therefore would not result in emissions that are unaccounted for by the 2022 AQMP. This is mainly due to the following key factors. First, the Project would not result in an increase in student enrollment or a substantial change in the operations of the school, as described in greater detail in Section 3, Project Description, of this IS/MND. In addition, due to the removal of the existing supermarket and other commercial uses located on the North Campus property, the Project would result in a net reduction of 1,355 daily trips.[15] Because of this significant reduction in site-related daily trips, the Project would result in a net decrease in operational emissions as compared to existing site uses. This reduction would ultimately aid in the region's attainment of ambient air quality standards. Therefore, the Project would be consistent with the air quality attainment goals of the 2022 AQMP.

City of Los Angeles Policies

In addition to the 2022 AQMP and 2020-2045 RTP/SCS, the City of Los Angeles General Plan Air Quality Element also identifies policies and strategies for advancing the City's clean air goals. As shown below in Table III-4, the Project would be consistent with the applicable policies of the Air Quality Element.

[15] Armen Hovanessian Transportation Consulting, Chaminade College Preparatory School Transportation Assessment Report. April 18, 2023.

Table III-4
Project Consistency with City of Los Angeles General Plan Air Quality Element

Strategy	Project Consistency
Policy 1.3.1 – Minimize particulate emissions from construction sites.	**Consistent.** The Project would minimize particulate emissions during construction through best practices and/or SCAQMD rules.
Policy 1.3.2 – Minimize particulate emissions from unpaved roads and parking lots associated with vehicular traffic.	**Consistent.** The Project would not include the development of any unpaved roads or parking lots. Unpaved areas exposed during grading would comply with SCAQMD fugitive dust regulations to minimize particulate emissions.
Policy 2.1.1 – Utilize compressed work weeks and flextime, telecommuting, carpooling, vanpooling, public transit, and improve walking/bicycling related facilities in order to reduce vehicle trips and/or VMT as an employer and encourage the private sector to do the same to reduce work trips and traffic congestion.	**Consistent.** The Project would result in a net reduction of 1,355 daily trips and therefore would contribute to significant reductions in VMT.
Policy 2.1.2 – Facilitate and encourage the use of telecommunications (i.e., telecommuting) in both the public and private sectors in order to reduce work trips.	**Consistent.** The Project would result in a net reduction of 1,355 daily trips, which would substantially contribute to the Air Quality Element's goals of reducing emissions from vehicle travel.
Policy 2.2.1 – Discourage single-occupant vehicle use through a variety of measures such as market incentive strategies, mode-shift incentives, trip reduction plans, and ridesharing subsidies.	**Consistent.** The Project would result in a net reduction of 1,355 daily trips, which would substantially contribute to the Air Quality Element's goals of reducing emissions from vehicle travel.
Policy 2.2.2 – Encourage multi-occupant vehicle travel and discourage single-occupant vehicle travel by instituting parking management practices.	**Consistent.** The Project would result in a net reduction of 1,355 daily trips, which would substantially contribute to the Air Quality Element's goals of reducing emissions from vehicle travel.
Policy 2.2.3 – Minimize the use of single-occupant vehicles associated with special events or in areas and in times of high levels of pedestrian activities.	**Not Applicable.** The Project would not include any facilities for the types of special events referenced by this policy (e.g., concerts, professional sports, and other ticketed events with large attendance).
Policy 3.2.1 – Manage traffic congestion during peak hours.	**Consistent.** The Project is not estimated to cause or materially contribute to substantial traffic congestion during peak hours. According to the Project's transportation study (included in Appendix H-1 of this IS/MND), during the A.M. peak hour, the Project would result in a net reduction of 2 trips. During the P.M. peak hour, the Project would result in a net increase of 292 trips, but this would not have a substantial effect on level of services and delays at surrounding intersections. Overall, the Project would result in a net reduction of 1,355 daily trips.
Policy 4.1.1 – Coordinate with all appropriate regional agencies on the implementation of strategies for the integration of land use, transportation, and air quality policies.	**Consistent.** The Project is being entitled through the City of Los Angeles, which coordinates with SCAG, Metro, and other regional agencies on the management of land use, air quality, and transportation policies.
Policy 4.1.2 – Ensure that project level review and approval of land use development remains at the local level.	**Consistent.** The Project would be entitled and environmentally cleared at the local City level.

Table III-4
Project Consistency with City of Los Angeles General Plan Air Quality Element

Strategy	Project Consistency
Policy 4.2.3 – Ensure that new development is compatible with pedestrians, bicycles, transit, and alternative fuel vehicles.	**Consistent.** As discussed in the Transportation Assessment (contained in Appendix H-1 of this IS/MND), the Project would not conflict with any bicycle or transit infrastructure. In addition, the Project would include approximately 137 EV spaces and 17 electric vehicle charging stations (EVCS), in addition to other EV infrastructure, and would also provide 78 bicycle parking spaces. Finally, the Project includes the pedestrian bridge over Saticoy Street to connect the North Campus to the Main Campus, allowing students, faculty, staff, and visitors or those parking on the Main Campus for sporting events a safe pedestrian access to the North Campus athletic facilities.
Policy 4.2.4 – Require that air quality impacts be a consideration in the review and approval of all discretionary projects.	**Consistent.** The Project's air quality impacts are analyzed in this document, and as provided herein, all Project impacts with respect to air quality would be less than significant.
Policy 4.2.5 – Emphasize trip reduction, alternative transit and congestion management measures for discretionary projects.	**Consistent.** The Project would result in a net reduction in daily traffic from the Project Site and would be consistent with this policy.
Policy 5.3.1 – Support the development and use of equipment powered by electric or low-emitting fuels.	**Consistent.** The Project would be designed to meet the applicable requirements of the State's Green Building Standards Code and the City's Green Building Code and would include approximately 137 EV spaces and 17 electric vehicle charging stations (EVCS),
Source: Noah Tanski Environmental Consulting (NTEC), May 2023.	

Conclusion

To summarize the analysis in response to Threshold (a): (1) operation of the Project would result in a net reduction of site-related emissions and therefore would not result in new emissions that are unaccounted for by the 2022 AQMP; (2) the Project would result in a substantial net reduction of 1,355 daily trips; and (3) as further discussed under Threshold (b) below, pollutant emissions associated with the Project's construction and operation would neither exceed nor contribute to any exceedance of ambient air quality standards and thresholds, nor would they interfere with the AQMP's attainment of air quality standards or interim emissions reductions. As a result, the Project would not conflict with or obstruct the implementation of any applicable air quality plans, and its impact with respect to Threshold (a) would be less than significant.

b. Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?

Less Than Significant Impact. The Project would contribute to local and regional air pollutant emissions during its construction (short-term) and operations (long-term). However, construction and operation of the Project would not result in exceedances of SCAQMD daily thresholds for project-specific impacts that could subsequently cause cumulatively considerable increases in emissions of pollutants for which the Basin is designated as non-attainment.

Methodology

Construction

Construction of the Project could affect local and regional air quality due to the use of gasoline and diesel-powered construction equipment, as well as the generation of construction vehicle trips. Demolition, grading, and any site preparation activities would also result in fugitive dust emissions. It is important to consider that construction emissions can vary substantially from day to day depending on levels of construction activity, the specific types of construction activities taking place, and the types of vehicles/equipment in use. For dust, the prevailing weather conditions can influence emissions.

Based on the criteria set forth in the SCAQMD CEQA Air Quality Handbook, a project would have the potential to violate an air quality standard or contribute substantially to an existing violation and result in a significant impact with regard to construction emissions if its regional emissions from both direct and indirect construction sources would exceed the threshold levels shown in Table III-5.

SCAQMD localized significance thresholds (LSTs) for one and two-acre project sizes are also included below in Table III-5. To be discussed in greater detail below, the Project would involve a variety of construction activities, some of which would take place on construction footprints that are greater than one acre. Depending on the construction footprint of the specific activity, different LSTs would apply. For example, grading for the North Campus may involve up to one-acre of soil disturbance per day, and the one-acre LST would apply. Demolition of classrooms and a parking lot on the Main Campus would be spread over a 2.75-acre parcel, and the two-acre LST would apply. Additional discussion regarding construction activities and applicable LSTs is included throughout this analysis. LSTs represent the maximum emissions from a project that would not be expected to cause or contribute to an exceedance of the most stringent applicable federal or state ambient air quality standards. LSTs are developed based on the ambient concentrations of a given pollutant for a source receptor and distances to the nearest sensitive receptor. The SCAQMD provides LSTs for NO_X, CO, PM_{10}, and $PM_{2.5}$. The SCAQMD does not provide a LST for SO_2 because land use development projects typically result in negligible construction and long-term operational emissions of this pollutant. Additionally, because VOCs are not a criteria

pollutant, there is no ambient standard or SCAQMD LST for VOCs. However, due to the role that VOCs play in O_3 formation and their classification as a precursor pollutant, a regional emissions threshold has been established. LSTs for the Project were obtained via the SCAQMD's mass rate look-up tables, which are used to determine whether or not a project may generate significant adverse localized air quality impacts.[16] The construction analysis compares the Project's localized emissions with LSTs for one and two-acre project sizes, depending on the construction phase.

Construction emissions were estimated using CalEEMod version 2022. Because the SCAQMD's regional and localized significance thresholds for construction emissions are representative of maximum daily emissions that would not be expected to cause or contribute to an exceedance of the most stringent NAAQS or CAAQS for pollutants, the objective of the analysis is to determine whether the Project's maximum single-day construction emissions would have the potential to exceed these thresholds. The CalEEMod analysis for the Project relies on conservative construction and phasing/overlap assumptions in an effort to conclusively rule out the possibility that threshold exceedances could occur. Construction is a dynamic process and day-to-day emissions can vary widely, even within the same construction phase or subphase. This modeling approach therefore minimizes the potential for inadvertently underestimating daily construction emissions, which are the basis of SCAQMD's air pollutant thresholds.

The modeling also accounts for SCAQMD Rule 403 for fugitive dust, which is a regulatory compliance measure applicable to the Project. SCAQMD Rule 403 contains general requirements applicable to all fugitive dust sources that involve minimizing visible emissions and reducing trackout from site driveways. SCAQMD Rule 403(d)(2) requires all sources to implement "best available control measures" (BACMs) for fugitive dust. The BACMs, which are included in Table 1 of the regulation, require sources to adopt measures such as pre-watering soils prior to cut and fill activities, stabilizing soils during and after cut and fill activities, and stabilizing disturbed soils with water or other stabilizing agents to prevent the generation of visible dust plumes.

[16] SCAQMD, Final LST Methodology, Revised July 2008.

Table III-5
SCAQMD Construction Emissions Thresholds

Criteria Pollutant	Construction Emissions (lbs per day)		
	Regional	Localized[A]	
		1 acre	2 acres
Volatile Organic Compounds – VOCs	75	-	-
Nitrogen Oxides - NO_X	100	103	147
Carbon Monoxide – CO	550	426	644
Sulfur Oxides - SO_X	150	-	-
Respirable Particulates – PM_{10}	150	4	6
Fine Particulates – $PM_{2.5}$	55	3	4

[A] Localized significance thresholds assumed the following:

- 25-meter (82-foot) receptor distance. This is the shortest distance used for analysis in the LST guidance document, and it results in the most stringent emissions thresholds.
- The Project is located in SRA No. 6, "West San Fernando Valley."

Sources: SCAQMD, Air Quality Significance Thresholds, revised March 2023; and, SCAQMD, LST Methodology Appendix C – Mass Rate LST Look-Up Table, October 2009.

Operation

The SCAQMD has also established significance thresholds to evaluate potential impacts associated with long-term project operations. Regional thresholds and LSTs for Project operations are shown below in Table III-6. The analysis utilizes LSTs for a five-acre project size, which is the largest project size utilized for the LST methodology.[17] Operational emissions for the Project were also calculated using CalEEMod version 2022.

Table III-6
SCAQMD Operational Emissions Thresholds

Criteria Pollutant	Operational Emissions (lbs per day)	
	Regional	Localized[A]
Volatile Organic Compounds - VOCs	55	-
Nitrogen Oxides - NO_X	55	221
Carbon Monoxide – CO	550	1,158
Sulfur Oxides - SO_X	150	-
Respirable Particulates – PM_{10}	150	3
Fine Particulates – $PM_{2.5}$	55	2

[A] Localized significance thresholds assumed the following:

- 5-acre project size.
- 25-meter (82-foot) receptor distance. This is the shortest distance used for analysis in the LST guidance document, and it results in the most stringent emissions thresholds.
- The Project is located in SRA No. 6, "West San Fernando Valley."

[17] SCAQMD, Final LST Methodology, Revised July 2008.

Sources: SCAQMD, Air Quality Significance Thresholds, revised March 2023; and, SCAQMD, LST Methodology Appendix C – Mass RateST Look-Up Table, October 2009.

Toxic Air Contaminants (Construction and Operation)

Potential TAC impacts are evaluated by conducting a qualitative analysis consistent with the CARB Handbook, followed by a more detailed analysis (i.e., dispersion modeling), as necessary. The qualitative analysis consists of reviewing the Project to identify any new or modified TAC emissions sources. If the qualitative evaluation does not rule out significant impacts from a new source, or modification of an existing TAC emissions source, a more detailed analysis is conducted.

The Office of Environmental Health Hazard Assessment (OEHHA) provides guidance related to the preparation of health risk assessments (HRAs) in the State. However, no guidance has been adopted by the OEHHA which would be applicable to the Project. The OEHHA's latest guidance on this issue was released in February 2015, Risk Assessment Guidelines: Guidance Manual for Preparation of Health Risk Assessments ("2015 Guidance Manual"). The 2015 Guidance Manual was prepared to assist local air districts in the formulation of their own rules and guidelines surrounding the preparation of HRAs. As stated in the manual's introduction: "The intent in developing [the 2015 Guidance Manual] is to provide HRA procedures for use in the Air Toxics Hot Spots Program or for the permitting of existing, new, or modified stationary sources." It notes "The Hot Spots Act requires that each local Air Pollution Control District or Air Quality Management District (hereinafter referred to as District) determine which facilities will prepare an HRA." It acknowledges that "local air pollution control districts sometimes use the risk assessment guidelines for the Hot Spots program in permitting decisions for short-term projects such as construction or waste site remediation." The Project's construction would not be subject to SCAQMD permitting decisions. Therefore, the OEHHA and its guidance as contained in the 2015 Guidance Manual do not apply concerning whether the Project is obligated to provide a HRA. The decision to require an HRA is at the discretion of the SCAQMD, and the SCAQMD has not published any requirements, recommendations, or guidance endorsing the 2015 Guidance Manual's use for CEQA analysis of potential construction impacts.

Construction

The Project may not be fully implemented until 2035, and there is currently no exact sequence of construction activities or phasing, though it would be necessary for some activities to occur before others. For example, grading of the North Campus would have to occur before construction of the new North Campus athletic and pool facilities, and demolition of existing classroom buildings would have to occur before construction of the new Main Campus Multistory Building.

Table III-7 (which is the same as Table 3-2 in Section 2, Project Description) presents a sequence of the Project's construction activities showing which construction activities/phases may overlap.

The Project would include Project Design Feature 1 (PDF 1), which incorporates this construction sequence.

Table III-7
Construction Sequence

Construction Activity	Sequence									
	1	2	3	4	5	6	7	8	9	10
North Campus – Demolition†	X									
North Campus – Grading†		X								
North Campus – Construction of new surface parking lot			X							
North Campus – Construction of pedestrian bridge				X						
North Campus – Construction of new athletic fields and ancillary facilities†					X	X	X	X		
North Campus – Construction of new pool facilities†										X
Main Campus – Parking Lot Demolition†					X					
Main Campus – Classroom Demolition†						X				
Main Campus – Multistory Building Grading†							X			
Main Campus – Multistory Building Construction†								X	X	X
Main Campus – Construction of upper-level student quad									X	
Main Campus – Renovation of surface parking lot along Cohasset Street									X	
Main Campus – Renovations to existing athletics facilities, classroom buildings, and administrative offices.								X	X	X

† Denotes construction activities chosen for detailed construction emissions modeling.
Source: Project Applicant.

The following construction activities are evaluated in detail below in the modeling analysis, on the basis that these represent the most intense activities with the greatest probability of creating emission impacts:

North Campus - Demolition

North Campus - Grading

North Campus – Construction of new athletic fields and ancillary facilities

North Campus - Construction of new pool facilities

Main Campus – Classroom and parking lot demolition (addressed together)

Main Campus – Multistory Building grading

Main Campus – Multistory Building construction

Pollutant emissions for these construction activities were modeled to ascertain the Project's potential to exceed SCAQMD daily regional and localized construction emissions thresholds. The modeled construction activities were chosen because they are the activities that would generate the most pollutant emissions from diesel-powered equipment usage, haul trips, application of architectural coatings, demolition, and fugitive dust.

An exact construction activity schedule or phasing plan has not yet been determined for the Project. Therefore, to achieve a conservative analysis, the construction activities were all modeled with a start date of January 1, 2024. This is a conservative approach as CalEEMod assumes that construction equipment emissions become cleaner over time due to the increased penetration of newer cleaner equipment into statewide fleets. By assuming that all activities begin on January 1, 2024, the modeling does not assume that emissions would benefit from future, cleaner construction equipment.[18] Given the scope of the Project, it is very likely that the majority of construction activities would occur after 2024.

Analysis

North Campus - Demolition

Demolition of existing North Campus improvements would last approximately one month and would require construction equipment such as bulldozers, excavators, and skid steer loaders. As shown in Table III-7, this phase would not overlap with any other construction phases or activities. Unmitigated maximum daily regional and localized emissions from this construction phase are shown in Table III-8 along with the applicable regional thresholds and LSTs. LSTs for this phase reflect a one-acre project size, which is the smallest project size used for analysis in the LST guidance document and results in the most stringent emissions thresholds. A receptor distance of 25 meters (approximately 82 feet) was utilized, which is the shortest distance used for analysis in the LST guidance document and also results in the most stringent emissions thresholds. As shown, unmitigated regional construction emissions would not exceed SCAQMD regional

[18] For example, according to CARB, Tier 0 (uncontrolled), Tier 1, and Tier 2 off-road diesel vehicles make up one third of the statewide fleet reported to CARB but contributed to 60 percent of NO_X and PM emissions in 2022. CARB's 2022 Amendments to the In-Use Off-Road Diesel-Fueled Fleets Regulations would prohibit this equipment in large fleets by 2028, medium fleets by 2030, and small fleets by 2032, substantially reducing NO_X and PM emissions.

significance thresholds for VOC, NO_X, CO, SO_X, PM_{10}, or $PM_{2.5}$. Localized emissions would not exceed SCAQMD LSTs for NO_X, CO, PM_{10}, or $PM_{2.5}$.

Table III-8
North Campus – Demolition
Maximum Regional and Localized Daily Construction Emissions (Unmitigated)

	Emissions in lbs per day					
	VOC	**NO_X**	**CO**	**SO_x**	**PM_{10}**	**$PM_{2.5}$**
Regional Emissions						
North Campus – Demolition	2.88	32.8	30.4	0.08	4.41	1.83
Regional Daily Threshold	75	100	550	150	150	55
Exceed Threshold?	**No**	**No**	**No**	**No**	**No**	**No**
Localized Emissions						
North Campus – Demolition	2.72	26.0	27.2	0.04	2.66	1.31
Localized Significance Threshold	-	103	426	-	4	3
Exceed Threshold?	**-**	**No**	**No**	**-**	**No**	**No**

Source: Air Quality Technical Modeling, Noah Tanski Environmental Consulting (NTEC), May 2023, included in Appendix B of this IS/MND.

North Campus – Grading

Grading of the North Campus could occur in stages. For example, grading for the proposed surface parking lot, pedestrian bridge abutments/landing, and athletic field facilities may occur prior to grading for the new pool facilities. However, the modeling conservatively assumes that grading of the entire North Campus would occur at once, and that this would last approximately one month. Grading would utilize construction equipment such as graders, excavators, loaders, bulldozers, and rollers.

As shown in Table III-7, grading of the North Campus would not overlap with any other construction phases or activities. Unmitigated maximum daily regional and localized emissions from this construction phase are shown in Table III-9 along with the applicable regional thresholds and LSTs. LSTs for this phase reflect a one-acre project size, which is the smallest project size used for analysis in the LST guidance document and results in the most stringent emissions thresholds. Use of this project size is also consistent with the SCAQMD's "Fact Sheet for Applying CalEEMod to Localized Significance Thresholds" document, which concerns the selection of appropriate LSTs for grading activities. A receptor distance of 25 meters (approximately 82 feet) was utilized, which is the shortest distance used for analysis in the LST guidance document and also results in the most stringent emissions thresholds. As shown, unmitigated regional construction emissions would not exceed SCAQMD regional significance thresholds for VOC, NO_X, CO, SO_X, PM_{10}, or $PM_{2.5}$. Localized emissions would not exceed SCAQMD LSTs for NO_X, CO, PM_{10}, or $PM_{2.5}$.

Table III-9
North Campus – Grading
Maximum Regional and Localized Daily Construction Emissions (Unmitigated)

	Emissions in lbs per day					
	VOC	**NO_X**	**CO**	**SO_x**	**PM_{10}**	**$PM_{2.5}$**
Regional Emissions						
North Campus – Grading	2.22	20.5	23.4	0.04	4.07	2.29
Regional Daily Threshold	75	100	550	150	150	55
Exceed Threshold?	**No**	**No**	**No**	**No**	**No**	**No**
Localized Emissions						
North Campus – Grading	2.13	19.7	22.1	0.03	3.69	2.19
Localized Significance Threshold	-	103	426	-	4	3
Exceed Threshold?	**-**	**No**	**No**	**-**	**No**	**No**

Source: Air Quality Technical Modeling, Noah Tanski Environmental Consulting (NTEC), May 2023, included in Appendix B of this IS/MND.

North Campus – Construction of new athletic fields and ancillary facilities

This phase would involve installation of field turf and facilities that are ancillary to the athletics field (i.e., bleachers, dugout, batting cage, etc.). Installation of these features could partially overlap. Therefore, the modeling conservatively assumes that all activities associated with the installation of these features would occur simultaneously and last approximately one month. Construction would require equipment such as forklifts, loaders, a roller, and a truck-mounted crane. Unmitigated maximum daily regional and localized emissions from this phase are shown in Table III-10 along with the applicable regional thresholds and LSTs. LSTs for this phase reflect a two-acre project size, which is less than the approximately 2.4-acre area in which improvements would occur, and which presents a conservative analysis. A receptor distance of 25 meters (approximately 82 feet) was utilized, which is the shortest distance used for analysis in the LST guidance document and results in the most stringent emissions thresholds. As shown, unmitigated regional construction emissions would not exceed SCAQMD regional significance thresholds for VOC, NO_X, CO, SO_X, PM_{10}, or $PM_{2.5}$. Localized emissions would not exceed SCAQMD LSTs for NO_X, CO, PM_{10}, or $PM_{2.5}$.

As shown in Table III-7, this construction phase may overlap with Main Campus demolition, Main Campus grading, and construction of the multistory buildings on the Main Campus. Analysis pertaining to these overlapping phases is included below. As demonstrated, these overlapping construction phases would not generate the necessary emissions to cause exceedances of regional thresholds or LSTs.

Table III-10
North Campus – Construction of New Athletic Fields and Ancillary Facilities
Maximum Regional and Localized Daily Construction Emissions (Unmitigated)

	Emissions in lbs per day					
	VOC	**NO_X**	**CO**	**SO_x**	**PM_{10}**	**$PM_{2.5}$**
Regional Emissions						
North Campus – Construction of New Athletic Fields and Ancillary Facilities	1.38	12.6	15.9	0.03	0.90	0.59
Regional Daily Threshold	75	100	550	150	150	55
Exceed Threshold?	**No**	**No**	**No**	**No**	**No**	**No**
Localized Emissions						
North Campus – Construction of New Athletic Fields and Ancillary Facilities	1.28	12.1	14.4	0.03	0.54	0.50
Localized Significance Threshold	-	147	644	-	6	4
Exceed Threshold?	**-**	**No**	**No**	**-**	**No**	**No**

Source: Air Quality Technical Modeling, Noah Tanski Environmental Consulting (NTEC), May 2023, included in Appendix B of this IS/MND.

Main Campus –Parking Lot and Classroom Demolition

Parking lot and classroom demolition would occur sequentially (see Table III-7 and PDF 1), but the modeling conservatively assumes that all demolition would occur at once, and that this would last approximately three weeks. Demolition would utilize construction equipment such as bulldozers, excavators, and skid steer loaders. Unmitigated maximum daily regional and localized emissions from this demolition phase are shown in Table III-11 along with the applicable regional thresholds and LSTs. LSTs for this phase reflect a two-acre project size, which is less than the 2.75-acre area in which demolition would occur, and which presents a conservative analysis. A receptor distance of 25 meters (approximately 82 feet) was utilized, which is the shortest distance used for analysis in the LST guidance document and results in the most stringent emissions thresholds. As shown, unmitigated regional construction emissions would not exceed SCAQMD regional significance thresholds for VOC, NO_X, CO, SO_X, PM_{10}, or $PM_{2.5}$. Localized emissions would not exceed SCAQMD LSTs for NO_X, CO, PM_{10}, or $PM_{2.5}$.

As shown in Table III-7, Main Campus demolition may overlap with the construction of athletic fields and ancillary facilities on the North Campus. Table III-12 demonstrates that overlapping worst-case emissions from Main Campus demolition and construction of athletic fields and ancillary facilities on the North Campus would be well below SCAQMD regional thresholds and LSTs for even the smallest, most conservative one-acre project size.

Table III-11
Main Campus – Parking Lot and Classroom Demolition
Maximum Regional and Localized Daily Construction Emissions (Unmitigated)

	Emissions in lbs per day					
	VOC	**NO_X**	**CO**	**SO_x**	**PM_{10}**	**$PM_{2.5}$**
Regional Emissions						
Main Campus – Classroom and Parking Lot Demolition	1.78	20.7	21.3	0.06	3.40	1.25
Regional Daily Threshold	75	100	550	150	150	55
Exceed Threshold?	**No**	**No**	**No**	**No**	**No**	**No**
Localized Emissions						
Main Campus – Classroom and Parking Lot Demolition	1.66	15.6	18.8	0.03	2.07	0.86
Localized Significance Threshold	-	147	644	-	6	4
Exceed Threshold?	**-**	**No**	**No**	**-**	**No**	**No**

Source: Air Quality Technical Modeling, Noah Tanski Environmental Consulting (NTEC), May 2023, included in Appendix B of this IS/MND.

Table III-12
Main Campus Demolition and North Campus Athletic Field Construction – Overlapping
Maximum Regional and Localized Daily Construction Emissions (Unmitigated)

	Emissions in lbs per day					
	VOC	**NO_X**	**CO**	**SO_x**	**PM_{10}**	**$PM_{2.5}$**
Regional Emissions						
North Campus – Construction of New Athletic Fields and Ancillary Facilities	1.38	12.6	15.9	0.03	0.90	0.59
Main Campus – Classroom and Parking Lot Demolition	1.78	20.7	21.3	0.06	3.40	1.25
Total Overlapping Emissions:	3.16	33.3	37.2	0.09	4.30	1.84
Regional Daily Threshold	75	100	550	150	150	55
Exceed Threshold?	**No**	**No**	**No**	**No**	**No**	**No**
Localized Emissions						
North Campus – Construction of New Athletic Fields and Ancillary Facilities	1.28	12.1	14.4	0.03	0.54	0.50
Main Campus – Classroom and Parking Lot Demolition	1.66	15.6	18.8	0.03	2.07	0.86
Total Overlapping Emissions:	2.94	27.7	33.2	0.06	2.61	0.36
Localized Significance Threshold	-	103	426	-	4	3
Exceed Threshold?	**-**	**No**	**No**	**-**	**No**	**No**

Source: Air Quality Technical Modeling, Noah Tanski Environmental Consulting (NTEC), May 2023, included in Appendix B of this IS/MND.

Main Campus – Multistory Building Grading

Grading for the proposed Multistory Building would last approximately one month and would require construction equipment such as bulldozers, excavators, and skid steer loaders.

Unmitigated maximum daily regional and localized emissions from this grading phase are shown in Table III-13 along with the applicable regional thresholds and LSTs. LSTs for this phase reflect a two-acre project size, which is less than the 2.75-acre area in which grading would occur, and which presents a conservative analysis. A receptor distance of 25 meters (approximately 82 feet) was utilized, which is the shortest distance used for analysis in the LST guidance document and results in the most stringent emissions thresholds. As shown, unmitigated regional construction emissions would not exceed SCAQMD regional significance thresholds for VOC, NO_X, CO, SO_X, PM_{10}, or $PM_{2.5}$. Localized emissions would not exceed SCAQMD LSTs for NO_X, CO, PM_{10}, or $PM_{2.5}$.

As shown in Table III-7, Main Campus grading may overlap with the construction of athletic fields and ancillary facilities on the North Campus. Table III-14 demonstrates that overlapping worst-case emissions from Main Campus grading and construction of athletic fields and ancillary facilities on the North Campus would be well below SCAQMD regional thresholds and LSTs for even the smallest, most conservative one-acre project size.

Table III-13
Main Campus – Multistory Building Grading
Maximum Regional and Localized Daily Construction Emissions (Unmitigated)

	Emissions in lbs per day					
	VOC	**NO_X**	**CO**	**SO_x**	**PM_{10}**	**$PM_{2.5}$**
Regional Emissions						
Main Campus – Multistory Building Grading	1.74	30.0	21.5	0.11	6.99	3.05
Regional Daily Threshold	75	100	550	150	150	55
Exceed Threshold?	**No**	**No**	**No**	**No**	**No**	**No**
Localized Emissions						
Main Campus – Multistory Building Grading	1.48	14.2	15.5	0.02	3.21	1.91
Localized Significance Threshold	-	147	644	-	6	4
Exceed Threshold?	**-**	**No**	**No**	**-**	**No**	**No**

Source: Air Quality Technical Modeling, Noah Tanski Environmental Consulting (NTEC), May 2023, included in Appendix B of this IS/MND.

Table III-14
Main Campus Grading and North Campus Athletic Field Construction - Overlapping Maximum Regional and Localized Daily Construction Emissions (Unmitigated)

	Emissions in lbs per day					
	VOC	**NO_X**	**CO**	**SO_x**	**PM_{10}**	**$PM_{2.5}$**
Regional Emissions						
North Campus – Construction of New Athletic Fields and Ancillary Facilities	1.38	12.6	15.9	0.03	0.90	0.59
Main Campus – Multistory Building Grading	1.74	30.0	21.5	0.11	6.99	3.05
Total Overlapping Emissions:	3.12	42.6	37.4	0.14	7.89	3.64
Regional Daily Threshold	75	100	550	150	150	55
Exceed Threshold?	**No**	**No**	**No**	**No**	**No**	**No**
Localized Emissions						
North Campus – Construction of New Athletic Fields and Ancillary Facilities	1.28	12.1	14.4	0.03	0.54	0.50
Main Campus – Multistory Building Grading	1.48	14.2	15.5	0.02	3.21	1.91
Total Overlapping Emissions:	2.76	26.3	29.9	0.05	3.75	2.41
Localized Significance Threshold	-	103	426	-	4	3
Exceed Threshold?	**-**	**No**	**No**	**-**	**No**	**No**

Source: Air Quality Technical Modeling, Noah Tanski Environmental Consulting (NTEC), May 2023, included in Appendix B of this IS/MND.

Main Campus – Multistory Building Construction

Construction of the proposed Multistory Building would last approximately 18 months, including six months of overlapping architectural coatings activities, which have been incorporated into the modeling. Diesel-fueled construction equipment would include cranes, forklifts, skid steer loaders, welders, and air compressors. Unmitigated maximum daily regional and localized emissions from this building construction and overlapping application of architectural coatings are shown in Table III-15 along with the applicable regional thresholds and LSTs. LSTs for this phase reflect a one-acre project size, which is less than the approximately 1.39-acre footprint of the proposed Multistory Building, and which presents a conservative analysis. A receptor distance of 25 meters (approximately 82 feet) was utilized, which is the shortest distance used for analysis in the LST guidance document and results in the most stringent emissions thresholds. As shown, unmitigated regional construction emissions would not exceed SCAQMD regional significance thresholds for VOC, NO_X, CO, SO_X, PM_{10}, or $PM_{2.5}$. Localized emissions would not exceed SCAQMD LSTs for NO_X, CO, PM_{10}, or $PM_{2.5}$.

As shown in Table III-7, construction of the Multistory Building may overlap with the construction of athletic fields and ancillary facilities on the North Campus. Table III-16 demonstrates that overlapping worst-case emissions from Main Campus Multistory Building construction and construction of athletic fields and ancillary facilities on the North Campus would be well below

SCAQMD regional thresholds and LSTs for even the smallest, most conservative one-acre project size.

Construction of the Multistory Building may also overlap with construction of the upper-level student quad, renovation of a small surface parking lot along Cohasset Street, and other campus improvements that involve repurposing the existing baseball field as a softball field and renovating administrative offices and buildings. However, these activities would require minimal use of diesel-powered equipment compared to the overlap scenario addressed in Table III-16 and therefore would generate less pollutant emissions. As shown in Table III-16, worst-case overlapping emissions associated with construction of the Multistory Building and the athletic fields would be over 50 percent below the SCAQMD's most stringent regional thresholds and LSTs. Therefore, it is estimated that emissions associated with this second overlap scenario would also be well below SCAQMD thresholds.

Emissions associated with the overlap of Multistory Building construction and the construction of pool facilities on the North Campus are discussed in the following section.

Table III-15
Main Campus – Multistory Building Construction
Maximum Regional and Localized Daily Construction Emissions (Unmitigated)

	Emissions in lbs per day					
	VOC	**NO_X**	**CO**	**SO_x**	**PM_{10}**	**$PM_{2.5}$**
Regional Emissions						
Main Campus – Building Construction and Architectural Coatings (Overlap)	6.07	13.9	18.3	0.03	0.99	0.60
Regional Daily Threshold	75	100	550	150	150	55
Exceed Threshold?	**No**	**No**	**No**	**No**	**No**	**No**
Localized Emissions						
Main Campus – Building Construction and Architectural Coatings (Overlap)	5.93	13.38	16.02	0.03	0.51	0.46
Localized Significance Threshold	-	103	426	-	4	3
Exceed Threshold?	**-**	**No**	**No**	**-**	**No**	**No**

Source: Air Quality Technical Modeling, Noah Tanski Environmental Consulting (NTEC), May 2023, included in Appendix B of this IS/MND.

Table III-16
Main Campus Multistory Building Construction and North Campus Athletic Field Construction – Overlapping Maximum Regional and Localized Daily Construction Emissions (Unmitigated)

	Emissions in lbs per day					
	VOC	**NO_X**	**CO**	**SO_x**	**PM_{10}**	**$PM_{2.5}$**
Regional Emissions						
North Campus – Construction of New Athletic Fields and Ancillary Facilities	1.38	12.6	15.9	0.03	0.90	0.59
Main Campus – Building Construction and Architectural Coatings (Overlap)	6.07	13.9	18.3	0.03	0.99	0.60
Total Overlapping Emissions:	7.45	25.6	34.2	0.06	1.89	1.19
Regional Daily Threshold	75	100	550	150	150	55
Exceed Threshold?	**No**	**No**	**No**	**No**	**No**	**No**
Localized Emissions						
North Campus – Construction of New Athletic Fields and Ancillary Facilities	1.28	12.1	14.4	0.03	0.54	0.50
Main Campus – Building Construction and Architectural Coatings (Overlap)	5.93	13.38	16.02	0.03	0.51	0.46
Total Overlapping Emissions:	7.21	25.48	30.42	0.06	1.05	0.96
Localized Significance Threshold	-	103	426	-	4	3
Exceed Threshold?	**-**	**No**	**No**	**-**	**No**	**No**

Source: Air Quality Technical Modeling, Noah Tanski Environmental Consulting (NTEC), May 2023, included in Appendix B of this IS/MND.

North Campus – Pool Facility Construction

Construction of the proposed pool facility would require approximately two weeks of grading activities followed by seven months of building construction, including one week of overlapping paving activities and two weeks of overlapping architectural coatings activities. Diesel-fueled construction equipment would include bulldozers, skid steer loaders, excavators, rollers, cranes, forklifts, and various paving equipment. Emissions, including overlapping emissions, have been modeled for each of these subphases. Unmitigated maximum daily regional emissions associated with this phase, as well as localized emissions from its subphases, are shown in Table III-17 along with the applicable regional thresholds and LSTs. LSTs for this phase reflect a one-acre project size, which is the smallest project size used for analysis in the LST guidance document and results in the most stringent emissions thresholds. A receptor distance of 25 meters (approximately 82 feet) was utilized, which is the shortest distance used for analysis in the LST guidance document and also results in the most stringent emissions thresholds. As shown, unmitigated regional construction emissions would not exceed SCAQMD regional significance thresholds for VOC, NO_X, CO, SO_X, PM_{10}, or $PM_{2.5}$. Localized emissions would not exceed SCAQMD LSTs for NO_X, CO, PM_{10}, or $PM_{2.5}$.

Table III-17
North Campus – Pool Facility Construction
Maximum Regional and Localized Daily Construction Emissions (Unmitigated)

	Emissions in lbs per day					
	VOC	**NO_X**	**CO**	**SO_x**	**PM_{10}**	**$PM_{2.5}$**
Regional Emissions						
North Campus – Pool Facility Construction	1.72	19.2	17.0	0.05	4.54	2.30
Regional Daily Threshold	75	100	550	150	150	55
Exceed Threshold?	**No**	**No**	**No**	**No**	**No**	**No**
Localized Emissions						
North Campus – Pool Facility Grading	1.51	13.9	14.6	0.02	3.19	1.89
North Campus – Pool Facility Building Construction, Paving, and Architectural Coatings (Overlap)	1.50	13.57	14.99	0.02	0.61	0.56
Localized Significance Threshold	-	103	426	-	4	3
Exceed Threshold?	**-**	**No**	**No**	**-**	**No**	**No**

Source: Air Quality Technical Modeling, Noah Tanski Environmental Consulting (NTEC), May 2023, included in Appendix B of this IS/MND.

As noted earlier and shown in Table III-7, construction of the North Campus pool facility may overlap with construction of the Multistory Building on the Main Campus. Construction may also overlap with other Main Campus improvements, such as renovations to existing administrative offices and the conversion of the existing baseball field to a softball field. Table III-18 presents the emissions that may result from overlapping pool facility and Multistory Building construction along with SCAQMD regional thresholds and LSTs. As shown, unmitigated regional construction emissions would not exceed SCAQMD regional significance thresholds for VOC, NO_X, CO, SO_X, PM_{10}, or $PM_{2.5}$. Localized emissions also would not exceed SCAQMD LSTs for NO_X, CO, PM_{10}, or $PM_{2.5}$. In addition, the following should be noted. Even though construction of the North Campus pool facility and the Main Campus Multistory Building would occur at two separate locations separated by approximately 700 feet, and even though the construction footprint of these phases would total 2.1 acres, LSTs shown in Table III-18 conservatively reflect a one-acre project size, which, as explained throughout this analysis, results in the most stringent emissions thresholds. A receptor distance of 25 meters (approximately 82 feet) was utilized, which is the shortest distance used for analysis in the LST guidance document and also results in the most stringent emissions thresholds. The fact that the combined localized emissions from construction of the North Campus pool facility and the Main Campus Multistory Building would not exceed these minimum thresholds is conclusive evidence that their overlapping construction would not result in significant localized air quality impacts. Whether construction occurs over one acre, two acres, or ten acres, localized emissions that are less than the SCAQMD's most stringent LSTs for the smallest project size and the smallest receptor distance would result in less than significant impacts. Other renovations occurring at the same time as overlapping North Campus pool facility and Main Campus Multistory Building construction activities would not result in materially greater localized pollutant emissions. For example, as explained earlier, renovations to administrative

offices and buildings would utilize mostly hand tools and electric power tools. Fugitive dust emissions associated with these activities would be nominal, as there would be limited demolition or soil disturbance.

Table III-18
Pool Facility and Multistory Building Construction – Overlapping
Maximum Regional and Localized Daily Construction Emissions (Unmitigated)

	Emissions in lbs per day					
	VOC	**NO_X**	**CO**	**SO_x**	**PM_{10}**	**$PM_{2.5}$**
Regional Emissions						
North Campus – Pool Facility Construction (From Table III-17)	1.72	19.2	17.0	0.05	4.54	2.30
Main Campus – Multistory Building Construction (From Table III-15)	6.07	13.9	18.3	0.03	0.99	0.60
Total Overlapping Emissions:	7.79	33.1	35.3	0.08	5.53	2.90
Regional Daily Threshold	75	100	550	150	150	55
Exceed Threshold?	**No**	**No**	**No**	**No**	**No**	**No**
Localized Emissions						
North Campus – Pool Facility Construction (Maximum Localized Emissions From Table III-17)	1.51	13.9	14.99	0.02	3.19	1.89
Main Campus – Multistory Building Construction (From Table III-15)	5.93	13.38	16.02	0.03	0.51	0.46
Total Overlapping Emissions:	7.44	27.28	31.01	0.05	3.7	2.35
Localized Significance Threshold	-	103	426	-	4	3
Exceed Threshold?	**-**	**No**	**No**	**-**	**No**	**No**

Source: Air Quality Technical Modeling, Noah Tanski Environmental Consulting (NTEC), May 2023, included in Appendix B of this IS/MND.

Construction Emissions – Impact Summary and Recommended Mitigation

As demonstrated by the preceding analysis, the Project's unmitigated construction emissions would not exceed SCAQMD regional thresholds or LSTs. As a result, the Project's construction-related emissions impacts on regional and localized air quality would be less than significant.

Despite this less than significant impact, Mitigation Measure AQ-1 is recommended, which would require the use of construction equipment that meets or exceeds the equivalent emissions performance of USEPA Tier 4 Interim standards for off-road engines to the extent such equipment is commercially available. Use of construction equipment that does not meet or exceed the equivalent emissions performance of USEPA Tier 3 standards would be prohibited.

MM AQ-1 All off-road diesel-powered construction equipment shall meet, at a minimum, USEPA Tier 4 Interim off-road emissions standards, or if such equipment is not

commercially available for lease or short-term rental within 50 miles of the Project Site, USEPA Tier 3 off-road emissions standards.

The following Tables III-19 through III-29 show the Project's estimated construction emissions after the implementation of Mitigation Measure AQ-1 and reflect the use construction equipment that meets USEPA Tier 4 Interim off-road emissions standards.

Table III-19
North Campus – Demolition
Maximum Regional and Localized Daily Construction Emissions (Mitigated)

	Emissions in lbs per day					
	VOC	**NO_X**	**CO**	**SO_x**	**PM_{10}**	**$PM_{2.5}$**
Regional Emissions						
North Campus – Demolition	0.73	20.4	28.6	0.08	3.32	0.83
Regional Daily Threshold	75	100	550	150	150	55
Exceed Threshold?	**No**	**No**	**No**	**No**	**No**	**No**
Localized Emissions						
North Campus – Demolition	0.57	13.6	25.4	0.04	1.57	0.31
Localized Significance Threshold	-	103	426	-	4	3
Exceed Threshold?	**-**	**No**	**No**	**-**	**No**	**No**

Source: Air Quality Technical Modeling, Noah Tanski Environmental Consulting (NTEC), May 2023, included in Appendix B of this IS/MND.

Table III-20
North Campus – Grading
Maximum Regional and Localized Daily Construction Emissions (Mitigated)

	Emissions in lbs per day					
	VOC	**NO_X**	**CO**	**SO_x**	**PM_{10}**	**$PM_{2.5}$**
Regional Emissions						
North Campus – Grading	0.94	14.4	22.6	0.04	3.46	1.73
Regional Daily Threshold	75	100	550	150	150	55
Exceed Threshold?	**No**	**No**	**No**	**No**	**No**	**No**
Localized Emissions						
North Campus – Grading	0.85	13.7	21.3	0.03	3.08	1.64
Localized Significance Threshold	-	103	426	-	4	3
Exceed Threshold?	**-**	**No**	**No**	**-**	**No**	**No**

Source: Air Quality Technical Modeling, Noah Tanski Environmental Consulting (NTEC), May 2023, included in Appendix B of this IS/MND.

Table III-21
North Campus – Construction of New Athletic Fields and Ancillary Facilities
Maximum Regional and Localized Daily Construction Emissions (Mitigated)

	Emissions in lbs per day					
	VOC	**NO_X**	**CO**	**SO_x**	**PM_{10}**	**$PM_{2.5}$**
Regional Emissions						
North Campus – Construction of New Athletic Fields and Ancillary Facilities	0.55	10.8	18.1	0.03	0.46	0.20
Regional Daily Threshold	75	100	550	150	150	55
Exceed Threshold?	**No**	**No**	**No**	**No**	**No**	**No**
Localized Emissions						
North Campus – Construction of New Athletic Fields and Ancillary Facilities	0.46	10.3	16.6	0.03	0.11	0.11
Localized Significance Threshold	-	147	644	-	6	4
Exceed Threshold?	**-**	**No**	**No**	**-**	**No**	**No**

Source: Air Quality Technical Modeling, Noah Tanski Environmental Consulting (NTEC), May 2023, included in Appendix B of this IS/MND.

Table III-22
Main Campus –Parking Lot and Classroom Demolition
Maximum Regional and Localized Daily Construction Emissions (Mitigated)

	Emissions in lbs per day					
	VOC	**NO_X**	**CO**	**SO_x**	**PM_{10}**	**$PM_{2.5}$**
Regional Emissions						
Main Campus – Classroom and Parking Lot Demolition	0.54	15.4	21.1	0.06	2.75	0.66
Regional Daily Threshold	75	100	550	150	150	55
Exceed Threshold?	**No**	**No**	**No**	**No**	**No**	**No**
Localized Emissions						
Main Campus – Classroom and Parking Lot Demolition	0.41	10.3	18.6	0.03	1.42	0.27
Localized Significance Threshold	-	147	644	-	6	4
Exceed Threshold?	**-**	**No**	**No**	**-**	**No**	**No**

Source: Air Quality Technical Modeling, Noah Tanski Environmental Consulting (NTEC), May 2023, included in Appendix B of this IS/MND.

Table III-23
Main Campus Demolition and North Campus Athletic Field Construction – Overlapping Maximum Regional and Localized Daily Construction Emissions (Mitigated)

	Emissions in lbs per day					
	VOC	**NO_X**	**CO**	**SO_x**	**PM_{10}**	**$PM_{2.5}$**
Regional Emissions						
North Campus – Construction of New Athletic Fields and Ancillary Facilities	0.55	10.8	18.1	0.03	0.46	0.20
Main Campus – Classroom and Parking Lot Demolition	0.54	15.4	21.1	0.06	2.75	0.66
Total Overlapping Emissions:	1.09	26.2	39.2	0.09	3.21	0.86
Regional Daily Threshold	75	100	550	150	150	55
Exceed Threshold?	**No**	**No**	**No**	**No**	**No**	**No**
Localized Emissions						
North Campus – Construction of New Athletic Fields and Ancillary Facilities	0.46	10.3	16.6	0.03	0.11	0.11
Main Campus – Classroom and Parking Lot Demolition	0.41	10.3	18.6	0.03	1.42	0.27
Total Overlapping Emissions:	0.87	20.6	35.2	0.06	1.53	0.38
Localized Significance Threshold	-	103	426	-	4	3
Exceed Threshold?	**-**	**No**	**No**	**-**	**No**	**No**

Source: Air Quality Technical Modeling, Noah Tanski Environmental Consulting (NTEC), May 2023, included in Appendix B of this IS/MND.

Table III-24
Main Campus – Multistory Building Grading
Maximum Regional and Localized Daily Construction Emissions (Mitigated)

	Emissions in lbs per day					
	VOC	**NO_X**	**CO**	**SO_x**	**PM_{10}**	**$PM_{2.5}$**
Regional Emissions						
Main Campus – Multistory Building Grading	0.59	23.8	20.7	0.11	6.39	2.51
Regional Daily Threshold	75	100	550	150	150	55
Exceed Threshold?	**No**	**No**	**No**	**No**	**No**	**No**
Localized Emissions						
Main Campus – Multistory Building Grading	0.33	7.97	14.7	0.02	2.62	1.37
Localized Significance Threshold	-	147	644	-	6	4
Exceed Threshold?	**-**	**No**	**No**	**-**	**No**	**No**

Source: Air Quality Technical Modeling, Noah Tanski Environmental Consulting (NTEC), May 2023, included in Appendix B of this IS/MND.

Table III-25
Main Campus Grading and North Campus Athletic Field Construction - Overlapping
Maximum Regional and Localized Daily Construction Emissions (Mitigated)

	Emissions in lbs per day					
	VOC	**NO_X**	**CO**	**SO_x**	**PM_{10}**	**$PM_{2.5}$**
Regional Emissions						
North Campus – Construction of New Athletic Fields and Ancillary Facilities	0.55	10.8	18.1	0.03	0.46	0.20
Main Campus – Multistory Building Grading	0.59	23.8	20.7	0.11	6.39	2.51
Total Overlapping Emissions:	1.14	34.6	38.8	0.14	6.85	2.71
Regional Daily Threshold	75	100	550	150	150	55
Exceed Threshold?	**No**	**No**	**No**	**No**	**No**	**No**
Localized Emissions						
North Campus – Construction of New Athletic Fields and Ancillary Facilities	0.46	10.3	16.6	0.03	0.11	0.11
Main Campus – Multistory Building Grading	0.33	7.97	14.7	0.02	2.62	1.37
Total Overlapping Emissions:	0.79	18.27	31.3	0.05	2.73	1.48
Localized Significance Threshold	-	103	426	-	4	3
Exceed Threshold?	**-**	**No**	**No**	**-**	**No**	**No**

Source: Air Quality Technical Modeling, Noah Tanski Environmental Consulting (NTEC), May 2023, included in Appendix B of this IS/MND.

Table III-26
Main Campus – Multistory Building Construction
Maximum Regional and Localized Daily Construction Emissions (Mitigated)

	Emissions in lbs per day					
	VOC	**NO_X**	**CO**	**SO_x**	**PM_{10}**	**$PM_{2.5}$**
Regional Emissions						
Main Campus – Building Construction and Architectural Coatings (Overlap)	4.98	13.7	19.7	0.03	0.74	0.35
Regional Daily Threshold	75	100	550	150	150	55
Exceed Threshold?	**No**	**No**	**No**	**No**	**No**	**No**
Localized Emissions						
Main Campus – Building Construction and Architectural Coatings (Overlap)	4.84	13.23	17.38	0.03	0.25	0.24
Localized Significance Threshold	-	103	426	-	4	3
Exceed Threshold?	**-**	**No**	**No**	**-**	**No**	**No**

Source: Air Quality Technical Modeling, Noah Tanski Environmental Consulting (NTEC), May 2023, included in Appendix B of this IS/MND.

Table III-27
Main Campus Multistory Building Construction and North Campus Athletic Field Construction – Overlapping Maximum Regional and Localized Daily Construction Emissions (Mitigated)

	Emissions in lbs per day					
	VOC	**NO_X**	**CO**	**SO_x**	**PM_{10}**	**$PM_{2.5}$**
Regional Emissions						
North Campus – Construction of New Athletic Fields and Ancillary Facilities	0.55	10.8	18.1	0.03	0.46	0.20
Main Campus – Building Construction and Architectural Coatings (Overlap)	4.98	13.7	19.7	0.03	0.74	0.35
Total Overlapping Emissions:	5.53	24.5	37.8	0.06	1.20	0.55
Regional Daily Threshold	75	100	550	150	150	55
Exceed Threshold?	**No**	**No**	**No**	**No**	**No**	**No**
Localized Emissions						
North Campus – Construction of New Athletic Fields and Ancillary Facilities	0.46	10.3	16.6	0.03	0.11	0.11
Main Campus – Building Construction and Architectural Coatings (Overlap)	4.84	13.23	17.38	0.03	0.25	0.24
Total Overlapping Emissions:	5.3	23.53	33.98	0.06	0.36	0.35
Localized Significance Threshold	-	103	426	-	4	3
Exceed Threshold?	**-**	**No**	**No**	**-**	**No**	**No**

Source: Air Quality Technical Modeling, Noah Tanski Environmental Consulting (NTEC), May 2023, included in Appendix B of this IS/MND.

Table III-28
North Campus – Pool Facility Construction
Maximum Regional and Localized Daily Construction Emissions (Mitigated)

	Emissions in lbs per day					
	VOC	**NO_X**	**CO**	**SO_x**	**PM_{10}**	**$PM_{2.5}$**
Regional Emissions						
North Campus – Pool Facility Construction	0.78	13.2	18.7	0.05	3.98	1.79
Regional Daily Threshold	75	100	550	150	150	55
Exceed Threshold?	**No**	**No**	**No**	**No**	**No**	**No**
Localized Emissions						
North Campus – Pool Facility Grading	0.31	7.89	13.7	0.02	2.63	1.38
North Campus – Pool Facility Building Construction, Paving, and Architectural Coatings (Overlap)	0.66	11.53	16.93	0.02	0.18	0.17
Localized Significance Threshold	-	103	426	-	4	3
Exceed Threshold?	**-**	**No**	**No**	**-**	**No**	**No**

Source: Air Quality Technical Modeling, Noah Tanski Environmental Consulting (NTEC), May 2023, included in Appendix B of this IS/MND.

Table III-29
Pool Facility and Multistory Building Construction – Overlapping
Maximum Regional and Localized Daily Construction Emissions (Mitigated)

	Emissions in lbs per day					
	VOC	**NO_X**	**CO**	**SO_x**	**PM_{10}**	**$PM_{2.5}$**
Regional Emissions						
North Campus – Pool Facility Construction (From Table III-28)	0.78	13.2	18.7	0.05	3.98	1.79
Main Campus – Multistory Building Construction (From Table III-26)	4.98	13.7	19.7	0.03	0.74	0.35
Total Overlapping Emissions:	5.76	26.9	38.4	0.08	4.72	2.14
Regional Daily Threshold	75	100	550	150	150	55
Exceed Threshold?	**No**	**No**	**No**	**No**	**No**	**No**
Localized Emissions						
North Campus – Pool Facility Construction (Maximum Localized Emissions From Table III-28)	0.66	11.53	16.93	0.02	2.63	1.38
Main Campus – Multistory Building Construction (From Table III-26)	4.84	13.23	17.38	0.03	0.25	0.24
Total Overlapping Emissions:	5.5	24.76	34.31	0.05	2.88	1.62
Localized Significance Threshold	-	103	426	-	4	3
Exceed Threshold?	**-**	**No**	**No**	**-**	**No**	**No**

Source: Air Quality Technical Modeling, Noah Tanski Environmental Consulting (NTEC), May 2023, included in Appendix B of this IS/MND.

Operation

To ascertain the Project's potential to result in exceedances of SCAQMD regional thresholds or LSTs for operation, emissions associated with operation of the following improvements were estimated:

- 60,760 square feet of net new building area associated with the proposed Multistory Building on the Main Campus;
- 8,494 square feet of net new building area associated with the proposed pool and athletic facilities on the North Campus;
- 4.83 acres of net new campus area associated with the North Campus; and
- North Campus parking lot, pool facility parking lot, and new administrative offices parking lot.

Table III-30 presents the emissions that would result from the operation of these improvements along with SCAQMD regional thresholds and LSTs. As shown, emissions would be far below SCAQMD regional thresholds for VOC, NO_X, CO, SO_X, PM_{10}, or $PM_{2.5}$. Localized emissions also would be far below SCAQMD LSTs for NO_X, CO, PM_{10}, or $PM_{2.5}$. Emissions from the Project's other improvements (such as the pedestrian bridge, converted softball field, and campus renovations) would be marginal – far less than emissions associated with the aforementioned

improvements that are shown in Table III-30. Therefore, Project operations would not result in exceedances of SCAQMD regional or localized thresholds, and impacts would be less than significant.

Table III-30
Regional and Localized Operational Emissions

Emissions Source	Emissions in lbs per day					
	VOC	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
Proposed Additions						
Area[A]	2.21	0.03	3.27	<0.01	<0.01	0.01
Energy[B]	0.02	0.38	0.32	<0.01	0.03	0.03
Mobile Sources[C]	3.79	3.47	33.0	0.07	2.21	0.39
Regional Emissions:	6.02	3.88	36.59	0.07	2.24	0.43
Regional Daily Thresholds	55	55	550	150	150	55
Exceed Thresholds?	**No**	**No**	**No**	**No**	**No**	**No**
Localized Emissions:	2.21	0.03	3.27	<0.01	<0.01	<0.01
Localized Significant Thresholds	-	221	1,158	-	3	2
Exceed Threshold?	**-**	**No**	**No**	**-**	**No**	**No**

Notes:

[A] "Area" emissions are those associated with the on-site use of powered equipment.

[B] "Energy" emissions are those associated with electricity and natural gas use for space heating and cooling, water heating, energy consumption, and lighting.

[C] "Mobile Source" emissions are those associated with a project's related vehicle travel. For this Project, mobile source emissions reflect emissions that would be generated by the Project's gross trip generation, namely trips associated with the proposed pool facility. Conservatively, this analysis does not consider the fact that the Project would actually result in a net reduction of 1,355 daily trips.

Source: Air Quality Technical Modeling, Noah Tanski Environmental Consulting (NTEC), May 2023, included in Appendix B of this IS/MND.

c. Would the project expose sensitive receptors to substantial pollutant concentrations?

Less Than Significant Impact.

Construction

As discussed above, there is no threshold or guidance on how to evaluate TAC impacts from a single construction project. In general, a review of the SCAQMD emissions thresholds is used, plus a qualitative analysis of potential for risk. The Project's construction emissions would not exceed the SCAQMD's regional significance thresholds. Construction emissions also would not exceed SCAQMD LSTs, meaning that nearby sensitive receptors (located within 25 meters from

the Project) would not be exposed to substantial criteria pollutant concentrations that would present a public health concern.

The primary TAC that would be generated by construction activities is diesel PM, which would be released from the exhaust pipes of diesel-powered construction vehicles and equipment. Health risks from carcinogenic air toxics such as diesel PM are usually quantified in terms of individual cancer risk, which is the likelihood that a person exposed to concentrations of TACs over a 30-year period every day would contract cancer based on standard risk-assessment methodology. The following considerations support that the Project would result in less than significant health risk impacts related to diesel PM emissions. First, construction of the Project would not expose any individual to TAC concentrations every day for 30 years. Buildout of the Project would require approximately three years of construction activities. Further, the Project's most intensive construction phases – i.e., those that would involve the highest utilization of diesel-powered vehicles emitting PM emissions – would be limited in duration. For example, North Campus demolition would last approximately one month, as would North Campus grading. Demolition for the Multistory Building would last approximately three weeks, and grading for this building would last approximately one month.

In addition, the Project's construction activities would be spread across the 25.86 acres that comprise the Main Campus and North Campus sites. This would substantially dilute concentrations of diesel PM at surrounding receptors. As shown earlier, the Project's maximum daily PM emissions, which include exhaust PM, would not exceed applicable regional thresholds and LSTs and will be further reduced by the recommended mitigation to Tier 4 Interim equipment (see Mitigation Measure AQ-1). Further, the maximum daily construction emissions are conservative estimates that are not anticipated every day for the entire duration of construction.

Given these considerations, TAC emissions from the Project's construction equipment would not result in significant health risks.

Operation

As also discussed previously, the Project's operational emissions would not exceed SCAQMD regional significance thresholds or LSTs. Additionally, the Project does not propose typical sources of acutely and chronically hazardous TACs, such as industrial manufacturing processes, automotive repair facilities, or warehouse distribution facilities. As a result, the Project's operations would not warrant the need for a health risk assessment, and this impact would be less than significant.

Regarding CO hotspots, the Project would result in a net reduction of 1,355 daily trips and therefore would not contribute to the levels of traffic congestion and emissions necessary to trigger a potential CO hotspot. Therefore, the Project's potential to expose sensitive receptors to substantial CO concentrations as a result of CO hotspots would be less than significant.

d. Would the project result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

No Impact. The Project would not result in activities that create objectionable odors and would not include any land uses typically associated with unpleasant odors and local nuisances (e.g., rendering facilities, dry cleaners). The Project would result in the continued operation of the existing high school. As a result, no impact with respect to odors would occur as a result of the Project.

Cumulative Impacts

SCAQMD recommends that any construction-related emissions and operational emissions from individual development projects that exceed the project-specific mass daily emissions thresholds identified above also be considered cumulatively considerable.[19] Individual projects that would not generate emissions in excess of SCAQMD's significance thresholds would not contribute considerably to any potential cumulative impact. SCAQMD neither recommends quantified analyses of the emissions generated by a set of cumulative development projects nor provides thresholds of significance to be used to assess the impacts associated with these emissions. As shown above, the Project's emissions would not exceed any of the SCAQMD's regional or localized significance thresholds. Therefore, the Project's contribution to cumulative air quality impacts would be less than significant.

[19] SCAQMD, White Paper on Potential Control Strategies to Address Cumulative Impacts from Air Pollution, http://www.aqmd.gov/docs/default-source/Agendas/Environmental-Justice/cumulative-impacts-working-group/cumulative-impacts-white-paper.pdf, August 2003.

IV. BIOLOGICAL RESOURCES

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	☐	☐	☐	☒
b. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or US Fish and Wildlife Service?	☐	☐	☐	☒
c. Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☐	☐	☒
d. Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☒	☐
e. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☒	☐
f. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☒

The analysis in this section is based in part on the following, which are included in Appendix C of this IS/MND:

- Protected Tree Report, The Tree Resource, December 7, 2023.
- Biological Technical Memorandum, SWCA Environmental Consultants, January 20, 2023.

a. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?

No Impact. A significant impact would occur if a project would remove or modify habitat for any species identified or designated as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the State or federal regulatory agencies cited above. The Project Site is located in an urbanized and developed area of the City, and is currently developed with a high school (Main Campus) and shopping center and associated surface parking (North Campus). The Project Site does not contain any natural open spaces, act as a wildlife corridor, nor possess any areas of significant biological resource value.[20] No hydrological features are present on the Site and there are no sensitive habitats present. Due to the urbanized nature of the Project Site and surrounding area, the Project Site does not support habitat for candidate, sensitive, or special status species identified in local plans, policies, or regulations by the California Department of Fish and Wildlife (CDFW), the California Native Plant Society (CNPS), or the U.S. Fish and Wildlife Service (USFWS).[21] Therefore, no impact would occur.

b. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?

No Impact. A significant impact would occur if riparian habitat or any other sensitive natural community identified locally, regionally, or by the State and federal regulatory agencies cited would be adversely modified by a project. As discussed above, the Project Site and surrounding area are located in an urbanized setting. No riparian areas or other sensitive natural communities are located on the Project Site. Thus, implementation of the Project would not result in any adverse effect on riparian habitat or other sensitive natural communities, and no impact would occur.

c. Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

No Impact. A significant impact would occur if federally protected wetlands, as defined by Section 404 of the Clean Water Act, would be modified or removed by a project. A review of the National

[20] NavigateLA, Significant Ecological Area layer: http://navigatela.lacity.org/navigatela/, accessed June 12, 2023.

[21] Biological Technical Memorandum, SWCA Environmental Consultants, January 30, 2023 (included in Appendix C-2 of this IS/MND).

Wetlands Inventory identified no wetlands or water features on the Project Site. Therefore, no impact would occur.[22]

d. Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

Less Than Significant Impact. A significant impact would occur if a project would interfere or remove access to a migratory wildlife corridor or impede the use of native wildlife nursery sites. The Project Site is currently developed with a high school (Main Campus) and shopping center and associated surface parking (North Campus), and does not interfere substantially with the movement of any native resident or migratory birds. The Project Site is located within an urban area that is highly disturbed and does not contain any major water bodies that would contain or support habitat for native resident or migratory bird species. According to the tree report prepared for the Project Site (included as Appendix C-1 of this IS/MND and discussed in greater detail below), the Project would result in the removal of 40 non-protected significant trees and seven non-protected non-significant trees from the Project Site. During Project construction activities, the removal of these trees would comply with the Migratory Bird Treaty Act (MBTA), which regulates vegetation removal during the nesting season to ensure that significant impacts to migratory birds would not occur. To the extent that vegetation removal activities must occur during the nesting season (generally January 15 through August 31), a biological monitor would be present during the removal activities to ensure that no active nests would be impacted. If any active nests are detected, the area would be flagged with a buffer (ranging between 25-50 feet for songbirds and 100 feet for raptors, as determined by the monitoring biologist), and the area would be avoided until the nesting cycle has been completed or the monitoring biologist has determined that the nest is vacated, juveniles have fledged, and there is no second nesting attempt. With compliance with existing regulatory requirements, impacts to nesting and migratory birds would be less than significant.

e. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance (e.g., oak trees or California walnut woodlands)?

Less Than Significant Impact. A significant adverse impact would occur if a project were inconsistent with local regulations pertaining to biological resources. Local ordinances protecting biological resources are limited to the City of Los Angeles Protected Tree Ordinance, as modified by Ordinance No. 177404. The amended Protected Tree Ordinance provides guidelines for the preservation of all Oak trees indigenous to California (excluding the Scrub Oak or *Quercus dumosa*) as well as the following tree species: Southern California Black Walnut *(Juglans californica var. californica)*; Western Sycamore *(Platanus racemosa)*; and California Bay

[22] U.S. Fish & Wildlife Service, National Wetlands Inventory: http://www.fws.gov/wetlands/data/mapper.HTML, accessed June 12, 2023.

(Umbellularia californica).[23] In addition, in December 2020, Mexican Elderberry (*Sambucus Mexicana*) and Toyon (*Heteromeles arbutifolia*) were added to the class of "protected trees" (Ordinance No. 186873). The tree report prepared for the Project Site (included as Appendix C-1 of this IS/MND) identified the following: 1) 33 parkway street trees; 2) 364 non-protected significant trees with eight-inch diameter at breast height (DBH) or greater on the Project Site; and 3) 108 non-protected non-significant trees (less than eight inches DBH) on the Project Site. None of these trees are protected species as defined by the City's Protected Tree Ordinance. The Project would result in the removal of 40 non-protected significant trees and seven non-protected non-significant trees from the Project Site, and would retain the remaining on-site trees. The Project would also retain the parkway street trees, with the exception of one tree (Street Tree No. 489), which would be removed to construct the pedestrian bridge. The existing significant trees that would be removed as part of the Project would be replaced according to the Urban Forestry Division requirements (the non-significant trees that would be removed would not require replacement). As none of the trees located on the Project Site are protected trees, a less than significant impact would occur.

f. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

No Impact. A significant impact would occur if a project would be inconsistent with policies in any draft or adopted conservation plan. The Project Site is located in an urbanized area of the City, and is currently developed with a high school (Main Campus) and shopping center and associated surface parking (North Campus). There are no identified Significant Ecological Areas (SEAs) within the vicinity of the Project Site,[24] and the Site is not subject to a Habitat Conservation Plan, a Natural Community Conservation Plan, or other such plan.[25] Thus, the Project would not conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan or other approved local, regional, or state habitat conservation plan, and no impact would occur.

Cumulative Impacts

The Project Site is located in an urbanized area that does not contain significant biological resources, such as candidate, sensitive or special status species, riparian habitat, or sensitive natural communities. Further, the Project area is not part of a wildlife corridor or SEA or subject to a Habitat Conservation Plan, a Natural Community Conservation Plan, or other such plan. No related projects have been identified within one-half mile of the Project Site. However, it is assumed that like the Project, any other development projects would also be required to comply with the requirements of the MBTA as well as the City's Protected Tree Ordinance and the City's requirements regarding street tree removal and replacement. Because the Project would not

[23] City of Los Angeles, Ordinance No. 177404, effective April 23, 2006.

[24] NavigateLA, Significant Ecological Area layer: http://navigatela.lacity.org/navigatela/, accessed June 12, 2023.

[25] City of Los Angeles General Plan Conservation Element, Exhibit B2.

result in any impacts related to biological resources, the Project does not have the potential to contribute to any cumulative biological resources impacts. Therefore, cumulative impacts related to biological resources would be less than significant.

V. CULTURAL RESOURCES

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a. Cause a substantial adverse change in the significance of a historical resource pursuant to § 15064.5?	☐	☐	☐	☒
b. Cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5?	☐	☒	☐	☐
c. Disturb any human remains, including those interred outside of dedicated cemeteries?	☐	☒	☐	☐

The analysis in this section is based in part on the following, which are included in Appendix D of this IS/MND:

- Phase I Historic Assessment, Teresa Grimes Historic Preservation, September 6, 2023.
- Archaeological Resources Technical Memorandum, SWCA Environmental Consultants, March 9, 2023.

a. Cause a substantial adverse change in the significance of a historical resource pursuant to State CEQA Guidelines §15064.5?

No Impact. State CEQA Guidelines Section 15064.5 defines a historical resource as: 1) a resource listed in or determined to be eligible by the State Historical Resources Commission for listing in the California Register of Historical Resources; 2) a resource listed in a local register of historical resources or identified as significant in a historical resource survey meeting certain state guidelines; or 3) an object, building, structure, site, area, place, record or manuscript which a lead agency determines to be significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California, provided that the lead agency's determination is supported by substantial evidence in light of the whole record. A project-related significant adverse effect would occur if a project were to adversely affect a historical resource meeting one of the above definitions.

As the Project involves the demolition of buildings over 45 years of age on both the Main Campus and the North Campus, a Phase I Historic Assessment was prepared (included in Appendix D-1 of this IS/MND) to determine whether the Project would result in any impacts to historical resources. The Phase I Historic Assessment reviewed available sources to determine that none of the existing buildings on either the Main Campus or North Campus are currently listed in the National Register of Historic Places, the California Register of Historical Resources, or as a City

of Los Angeles Historic-Cultural Monument. In addition, none of the existing buildings were identified by SurveyLA as appearing eligible to be designated as a historic resource or otherwise requiring further historic preservation review.

The Phase I Historic Assessment then evaluated the Main Campus and the North Campus to determine whether any buildings had the potential to meet eligibility standards in the *Los Angeles Citywide Historic Context Statement* (*LACHCS*) for listing under federal, state, and local landmark or historic district programs.

Main Campus

The current Main Campus was founded in 1961 (relocated from the school's original site in Cheviot Hills) with buildings constructed in 1961 and 1964, including an administration building, a library, a classroom building, a lab building, a multipurpose building, and a cafeteria. The original buildings on the Main Campus were designed by architects Barker and Ott.

Most of the buildings and structures on the Main Campus are less than 50 years of age and include: a telescope house (later converted into the Fine Arts Building) constructed in 1975; a locker room building constructed in 1975; a classroom building constructed in 1978; the Uribe Sports Center constructed in 1981; bleacher seating constructed in 1988; Marian Hall, a classroom building, constructed 1992; Mundy's, a merchandise sales and storage building, constructed in 1997; the Condon Family Center for Science and Technology constructed in 2005; and the Tutor Family Center for Performing Arts constructed in 2012.

The significance of a property must be evaluated within its historic context(s). Historic contexts are those patterns or trends in history by which a specific property is understood. The *Los Angeles Citywide Historic Context Statement* (*LACHCS*) was used to identify the relevant contexts for judging the significance of the Main Campus. The *LACHCS* is organized into nine broad contexts that cover the period from 1850 to 1980 and are specific to Los Angeles. The most relevant context for the evaluation of the Main Campus is Public and Private Institutional Development. The property's potential to meet the eligibility standards for the associated theme and subthemes within this context is discussed below.

Parochial school campuses may be eligible in the Public and Private Institutional Development Context, in the Education Theme, and in the Educational Development and Campus Planning Subthemes. A narrative for these two subthemes has not been developed yet. According to the Archdiocese of Los Angeles Administrative Handbook, the Catholic school system in Southern California was developed by Bishop Thomas J. Conaty (1847-1915); originating with 19 parochial schools and five academies in 1903 with a total enrollment of 2,895. Founded in 1952, Chaminade College Preparatory does not represent an important aspect of educational development in Los Angeles because it was not among the earliest high schools established. Additionally, it is not significant for an association with West Hills. It was originally located in Cheviot Hills and only moved to West Hills for more space. Furthermore, the campus does not retain the essential physical features from the period of significance, which would be the 1960s when the school

moved to West Hills. Most of the buildings and structures were constructed over the last 50 years. Thus, the campus does not convey a visual sense of an historic environment. For the reasons outlined above, the Main Campus does not meet the eligibility standards for the Educational Development Subtheme.

Likewise, the Main Campus does not meet the eligibility standards for the Campus Planning Subtheme. There appears to have been a master plan for the Main Campus at one time. However, after the first buildings were constructed in 1961 the master plan appears to have been abandoned. Henceforth, buildings and structures were constructed as needed and as funds were available. Therefore, the Main Campus does not possess a significant concentration of buildings and structures united historically or aesthetically by a master plan. Additionally, the individual buildings were not designed in prominent architectural styles of the period and are not important examples of the work of master architects. Barker and Ott was a partnership between Merl Lee Barker (1888-1970) and G. Lawrence Ott (1895- 1975). The partnership began in the 1930s and the Catholic church was a primary client. Other examples of the firm's work include the Mount Carmel High School (1934-35, demolished) and St. Charles Borromeo Church (1937-38); Congregational Church of the Messiah (1953); St. Bernadette Roman Catholic Church (1961), and St. John Baptist de la Salle Church (1969). Barker and Ott may have designed a few noteworthy buildings, but no information was found that they could be considered master architects, which is defined by the National Register as a figure of generally recognized greatness in the field and by the Los Angeles Cultural Heritage Ordinance as a person whose individual genius influenced his or her age.

North Campus

The North Campus is occupied by the West Hills Shopping Center, which includes a main building that was constructed in stages between 1962 and 2004 and surface parking lots. The building is one story in height and is mostly covered by a flat roof surrounded by raised parapets. The most relevant context from the *LACHCS* for the evaluation of the North Campus is Commercial Development. The property's potential to meet the eligibility standards for the associated theme and subtheme within this context is discussed below.

Shopping centers may be eligible in the Commercial Development Context in the Neighborhood Commercial Development Theme and in the Post WWII Neighborhood Shopping Centers Subtheme. The North Campus property, however, does not meet the eligibility standards for this subtheme because it was not originally designed as a shopping center. It was designed as a market and did not evolve into a true shopping center until long after the period of significance (1936-1965) for the subtheme. The building is set back from the street and oriented toward the surface parking lot, but that is true of most commercial buildings from the period.

For most of its history, the property was owned by the Walter H. Leimert Company. While the company played a significant role in the residential development, and to a lesser extent the commercial development, of Los Angeles, the property is not significant for this association. Mere

association is not in and of itself to qualify, the association must be important. The property appears to be one of many developed and owned by the company since its founding in Oakland in 1902. In 1926, Leimert moved the company to Southern California and developed Bellhurst Park in Glendale. The company is best known for the development of Leimert Park in 1928 and would go on to develop Beverlywood, Cheviot Knolls, and Rancho Malibu among other subdivisions. The company was prolific, and the building is not an important example of their work.

Additionally, the property does not meet the eligibility standards for the Markets Subtheme in the Neighborhood Commercial Development Theme. The original portion of the building was constructed as a market during the period of significance (1910-1975) for the subtheme and includes a surface parking lot, but it does not exhibit quality of design through distinctive features that would make it a good example of a type, period, or method of construction. The name of the original architect, if any, is unknown.

The Alpha Beta Acme Market may have been the original tenant; however, the building is not significant for an important association with this company. Alpha Beta Food Markets incorporated in 1929, but the first store opened in Pomona in 1917. In 1961, the company merged with American Stores, operators of Acme Markets on the East Coast, and assumed the name Alpha Beta Acme Markets. As the building does not appear to have been constructed by the company, it is not an example of the store design from the 1960s. When Alpha Beta Acme closed at this location is unclear. The name does not appear at this address in available City Directories after 1965.The demise of the Alpha Beta Acme name began with the 1988 merger of American Stores with Lucky Stores. It has been occupied by West Hills Market, later called Fields Market, since the early 2000s.

The Commercial Merchants, Leaders, and Builders Theme in the Commercial Development Context pertains to people who played a significant role in the commercial history of Los Angeles. Several steps are involved in determining whether a property is significant under this theme. First, the person must be significant within the context commercial development. Second, the property must be associated with the person's productive life. Finally, the property must be compared with other associated properties to identify the best representation of the person's historic contributions. Walter H. Leimert Jr. served as president of the Walter H. Leimert Company from 1960 until his death in 2004. Initially with his father, who died in 1970, and then on his own, Leimert developed Beverly Highlands in the Hollywood Hills, Saint Hubert Wood and Sierra Park in Orange County, and Cambria Pines near Hearst Castle. Leimert Jr. may be significant in the context of residential development but not commercial development. Even if he was, the building does not represent his productive life.

Finally, the Filming Locations Associated with the Motion Picture and Television Broadcasting Industries Theme in the Entertainment Industry Context provides guidance for the evaluation of filming locations as potential historical resources. The existing market on the North Campus has been used as a filming location since the 1990s. The first known film shoot was for the television show ”Seventh Heaven” in 1994. Others have included “Desperate Housewives,” “Criminal

Minds," "NCIS," and "Bones." As properties generally need to achieve significance more than 50 years ago to be considered potential historical resources, the period of significance for the *LACHCS* ends in 1980. Properties associated with events and activities that have occurred since 1973 would need to be of exceptional importance to qualify as historical resources. The North Campus property does not meet the eligibility standards for this theme. It was not an important filming location for an early motion picture; it was not the long-term filming location for any television show, significant or otherwise; it is not an iconic film location; and it has not played an integral role in shaping the narrative of a significant film with a specific influence on the plot or structure.

Conclusion

According to the Phase I Historic Assessment, neither the Main Campus nor the North Campus qualify as historic resources. None of the existing buildings on either the Main Campus or North Campus are currently listed in the National Register of Historic Places, the California Register of Historical Resources, or as a City of Los Angeles Historic-Cultural Monument. In addition, none of the existing buildings were identified by SurveyLA as appearing eligible to be designated as a historic resource or otherwise requiring further historic preservation review. Finally, the properties have no potential to meet the relevant eligibility standards in the LACHCS for listing under federal, state, and local landmark or historic district programs due to a lack of significance and/or integrity. As such, the Project would result in no impact with respect to historic resources.

b. Cause a substantial adverse change in the significance of an archaeological resource pursuant to State CEQA Guidelines §15064.5?

Less Than Significant with Mitigation Incorporated. State CEQA Guidelines Section 15064.5 defines significant archaeological resources as resources that meet the criteria for historical resources or resources that constitute unique archaeological resources. A project-related significant impact could occur if a project would significantly affect archaeological resources that fall under either of these categories. According to the archaeological resources technical memorandum (included in Appendix D-2 of this IS/MND), archival research indicated that beginning at least in the mid-1940s, the Project Site (both the Main and proposed North Campuses) was a plowed field associated with agricultural activities. The parcels were graded sometime after 1959 for the construction of the existing high school (Main Campus) and shopping center (North Campus). Archaeological remains associated with prehistoric or historic Native Americans can occur below paved surfaces within developed urban settings. While the California Historic Resources Information System (CHRIS) records search results did not identify any such archaeological resources within the Project Site or vicinity, most of the Project Site was not inspected for archaeological resources before being developed. SWCA (the preparer of the archaeological resources technical memorandum) considers the greater region of the Project Site as having moderate sensitivity for prehistoric or historic Native American archaeological resources. However, the Project Site consists of a comparatively small area within the greater region and has been subject to multiple episodes of ground disturbances. As a result,

archaeological materials once located on the surface or in shallow deposits are very unlikely to have been preserved within the Project Site, and though more deeply buried deposits could exist, SWCA considers the sensitivity for prehistoric and historic Native American archaeological resources to decrease within the Project Site, compared with the surrounding area.

Based on the above considerations, SWCA finds a low potential for encountering prehistoric and Historic period Native American archaeological resources within the Project Site, which is supported by the surficial geology of the Project Site. The likelihood of encountering any cultural resources is further decreased due to the compromised integrity of the physical setting as a result of plowing, as evidenced by past agricultural activities as seen on historic aerial imagery, and the development of the school campus and commercial property. For these reasons, SWCA finds the Project Site has a low sensitivity for containing Historic period (non-Native American) archaeological resources.

The City has established a standard condition of approval to address the inadvertent discovery of archaeological resources. Should archaeological resources be inadvertently encountered, this condition of approval provides for temporarily halting construction activities near the encounter so that the find can be evaluated. An archaeologist shall then assess the discovered material(s) and prepare a survey, study, or report evaluating the impact. The Applicant shall then comply with the recommendations of the evaluating archaeologist, and a copy of the archaeological survey or report shall be submitted to the Department of City Planning. Ground-disturbing activities may resume once the archaeologist's recommendations have been implemented to the satisfaction of the archaeologist. In accordance with the condition of approval, all activities would be conducted in accordance with regulatory requirements. In addition, as discussed further below under "Tribal Cultural Resources," the Project would implement Mitigation Measures MM-TCR-1 through MM-TCR-3 regarding the inadvertent discovery of such resources. With implementation of the City's established condition of approval to address any inadvertent discovery of archaeological resources, as well as MM-TCR-1 through MM-TCR-3, Project impacts would be less than significant.

c. Disturb any human remains, including those interred outside of dedicated cemeteries?

Less Than Significant with Mitigation Incorporated. A project-related significant adverse effect could occur if grading or excavation activities associated with the Project would disturb previously interred human remains. The Project Site is located in an urbanized area, and is developed with an existing high school (Main Campus) and shopping center and associated surface parking (North Campus). No human remains are known to exist at the Project Site, and although unlikely due to the presence of artificial fill soils at the Project Site, there is a possibility that human remains could be encountered during excavation and grading activities. Should human remains inadvertently be encountered, the Project would comply with the City's standard condition of approval for inadvertent discovery of human remains, which states the following:

Human Remains Inadvertent Discovery. In the event that human skeletal remains are encountered at the Project Site during construction or the course of any ground disturbance activities, all such activities shall halt immediately, pursuant to State Health and Safety Code Section 7050.5, which requires that no further ground disturbance shall occur until the County Coroner has made the necessary findings as to the origin and disposition pursuant to California Public Resources Code Section 5097.98. In the event human skeletal remains are discovered during construction or during any ground disturbance activities, the following procedures shall be followed:

Stop immediately and contact the County Coroner:
1104 N. Mission Road
Los Angeles, CA 90033
323-343-0512 (8 a.m. to 5 p.m. Monday through Friday) or
323-343-0714 (After Hours, Saturday, Sunday, and Holidays)

- If the remains are determined to be of Native American descent, the Coroner has 24 hours to notify the Native American Heritage Commission (NAHC).
- The NAHC will immediately notify the person it believes to be the most likely descendent of the deceased Native American.
- The most likely descendent has 48 hours to make recommendations to the owner, or representative, for the treatment or disposition, with proper dignity, of the human remains and grave goods as provided in Public Resources Code Section 5097.98. If the Applicant does not accept the descendant's recommendations, the owner or the descendent may request mediation by the NAHC.

In addition, as discussed further below under "Tribal Cultural Resources," the Project would implement Mitigation Measures MM-TCR-1 through MM-TCR-3 regarding the inadvertent discovery of such resources, including human remains. Compliance with the City's standard condition of approval described above, as well as implementation of MM-TCR-1 through MM-TCR-3, would ensure appropriate treatment of any potential human remains discovered during Project construction activities. Therefore, the Project's impacts on human remains would be less than significant.

Cumulative Impacts

As discussed above, the Project would not result in indirect or direct impacts to any significant historical resource. Thus, the Project would not have the potential to contribute toward any significant cumulative impacts related to historic resources. Impacts related to archaeological resources and human remains are site-specific and are assessed on a site-by-site basis. The Project would implement standard City conditions of approval and would comply with State regulations related to the inadvertent discovery of any archaeological resources and/or human remains, if necessary. In addition, no related projects have been identified within one-half mile of the Project Site. For these reasons, cumulative impacts related to historical resources,

archaeological resources, and human remains would not be cumulatively considerable and less than significant.

VI. ENERGY

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a. Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	☐	☐	☒	☐
b. Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	☐	☐	☒	☐

a. Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?

Less Than Significant. This analysis relies on Appendix F of the CEQA Guidelines, which was prepared in response to the requirement in Public Resources Code Section 21100(b)(3), which states that an EIR shall include a detailed statement setting forth "[m]itigation measures proposed to minimize significant effects of the environment, including, but not limited to, measures to reduce the wasteful, inefficient, and unnecessary consumption of energy."

In addition, with regard to potential impacts to energy, the *L.A. CEQA Thresholds Guide* states that a determination of significance shall be made on a case-by case basis, considering the following factors:

- The extent to which the project would require new (off-site) energy supply facilities and distribution infrastructure; or capacity-enhancing alterations to existing facilities;
- Whether and when the needed infrastructure was anticipated by adopted plans; and
- The degree to which the project design and/or operations incorporate energy-conservation measures, particularly those that go beyond City requirements.

In accordance with Appendix G and the *L.A. CEQA Thresholds Guide,* the following eight factors will be considered in determining whether this threshold of significance is met:

1. The project's energy requirements and its energy use efficiencies by amount and fuel type for each stage of the project including construction, operation, maintenance, and/or removal. If appropriate, the energy intensiveness of materials may be discussed;

2. The effects of the project on local and regional energy supplies and on requirements for additional capacity;

3. The effects of the project on peak and base period demands for electricity and other forms of energy;

4. The degree to which the project complies with existing energy standards;

5. The effects of the project on energy resources;

6. The project's projected transportation energy use requirements and its overall use of efficient transportation alternatives;

7. The degree to which the project design and/or operations incorporate energy-conservation measures, particularly those that go beyond City requirements; and

8. Whether the project conflicts with adopted energy conservation plans.

Each of these factors is discussed in detail below, under "Project Impacts."

Project Impacts

1) The project's energy requirements and its energy use efficiencies by amount and fuel type for each stage of the project including construction, operation, maintenance, and/or removal. If appropriate, the energy intensiveness of materials may be discussed.

Construction

Electricity

The Project would have short-term construction impacts, as construction activities would consume relatively minor quantities of electricity to supply and convey water for dust control and, on a limited basis, may be used to power lighting, electronic equipment, and other construction activities necessitating electrical power. This electricity would be supplied to the Project Site by the Los Angeles Department of Water and Power (LADWP) and would be obtained from the existing electrical lines that connect to the Project Site. Where power poles are available, electricity from power poles and/or solar-powered generators rather than temporary diesel or gasoline generators would be used during construction. Moreover, construction electricity usage would replace the electricity usage associated with the existing buildings that would be demolished. Overall, construction activities associated with the Project would require limited electricity generation that would not be expected to have an adverse impact on available electricity supplies.

Natural Gas

Construction activities, including the construction of new buildings, typically do not involve the consumption of natural gas. Accordingly, natural gas would not be supplied to support Project construction activities, and thus there would be no natural gas demand during construction of the Project.

Transportation Energy

Transportation fuels, primarily gasoline and diesel, would be provided by local or regional suppliers and vendors. Project construction contractors would comply with applicable CARB regulations governing the accelerated retrofitting, repowering, or replacement of heavy-duty diesel on- and off-road equipment. CARB has adopted an Airborne Toxic Control Measure to limit heavy-duty diesel motor vehicle idling in order to reduce public exposure to diesel particulate matter and other TACs. This measure prohibits diesel-fueled commercial vehicles greater than 10,000 pounds from idling for more than five minutes at any given time. CARB has also approved the Truck and Bus regulation (CARB Rules Division 3, Chapter 1, Section 2025, subsection (h)) to reduce NO_X, PM_{10}, and $PM_{2.5}$ emissions from existing diesel vehicles operating in California; this regulation will be phased in with full implementation by 2023.[26] In addition to limiting exhaust from idling trucks, CARB recently promulgated emission standards for off-road diesel construction equipment of greater than 25 horsepower. The regulation aims to reduce emissions by requiring the installation of diesel soot filters and encouraging the retirement, replacement, or repowering of older, dirtier engines with newer emission-controlled models. Implementation began January 1, 2014, and the compliance schedule requires that best available control technology turnovers or retrofits be fully implemented by 2023 for large and medium equipment fleets and by 2028 for small fleets. Compliance with the above anti-idling and emissions regulations would result in efficient use of construction-related energy and the minimization or elimination of wasteful and unnecessary consumption of energy. Idling restrictions and the use of newer engines and equipment would result in less fuel combustion and energy consumption, as would use of haul trucks with larger capacities.

Energy Conservation

The Project would utilize construction contractors who demonstrate compliance with applicable CARB regulations governing the accelerated retrofitting, repowering, or replacement of heavy-duty diesel on- and off-road equipment. CARB has adopted an Airborne Toxic Control Measure to limit heavy-duty diesel motor vehicle idling in order to reduce public exposure to diesel particulate matter and other TACs. This measure prohibits diesel-fueled commercial vehicles greater than 10,000 pounds from idling for more than five minutes at any given time. CARB has also approved the Truck and Bus regulation (CARB Rules Division 3, Chapter 1, Section 2025,

[26] California Air Resources Board, Final Regulation Order, Amendments to the Regulation to Reduce Emissions of Diesel Particulate Matter, Oxides of Nitrogen and Other Criteria Pollutants from In-Use On-Road Diesel-Fueled Vehicles, http://www.arb.ca.gov/msprog/onrdiesel/documents/tbfinalreg.pdf.

subsection (h)) to reduce NO_X, PM_{10}, and $PM_{2.5}$ emissions from existing diesel vehicles operating in California; this regulation will be phased in with full implementation by 2023.[27] In addition to limiting exhaust from idling trucks, CARB recently promulgated emission standards for off-road diesel construction equipment of greater than 25 horsepower. The regulation aims to reduce emissions by requiring the installation of diesel soot filters and encouraging the retirement, replacement, or repowering of older, dirtier engines with newer emission-controlled models. Implementation began January 1, 2014, and the compliance schedule requires that best available control technology turnovers or retrofits be fully implemented by 2023 for large and medium equipment fleets and by 2028 for small fleets. Compliance with the above anti-idling and emissions regulations would result in efficient use of construction-related energy and the minimization or elimination of wasteful and unnecessary consumption of energy. Idling restrictions and the use of newer engines and equipment would result in less fuel combustion and energy consumption, as would use of haul trucks with larger capacities.

Operation

During operation of the Project, energy would be consumed for multiple purposes, including, but not limited to HVAC, lighting (including sports lighting for the pool and athletic fields on the North Campus), pool equipment, and the use of electronics, equipment, and machinery. Energy would also be consumed during Project operations related to water usage, solid waste disposal, and vehicle trips. Table VI-1 shows the Project's demand for electricity and Table VI-2 shows the Project's demand for natural gas.

Electricity

Buildout of the Project would result in an increase in the on-site demand for electricity totaling approximately 651,256 kWh per year (refer to Table VI-1). In addition, by 2020, LADWP was required to procure at least 33 percent of their energy portfolio from renewable sources. SB 350 further required 50 percent renewables by 2030. The current sources procured by LADWP include wind, solar, and geothermal sources. These sources accounted for 34.9 percent of LADWP's overall energy mix in 2020.[28] This represents the available off-site renewable sources of energy that would meet the Project's energy demand. Furthermore, the Project would incorporate active energy conservation strategies, such as LED lighting with day-lighting controls and dimming capabilities, and Energy Star light bulbs.

Based on LADWP's 2017 SLTRP, LADWP forecasts that its total energy sales in the 2035-2036 fiscal year (encompassing the Project's 2035 buildout year) is estimated to be approximately

[27] California Air Resources Board, Final Regulation Order, Amendments to the Regulation to Reduce Emissions of Diesel Particulate Matter, Oxides of Nitrogen and Other Criteria Pollutants from In-Use On-Road Diesel-Fueled Vehicles, http://www.arb.ca.gov/msprog/onrdiesel/documents/tbfinalreg.pdf.

[28] LADWP, Power Content Label, https://www.ladwp.com/ladwp/faces/ladwp/aboutus/a-power/a-p-powercontentlabel;jsessionid=Ld1LvpwPXtpwfKpfn65sQcnmchNvlX5xNm13hS5WRDKJjWLhY2Vn!455318738?_afrLoop=937924243040778&_afrWindowMode=0&_afrWindowId=null#%40%3F_afrWindowId%3Dnull%26_afrLoop%3D937924243040778%26_afrWindowMode%3D0%26_adf.ctrl-state%3D2q0qi6hk_4, accessed June 6, 2022.

26,320 GWh of electricity[29] As such, the Project-related increase in annual electricity consumption of 651,256 kWh per year would represent approximately 0.0025 percent of LADWP's projected sales in 2035.

Table IV-1
Estimated Project Electricity Demand

Land Use	Size	Total (kw-h/yr)[1]
High School	69,254 sf	489,673
Parking Lot	1.39 acres	53,040
	Subtotal	542,713
	20% Contingency[2]	108,543
	Total	**651,256**

sf = square feet. kw-h = kilowatt-hour yr = year
1 Calculated via CalEEMod. Refer to Appendix B of this IS/MND.
2 A 20 percent contingency factor has been added to account for the pool equipment and the lighting for the new pool and athletic fields on the North Campus.

Natural Gas

Buildout of the Project would result in an increase in the on-site demand of natural gas totaling approximately 1,407,774 kBTU per year (see Table IV-2), or approximately 3,857 cf per day.[30] Based on the 2022 California Gas Report, the California Energy and Electric Utilities estimates natural gas consumption within SoCalGas's planning area will be approximately 1,973 million cf per day in 2035 (the Project's buildout year).[31] The Project would account for approximately 0.0002 percent of the forecasted 2035 consumption in SoCalGas's planning area. In addition, the Project would incorporate a variety of energy conservation measures as required under the City's Green Building Code to reduce energy usage.

[29] 2017 Power Strategic Long-Term Resource Plan, December 2017, LADWP, Appendix A.

[30] Assuming 1 kBTU = 1 cf.

[31] California Gas and Electric Utilities, 2022 California Gas Report, p. 186.

Table IV-2
Estimated Project Natural Gas Demand

Land Use	Size	Total (kBTU/yr)[1]
High School	69,254 sf	1,407,774
Parking Lot	1.39 acres	0
	Total	**1,407,774**

sf = square feet kBTU = 1,000 British Thermal Units yr = year
[1] Calculated via CalEEMod. Refer to Appendix B of this IS/MND. It is not anticipated that natural gas would be required for the pool equipment of lighting for the pool and athletic fields on the North Campus.

Transportation Energy

During operation, Project-related traffic would result in the consumption of petroleum-based fuels related to vehicular travel to and from the Project Site. As noted previously, while the Project includes physical improvements to the existing high school, it would not increase student enrollment beyond the currently permitted maximum student enrollment. In addition, with the removal of the existing shopping center for expansion of the high school into the North Campus, the Project results in the reduction of 1,355 daily trips, which reduce VMT and related GHG emissions.

During Project operations, vehicles traveling to and from the Project Site are also assumed to comply with Corporate Average Fuel Economy (CAFÉ) fuel economy standards. Project-related vehicle trips would also comply with Pavley and Low Carbon Fuel Standards, which are designed to reduce vehicle GHG emissions but would also result in fuel savings in addition to CAFE standards. It is anticipated that the future Project-related vehicle trips are expected to comply with CAFE standards and CARB's Advanced Clean Cars Program, which would ultimately reduce non-renewable transportation fuel consumption. Project-related vehicles would require a negligible fraction of the total state's transportation fuel consumption. The Project would also include approximately 137 EV spaces and 17 EVCS which would encourage the use of alternative-fueled, electric, and hybrid vehicles by students, faculty, and visitors to the Project Site, which would serve to reduce the Project's consumption of gasoline and diesel. Therefore, Project operations would not result in wasteful, inefficient, and unnecessary consumption of energy.

2) The effects of the project on local and regional energy supplies and on requirements for additional capacity.

Construction

As discussed above, electricity would be intermittently consumed during the conveyance of the water used to control fugitive dust, as well as to provide electricity for temporary lighting and other general construction activities. The electricity demand at any given time would vary throughout the construction period based on the construction activities being performed and would cease

upon completion of construction. When not in use, electric equipment would be powered off to avoid unnecessary energy consumption. As energy consumption during Project construction activities would be relatively negligible, the Project would not likely affect regional energy consumption in years during the construction period.

Operation

As stated above, the Project-related increase in annual electricity consumption would represent approximately 0.0025 percent of LADWP's projected sales in 2035-2036. Also, the Project's estimated increase in demand for natural gas would account for approximately 0.0002 percent of the forecasted 2035 consumption in SoCalGas's planning area. In summary, energy consumption during Project operations would be negligible, and energy requirements would be within LADWP's and SoCalGas's service provisions.

3) The effects of the project on peak and base period demands for electricity and other forms of energy.

Electricity demand during construction and operation of the Project would have a negligible effect on the overall capacity of LADWP's power grid and base load conditions. With regard to peak load conditions, LADWP's power system experienced an all-time high peak of 6,432 MW on August 31, 2017.[32] LADWP also estimates a peak load based on two years of data known as base case peak demand to account for typical peak conditions. Based on LADWP estimates for 2017, the base case peak demand for the power grid is 5,854 MW.[33] In comparison to the LADWP power grid base peak load of 5,854 MW in 2017, the Project would represent approximately 0.0011 percent of the LADWP base peak load conditions. In addition, LADWP's annual growth projection in peak demand of the electrical power grid of 0.4 percent would be enough to account for future electrical demand by the Project.[34] Therefore, Project electricity consumption during operational activities would have a negligible effect on peak load conditions of the power grid.

4) The degree to which the project complies with existing energy standards.

Although Title 24 requirements typically apply to energy usage for buildings, construction equipment would also comply with Title 24 requirements where applicable. Electricity and natural gas usage during Project operations presented on Tables VI-1 and VI-2 would comply with Title 24 standards and CalGreen Code requirements, as well as the City's Green Building Code. Therefore, Project construction and operational activities would comply with existing energy standards with regards to electricity and natural gas usage.

[32] LADWP, 2017 Retail Electric Sales and Demand Forecast. p. 6.

[33] LADWP, 2017 Retail Electric Sales and Demand Forecast. p. 6.

[34] LADWP, 2017 Retail Electric Sales and Demand Forecast. p. 6.

With regard to transportation fuels, trucks, and equipment used during proposed construction activities, the Project would comply with CARB's anti-idling regulations as well as the In-Use Off-Road Diesel-Fueled Fleets regulation. Although these regulations are intended to reduce criteria pollutant emissions, compliance with the anti-idling and emissions regulations would also result in efficient use of construction-related energy. During Project operations, vehicles traveling to and from the Project Site are assumed to comply with CAFÉ fuel economy standards. Project-related vehicle trips would also comply with Pavley and Low Carbon Fuel Standards, which are designed to reduce vehicle GHG emissions but would also result in fuel savings in addition to CAFE standards. Therefore, Project construction and operational activities would comply with existing energy standards with regards to transportation fuel consumption.

5) Effects of the Project on Energy Resources

As discussed above, LADWP's electricity generation is derived from a mix of non-renewable and renewable sources such as coal, natural gas, solar, geothermal, wind, and hydropower. LADWP's 2017 SLTRP identifies adequate resources (natural gas, coal) to support future generation capacity.

Natural gas supplied to the Southern California is mainly sourced from out of state with a small portion originating in California. Sources of natural gas for the Southern California region are obtained from locations throughout the western United States as well as Canada. According to the U.S. Energy Information Administration (EIA), as of January 2019, the United States currently has about 84 years of natural gas reserves.[35] Compliance with energy standards is expected to result in more efficient use of natural gas (lower consumption) in future years. Therefore, Project construction and operational activities would have a negligible effect on natural gas supply.

Transportation fuels (gasoline and diesel) are produced from crude oil, which is imported from various regions around the world. Based on current proven reserves, crude oil production would be sufficient to meet over 50 years of consumption.[36] The Project would also comply with CAFE fuel economy standards, which would result in more efficient use of transportation fuels (lower consumption). Project-related vehicle trips would also comply with Pavley and Low Carbon Fuel Standards, which are designed to reduce vehicle GHG emissions but would also result in fuel savings in addition to CAFE standards. In addition, based on the removal of existing uses, the Project would result in the reduction of 1,355 daily vehicle trips. Therefore, Project construction and operational activities would have a negligible effect on the transportation fuel supply.

Due to the Project Site location, most on-site renewable energy sources would not be feasible to install on-site as there are no local sources of energy from the following sources: biodiesel, biomass hydroelectric and small hydroelectric, digester gas, fuel cells, landfill gas, municipal solid

[35] U.S. Energy Information Administration, Frequently Asked Questions, www.eia.gov/tools/faqs/faq.php?id=58&t=8, accessed November 15, 2021.

[36] BP Global, https://www.bp.com/en/global/corporate/energy-economics/statistical-review-of-world-energy/oil.html, accessed November 15, 2021.

waste, ocean thermal, ocean wave, and tidal current technologies, or multi- fuel facilities using renewable fuels. Additionally, wind-powered energy is not viable on the Project Site due to the lack of sufficient wind in the Los Angeles basin. Specifically, based on a map of California's wind resource potential, the Project Site is not identified as an area with wind resource potential.[37]

6) The project's projected transportation energy use requirements and its overall use of efficient transportation alternatives.

Approximately 616,121 thousand barrels of crude oil (approximately 25.9 billion gallons) were supplied to California refineries in 2019.[38] Assuming the same supply of crude oil is provided to California, the Project's estimated consumption would be a small fraction of one percent of available fuel reserves. In addition, while the Project includes physical improvements to the existing high school and to North Campus for the expansion of athletic and surface parking facilities, it would not increase student enrollment beyond the currently permitted maximum student enrollment. Further, as described in Section XVII (Transportation), the Project would result in the reduction of 1,355 daily vehicle trips when compared to the existing uses at the Project Site, thereby the Project's transportation energy use. The Project would also include approximately 137 EV spaces and 17 EVCS. Alternative-fueled, electric, and hybrid vehicles, to the extent these types of vehicles would be utilized by students, faculty, and visitors to the Project Site would further reduce the Project's transportation energy use.

7) The degree to which the project design and/or operations incorporate energy-conservation measures, particularly those that go beyond City requirements

The City's current Green Building Code requires compliance with the CalGreen Code and California's Building Energy Efficiency Standards (Title 24). The Project would be required to comply with the City's Green Building Code. The City has also adopted several plans and regulations to promote the reduction, reuse, recycling, and conversion of solid waste going to disposal systems. These regulations include the City of Los Angeles Solid Waste Management Policy Plan, the RENEW LA Plan, and the Exclusive Franchise System Ordinance (Ordinance No. 182,986). These solid waste reduction programs and ordinances help to reduce the number of trips associated with hauling solid waste, thereby reducing the amount of petroleum-based fuel consumed. Furthermore, recycling efforts indirectly reduce the energy necessary to create new products made of raw material, which is an energy-intensive process. Thus, through compliance with the City's solid waste recycling programs, the Project would contribute to reduced fuel-related energy consumption.

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[37] CEC, National Renewable Energy Laboratory (NREL) Wind Prospector, https://maps.nrel.gov/wind-prospector/#/?aL=kM6jR-%255Bv%255D%3Dt%26qCw3hR%255Bv%255D%3Dt%26qCw3hR%255Bd%255D%3D1&bL=groad&cE=0&lR=0&mC=36.416862115300304%2C-120.421142578125&zL=8, accessed November 15, 2021.

[38] California Energy Commission, Oil Supply Sources to California Refineries, https://ww2.energy.ca.gov/almanac/petroleum_data/statistics/crude_oil_receipts.html, accessed April 27, 2020.

8) Whether the Project conflicts with adopted energy conservation plans.

The Project would comply with applicable regulatory requirements for the design of new buildings, the new pool, and the new lights on the North Campus, including the provisions set forth in the CalGreen Code and California's Building Energy Efficiency Standards, which have been incorporated into the City's Green Building Code. In addition, the athletic lighting on the North Campus for the pool and athletic fields would all be light-emitting diode (LED), which is more energy efficient than incandescent lighting. With regard to transportation energy uses, the Project would reduce VMT based on the reduction in daily trips when compared to the existing uses and would also encourage the use of alternative modes of transportation by providing approximately 137 EV spaces and 17 EVCS. As discussed previously, the 2020-2045 RTP/SCS focuses on reducing fossil fuel use by decreasing VMT, reducing building energy use, and increasing use of renewable sources. The Project would therefore be consistent with the energy efficiency policies emphasized in the 2020-2045 RTP/SCS. The 2020-2045 RTP/SCS would result in an estimated 8 percent decrease in VMT by 2020 and a 19 percent decrease in VMT by 2035. By meeting and exceeding the SB 375 targets for 2020 and 2035, the 2020-2045 RTP/SCS is expected to fulfill and exceed its portion of SB 375 compliance with respect to meeting the state's GHG emission reduction goals. Thus, consistent with the 2020-2045 RTP/SCS, the Project would reduce VMT and associated petroleum-based fuel. As such, based on the above, the Project would be consistent with adopted energy conservation plans.

Conclusion

As demonstrated in the analysis of the eight criteria discussed above, the Project would not result in any wasteful, inefficient, or unnecessary consumption of energy during construction or operation. The Project's energy requirements would not significantly affect local and regional supplies or capacity. The Project's energy usage during peak and base periods would also be consistent with electricity and natural gas future projections for the region. Electricity generation capacity, and supplies of natural gas and transportation fuels, would also be sufficient to meet the needs of Project-related construction and operations. During operation, the Project would comply with the City's existing energy efficiency requirements under the City's Green Building Code. In summary, the Project's energy demands would not significantly affect available energy supplies and would comply with existing energy efficiency standards. Therefore, Project impacts related to energy use would be less than significant during construction and operation.

b) Would the project conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

Less Than Significant Impact. The energy conservation plans and policies relevant to the Project include, but are not limited to, the California Title 24 energy standards, the 2022 CALGreen building code, and the City of Los Angeles Green Building Code. As these conservation policies are mandatory under the City of Los Angeles Building Code, the Project would not conflict with or obstruct implementation of applicable plans for renewable energy or

efficiency. In addition, the Project would implement sustainability measures to exceed Title 24 energy efficiency requirements.

With regard to transportation related energy usage, the Project would comply with the goals of SCAG's 2020-2045 RTP/SCS, which incorporates VMT targets established by SB 375. The Project's reduction in daily trips would serve to reduce VMT and associated transportation fuel usage within the region. In addition, vehicle trips generated during Project operations would comply with CAFÉ fuel economy standards. Based on the above, the Project would not conflict with adopted energy conservation plans, or violate State or federal energy standards. Therefore, Project impacts associated with regulatory consistency would be less than significant.

Cumulative Impacts

As described previously, no related projects have been identified within one-half mile of the Project Site. Nevertheless, the following provides a general discussion of cumulative impacts.

Electricity

The Project, in conjunction with any other development projects, could result in an increased demand for electricity supplies. LADWP's 2017 SLTRP serves as a comprehensive 20-year plan to supply reliable electricity to the City in an environmentally responsible and cost-effective manner. The 2017 SLTRP considers a 20-year planning horizon to guide LADWP as it executes major new and replacement projects and programs. Based on the projections and strategies within the 2017 SLTRP, energy efficiency and solar savings are expected to increase in the future and significantly reduce electricity demands, Thus, LADWP anticipates that it can meet the future demands of cumulative growth within its service area with implementation of regulatory and reliability initiatives and strategic initiatives.

LADWP will continue to pursue and implement energy efficiency programs per SB 350, which has an adopted goal of achieving 50 percent renewable energy sources by 2030. Furthermore, in accordance with current building codes and construction standards, both the Project and any other development projects would be required to comply with the energy conservation standards established in Title 24 of the California Administrative Code and the City's Green Building Code. Compliance with Title 24 energy conservation standards, City's Green Building Code, and other energy conservation programs on the local level will further reduce cumulative energy demands. As such, cumulative development would not result in related to potentially significant environmental impacts due to wasteful, inefficient, and unnecessary use of electricity. Therefore, cumulative impacts related to electricity would be less than significant.

Natural Gas

The Project, in conjunction with any other development projects, could result in an increased demand for natural gas supplies. As a public utility provider, SoCalGas continuously analyzes increases in natural gas demands resulting from projected population and employment growth in

its service area and it is anticipated that it would be able to meet the needs of future development within the region. Both the Project and any other development projects would be reviewed on a case-by-case basis to determine SoCalGas's ability to serve each project. Additionally, compliance with energy conservation standards pursuant to Title 24 would reduce cumulative demand for natural gas resources. As such, cumulative development would not result in related to potentially significant environmental impacts due to wasteful, inefficient, and unnecessary use of natural gas. Therefore, cumulative impacts related to natural gas would be less than significant.

Transportation Energy

The Project, in conjunction with any other development projects, could result in a net increased demand for transportation energy. As discussed previously, the NHTSA and CARB have implemented several policies, rules, and regulations to improve vehicle efficiency, increase the use of alternative fuels, and decrease the reliance on fossil fuels. It is anticipated that the future vehicle trips are expected to comply with CAFE standards and CARB's Advanced Clean Cars Program, which would ultimately reduce non-renewable transportation fuel consumption. Also, the Project and any other development projects are located in a transit-rich area of the City and as such, provide opportunities for alternative sources of transportation. Thus, cumulative development would not result in related to potentially significant environmental impacts due to wasteful, inefficient, and unnecessary use of transportation energy. Therefore, cumulative impacts related to transportation energy would be less than significant.

VII. GEOLOGY AND SOILS

In 2015, the California Supreme Court in the California Building Industry Association v. Bay Area Air Quality Management District (62 Cal.4th 369 [Case No. S213478]) (CBIA v. BAAQMD), held that CEQA generally does not require a lead agency to consider the impacts of the existing environment on the future residents or users of the project. The City's revised thresholds are intended to comply with this decision. Specifically, the decision held that an impact from the existing environment to the project, including future users and/or residents, is not an impact for purposes of CEQA. However, if the project physically exacerbates existing conditions that already exist, that impact must be assessed, including how it might affect future users and/or residents of the project. Thus, in accordance with Appendix G of the State CEQA Guidelines and the CBIA v. BAAQMD decision, the Project would have a significant impact related to geology and soils if it would result in any of the following impacts to future residents or users.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a. Directly or indirectly cause substantial adverse effects, including the risk of loss, injury, or death involving:				
i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☒	☐
ii. Strong seismic ground shaking?	☐	☐	☒	☐
iii. Seismic-related ground failure, including liquefaction?	☐	☐	☒	☐
iv. Landslides?	☐	☐	☒	☐
b. Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐
c. Be located on a geologic unit that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?	☐	☐	☒	☐
d. Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?	☐	☐	☒	☐

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
e. Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	☐	☐	☐	☒
f. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☒	☐	☐

The analysis in this section is based on the following items, which are included as Appendix E of this IS/MND:

- Geotechnical Investigation, Geocon West, January 12, 2023
- Response to Soils Report Review Letter, Geocon West, May 8, 2023.
- Soils Report Approval Letter, Los Angeles Department of Building and Safety, June 27, 2023.
- Paleontological Resources Technical Memorandum, SWCA Environmental Consultants, December 15, 2022.

a. Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:

i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.

Less Than Significant Impact. Fault rupture occurs when movement on a fault deep within the earth breaks through to the surface. Based on criteria established by the California Geological Survey (CGS), faults can be classified as active, potentially active, or inactive. Active faults are those having historically produced earthquakes or shown evidence of movement within the past 11,000 years (during the Holocene Epoch). Potentially active faults have demonstrated displacement within the last 1.6 million years (during the Pleistocene Epoch) while not displacing Holocene Strata. Inactive faults do not exhibit displacement more recently than 1.6 million years before the present. In addition, there are buried thrust faults, which are faults with no surface exposure. Due to their buried nature, the existence of buried thrust faults is usually not known until they produce an earthquake.

The CGS establishes regulatory zones around active faults, called Alquist-Priolo Earthquake Fault Zones (previously called Special Study Zones). These zones, which extend from 200 to 500 feet on each side of the known fault, identify areas where a potential surface fault rupture could prove hazardous for buildings used for human occupancy. Development projects located within an Alquist-Priolo Earthquake Fault Zone are required to prepare special geotechnical studies to characterize hazards from any potential surface ruptures. In addition, the City designates Fault Rupture Study Areas along the sides of active and potentially active faults to establish areas of potential hazard due to fault rupture.

According to the Geotechnical Investigation prepared for the Project (included in Appendix E of this IS/MND), the Project Site is not located within an Alquist-Priolo Earthquake Fault Zone and no Holocene-active or pre-Holocene faults with the potential for surface fault rupture are known to pass directly beneath the Project Site, and thus the possibility of surface fault rupture at the Project Site is considered to be low.[39] As such, the Project would not expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving rupture of a known earthquake fault, as delineated on the Alquist-Priolo Special Studies Zone Map issued by the State Geologist in 2014 for the area or based on other substantial evidence of a known fault on the Project Site.

Additionally, given that no active or potentially active faults with the potential for surface fault rupture are known to pass directly beneath the Project Site, the Project would not exacerbate existing fault rupture conditions. Construction of the Project would be subject to compliance with existing state and local regulations, including the California Building Code (CBC) and the Los Angeles Building Code (LABC) and with the recommendations contained in the final geotechnical report prepared for the Project by a licensed engineer and approved by the City of Los Angeles Department of Building and Safety (LADBS). The CBC and LABC, with which the Project would be required to comply, contain construction requirements to ensure that structures are built to a level such that they can withstand acceptable seismic risk. Therefore, the Project would not cause potential substantial adverse effects as a result of a known earthquake fault in or around the Project Site, and Project impacts with respect to fault rupture would be less than significant.

ii. Strong seismic ground shaking?

Less Than Significant Impact. The Project Site is located in the seismically active Southern California region. However, the Project does not include the types of activities, such as mining operations, boring of large areas, the extraction or injection of oil or groundwater, horizontal drilling, or other activities that would cause or exacerbate substantial adverse effects involving strong seismic ground shaking. Given the Project Site's location in a seismically active region, the Project Site could experience seismic ground shaking in the event of an earthquake.

[39] Geotechnical Investigation, Geocon West, January 12, 2023, page 7.

However, as with any new development in the State of California, building design and construction for the Project would be required to conform to the current seismic design provisions of the CBC. The CBC would preclude the Project from employing techniques or methods which would directly or indirectly initiate or worsen seismic ground shaking as part of the normal construction and operations. The CBC incorporates the latest seismic design standards for structural loads and materials as well as provisions from the National Earthquake Hazards Reduction Program to mitigate losses from an earthquake and provide for the latest in earthquake safety. Additionally, construction of the Project would be required to adhere to the seismic safety requirements contained in the LABC, as well as the applicable recommendations provided in the geotechnical investigations required by the City to minimize seismic-related hazards. Adherence to current building codes and engineering practices would ensure that the Project would not expose people, property, or infrastructure directly or indirectly to seismically induced ground shaking hazards that are greater than the average risk associated with locations in the Southern California region, and would minimize the potential to expose people or structures to substantial risk, loss, or injury. Based on the above, development of the Project would not exacerbate seismic conditions on the Project Site. With compliance with existing building codes, Project impacts associated with seismic ground shaking would be less than significant.

iii. Seismic-related ground failure, including liquefaction?

Less Than Significant Impact. Liquefaction is a form of earthquake-induced ground failure that occurs primarily in relatively shallow, loose, granular, water-saturated soils. Liquefaction can occur when these types of soils lose their shear strength due to excess water pressure that builds up during repeated seismic shaking. A shallow groundwater table, the presence of loose to medium dense sand and silty sand, and a long duration and high acceleration of seismic shaking are factors that contribute to the potential for liquefaction. Liquefaction usually results in horizontal and vertical movements from lateral spreading of liquefied materials.

According to the Geotechnical Investigation prepared for the Project Site, the State of California Seismic Hazard Zone Map for the Calabasas Quadrangle indicates that the southern portion of the Main Campus and the entire North Campus are located in an area designated as having a potential for liquefaction. Consequently, the proposed pool, pool house, and pedestrian bridge are located within areas designated as having a potential for liquefaction.[40]

According to the Geotechnical Investigation and Geotechnical Investigation Corrections Response Letter (both included in Appendix E of this IS/MND), the pedestrian bridge and Main Campus structures can be founded on relatively shallow bedrock using deepened foundations extending through the potentially liquefiable materials. Since the structures would be supported on bedrock, it is the opinion of Geocon West that the potential for liquefaction and associated ground deformation to impact the bridge and Main Campus structures is considered very low.

[40] Geotechnical Investigation, Geocon West, January 12, 2023, page 11.

The North Campus is underlain by artificial fill, potentially liquefiable alluvium, and further underlain by Monterey formation bedrock. The depth of the bedrock ranges from 12 feet on the west portion of the property, to 42 feet on the east side of the property. Due to the depth of bedrock on the east side of the North Campus, deepened foundations are not considered economically feasible for the construction of the North Campus pool house improvements. Therefore, a liquefaction analysis was performed to represent both the worst-case liquefaction potential and the lowest liquefaction potential for the North Campus, and the Geotechnical Investigation and associated corrections letter provided design recommendations for the proposed foundation system for the North Campus.

Construction of the Project would not involve the injection of water or any other liquid into the ground. In addition, construction of the Project would be subject to the LABC requirements and recommendations included in the final geotechnical report, including recommendations with respect to liquefaction. Based on the above, development of the Project would not directly or indirectly cause or exacerbate geologic hazards, including seismic-related liquefaction, and Project impacts with respect to liquefaction would be less than significant.

iv. Landslides?

Less Than Significant Impact. While the topography at the Project Site slopes to the south with 42 feet of elevation difference, the Project Site is not identified by ZIMAS as being within a landslide hazard zone. According to the CGS, the Project Site is not located within an area identified as having a potential for seismic slope instability, and there are no known landslides near the Project Site, nor is the Project Site in the path of any known or potential landslides.[41] Therefore, Project impacts with respect to landslides would be less than significant.

b. Result in substantial soil erosion or the loss of topsoil?

Less Than Significant Impact. A significant impact may occur if a project exposes large areas to the erosional effects of wind or water for a protracted period of time. The Project Site is currently completely developed with the existing high school (Main Campus) and shopping center and associated surface parking (North Campus) and does not contain any topsoil. During the Project's construction phase, activities such as excavation for utilities, grading, and site preparation could leave soils at the Project Sites susceptible to soil erosion. The Project Applicant would be required to comply with SCAQMD Rule 403 – Fugitive Dust to minimize wind and water-borne erosion at the Site, as well as prepare and implement a Stormwater Pollution Prevention Plan (SWPPP), in accordance with the National Pollutant Discharge Elimination System (NPDES) General Permit for Discharges of Storm Water Associated with Construction Activity and Land Disturbance Activities. The site-specific SWPPP would be prepared prior to earthwork activities and would be implemented during Project construction. The SWPPP would include best management practices (BMPs) and erosion control measures to prevent pollution in storm water discharge. Typical BMPs

[41] Geotechnical Investigation, Geocon West, January 12, 2023, page 13.

that could be used during construction include good-housekeeping practices (e.g., street sweeping, proper waste disposal, vehicle and equipment maintenance, concrete washout area, materials storage, minimization of hazardous materials, proper handling and storage of hazardous materials, etc.) and erosion/sediment control measures (e.g., silt fences, fiber rolls, gravel bags, storm water inlet protection, and soil stabilization measures, etc.). The SWPPP would be subject to review and approval by the City for compliance with the City's Development Best Management Practices Handbook, Part A, Construction Activities.

Additionally, all Project construction activities would comply with the City's grading permit regulations, which require the implementation of grading and dust control measures, including a wet weather erosion control plan if construction occurs during rainy season, as well as inspections to ensure that sedimentation and erosion is minimized. Through compliance with these existing regulations, the Project would not result in any significant impacts related to soil erosion during the construction phase. Further, during the Project's operational phase, the Project Site would be developed with impervious surfaces or landscaping, and all stormwater flows would be directed to storm drainage features and would not come into contact with bare soil surfaces. Therefore, with compliance with applicable regulatory requirements, development of the Project would not cause or exacerbate soil erosion or loss of topsoil and impacts regarding soil erosion or the loss of topsoil would be less than significant.

c. Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?

Less Than Significant Impact. Subsidence occurs when a large portion of land is displaced vertically, usually due to the withdrawal of groundwater, oil, or natural gas. Soils that are particularly subject to subsidence include those with high silt or clay content. As discussed in the Geotechnical Investigation, the majority of the Project Site is underlain by shallow bedrock that is not susceptible to subsidence.[42]

While the topography at the Project Site slopes to the south with 42 feet of elevation difference, the Project Site is not identified by ZIMAS as being within a landslide hazard zone. According to the CGS, the Project Site is not located within an area identified as having a potential for seismic slope instability, and there are no known landslides near the Project Site, nor is the Project Site in the path of any known or potential landslides. Based on these considerations, the potential for slope stability hazards to impact the Project is low. [43]

With respect to liquefaction, as discussed previously, while the southern portion of the Main Campus and the entire North Campus are located in an area designated as having a potential for liquefaction. construction of the Project would be subject to the LABC requirements and

[42] Geotechnical Investigation, Geocon West, January 12, 2023, page 14.

[43] Geotechnical Investigation, Geocon West, January 12, 2023, page 13.

recommendations included in the final geotechnical report, including recommendations with respect to liquefaction. Therefore, Project impacts with respect to liquefaction would be less than significant.

According to the Geotechnical Investigation, the Project Site is underlain by artificial fill, Holocene age alluvium and colluvium, and the northern portion of the Main Campus is underlain by shallow sedimentary bedrock of the Monterey Formation, also called the Modelo Formation.[44] The Project Applicant would be required by the LADBS, as part of the permitting process, to submit a final geotechnical report that would address the building standards and recommendations that shall be followed in order to construct the proposed structure in accordance with CBC and LABC building standards that apply to buildings within the types of soils found at the Project Site, including areas prone to geologic or soil instability. Through compliance with the CBC and LABC, and with recommendations included in the final geotechnical report, impacts related to geologic and soil instability would be less than significant. Based on the above, development of the Project would not cause or exacerbate geologic hazards by being located on a geologic unit or soil that is unstable, or that would become unstable as a result of the Project, and Project impacts would be less than significant.

d. Be located on expansive soil, as defined in Table 18 1 B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?

Less Than Significant Impact. Based on the Geotechnical Investigation prepared for the Project Site, soils at the Project Site are considered to have a low to medium expansive potential and are classified as "expansive" in accordance with the 2022 CBC Section 1803.5.3.[45] Construction of the Project would be required to adhere to the CBC and LABC, as well as the applicable recommendations provided in the geotechnical investigation required by the City to minimize impacts with respect to expansive soils. Adherence to current building codes and engineering practices would ensure that the Project would not cause or exacerbate geologic hazards, and impacts with respect to expansive soils would be less than significant.

e. Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?

No Impact. The Project Site is located within a community served by existing sewage infrastructure. The Project would connect to the City's existing sewer system and would not require the use of septic tanks or alternative wastewater disposal systems. Thus, the Project would not result in any impacts related to soils that are incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available

[44] Geotechnical Investigation, Geocon West, January 12, 2023, page 4.

[45] Geotechnical Investigation, Geocon West, January 12, 2023, page 18.

for the disposal of wastewater. Therefore, no impacts related to this issue would occur as a result of the Project.

f. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

Less Than Significant with Mitigation Incorporated. A project-related significant adverse effect could occur if grading or excavation activities associated with the Project would disturb paleontological resources or geologic features which presently exist within the Project Site. According to the paleontological resources technical memorandum (included in Appendix E of this IS/MND), SWCA (the preparer of the technical memorandum) determined the paleontological potential of the geologic units underlying the Project area. Recent to late Holocene artificial fill likely exists within the Project area as a thin veneer, overlying previously undisturbed sedimentary deposits. Artificial fill has the potential to yield paleontological resources; however, any such fossil has been removed from its original stratigraphic context (provenance). Therefore, artificial fill has a low paleontological sensitivity based on Society of Vertebrate Paleontology (SVP) (2010) guidelines. Based on SVP (2010) guidelines and definition of significant paleontological resources, late to middle Pleistocene old alluvial fan deposits and late Miocene Modelo Formation, which both underlie the artificial fill at unknown, but likely very shallow depths, have a high paleontological sensitivity. In summary, the overall Project area has a low paleontological sensitivity in the uppermost disturbed sediments and a high paleontological sensitivity in the underlying, previously undisturbed sediments. The depth to the previously undisturbed sediments within the Project area is likely very shallow based on the local topography of the existing built environment.

The changes to the Main Campus include a partial demolition of existing structures and the addition of a new administrative, multi-purpose, and classroom building, as well as the renovation of existing offices and the addition of electric vehicle parking and charging stations. The expansion to the North Campus includes the development of a proposed athletic field pool house, locker rooms, and proposed building to house restrooms and concessions. The balance of the North Campus site would include a proposed new soccer and baseball field, a new pool, and two new proposed surface parking lots. Based on the features of the Project, substantial ground-disturbing activities are anticipated to impact previously undisturbed sediments underlying the artificial fill present as a veneer across the Project Site. The depth to the underlying, previously undisturbed sediments is unknown, but likely very shallow (e.g., three feet below ground surface). Project-related ground-disturbing activities are likely to exceed the depth of the artificial fill and impact the underlying previously undisturbed geologic units of high paleontological sensitivity. Therefore, fossils may be encountered during the ground-disturbing activities. Should significant fossils be encountered, they would be at risk for damage or destruction from construction activities, which would constitute a significant impact. Therefore, the Project would be required to implement Mitigation Measure GEO-1, which would ensure that impacts with respect to paleontological resources are less than significant.

Mitigation Measure

GEO-1 The Project Applicant shall implement the following best practices with respect to paleontology:

- **Retain a Qualified Professional Paleontologist:** The Project Applicant shall retain a Qualified Professional Paleontologist (Project Paleontologist), who meets or exceeds the SVP standards, to oversee all regulatory compliance measures and protocols related to paleontological resources.

- **Conduct Worker Training:** The Project Paleontologist should develop a Worker Environmental Awareness Program (WEAP) to train the construction crew on the legal requirements for preserving fossil resources, as well as the procedures to follow in the event of a fossil discovery. This training program would be given to the crew before ground-disturbing work commences and would include handouts to be given to new workers as needed.

- **Monitor for Paleontological Resources:** Ground disturbances greater than or equal to 3 feet below ground surface with the potential to impact late to middle Pleistocene old alluvial fan deposits (Qof) and/or late Miocene Modelo Formation (Tm) should be monitored full-time. Monitoring should be reduced or ceased once over-excavations into the underlying previously undisturbed deposits have been completed, or if Recent to late Holocene artificial fill (Qaf) is the only geologic units encountered during earthwork activities. Ground disturbances in previously disturbed sediments should not be monitored, regardless of depth.

  Monitoring should be conducted by a paleontological monitor who meets the standards of the SVP (2010) working under the supervision of the Project Paleontologist. The Project Paleontologist may periodically inspect construction activities to adjust the level of monitoring in response to subsurface conditions. In consultation with the lead agency and the Project Applicant, monitoring efforts can be increased, reduced, or ceased entirely if determined adequate by the Project Paleontologist. Paleontological monitoring should include inspection of exposed sedimentary units during active excavations within sensitive geologic sediments. The monitor should have authority to temporarily divert activity away from exposed fossils to evaluate the significance of the find and, should the fossils be determined significant, professionally and efficiently recover the fossil specimens and collect associated data. Paleontological monitors should record pertinent geologic data and collect appropriate sediment samples from any fossil localities.

- **Prepare a Paleontological Resources Monitoring Report:** Upon conclusion of ground-disturbing activities, the Project Paleontologist overseeing paleontological monitoring should prepare a final Paleontological Resources Monitoring Report

(PRMR) that documents the paleontological monitoring efforts for the Project and describes any paleontological resources discoveries observed and/or recorded during the life of the Project. If paleontological resources are curated, the final PRMR and any associated data pertinent to the curated specimen(s) should be submitted to the designated repository. A copy of the final PRMR should be filed with the lead agency.

Cumulative Impacts

Geotechnical impacts related to future development in the City involve site-specific soil conditions, erosion, and ground-shaking during earthquakes. The impacts on each site are specific to that site and its users and would not be in common or contribute to (or shared with, in an additive sense) the impacts on other sites. While no related projects have been identified within one-half mile of the Project Site, development on each site is subject to uniform site development as well as CBC and LABC construction standards that are designed to protect public safety. Like the Project, it is assumed that any other development projects would be required to comply with CBC and LABC construction standards and requirements. Impacts with respect to paleontological resources are also assessed on a site-by-site basis. All development in the City (including the Project and any other development projects) that includes ground-disturbing activities is required to adhere to existing State and City regulations and/or any required mitigation measures related to the discovery of paleontological resources. For these reasons, cumulative impacts related to geology and soils would be less than significant.

VIII. GREENHOUSE GAS EMISSIONS

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☒	☐
b. Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☒	☐

The analysis in this section is based on the following, which is included in Appendix B of this IS/MND:

- Air Quality and Greenhouse Gas Emissions Technical Modeling, Noah Tanski Environmental Consulting, May 2023.

Climate Change Background

Global climate change refers to changes in average climatic conditions on Earth as a whole, including changes in temperature, wind patterns, precipitation, and storms. Global warming, a related concept, is the observed increase in average temperature of Earth's surface and atmosphere. One identified cause of global warming is an increase of GHG emissions in the atmosphere. GHG emissions are those compounds in Earth's atmosphere that play a critical role in determining Earth's surface temperature.

Earth's natural warming process is known as the "greenhouse effect." It is called the greenhouse effect because Earth and the atmosphere surrounding it are similar to a greenhouse with glass panes in that the glass allows solar radiation (sunlight) into Earth's atmosphere but prevents radiative heat from escaping, thus warming Earth's atmosphere. Some levels of GHG emissions keep the average surface temperature of Earth close to a hospitable 60 degrees Fahrenheit. However, it is believed that excessive concentrations of anthropogenic GHG emissions in the atmosphere can result in increased global mean temperatures, with associated adverse climatic and ecological consequences.

GHG Emissions Background

GHG emissions include CO_2, methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulfur hexafluoride (SF_6), and nitrogen trifluoride (NF_3).[46] Carbon dioxide is the most abundant GHG. Other GHG emissions are less abundant but have greater global warming potential than CO_2. Thus, emissions of other GHGs are frequently expressed in their equivalent mass of CO_2, denoted as CO_2e. Forest fires, decomposition, industrial processes, landfills, and the consumption of fossil fuels for power generation, transportation, heating, and cooking are the primary sources of GHG emissions.

Regulatory Framework

There are any number of agreements, strategies, policies, regulations, and standards that relate to GHG emissions – from international climate accords to local climate action plans (CAPs). Below is a discussion of (1) the plans, policies, and regulations (collectively, the "Applicable GHG Regulations") that are fundamental to determining whether the Project would have a significant impact on GHG emissions, and (2) the existing conditions under the Applicable GHG Regulations.

State

The State legislature, executive office, and administrative agencies have promulgated several rules that govern GHG emissions. Below is a timeline thereof, followed by explanations of each:

- June 2005: Executive Order S-3-05 (EO S-3-05)
- September 2005: Assembly Bill 32 (AB 32) (codified EO S-3-05)
- August 2007: Senate Bill 97 (SB 97)
- September 2008: Senate Bill 375 (SB 375)
- December 2008: CARB adopts Climate Change Scoping Plan (the "AB 32 Scoping Plan")
- August 2011: CARB adopts Supplemental Functional Equivalent Document to the Climate Change Scoping Plan (the "Supplemental FED")
- May 2014: CARB adopts First Update to the Climate Change Scoping Plan: Building on the Framework (the "First Update")
- April 2015: Executive Order B-30-15 (EO B-30-15)
- September 2016: Senate Bill 32 (SB 32) (codified EO B-30-15)
- November 2017: CARB adopts the 2017 Climate Change Scoping Plan Update: The Strategy for Achieving California's 2030 Greenhouse Gas Target (the "2017 Scoping Plan")
- September 2018: Executive Order B-55-18 (EO B-55-18)
- September 2022: Assembly Bill 1297 (AB 1297) (codified EO B-55-18)

[46] As defined by California Assembly Bill (AB) 32 and Senate Bill (SB) 104.

- November 2022: CARB adopts the 2022 Scoping Plan for Achieving Carbon Neutrality (the "2022 Scoping Plan")

Other regulations would also have an indirect effect on the Project's GHG emissions. The Project's relation to the following regulations would not be determinative of its CEQA significance. Nevertheless, explanations of these regulations are also provided below for informational purposes:

- SB 350, the Clean Energy and Efficiency Act of 2015
- Cap-and-Trade Program

EO S-3-05

In June 2005, Governor Arnold Schwarzenegger signed EO-S-3-05, which had the goal of reducing the State's GHG emissions to 2000 levels by 2010, to 1990 levels by 2020, and to 80 percent below 1990 levels by 2050.

AB 32

In September 2005, Governor Arnold Schwarzenegger signed the California Global Warming Solutions Act of 2006, AB 32, into law. AB 32 committed the State to achieving the following:

- By 2010, reduce statewide GHG emissions to 2000 levels.[47]
- By 2020, reduce statewide GHG emissions to 1990 levels.

AB 32 required CARB to adopt rules and regulations that achieve the maximum technologically feasible and cost-effective GHG emissions reductions. The State achieved its 2020 GHG emissions target of returning to 1990 levels four years earlier than mandated by AB 32.

SB 97

Passed in August 2007, SB 97 required the State Office of Planning and Research (OPR) to prepare and develop CEQA guidelines for the effects and/or mitigation of GHG emissions, including effects associated with transportation and energy consumption. Subsequently, the Draft Guidelines Amendments for Greenhouse Gas Emissions (the "Guidelines Amendments") were adopted in December 2009 to address the specific obligations of public agencies when analyzing GHG emissions to determine a project's effect on the environment, as pursuant to CEQA.

The Guidelines Amendments do not provide thresholds of significance or any specific mitigation measures; rather, they require a lead agency to make a good-faith effort to describe, calculate, or estimate the amount of GHG emissions that would result from a project, to the extent possible based on scientific and factual data. The Guidelines Amendments give discretion to the lead

[47] The 2010 target to reduce GHG emissions to 2000 levels was not met.

agency whether to (1) use a model or methodology to quantify GHG emissions resulting from a project, and which model or methodology to use, or (2) rely on a qualitative analysis or performance-based standards. Additionally, three factors that should be considered in the evaluation of the significance of GHG emissions are identified:

(1) The extent to which a project may increase or reduce GHG emissions as compared to the existing environmental setting;

(2) Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project; and

(3) The extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions.

The administrative record for the Guidelines Amendments also clarifies "that the effects of greenhouse gas emissions are cumulative and should be analyzed in the context of CEQA's requirements for the cumulative impact analysis."[48]

The California Natural Resources Agency is required to periodically update the Guidelines Amendments to incorporate new information or criteria established by CARB pursuant to AB 32. SB 97 applies to any environmental impact report (EIR), negative declaration, mitigated negative declaration, or other document requirement by CEQA.

SB 375

In September 2008, Governor Schwarzenegger signed SB 375, the Sustainable Communities and Climate Protection Act of 2008, to align regional planning for housing and transportation with the GHG reduction goals outlined by AB 32. SB 375 requires each Metropolitan Planning Organization (MPO) to adopt a Sustainable Community Strategy (SCS) encouraging compact development that reduces passenger VMT and trips, all for the purpose of meeting CARB-determined regional GHG emissions reduction targets.

EO B-30-15

In April 2015, Governor Brown promulgated EO B-30-15, which had the goal of reducing the State's GHG emissions to 40 percent below 1990 levels by 2030 and 80 percent below 1990 levels by 2050.

[48] Letter from Cynthia Bryant, Director of the Governor's Office of Planning and Research, to Mike Chrisman, California Secretary for Natural Resources, dated 13 April 2009.

SB 32

Signed in September 2016 by Governor Jerry Brown, SB 32 updates AB 32 to include an emissions reduction goal for the year 2030. Specifically, SB 32 requires CARB to ensure that statewide GHG emissions are reduced to 40 percent below the 1990 level by 2030. New goals outlined in SB 32 update AB 32's scoping plan requirement and involve increasing renewable energy use, imposing tighter limits on the carbon content of gasoline and diesel fuel, putting more electric cars on the road, improving energy efficiency, and curbing emissions from key industries.

EO B-55-18

On September 10, 2018, Governor Jerry Brown issued EO B-55-18, which established a target for California to achieve carbon net neutrality by 2045. EO B-55-18 identifies the statewide goal to achieve and maintain carbon neutrality as soon as possible, and no later than 2045.

AB 1297

Governor Gavin Newsom codified the goals outlined in EO-B-55-18 in September 2022 when he signed AB 1279. It requires the state to reduce statewide anthropogenic GHG emissions to at least 85 percent below 1990 levels and to maintain net negative GHG emissions thereafter. AB 1279 tasks CARB with monitoring and regulating GHG emissions to achieve this goal. AB 1297 represents the State's latest – and most stringent – GHG reduction target.

SB 350

SB 350, signed October 7, 2015, is the Clean Energy and Pollution Reduction Act of 2015. The objectives of SB 350 are: (1) to increase the procurement of electricity from renewable resources from 33 percent to 50 percent by 2030, and (2) to double the energy efficiency savings in electricity and natural gas final end uses of retail customers through energy efficiency and conservation.[49]

Cap-and-Trade Program

The Scoping Plans identify the Cap-and-Trade Program as one of the strategies California will employ to reduce GHG emissions. Under Cap-and-Trade, an overall limit on GHG emissions from capped sectors is established, and facilities subject to the cap are able to trade permits to emit GHGs. CARB designed and adopted the California Cap-and-Trade Project pursuant to its authority under AB 32.

Climate Change Scoping Plans

The Scoping Plan is a GHG reduction roadmap developed and updated by CARB at least once every five years, as required by AB 32. It lays out the transformations needed across various

[49] Senate Bill 350 (2015-2016 Re. Session) Stats 2015, ch. 547.

sectors to reduce GHG emissions and reach the State's climate targets. CARB published the 2022 Scoping Plan Update in November 2022, as the third update to the initial plan that was adopted in 2008. The initial 2008 Scoping Plan laid out a path to achieve the AB 32 target of returning to 1990 levels of GHG emissions by 2020, a reduction of approximately 15 percent below business as usual activities. The 2008 Scoping Plan included a mix of incentives, regulations, and carbon pricing, laying out the portfolio approach to addressing climate change and clearly making the case for using multiple tools to meet California's GHG targets. The 2013 Scoping Plan Update (adopted in 2014) assessed progress toward achieving the 2020 target and made the case for addressing short-lived climate pollutants (SLCPs). The 2017 Scoping Plan Update shifted focus to the newer SB 32 goal of a 40 percent below 1990 levels by 2030 by laying out a detailed cost-effective and technologically feasible path to this target, and also assessed progress towards achieving the AB 32 goal of returning to 1990 GHG levels by 2020. The 2020 goal was ultimately reached in 2016, four years ahead of the schedule called for under AB 32.

The 2022 Scoping Plan is the most comprehensive and far-reaching Scoping Plan developed to date. It identifies a technologically feasible, cost-effective, and equity-focused path to achieve the aforementioned targets, while also assessing the progress California is making toward reducing its GHG emissions by at least 40 percent below 1990 levels by 2030, as called for in SB 32 and laid out in the 2017 Scoping Plan. The 2030 target is an interim but important stepping stone along the critical path to the broader goal of deep decarbonization by 2045. The relatively longer path assessed in the 2022 Scoping Plan incorporates, coordinates, and leverages many existing and ongoing efforts to reduce GHGs and air pollution, while identifying new clean technologies and energy. Given the focus on carbon neutrality, the 2022 Scoping Plan also includes discussion for the first time of the natural and working lands sectors as sources for both sequestration and carbon storage, and as sources of emissions as a result of wildfires.

Table VIII-1
Estimated Statewide GHG Emissions Reductions in the 2022 Scoping Plan

Emissions Scenario	GHG Emissions ($MMTCO_2e$)
2019	
2019 State GHG Emissions	404
2030	
2030 BAU Forecast	312
2030 GHG Emissions without Carbon Removal and Capture	233
2030 GHG Emissions with Carbon Removal and Capture	226
2030 Emissions Target Set by AB 32 (i.e., 1990 level by 2030)	260
Reduction below BAU necessary to achieve 1990 levels by 2030	52 (16.7%)[A]
2045	
2045 BAU Forecast	266
2045 GHG Emissions without Carbon Removal and Capture	72
2045 GHG Emissions with Carbon Removal and Capture	(3)
Notes:	

$MMTCO_2e$ = million metric tons of carbon dioxide equivalents; parenthetical numbers represent negative values.

[A] 312 – 260 = 52. 52 / 312 = 16.7%

Source: CARB, Final 2022 Climate Change Scoping Plan, November 2022.

The 2022 Scoping Plan Update reflects existing and recent direction in the Governor's Executive Orders and State Statutes, which identify policies, strategies, and regulations in support of and implementation of the Scoping Plan. Among these include Executive Order B-55-18 and AB 1279 (The California Climate Crisis Act), which identify the 2045 carbon neutrality and GHG reduction targets required for the Scoping Plan.

Table VIII-2 provides a summary of major climate legislation and executive orders issued since the adoption of the 2017 Scoping Plan.

Table VIII-2
Major Climate Legislation and Executive Orders Enacted Since the 2017 Scoping Plan

Bill/Executive Order	Summary
Assembly Bill 1279 (AB 1279) (Muratsuchi, Chapter 337, Statutes of 2022) *The California Climate Crisis Act*	AB 1279 establishes the policy of the state to achieve carbon neutrality as soon as possible, but no later than 2045; to maintain net negative GHG emissions thereafter; and to ensure that by 2045 statewide anthropogenic GHG emissions are reduced at least 85 percent below 1990 levels. The bill requires CARB to ensure that the Scoping Plan updates identify and recommend measures to achieve carbon neutrality, and to identify and implement policies and strategies that enable CO_2 removal solutions and carbon capture, utilization, and storage (CCUS) technologies. This bill is reflected directly in the 2022 Scoping Plan Update.
Senate Bill 905 (SB 905) (Caballero, Chapter 359, Statutes of 2022) *Carbon Capture, Removal, Utilization, and Storage Program*	SB 905 requires CARB to create the Carbon Capture, Removal, Utilization, and Storage Program to evaluate, demonstrate, and regulate CCUS and carbon dioxide removal (CDR) projects and technology. The bill requires CARB, on or before January 1, 2025, to adopt regulations creating a unified state permitting application for approval of CCUS and CDR projects. The bill also requires the Secretary of the Natural Resources Agency to publish a framework for governing agreements for two or more tracts of land overlying the same geologic storage reservoir for the purposes of a carbon sequestration project. The 2022 Scoping Plan Update modeling reflects both CCUS and CDR contributions to achieve carbon neutrality.
Senate Bill 846 (SB 846) (Dodd, Chapter 239, Statutes of 2022) *Diablo Canyon Powerplant: Extension of Operations*	SB 846 extends the Diablo Canyon Power Plant's sunset date by up to five additional years for each of its two units and seeks to make the nuclear power plant eligible for federal loans. The bill requires that the California Public Utilities Commission (CPUC) not include and disallow a load-serving entity from

Table VIII-2
Major Climate Legislation and Executive Orders Enacted Since the 2017 Scoping Plan

Bill/Executive Order	Summary
	including in their adopted resource plan, the energy, capacity, or any attribute from the Diablo Canyon power plant. The 2022 Scoping Plan Update explains the emissions impact of this legislation.
Senate Bill 1020 (SB 1020) (Laird, Chapter 361, Statutes of 2022) *Clean Energy, Jobs, and Affordability Act of 2022*	SB 1020 adds interim renewable energy and zero carbon energy retail sales of electricity targets to California end-use customers set at 90 percent in 2035 and 95 percent in 2040. It accelerates the timeline required to have 100 percent renewable energy and zero carbon energy procured to serve state agencies from the original target year of 2045 to 2035. This bill requires each state agency to individually achieve the 100 percent goal by 2035 with specified requirements. This bill requires the CPUC, California Energy Commission (CEC), and CARB, on or before December 1, 2023, and annually thereafter, to issue a joint reliability progress report that reviews system and local reliability. The bill also modifies the requirement for CARB to hold a portion of its Scoping Plan workshops in regions of the state with the most significant exposure to air pollutants by further specifying that this includes communities with minority populations or low-income communities in areas designated as being in extreme federal non-attainment. The 2022 Scoping Plan Update describes the implications of this legislation on emissions.
Senate Bill 1137 (SB 1137) (Gonzales, Chapter 365, Statutes of 2022) *Oil & Gas Operations: Location Restrictions: Notice of Intention: Health protection zone: Sensitive receptors*	SB 1137 prohibits the development of new oil and gas wells or infrastructure in health protection zones, as defined, except for purposes of public health and safety or other limited exceptions. The bill requires operators of existing oil and gas wells or infrastructure within health protection zones to undertake specified monitoring, public notice, and nuisance requirements. The bill requires CARB to consult and concur with the California Geologic Energy Management Division (CalGEM) on leak detection and repair plans for these facilities, adopt regulations as necessary to implement emission detection system standards, and collaborate with CalGEM on public access to emissions detection data.
Senate Bill 1075 (SB 1075) (Skinner, Chapter 363, Statutes of 2022) *Hydrogen: Green Hydrogen: Emissions of Greenhouse Gases*	SB 1075 requires CARB, by June 1, 2024, to prepare an evaluation that includes: policy recommendations regarding the use of hydrogen, and specifically the use of green hydrogen, in California; a description of strategies supporting hydrogen infrastructure, including identifying policies that promote the reduction of GHGs and short-lived climate pollutants; a description of other forms of hydrogen to achieve emission reductions; an analysis of curtailed electricity; an estimate of GHG and emission reductions that could be achieved through deployment of green hydrogen through a variety of scenarios; an analysis of the potential for opportunities to integrate hydrogen production and applications with drinking water supply

Table VIII-2
Major Climate Legislation and Executive Orders Enacted Since the 2017 Scoping Plan

Bill/Executive Order	Summary
	treatment needs; policy recommendations for regulatory and permitting processes associated with transmitting and distributing hydrogen from production sites to end uses; an analysis of the life-cycle GHG emissions from various forms of hydrogen production; and an analysis of air pollution and other environmental impacts from hydrogen distribution and end uses. This bill would inform the production of hydrogen at the scale called for in the 2022 Scoping Plan Update.
Assembly Bill 1757 (AB 1757) (Garcia, Chapter 341, Statutes of 2022) *California Global Warming Solutions Act of 2006: Climate Goal: Natural and Working Lands*	AB 1757 requires the California Natural Resources Agency (CNRA), in collaboration with CARB, other state agencies, and an expert advisory committee, to determine a range of targets for natural carbon sequestration, and for nature-based climate solutions, that reduce GHG emissions in 2030, 2038, and 2045 by January 1, 2024. These targets must support state goals to achieve carbon neutrality and foster climate adaptation and resilience. This bill also requires CARB to develop standard methods for state agencies to consistently track GHG emissions and reductions, carbon sequestration, and additional benefits from natural and working lands over time. These methods will account for GHG emissions reductions of CO2, methane, and nitrous oxide related to natural and working lands and the potential impacts of climate change on the ability to reduce GHG emissions and sequester carbon from natural and working lands, where feasible. This 2022 Scoping Plan Update describes the next steps and implications of this legislation for the natural and working lands sector.
Senate Bill 1206 (SB 1206) (Skinner, Chapter 884, Statutes of 2022) *Hydrofluorocarbon gases: sale or distribution*	SB 1206 mandates a stepped sales prohibition on newly produced high- global warming potential (GWP) HFCs to transition California's economy toward recycled and reclaimed HFCs for servicing existing HFC-based equipment. Additionally, SB 1206 also requires CARB to develop regulations to increase the adoption of very low-, i.e., GWP < 10, and no-GWP technologies in sectors that currently rely on higher-GWP HFCs.
Senate Bill 27 (SB 27) (Skinner, Chapter 237, Statutes of 2021) *Carbon Sequestration: State Goals: Natural and Working Lands: Registry of Projects*	SB 27 requires CNRA, in coordination with other state agencies, to establish the Natural and Working Lands Climate Smart Strategy by July 1, 2023. This bill also requires CARB to establish specified CO2 removal targets for 2030 and beyond as part of its Scoping Plan. Under SB 27, CNRA is to establish and maintain a registry to identify projects in the state that drive climate action on natural and working lands and are seeking funding. CNRA also must track carbon removal and GHG emission reduction benefits derived from projects funded through the registry.

Table VIII-2
Major Climate Legislation and Executive Orders Enacted Since the 2017 Scoping Plan

Bill/Executive Order	Summary
	This bill is reflected directly in the 2022 Scoping Plan Update as CO2 removal targets for 2030 and 2045 in support of carbon neutrality.
Senate Bill 596 (SB 596) (Becker, Chapter 246, Statutes of 2021) *Greenhouse Gases: Cement Sector: Net- zero Emissions Strategy*	SB 596 requires CARB, by July 1, 2023, to develop a comprehensive strategy for the state's cement sector to achieve net-zero-emissions of GHGs associated with cement used within the state as soon as possible, but no later than December 31, 2045. The bill establishes an interim target of 40 percent below the 2019 average GHG intensity of cement by December 31, 2035. Under SB 596, CARB must: • Define a metric for GHG intensity and establish a baseline from which to measure GHG intensity reductions. • Evaluate the feasibility of the 2035 interim target (40 percent reduction in GHG intensity) by July 1, 2028. • Coordinate and consult with other state agencies. • Prioritize actions that leverage state and federal incentives. • Evaluate measures to support market demand and financial incentives to encourage the production and use of cement with low GHG intensity. The 2022 Scoping Plan Update modeling is designed to achieve these outcomes.
Executive Order N-82-20	Governor Newsom signed Executive Order N-82-20 in October 2020 to combat the climate and biodiversity crises by setting a statewide goal to conserve at least 30 percent of California's land and coastal waters by 2030. The Executive Order also instructed the CNRA, in consultation with other state agencies, to develop a Natural and Working Lands Climate Smart Strategy that serves as a framework to advance the state's carbon neutrality goal and build climate resilience. In addition to setting a statewide conservation goal, the Executive Order directed CARB to update the target for natural and working lands in support of carbon neutrality as part of this Scoping Plan, and to take into consideration the NWL Climate Smart Strategy. CO2 Executive Order N-82-20 also calls on the CNRA, in consultation with other state agencies, to establish the California Biodiversity Collaborative (Collaborative). The Collaborative shall be made up of governmental partners, California Native American tribes, experts, business and community leaders, and other stakeholders from across the state. State agencies will consult the Collaborative on efforts to: • Establish a baseline assessment of California's biodiversity that builds upon existing data and can be updated over time. • Analyze and project the impact of climate change and other stressors in California's biodiversity.

Table VIII-2
Major Climate Legislation and Executive Orders Enacted Since the 2017 Scoping Plan

Bill/Executive Order	Summary
	• Inventory current biodiversity efforts across all sectors and highlight opportunities for additional action to preserve and enhance biodiversity. CNRA also is tasked with advancing efforts to conserve biodiversity through various actions, such as streamlining the state's process to approve and facilitate projects related to environmental restoration and land management. The California Department of Food and Agriculture (CDFA) is directed to advance efforts to conserve biodiversity through measures such as reinvigorating populations of pollinator insects, which restore biodiversity and improve agricultural production. The Natural and Working Lands Climate Smart Strategy informs the 2022 Scoping Plan Update.
Executive Order N-79-20	Governor Newsom signed Executive Order N-79-20 in September 2020 to establish targets for the transportation sector to support the state in its goal to achieve carbon neutrality by 2045. The targets established in this Executive Order are: • 100 percent of in-state sales of new passenger cars and trucks will be zero-emission by 2035. • 100 percent of medium- and heavy-duty vehicles will be zero-emission by 2045 for all operations where feasible, and by 2035 for drayage trucks. • 100 percent of off-road vehicles and equipment will be zero-emission by 2035 where feasible. The Executive Order also tasked CARB to develop and propose regulations that require increasing volumes of zero- electric passenger vehicles, medium- and heavy-duty vehicles, drayage trucks, and off-road vehicles toward their corresponding targets of 100 percent zero-emission by 2035 or 2045, as listed above. The 2022 Scoping Plan Update modeling reflects achieving these targets.
Executive Order N-19-19	Governor Newsom signed Executive Order N-19-19 in September 2019 to direct state government to redouble its efforts to reduce GHG emissions and mitigate the impacts of climate change while building a sustainable, inclusive economy. This Executive Order instructs the Department of Finance to create a Climate Investment Framework that: • Includes a proactive strategy for the state's pension funds that reflects the increased risks to the economy and physical environment due to climate change. • Provides a timeline and criteria to shift investments to companies and industry sectors with greater growth potential based on their focus of reducing carbon emissions and adapting to the impacts of climate change.

Table VIII-2
Major Climate Legislation and Executive Orders Enacted Since the 2017 Scoping Plan

Bill/Executive Order	Summary
	• Aligns with the fiduciary responsibilities of the California Public Employees' Retirement System, California State Teachers' Retirement System, and the University of California Retirement Program. Executive Order N-19-19 directs the State Transportation Agency to leverage more than $5 billion in annual state transportation spending to help reverse the trend of increased fuel consumption and reduce GHG emissions associated with the transportation sector. It also calls on the Department of General Services to leverage its management and ownership of the state's 19 million square feet in managed buildings, 51,000 vehicles, and other physical assets and goods to minimize state government's carbon footprint. Finally, it tasks CARB with accelerating progress toward California's goal of five million ZEV sales by 2030 by: • Developing new criteria for clean vehicle incentive programs to encourage manufacturers to produce clean, affordable cars. • Proposing new strategies to increase demand in the primary and secondary markets for ZEVs. • Considering strengthening existing regulations or adopting new ones to achieve the necessary GHG reductions from within the transportation sector. The 2022 Scoping Plan Update modeling reflects efforts to accelerate ZEV deployment.
Senate Bill 576 (SB 576) (Umberg, Chapter 374, Statutes of 2019) *Coastal Resources: Climate Ready Program and Coastal Climate Change Adaptation, Infrastructure and Readiness Program*	Sea level rise, combined with storm-driven waves, poses a direct risk to the state's coastal resources, including public and private real property and infrastructure. Rising marine waters threaten sensitive coastal areas, habitats, the survival of threatened and endangered species, beaches, other recreation areas, and urban waterfronts. SB 576 mandates that the Ocean Protection Council develop and implement a coastal climate adaptation, infrastructure, and readiness program to improve the climate change resiliency of California's coastal communities, infrastructure, and habitat. This bill also instructs the State Coastal Conservancy to administer the Climate Ready Program, which addresses the impacts and potential impacts of climate change on resources within the conservancy's jurisdiction.
Assembly Bill 65 (AB 65) (Petrie-Norris, Chapter 347, Statutes of 2019) *Coastal Protection: Climate Adaption: Project Prioritization: Natural Infrastructure: Local General Plans*	This bill requires the State Coastal Conservancy, when it allocates any funding appropriated pursuant to the California Drought, Water, Parks, Climate, Coastal Protection, and Outdoor Access For All Act of 2018, to prioritize projects that use natural infrastructure in coastal communities to help adapt to climate change. The bill requires the conservancy to provide information to the Office of Planning and Research on any projects funded pursuant to the above provision to be considered for inclusion into the clearinghouse for climate

Table VIII-2
Major Climate Legislation and Executive Orders Enacted Since the 2017 Scoping Plan

Bill/Executive Order	Summary
	adaptation information. The bill authorizes the conservancy to provide technical assistance to coastal communities to better assist them with their projects that use natural infrastructure.
Executive Order B-55-18	Governor Brown signed Executive Order B-55-18 in September 2018 to establish a statewide goal to achieve carbon neutrality as soon as possible, and no later than 2045, and to achieve and maintain net negative emissions thereafter. Policies and programs undertaken to achieve this goal shall: a. Seek to improve air quality and support the health and economic resiliency of urban and rural communities, particularly low-income and disadvantaged communities. b. Be implemented in a manner that supports climate adaptation and biodiversity, including protection of the state's water supply, water quality, and native plants and animals. This Executive Order also calls for CARB to: • Develop a framework for implementation and accounting that tracks progress toward this goal. • Ensure future Scoping Plans identify and recommend measures to achieve the carbon neutrality goal. The 2022 Scoping Plan Update is designed to achieve carbon neutrality no later than 2045 and the modeling includes technology and fuel transitions to achieve that outcome.
Senate Bill 100 (SB 100) (De León, Chapter 312, Statutes of 2018) *California Renewables Portfolio Standard Program: emissions of greenhouse gases*	Under SB 100, the CPUC, CEC, and CARB shall use programs under existing laws to achieve 100 percent clean electricity. The statute requires these agencies to issue a joint policy report on SB 100 every four years. The first of these reports was issued in 2021. The 2022 Scoping Plan Update reflects the SB 100 Core Scenario resource mix with a few minor updates.
Assembly Bill 2127 (AB 2127) (Ting, Chapter 365, Statutes of 2018) *Electric Vehicle Charging Infrastructure: Assessment*	This bill requires the CEC, working with CARB and the CPUC, to prepare and biennially update a statewide assessment of the electric vehicle charging infrastructure needed to support the levels of electric vehicle adoption required for the state to meet its goals of putting at least 5 million zero-emission vehicles on California roads by 2030 and of reducing emissions of GHGs to 40 percent below 1990 levels by 2030. The bill requires the CEC to regularly seek data and input from stakeholders relating to electric vehicle charging infrastructure. This bill supports the deployment of ZEVs as modeled in the 2022 Scoping Plan Update.
Senate Bill 30 (SB 30) (Lara, Chapter 614, Statutes of 2018)	This bill requires the Insurance Commissioner to convene a working group to identify, assess, and recommend risk transfer market mechanisms that, among other things, promote

Table VIII-2
Major Climate Legislation and Executive Orders Enacted Since the 2017 Scoping Plan

Bill/Executive Order	Summary
Insurance: Climate Change	investment in natural infrastructure to reduce the risks of climate change related to catastrophic events, create incentives for investment in natural infrastructure to reduce risks to communities, and provide mitigation incentives for private investment in natural lands to lessen exposure and reduce climate risks to public safety, property, utilities, and infrastructure. The bill requires the policies recommended to address specified questions.
Assembly Bill 2061 (AB 2061) (Frazier, Chapter 580, Statutes of 2018) *Near-zero-emission and Zero-emission Vehicles*	Existing state and federal law set specified limits on the total gross weight imposed on the highway by a vehicle with any group of two or more consecutive axles. Under existing federal law, the maximum gross vehicle weight of that vehicle may not exceed 82,000 pounds. AB 2061 authorizes a near-zero-emission vehicle or a zero-emission vehicle to exceed the weight limits on the power unit by up to 2,000 pounds. This bill supports the deployment of cleaner trucks as modeled in the 2022 Scoping Plan Update.

The 2022 Scoping Plan scenario identifies the need to accelerate AB 32's 2030 target, from 40 percent to 48 percent below 1990 levels. Cap-and-Trade regulation continues to play a large factor in the reduction of near-term emissions for meeting the 2030 reduction target. Every sector of the economy will need to begin to transition in this decade to meet these GHG reduction goals and achieve carbon neutrality no later than 2045. The 2022 Scoping Plan approaches decarbonization from two perspectives, managing a phasedown of existing energy sources and technologies, as well as increasing, developing, and deploying alternative clean energy sources and technology. The Scoping Plan scenario is summarized in Table 2-1 (starting on page 72) of the 2022 Scoping Plan. It includes references to relevant statutes and Executive Orders, although it is not comprehensive of all existing new authorities for directing or supporting the actions described. Table 2-1 identifies actions related to a variety of sectors such as: smart growth and reductions in VMT; light-duty vehicles (LDV) and zero-emission vehicles (ZEV); truck ZEVs; reduce fossil energy, emissions, and GHGs for aviation, ocean-going vessels, port operations, freight and passenger rail, oil and gas extraction; and petroleum refining; improvements in electricity generation; electrical appliances in new and existing residential and commercial buildings; electrification and emission reductions across industries such as for food products, construction equipment, chemicals and allied products, pulp and paper, stone/clay/glass/cement, other industrial manufacturing, and agriculture; retiring of combined heat and power facilities; low carbon fuels for transportation, business, and industry; improvements in non-combustion methane emissions, and introduction of low GWP refrigerants.

Achieving the targets described in the 2022 Scoping Plan will require continued commitment to and successful implementation of existing policies and programs, and identification of new policy tools and technical solutions to go further, faster. California's Legislature and state agencies will continue to collaborate to achieve the state's climate, clean air, equity, and broader economic and environmental protection goals. It will be necessary to maintain and strengthen this collaborative effort, and to draw upon the assistance of the federal government, regional and local governments, tribes, communities, academic institutions, and the private sector to achieve the state's near-term and longer-term emission reduction goals and a more equitable future for all Californians. The Scoping Plan acknowledges that the path forward is not dependent on one agency, one state, or even one country. However, the State can lead by engaging Californians and demonstrating how actions at the state, regional, and local levels of governments, as well as action at community and individual levels, can contribute to addressing the challenge.

Aligning local jurisdiction action with state-level priorities to tackle climate change and the outcomes called for in the 2022 Scoping Plan is identified as critical to achieving the statutory targets for 2030 and 2045. The 2022 Scoping Plan discusses the role of local governments in meeting the State's GHG reductions goals. Local governments have the primary authority to plan, zone, approve, and permit how and where land is developed to accommodate population growth, economic growth, and the changing needs of their jurisdictions. They also make critical decisions on how and when to deploy transportation infrastructure, and can choose to support transit, walking, bicycling, and neighborhoods that do not force people into cars. Local governments also have the option to adopt building ordinances that exceed statewide building code requirements and play a critical role in facilitating the rollout of ZEV infrastructure. As a result, local government decisions play a critical role in supporting state-level measures to contain the growth of GHG emissions associated with the transportation system and the built environment – the two largest GHG emissions sectors over which local governments have authority. The City has taken the initiative in combating climate change by developing programs and regulations such as:

- Green New Deal
- Green Building Code
- City of Los Angeles All-Electric Buildings
- General Plan Housing Element (Housing Needs Assessment)
- Mobility Plan 2035

These programs and regulations are discussed below under the section for local GHG regulatory framework.

Regional

2020-2045 Regional Transportation Plan/Sustainable Communities Strategy

In September 2008 Governor Arnold Schwarzenegger signed the Sustainable Communities and Climate Protection Act of 2008, also known as SB 375, to align regional planning for housing and transportation with the GHG emissions reduction goals outlined by AB 32. SB 375 requires each MPO to adopt an SCS encouraging compact development that reduces passenger VMT and trips, all for the purpose of meeting CARB-determined regional GHG emissions reduction targets.

SCAG is the regional planning agency for Los Angeles, Orange, Ventura, Riverside, San Bernardino, and Imperial Counties, and addresses regional issues relating to transportation, the economy, community development, and the environment. As the federally designated MPO for the six-county Southern California region, SCAG is required by law to ensure that transportation activities conform to, and are supportive of, regional and state air quality plan goals to attain NAAQS. SCAG is also a co-producer, with the SCAQMD, of the transportation strategy and transportation control measure sections of the Basin's AQMP.

CARB set GHG emissions reduction targets of 8 percent by 2020 and 19 percent by 2035 (compared with 2005 levels) for the SCAG region, effective as of October 1, 2018. Adopted on September 3, 2020, SCAG's long-range plan, the 2020-2045 RTP/SCS serves as the roadmap to fulfilling the region's compliance with these latest GHG reduction targets. To this end, the 2020-2045 RTP/SCS recognizes that transportation investments and future land use patterns are inextricably linked and acknowledges how this relationship can help the region make choices that sustain existing resources while expanding efficiency, mobility, and accessibility for people across the region.

The 2020-2045 RTP/SCS land use pattern continues the trend of focusing new housing and employment growth in the region's high quality transit areas (HQTAs) and aims to enhance and build out the region's transit network. At the time of the previous 2016-2040 RTP/SCS, HQTAs accounted for just 3 percent of total land in the SCAG region, but they are projected to accommodate 46 percent of the region's future household growth and 55 percent of the region's future employment growth by 2040.[50] HQTAs are a cornerstone of land use planning best practice in the SCAG region, and studies by the California Department of Transportation, the US Environmental Protection Agency (USEPA), and the Metropolitan Transportation Commission have found that focusing development in areas served by transit can result in local, regional, and statewide benefits including reduced air pollution and energy consumption. In addition, HQTAs concentrate roadway repair investments, leverage transit and active transportation investments, reduce regional life cycle infrastructure costs, improve accessibility, create local jobs, and have the potential to improve public health and housing affordability. As a result, HQTAs are vital to the

[50] SCAG, Final 2016-2040 RTP/SCS, April 2017. HQTAs are defined as areas within one-half mile of a fixed guideway transit stop or a bus transit corridor where buses pick up passengers at a frequency of every 15 minutes or less during peak commuting hours.

attainment of regional GHG emissions reduction targets: successful implementation of the 2020-2045 RTP/SCS would result in more complete communities with a variety of transportation and housing choices, reducing automobile use and, crucially, associated GHG emissions.

The SB 375 GHG reduction targets for the SCAG region correspond with reductions in regional VMT per capita. OPR has recommended that achieving 15 percent lower per capita (residential) or per employee (commercial) VMT than existing development is generally feasible and is supported by evidence that connects these reductions to the state's emissions goals.

South Coast Air Quality Management District CEQA Guidance

The City of Los Angeles is located in the South Coast Air Basin (Basin). The South Coast Air Quality Management District (SCAQMD) is responsible for air quality planning in the Basin and developing rules and regulations to bring the area into attainment of the ambient air quality standards. This is accomplished through air quality monitoring, evaluation, education, implementation of control measures to reduce emissions from stationary sources, permitting and inspection of pollution sources, enforcement of air quality regulations, and by supporting and implementing measures to reduce emissions from motor vehicles.

In 2008, SCAQMD released draft guidance regarding interim CEQA GHG significance thresholds.[51] A GHG Significance Threshold Working Group was formed to further evaluate potential GHG significance thresholds.[52] The SCAQMD proposed the use of a percent emission reduction target to determine significance for commercial/residential projects that emit greater than 3,000 $MTCO_2e$ per year. Under this proposal, commercial/residential projects that emit fewer than 3,000 $MTCO_2e$ per year would be assumed to have a less than significant impact on climate change. On December 5, 2008, the SCAQMD Governing Board adopted the staff proposal for an interim GHG significance threshold of 10,000 $MTCO_2e$ per year for stationary source/industrial projects where the SCAQMD is the lead agency. However, the SCAQMD has yet to adopt a GHG significance threshold for land use development projects (e.g., residential/commercial projects). The Working Group has been inactive since 2011, and SCAQMD has not formally adopted any GHG significance thresholds for other jurisdictions.

Local

City of Los Angeles Green New Deal

In 2007 the City addressed the issue of global climate change by releasing *Green LA, An Action Plan to Lead the Nation in Fighting Global Warming* ("LA Green Plan/Climate LA"). This document

[51] SCAQMD, Board Meeting, December 5, 2008. Agenda No. 31, http://www3.aqmd.gov/hb/2008/081231.a.thm. Accessed June 23, 2022.

[52] SCAQMD, Greenhouse Gases CEQA Significance Thresholds, http://www.aqmd.gov/home/regulations/ceqa/air-quality-analysis-handbook/ghg-significance-thresholds. Accessed June 23, 2022.

outlined various goals and actions that the City established to reduce the generation and emissions of GHGs from both public and private activities.

In April 2019, the City released the *Green New Deal* (also referred to as the *Sustainable City Plan 2019*). This program contains actions designed to create sustainability-based performance targets through 2050 that are themselves intended to advance economic, environmental, and equity objectives. It is the first four-year update to the City's first "Sustainable City pLAn" that was released in 2015. It augments, expands, and elaborates the City's vision for a sustainable future and tackles climate change with accelerated targets and new aggressive goals.

Though the *Green New Deal* is not a plan adopted solely to reduce GHG emissions, it lists "Climate Mitigation" (i.e., GHG reduction) as one of eight explicit benefits that help define its strategies and goals. Goals that are directly or indirectly linked to climate mitigation include:

- Reduce potable water use per capita by 22.5 percent by 2025; 25 percent by 2035; and maintain or reduce 2035 per capita water use through 2050.
- Reduce building energy use per square feet for all building types by 22 percent by 2025; 34 percent by 2035; and 44 percent by 2050 (from a baseline of 68mBTU/sf in 2015).
- All new buildings will be net zero carbon by 2030 and 100 percent of buildings will be net zero carbon by 2050.
- Increase cumulative new housing unit construction to 150,000 by 2025; and 275,000 units by 2035.
- Ensure 57 percent of new housing units are built within 1,500 feet of transit by 2025; 75 percent by 2050.
- Increase the percentage of all trips made by walking, biking, micro-mobility/matched rides, or transit to at least 35 percent by 2025, 50 percent by 2035, and maintain at least 50 percent by 2050.
- Reduce VMT per capita by at least 13 percent by 2025; 39 percent by 2035; and 45 percent by 2050.
- Increase the percentage of electric and zero emission vehicles in the city to 25 percent by 2025; 80 percent by 2035; and 100 percent by 2050.
- Increase landfill diversion rate to 90 percent by 2025; 95 percent by 2035; and 100 percent by 2050.

- Reduce municipal solid waste generation per capita by at least 15 percent by 2030, including phasing out single-use plastics by 2028 (from a baseline of 17.85 pounds of waste generated per capita per day in 2011).

- Eliminate organic waste going to landfills by 2028.

- Reduce the urban/rural temperature differential by at least 1.7 degrees by 2025; and 3 degrees by 2035.

- Ensure the proportion of Angelenos living within ½ mile of a park or open space is at least 65 percent by 2025; 75 percent by 2035; and 100 percent by 2050.

City of Los Angeles Green Building Code

In December 2019, the Los Angeles City Council approved Ordinance No. 186,488, which amended Chapter IX of the Los Angeles Municipal Code (LAMC), referred to as the Los Angeles Green Building Code, by adding a new Article 9 to incorporate various provisions of the 2019 CALGreen Code. Projects filed on or after January 1, 2020, must comply with the provisions of the Los Angeles Green Building Code.

City of Los Angeles All-Electric Buildings

Chapter IX of the LAMC requires that all new buildings be all-electric buildings, with few exceptions. Equipment typically powered by natural gas such as space heating, water heating, cooking appliances, and clothes drying would need to be powered by electricity for new construction. Exceptions are made for commercial restaurants, laboratories, and research and development uses. The LAMC is consistent with 2022 Title 24 goals of encouraging all-electric development which requires new residential uses to be electric-ready (wiring installed for all-electric appliances). Buildings in Los Angeles account for 43 percent of greenhouse gas emissions – more than any other sector in the City. These LAMC requirements ensure that new buildings being constructed are built to leverage the increasingly clean electric grid, which is anticipated to be carbon-free by 2035, rather than relying on fossil fuels.

City of Los Angeles General Plan Housing Element (Housing Needs Assessment)

The Housing Element of the City's General Plan is prepared pursuant to state law and provides planning guidance in meeting housing needs identified in the SCAG Regional Housing Needs Assessment (RHNA). The Housing Element identifies the City's housing conditions and needs, establishes the goals, objectives, and policies that are the foundation of the City's housing and growth strategy, and provides an array of programs the City intends to implement to create and preserve sustainable, mixed-income neighborhoods across the City.

The Housing Needs Assessment chapter of the Housing Element discusses the City's population and housing stock to identify housing needs for a variety of household types across the City. The

current RHNA goal for affordable housing within the City is approximately 40 percent of new construction. However, the City's projections show affordable housing comprising 20 percent of new construction, which falls short of the 40 percent RHNA goal. In order to address this shortfall in affordable housing, the Housing Element provides measures to streamline and incentivize development of affordable housing. Such measures include revising density bonuses for affordable housing; identifying locations which are ideal for funding programs to meet low-income housing goals; and rezoning areas to encourage low-income housing. With implementation of such measures to increase affordable housing, the Housing Element predicts a significant increase in housing production at all income ranges compared to previous cycles.

The Housing Element also promotes sustainability and resilience, and environmental justice through housing, as well as the need to reduce displacement. It encourages the utilization of alternatives to current parking standards that lower the cost of housing, support GHG and VMT goals and recognize the emergence of shared and alternative mobility. The Element also identifies housing strategies for energy conservation, water conservation, alternative energy sources and sustainable development which support conservation and reduce demand.

Mobility Plan 2035

In August 2015, the City Council adopted the Mobility Plan 2035, which serves as the City's General Plan circulation element. The City Council has adopted several amendments to the Mobility Plan since its initial adoption, including the most recent amendment in September 2016. The Mobility Plan incorporates "complete streets" principles and lays the foundation for how the City's residents interact with their streets. While the Mobility Plan 2035 mainly relates to transportation, certain components would serve to reduce VMT and mobile source GHG emissions. One component of the Mobility Plan is a GHG emission tracking program to establish compliance with SB 375, AB 32, and the region's Sustainable Community Strategy.

Existing Conditions

Existing Statewide GHG Emissions

CARB reports that in 2019, emissions from GHG emissions statewide were 404 $MMTCO_2e$, 27 $MMTCO_2e$ below the state's 2020 GHG limit of 431 $MMTCO_2e$. The transportation sector was the largest source of GHG emissions, accounting for approximately half of the state's GHG inventory when including upstream transportation emissions from the refinery and oil and gas industrial sectors. The commercial and residential sectors accounted for approximately 10 percent of GHG emissions. Agriculture accounted for approximately 8 percent, and electricity generation accounted for approximately 20 percent. Remaining emissions came from sectors such as non-transportation fuel-related industrial sources, recycling and waste management, and from high global warming potential gases.

In 2021, approximately 52 percent of electricity generation serving California came from renewable and zero-carbon resources (e.g., solar and wind).

Existing Project Site Emissions

The Main Campus site is currently improved with the existing high school and includes educational, athletic, performing arts, administrative, and religious facilities. The North Campus site is developed with a shopping center that contains a grocery store, restaurants, and other commercial uses, as well as surface parking for these uses. Existing GHG emissions related to these uses have been estimated for informational purposes. It is estimated that the high school generates approximately 3,563 $MTCO_2e$ of annual GHG emissions and that the North Campus existing uses generate approximately 3,847 $MTCO_2e$ of annual GHG emissions, for a combined total of 7,410 $MTCO_2e$ of annual GHG emissions.

Thresholds of Significance

The City has adopted the thresholds set forth in Appendix G of the CEQA Guidelines as project-specific thresholds of significance. Pursuant to the Appendix G thresholds, the Project would have a significant impact with respect to GHG emissions if it would:

a. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

b. Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

CEQA Guidelines Section 15064.4 recommends that lead agencies quantify GHG emissions of projects and consider several other factors that may be used in the determination of significant of GHG emissions from a project: the extent to which the project may increase or reduce GHG emissions; whether the project exceeds an applicable significant threshold; and the extent to which the project complies with regulations or requirements adopted to implement a reduction or mitigation of GHGs.

Section 15064.4 does not establish a threshold of significance. Lead agencies have the discretion to establish significance thresholds for their respective jurisdictions, and in establishing those thresholds, a lead agency may appropriately look to thresholds developed by other public agencies, or suggested by other experts, such as the California Air Pollution Control Officers Association (CAPCOA), as long as any threshold chosen is supported by substantial evidence (see CEQA Guidelines Section 15064.7(c)). The CEQA Guidelines also clarify that the effects of GHG emissions are cumulative and should be analyzed in the context of CEQA's requirements for cumulative impact analysis (see CEQA Guidelines Section 15130(f)). It is noted that the CEQA Guidelines were amended in response to SB 97. In particular, the CEQA Guidelines were amended to specify that compliance with a GHG emissions reduction plan renders a cumulative impact less than significant.

Per CEQA Guidelines Section 15064(h)(3), a project's incremental contribution to a cumulative impact can be found not cumulatively considerable if the project would comply with an approved

plan or mitigation program that provides specific requirements that would avoid or substantially lessen the cumulative problem within the geographic area of the project. To qualify, such plans or programs must be specified in law or adopted by the public agency with jurisdiction over the affected resources through a public review process to implement, interpret, or make specific the law enforced or administered by the public agency. Examples of such programs include a "water quality control plan, air quality attainment or maintenance plan, integrated waste management plan, habitat conservation plan, natural community conservation plans [and] plans or regulations for the reduction of GHG emissions." Put another way, CEQA Guidelines Section 15064(h)(3) allows a lead agency to make a finding of less than significant for GHG emissions if a project complies with adopted programs, plans, policies, and/or other regulatory strategies to reduce GHG emissions.[53]

In the absence of any applicable adopted numeric threshold, the significance of the Project's GHG emissions is evaluated consistent with CEQA Guidelines Section 15064.4(b) by considering whether the Project is consistent with applicable regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions. For this Project, as a land use development project, the most directly applicable adopted regulatory plan to reduce GHG emissions is the 2020-2045 RTP/SCS, which is designed to achieve regional GHG reductions from the land use and transportation sectors as required by SB 375 and the State's long-term climate goals. This analysis also considers qualitative consistency with regulations or requirements adopted by the 2022 Scoping Plan Update, as well as the City's Green New Deal.

SCAQMD Thresholds

SCAQMD has an interim GHG significance threshold of 10,000 $MTCO_2e$ per year for stationary source/industrial projects where SCAQMD is the lead agency. This SCAQMD interim GHG significance threshold is not applicable to the Project as the Project is not a stationary source or industrial project and the City of Los Angeles is the Lead Agency.

2006 L.A. CEQA Thresholds Guide

The *L.A. CEQA Thresholds Guide* does not identify any factors to evaluate GHG emissions impacts. Thus, the potential for the Project to result in impacts from GHG emissions is based on the Appendix G thresholds.

For the reasons set forth above, to answer both of the above Appendix G thresholds, the City will consider whether the Project is consistent with AB 1279 – the State's latest and most stringent

[53] See for example: San Joaquin Valley Air Pollution Control District, CEQA Determinations of Significance for Projects Subject to ARB's GHG Cap-and-Trade Regulation, APR – 2030 (June 25, 2014), in which the SJVAPCD "determined that GHG emissions increases that are covered under ARB's Cap-and-Trade regulation cannot constitute significant increases under CEQA…" Further, the SCAQMD has taken this position in CEQA documents it has produced as a lead agency. The SCAQMD has prepared three Negative Declarations and one Draft Environmental Impact Report that demonstrate the SCAQMD has applied its 10,000 $MTCO_2e$ per year significance threshold in such a way that GHG emissions covered by the Cap-and-Trade Program do not constitute emissions that must be measured against the threshold.

GHG reduction regulation – through demonstration of conformance with the 2020-2045 RTP/SCS, the 2022 Scoping Plan Update, and the Green New Deal.

Methodology

Amendments to CEQA Guidelines Section 15064.4 were adopted to assist lead agencies in determining the significance of the impacts of GHG emissions. Consistent with existing CEQA practice, Section 15064.4 gives lead agencies the discretion to determine whether to assess those emissions quantitatively or qualitatively. If a qualitative analysis is used, in addition to quantification, this section recommends certain qualitative factors that may be used in the determination of significance (i.e., the extent to which the project may increase or reduce GHG emissions compared to the existing environment; whether the project exceeds an applicable significance threshold; and the extent to which the project complies with regulations or requirements adopted to implement a reduction or mitigation of GHGs).

The City has not adopted a numerical significance threshold for assessing impacts related to GHG emissions and has not formally adopted a local plan for reducing GHG emissions. In addition, neither SCAQMD, OPR, CARB, CAPCOA, nor any other state or regional agency has adopted a numerical significance threshold for assessing GHG emissions that is applicable to the Project. Since there is no applicable adopted or accepted numerical threshold of significance for GHG emissions, the methodology for evaluating the Project's impacts related to GHG emissions focuses on its consistency with statewide, regional, and local plans adopted for the purpose of reducing and/or mitigating GHG emissions. This evaluation of consistency with such plans is the sole basis for determining the significance of the Project's GHG-related impacts on the environment.

For informational purposes, the analysis also estimates the amount of GHG emissions that would be attributable to the Project using recommended air quality models, as described below. The primary purpose of quantifying the Project's GHG emissions is to satisfy the State CEQA Guidelines Section 15064.4(a), which calls for a good-faith effort to describe and calculate emissions. However, the significance of the Project's GHG emissions impacts is not based on the amount of GHG emissions resulting from the Project.

Consistency with Plans

The Project's GHG impacts are evaluated by assessing the Project's consistency with applicable statewide, regional, and local GHG reduction strategies. As discussed previously, the Project will be evaluated for consistency with the 2020-2045 RTP/SCS, the 2022 Scoping Plan Update, and the Green New Deal.

OPR encourages lead agencies to make use of programmatic mitigation plans and programs from which to tier when they perform individual project analyses. On a statewide level, the 2022 Scoping Plan Update provides measures to achieve the State's GHG reduction targets. On a regional level, SCAG's 2020-2045 RTP/SCS contains measures to achieve VMT reductions (and

corresponding GHG reductions) required under SB 375. The City does not have a programmatic mitigation plan to tier from, such as a GHG Emissions Reduction Plan as recommended in the relevant amendments to the CEQA Guidelines. However, the City has the Green New Deal and Green Building Code that encourage and require applicable projects to implement energy efficiency measures. The Green New Deal is a mayoral initiative and not an adopted plan. However, it includes short-term and long-term aspirations pertaining to climate change. This analysis addresses consistency with the Green New Deal's strategies and goals. Thus, if the Project is designed in accordance with the 2020-2045 RTP/SCS, the 2022 Scoping Plan Update, and the Green New Deal, the Project would result in a less than significant impact, because it would be consistent with the overarching State regulations on GHG reduction (i.e., SB 375 for the 2020-2045 RTP/SCS and AB 1279 for the 2022 Scoping Plan Update). A consistency analysis is provided and describes the Project's compliance or conflict with performance-based standards included in the applicable portions of the 2020-2045 RTP/SCS, the 2022 Scoping Plan Update, and the Green New Deal.

2022 Scoping Plan Update

Appendix D, Local Actions, of the 2022 Scoping Plan Update includes "recommendations intended to building momentum for local government actions that align with the State's climate goals, with a focus on local GHG reduction strategies (commonly referred to as climate action planning) and approval of new land use development projects, including through environmental review under CEQA.

The State encourages local governments to adopt a CEQA-qualified CAP addressing the three priority areas (transportation electrification, VMT reduction, and building decarbonization). However, the State recognizes that almost 50 percent of jurisdictions do not have an adopted CAP, among other reasons because they are costly, requiring technical expertise, staffing, and funding. Additionally, CAPs need to be monitored and updated as State targets change and new data is available. Jurisdictions that wish to take meaningful climate action (such as preparing a non-CEQA qualified CAP or as individual measures) aligned with the State's climate goals in the absence of a CEQA-qualified CAP are advised to look to the three priority areas when developing local climate plans, measures, policies, and actions. According to Appendix D, "By prioritizing climate action in these three priority areas, local governments can address the largest sources of GHGs within their jurisdiction."

The State also recognizes in Appendix D, Local Actions, of the 2022 Scoping Plan that each community or local area has distinctive situations and local jurisdictions must balance the urgent need for housing while demonstrating that a project is in alignment with the State's climate goals. The State calls for the climate crisis and the housing crisis to be confronted simultaneously. Jurisdictions should avoid creating targets that are impossible to meet as a basis to determine significance. Ultimately, targets that make it more difficult to achieve statewide goals by prohibiting or complicating projects that are needed to support the State's climate goals, like infill development, low-income housing or solar arrays, are not consistent with the State's goals. The

State also recognizes the lead agencies' discretion to develop evidence-based approaches for determining whether a project would have a potentially significant impact on GHG emissions.

Quantification of Project GHG Emissions

The California Emissions Estimator Model (CalEEMod) is a statewide land use emissions computer model designed to provide a uniform platform for government agencies, land use planners, and environmental professionals to quantify potential criteria pollutant and GHG emissions associated with both construction and operations from a variety of land use projects. CalEEMod was developed in collaboration with the air districts of California, which provided data (e.g., emissions factors, trip lengths, meteorology, source inventory, etc.) to account for local requirements and conditions. The model is considered by the SCAQMD to be an accurate and comprehensive tool for quantifying air quality and GHG impacts from land use projects throughout California.

A fundamental difficulty in the analysis of GHG emissions is the global nature of existing and cumulative future conditions. Changes in GHG emissions can be difficult to attribute to a particular planning program or project because the planning effort or project may cause a shift in the locale for some type of GHG emissions, rather than causing "new" GHG emissions. As a result, there is frequently an inability to conclude whether a project's GHG emissions represent a net global increase, reduction, or no change in GHGs that would existing if the project were not implemented. For example, if a multi-family residential project replaces an existing supermarket, GHG emissions associated with the existing supermarket would not be totally eliminated because former patrons of the supermarket would still drive and get groceries somewhere else, which would continue to generate associated GHG emissions. GHG emissions associated with the new multi-family residential project would not be totally new, because many residents will have presumably moved there from other housing. Their GHG emissions would be shifted to their new housing, not created from thin air. But, if the new multi-family residential project has access to high quality transit and walkable destinations, then there is a strong likelihood that the residents' GHG per capita would be reduced on average by their move to the new project. Notwithstanding these complexities, the analysis of the Project's GHG emissions is conservative because it assumes all the Project's direct and indirect GHG emissions would be new additions to the atmosphere.

Construction

The Project's construction emissions were estimated using CalEEMod Version 2022. Details regarding modeling assumptions are provided in the appendix to this report. CalEEMod calculates emissions from sources such as off-road equipment usage and on-road vehicle travel associated with hauling, delivery, and construction worker trips. GHG emissions during construction were estimated based on the assumptions provided in the appendix. GHG emissions generated by the Project's construction activities reflect the types and quantities of construction equipment that would be used to demolish existing buildings, grade the Project Site, and construct the Project.

In accordance with the SCAQMD's guidance, GHG emissions from construction were amortized (i.e., averaged annually) over the lifetime of the Project, assumed to be 30 years. As impacts from construction activities occur over a relatively short-term period of time, they contribute a relatively small portion of the overall lifetime project GHG emissions. Additionally, GHG emission reductions measures for construction equipment are relatively limited. Therefore, the SCAQMD recommends that construction emissions be amortized over a 30-year project lifetime, so that any GHG reduction measures will address construction GHG emissions as part of operational GHG reduction strategies. Thus, total construction GHG emissions were divided by 30 and then added to the Project's annual operational GHG emissions inventory.

Operation

Similar to construction, CalEEMod Version 2022 was used to estimate potential direct and indirect GHG emissions generated by the Project's operations. Details regarding modeling assumptions are also provided in the appendix**.** The analysis addresses GHG emissions from the following sources:

- Area Sources: Emissions associated with the on-site use of powered equipment.
- Energy Sources: Emissions associated with a project's electricity and natural gas use for space heating and cooling, water heating, energy consumption, and lighting.
- Mobile Sources: Emissions associated with a project's related vehicle travel.
- Water/Wastewater Sources: Emissions associated with energy used to pump, convey, delivery, and treat water.
- Solid Waste Sources: Emissions associated with the disposal of solid waste into landfills.
- Refrigerant Sources: Emissions associated with fugitive GHG emissions associated with building air conditioning and refrigeration equipment.

Analysis of Project Impacts

The Appendix G thresholds questions concerning GHG emissions are addressed together in the following analysis:

a. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

b. Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

Plan Consistency

Less Than Significant Impact. As described above, compliance with applicable GHG emissions reduction plans would result in a less than significant Project-level and cumulative impact. The following section describes the extent the Project complies with or exceeds the performance-based standards included in the 2020-2045 RTP/SCS, the 2022 Scoping Plan Update, and the Green New Deal. As demonstrated below, the Project would be consistent with these applicable GHG reduction plans and policies, and its GHG impact would therefore be less than significant.

2020-2045 RTP/SCS

SCAG's latest 2020-2045 RTP/SCS (Connect SoCal) is expected to help the SCAG region, and in turn California, reach its latest GHG reduction goals. Implementation of the 2020-2045 RTP/SCS is projected to reduce per capita vehicle GHG emissions by 19 percent by 2035, thus enabling the region to fulfill its portion of SB 375 compliance. Implementation is also projected to reduce daily VMT per capita by 5 percent by 2045.

The 2020-2045 RTP/SCS has limited applicability to the Project, but the Project would aid in the attainment of its VMT-related GHG reduction goals by reducing overall traffic generation. While the Project would result in a net increase of 292 trips during the PM peak hour, with the elimination of the existing shopping center, the Project results in a reduction of 1,355 net trips per day, which would reduce VMT associated with the Project Site. In addition, Table VIII-3, below, provides a comparison of the Project against the GHG-related performance measures of the 2020-2045 RTP/SCS and confirms that the Project would not conflict with the applicable GHG-related policies.

Table VIII-3
Consistency with the 2020-2045 RTP/SCS

Objectives	Consistency Analysis[a]
Increase percentage of region's total household growth occurring within HQTAs.	**Not Applicable.** The Project includes the update and expansion of an existing high school, and would not result in any household growth. Therefore, this objective would not be applicable to the Project.
Increase percent of the region's total employment growth occurring within HQTAs.	**Not Applicable.** The Project does not include any employment growth. In fact, with demolition of the existing commercial structures, employment on the Project Site is decreased. Therefore, this objective would not be applicable to the Project.
Decrease total acreage of greenfield or otherwise rural land uses converted to urban use.	**Consistent.** The Project represents an infill development that would not be built on greenfield or rural land, thereby reducing the demand for sprawl development on greenfield or rural areas on the fringes of Southern California.
Decrease daily vehicle miles driven per person.	**Consistent.** While the Project would result in a net increase of 292 trips during the PM peak hour, with

Table VIII-3
Consistency with the 2020-2045 RTP/SCS

Objectives	Consistency Analysis[a]
	the elimination of the existing shopping center, the Project results in a reduction of 1,355 net trips per day, which would reduce VMT associated with the Project Site.
Decrease average daily distance traveled for work and non-work trips (in miles)	**Consistent.** The Project does not include any employment growth and therefore, the length of work trips would not change as a result of the Project. In addition, the Project does not propose any changes to student enrollment, and therefore, the average daily distance traveled by students would remain unchanged as a result of the Project. For other non-work trips, the Project would result in approximately 292 new PM peak hour trips as a result of the expanded swim program on the North Campus (although the Project as a whole would still result in the reduction of 1,355 daily trips when taking into account the removal of the existing shopping center). Some of the uses at the new pool allow for limited community use of the pool, for people residing within one mile of the Project Site. Therefore, the Project would likely decrease the distance traveled for these trips, based on the requirement that people live within a one-mile radius.
Increase percentage of work and non-work trips which are less than 3 miles in length.	**Consistent.** The Project does not include any employment growth and therefore, the length of work trips would not change as a result of the Project. In addition, the Project does not propose any changes to student enrollment, and therefore, the length of trips for students to reach the Project Site would remain unchanged as a result of the Project. For other non-work trips, the Project would result in approximately 292 new PM peak hour trips as a result of the expanded swim program on the North Campus (although the Project as a whole would still result in the reduction of 1,355 daily trips when taking into account the removal of the existing shopping center). Some of the uses at the new pool allow for limited community use of the pool, for people residing within one mile of the Project Site.

Table VIII-3
Consistency with the 2020-2045 RTP/SCS

Objectives	Consistency Analysis[a]
	Therefore, the Project would increase the percentage of non-work trips which are less than three miles in length.
Increase share of short trip lengths for commute purposes.	**Not Applicable.** The Project does not include any employment growth and the commutes for the existing employees would not change as a result of the Project. Therefore, this objective would not be applicable to the Project.
Increase percentage of trips that use transit (work and all trips)	**Consistent.** The Project does not include any employment or student growth, and as discussed in Section 3, Project Description, approximately 20% of the students arrive by school bus. The Project's location near existing transit, including Metro local bus routes 152, 162, 165, and 169 would help increase the potential that visitors to the Project Site would use transit to access the Project Site.
Decrease average travel time to work (all modes)	**Not Applicable.** The Project does not include any employment growth and the travel time for the existing employees would not change as a result of the Project. Therefore, this objective would not be applicable to the Project.
Increase percentage of trips using either walking or biking (by trip type)	**Consistent.** The new pedestrian bridge would allow for people to safely walk between the Main Campus and North Campus, rather than drive. The Project would also include 78 bicycle parking spaces to support student and staff biking.
Reduce per capita GHG emissions (from 2005 levels)	**Consistent.** The Project represents an infill development to expand and update an existing school campus that will reduce GHG emissions. With the elimination of the existing shopping center, the Project results in a reduction of 1,355 net trips per day, which would reduce VMT and associated GHG emissions associated with the Project Site. As such, it is consistent with AB 32, SB 32, SB 375, and other initiatives designed to reduce per capita GHG emissions from 2005 levels.
Increase percentage of trips using a travel mode other than single occupancy vehicle (SOV)	**Consistent.** The Project will continue to implement the existing school transportation program, which includes school buses and facilitation of carpooling for siblings and neighbors. The Project would also include 78 bicycle parking spaces to support student and staff use of bicycle transportation.

Table VIII-3
Consistency with the 2020-2045 RTP/SCS

Objectives	Consistency Analysis[a]
	In addition, the new pedestrian bridge would encourage walking by providing a safe pedestrian connection between the Main Campus and North Campus.
Objectives from Table 5.1, Connect SoCal Performance Measures & Results, of SCAG's 2020-2045 RTP/SCS.	

2022 Scoping Plan Update

As discussed previously, jurisdictions that want to take meaningful climate action should look to the following three priority areas: transportation electrification, VMT reduction, and building decarbonization. An assessment of the goals, plans, and policies implemented by the City which would support GHG reduction strategies in the three priority areas is provided below.

Transportation Electrification

The priority GHG reduction strategies for local government climate action related to transportation electrification are discussed below and would support the Scoping Plan action to have 100 percent of all new passenger vehicles be zero-emission by 2035.

- **Convert local government fleets to zero-emission vehicles (ZEV)**

CARB approved the Advanced Clean Cars II rule which codifies Executive Order N-79-20 and requires 100 percent of new cars and light trucks sold in California to be zero-emission vehicles by 2035. The State has also adopted AB 2127, which requires the CEC to analyze and examine charging needs to support California's EVs in 2030. This report would help decision-makers allocate resources to install new EV chargers where they are needed most.

The City of LA Green New Deal (Sustainable City pLAn 2019) identifies a number of measures to reduce VMT and associated GHG emissions. Such measures that would support the local reduction strategy include converting all city fleet vehicles to zero emission where technically feasible by 2028. Starting in 2021, all vehicle procurement followed a "zero emission first" policy for City fleets. The Green New Deal also establishes a target to increase the percentage of zero emission vehicles to 25 percent by 2025, 80 percent by 2035, and 100 percent by 2050. In order to achieve this goal, the City would build 20 Fast Charging Plazas throughout the City. The City would also install 28,000 publicly available chargers by 2028 to encourage adoption of ZEVs.

The City's goals of converting the municipal fleet to zero emissions and installation of EV chargers throughout the City would be consistent with the Scoping Plan goals of transitioning to EVs. Although this measure mainly applies to City fleets, the Project would not conflict with these goals. The Project would support transition to ZEVs through its inclusion of approximately 137 EV

spaces and 17 EV charging stations (EVCS), consistent with City of Los Angeles Green Building Code requirements.

- **Create a jurisdiction-specific ZEV ecosystem to support deployment of ZEVs statewide (such as building standards that exceed state building codes, permit streamlining, infrastructure siting, consumer education, preferential parking policies, and ZEV readiness plans.**

The State has adopted AB 1236 and AB 970, which require cities to adopt streamlined permitting procedures for EV charging stations. As a result, the City updated Section IX of the LAMC, which requires most new construction to designate 30 percent of new parking spaces as capable of supporting future electric vehicle supply equipment (EVSE). This would exceed the CALGreen 2022 requirements of 20 percent of new parking spaces as EV capable. The ordinance also requires new construction to install EVSE at 10 percent of total parking spaces. This requirement also exceeds the CALGreen 2022 requirements of installing EVSE for 25 percent of EV capable parking spaces which is approximately five percent of total parking spaces. The City has also implemented programs to increase the amount of EV charging on city streets, EV carshare, and incentive programs for apartments to be retrofitted with EV chargers.

The City's goals of installing EV chargers throughout the City would be consistent with the Scoping Plan's goals of transitioning to EVs. The Project would support this goal, as well. As noted, the Project would support transition to ZEVs through its inclusion of approximately 137 EV spaces and 17 EVCS, consistent with City of Los Angeles Green Building Code requirements.

VMT Reduction

The priority GHG reduction strategies for local government climate action related to VMT reduction are discussed below and would support the Scoping Plan action to reduce VMT per capita 25 percent below 2019 levels by 2030 and 30 percent below 2019 levels by 2045.

- **Reduce or eliminate minimum parking standards in new developments.**
- **Implement parking pricing or transportation demand management pricing strategies.**

The City of Los Angeles Mobility Plan 2035, which is the Transportation Element of the City's General Plan, contains measures and programs related to VMT reduction throughout the City. With regard to parking standards, the implementation of Mobility Plan Programs and AB 2097 reduce or eliminate parking requirements for certain types of development near transit (within half a mile). These reduction strategies and TDM programs would serve to reduce minimum parking standards and reduce vehicle trips through the City, but they would not apply to the Project. Nevertheless, the Project would not interfere with implementation of these strategies.

- **Implement Complete Streets policies and investments, consistent with general plan circulation element requirements.**

The City of Los Angeles Mobility Plan 2035 established a "Complete Streets" planning framework which resulted in the City of Los Angeles Complete Streets Design Guide in 2015, consistent with the State's Complete Streets Act of 2008. A supplemental update to the Complete Streets Design Guide was adopted in 2020.

The Complete Streets Design Guide provides a number of measures to increase public access to electric shuttles, car sharing, and other active transportation modes. The Design Guide establishes guidelines for establishing on-street parking for car sharing. The City has also established BlueLA, which is a car sharing network consisting of more than 100 electric vehicles located throughout the City. In addition, under the Green New Deal, the City would install 28,000 publicly available chargers by 2028 and introduce 135 new electric DASH buses.

The Project would not conflict with the City's Complete Streets policies and circulation strategies. The Project proposes the expansion of an existing high school, with no changes to student enrollment. The Project's net reduction of 1,355 daily vehicle trips would also lead to substantial reductions in site-related VMT.

- **Increase access to public transit by increasing density of development near transit, improving transit service by increasing service frequency, creating bus priority lanes, reducing or eliminating fares, microtransit, etc.**
- **Increase public access to clean mobility options by planning for and investing in electric shuttles, bike share, car share, and walking.**
- **Amend zoning or development codes to enable mixed-use, walkable, transit-oriented, and compact infill development (such as increasing the allowable density of a neighborhood).**
- **Preserve natural and working lands by implementing land use policies that guide development toward infill areas and do not convert "greenfield" land to urban uses (e.g., green belts, strategic conservation easements).**

These reduction strategies are supported through implementation of SB 375, which requires integration of planning processes for transportation, land-use and housing and generally encourages jobs/housing proximity, promote transit-oriented development, and encourages high-density residential/commercial development along transit corridors.

To implement SB 375 and reduce GHG emissions by correlating land use and transportation planning, SCAG adopted the 2020-2045 RTP/SCS, also referred to as Connect SoCal. The 2020-2045 RTP/SCS's "Core Vision" prioritizes the maintenance and management of the region's transportation network, expanding mobility choices by co-locating housing, jobs, and transit, and increasing investment in transit and complete streets.

On a local level, the City has developed the Complete Streets Design Guide, which provides a number of reduction strategies to increase public access to electric shuttles, car sharing and walking, continues to build out networks in the Mobility Plan for pedestrians, bicyclists, and transit users, has implemented an EV car sharing network, and is working towards increasing publicly available chargers, and introducing new electric DASH buses.

As explained, the Project would not conflict with the 2020-2045 RTP/SCS or the City's Complete Streets strategies.

Building Decarbonization

The priority GHG reduction strategies for local government climate action related to electrification are discussed below and would support the Scoping Plan actions regarding meeting increased demand for electrification without new fossil gas-fired resources and all electric appliances beginning in 2026 (residential) and 2029 (commercial).

- **Adopt all-electric new construction reach codes for residential and commercial uses.**

California's transition away from fossil fuel-based energy sources will bring the Project's GHG emissions associated with building energy use down to zero as the State's electric supply becomes 100 percent carbon free. California has committed to achieving this goal by 2045 through SB 100, the 100 Percent Clean Energy Act of 2018. SB 100 strengthened the State's RPS Standard by requiring that 60 percent of all electricity provided to retail users in California come from renewable sources by 2030 and that 100 percent come from carbon-free sources by 2045. The land use sector will benefit from RPS because the electricity used in buildings will be increasingly carbon-free, but implementation does not depend (directly, at least) on how buildings are designed and built.

The City has updated the LAMC with requirements for all new buildings, with some exceptions, to be all-electric, which will reduce GHG emissions related to natural gas combustion. Space heating, water heating, and cooking for non-restaurant uses would be required to be powered by electricity. In future years, LADWP will be required to increase the amount of renewable energy in the power mix to comply with SB 100 requirements. The combination of all-electric LAMC regulations and increasing availability of renewable energy will serve to reduce GHG emissions from sources traditionally powered by natural gas.

The Project would be required to comply with the City's LAMC for the new buildings and would not include natural gas uses in the new buildings except where allowable for laboratory and cafeteria/food stand uses.

- **Adopt policies and incentive programs to implement energy efficiency retrofits for existing buildings, such as weatherization, lighting upgrades, and replacing energy-**

intensive appliances and equipment with more efficient systems (such as Energy Star-rated equipment and equipment controllers).

This reduction strategy would support the Scoping Plan action regarding electrification of appliances in existing residential buildings. The City and LADWP have established rebate programs to promote use of energy-efficient products and home upgrades. Under LADWP's Consumer Rebate Program, residential customers would receive rebates for energy-efficient upgrades such as Cool Roofs, Energy Star Windows, HVAC upgrades, pool pumps and insulation upgrades. Such upgrades would serve to reduce wasteful energy and water use and associated GHG emissions. As part of the Project, the existing single-story buildings located at the southeast corner of the Main Campus would undergo renovation for administrative offices. This renovation would include upgrades to existing lighting and replacement of existing windows with more efficient systems.

Green New Deal

The Green New Deal provides information as to what the City will do with buildings and infrastructure in its control, and it provides aspirational targets related to housing and development, as well as mobility and transit, that are related to GHG reduction. For example, targets include reducing VMT per capita five percent by 2025 and increasing trips made by walking, biking, or transit 35 percent by 2025. The Green New Deal has also established increased renewables requirements for LADWP. Regarding housing, the Green New Deal aspires that 75 percent of new housing units are built within 1,500 feet of transit by 2035.

The Project would not conflict with the City's aspirational targets in the Green New Deal. The Project, which proposes the expansion of school facilities with no change in enrollment, would have no measurable effect on VMT per capita of employees, students, or other users, though it would result in a net reduction of 1,355 daily vehicle trips, which would reduce site-related VMT. Regarding energy use, the Project would be built according to the City's Green Building Code and would benefit from the Green New Deal's increased renewables targets for LADWP.

Consistency Analysis - Conclusion

In summary, the Project's location, land use characteristics, and design would not conflict with 2020-2045 RTP/SCS, 2022 Scoping Plan Update, and Green New Deal efforts and strategies to reduce GHG emissions in accordance with the latest and most stringent AB 1279 and SB 375 targets. As a result, the Project's impacts related to GHG emissions and climate change would be less than significant.

Project GHG Emissions

As discussed above, compliance with applicable GHG emissions reductions plans renders a Project's impact less than significant. In support of the consistency analysis provided above, the

following quantitative estimates of the Project's GHG emissions are provided. The Project would result in direct and indirect GHG emissions generated by the following emissions sources:

- Construction: emissions associated with construction-related equipment and vehicle use.
- Area Sources: emissions associated with the on-site use of powered equipment.
- Energy Sources: emissions associated with the Project's electricity and natural gas use for space heating and cooling, water heating, energy consumption, and lighting.
- Mobile Sources: emissions associated with the Project's related vehicle travel.
- Water/Wastewater: emissions associated with energy used to pump, convey, deliver, and treat water.

Construction

As described previously, the Project may not be fully implemented until 2035. GHG emissions associated with the Project's most intensive construction phases were modeled, which are as follows:

- North Campus – Demolition
- North Campus – Grading
- North Campus – Construction of new athletic fields and ancillary facilities
- North Campus – Construction of new pool facilities
- Main Campus – Classroom and parking lot demolition
- Main Campus – Multistory Building grading
- Main Campus – Multistory Building construction

As shown in Table VIII-4, these construction phases are estimated to generate approximately 1,164 $MTCO_2e$. The Project would also involve the construction of a pedestrian bridge connecting the North Campus to the Main Campus, construction of new surface parking lots on the North Campus, construction of a new upper level student quad on the Main Campus, renovation of a small surface parking lot along Cohasset Street, and campus-wide renovations to existing athletics facilities, classroom buildings, and administrative offices. For a number of reasons, these phases/activities would generate substantially less GHG emissions than the previously listed phases. For example, renovations to classroom buildings and administrative offices would utilize mostly hand tools and electric power tools. Paving activities for the new surface parking lots would not last more than several workdays at each site. None of these activities/phases would require a substantial number of haul trips. Notwithstanding, to ensure that the Project's estimated construction-related GHG emissions are not underestimated, the Project's modeled GHG emissions estimate has been increased 20% to reflect GHG emissions that may be generated by these activities/phases. This results in an estimated 1,397 $MTCO_2e$ of construction-related GHG emissions. As recommended by the SCAQMD, the total construction-related GHG emissions

were amortized over the 30-year lifetime of the Project (i.e., total construction GHG emissions were divided by 30 to determine an annual construction emissions estimate that can be added to the Project's annual operational emissions) in order to determine the Project's annual GHG emissions inventory.[54] This results in annual Project construction emissions of approximately 46.6 $MTCO_2e$.

Table VIII-4
Construction-Related GHG Emissions

Phase	Emissions ($MTCO_2e$)
North Campus – Demolition	110
North Campus – Grading	45
North Campus – Construction of Athletic Fields and Ancillary Facilities	35
North Campus – Construction of Pool Facilities	138
Main Campus – Classroom and Parking Lot Demolition	52
Main Campus – Multistory Building Grading	186
Main Campus – Multistory Building Construction	598
Subtotal:	1,164
20% Adjustment for Other Activities/Phases	233
Total	1,397
Amortized over 30 years	46.6
Source: Greenhouse Gas Technical Modeling, Noah Tanski Environmental Consulting (NTEC), May 2023, contained in Appendix B of this IS/MND.	

Operation

GHG emissions associated with the Project's major improvements were modeled to estimate the Project's GHG emissions from operations. The major improvements used in the modeling represent the largest sources of emissions from new facilities. Other campus improvements are renovations of existing facilities which will include upgraded and more energy efficient components. Therefore, the modeling accounted for:

- 69,254 new square feet of building area (Multistory Building, pool facilities, ancillary athletics buildings, etc.)
- 1.39 acres of new surface parking lot (North Campus surface parking lot, pool facility surface parking lot, renovated parking lot along Cohasset Street)
- 6,150 square foot new swimming pool

[54] SCAQMD Governing Board Agenda Item 31. December 5, 2008.

- 0.23 acres of new paved area
- New LED sports lighting

Table VIII-5 shows the Project's estimated GHG emissions from these improvements, including the Project's annualized construction-related GHG emissions. As shown, operation of the Project at buildout is estimated to result in approximately 1,430 $MTCO_2e$ per year.

Table VIII-5
Operations-Related GHG Emissions at Project Buildout

Source	Annual Emissions ($MTCO_2e$)
Area	1.53
Energy	246
Mobile	1,088
Solid Waste	39.0
Water/Wastewater	9.33
Construction	46.6
Total Emissions	1,430
Source: Greenhouse Gas Technical Modeling, Noah Tanski Environmental Consulting (NTEC), May 2023, contained in Appendix B of this IS/MND.	

Conclusion

The emission of GHGs by a single project into the atmosphere is not itself necessarily an adverse environmental effect. Rather, it is the increased accumulation of GHG from more than one project and many sources in the atmosphere that may result in global climate change. The consequences of that climate change can cause adverse environmental effects. A project's GHG emissions typically would be very small in comparison to state or global GHG emissions and, consequently, they would, in isolation, have no significant direct impact on climate change. The State has mandated goals of reducing statewide emissions to 1990 levels, even though statewide population and commerce is predicted to continue to expand. In order to achieve this goal, CARB has adopted various plans and regulations to reduce statewide GHG emissions.

Consistent with CEQA Guidelines Section 15064(h)(3), the City as Lead Agency has determined that the Project's contribution to cumulative GHG emissions and global climate change would be less than significant if the Project is consistent with the applicable regulatory plans and policies to reduce GHG emissions. Given the Project's consistency with the applicable plans, the Project would not conflict with any applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the emissions of GHGs. In the absence of adopted standards and established significance thresholds, and given this consistency, it is concluded that the Project's impacts are cumulatively less than significant.

IX. HAZARDS AND HAZARDOUS MATERIALS

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☒	☐
b. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☒	☐	☐
c. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☒	☐
d. Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☒	☐
e. For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?	☐	☐	☐	☒
f. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☒	☐
g. Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?	☐	☐	☐	☒

The analysis in this section is based in part on the following item, which is included as Appendix F of this IS/MND:

- Phase I Environmental Site Assessment and Limited Soil Vapor Survey, Dudek, January 2018.

a. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

Less Than Significant Impact. A significant impact may occur if a project would involve the use or disposal of hazardous materials as part of its routine operations or would have the potential to generate toxic or otherwise hazardous emissions that could adversely affect the public or the environment. Construction of the Project would not use a significant amount of hazardous materials, and the types of hazardous materials that would be used during construction of the Project would be typical of those hazardous materials necessary for construction of similar commercial buildings (e.g., paints, solvents, fuel for construction equipment, building materials, etc.). While construction of the Project would require the temporary transport, use, and disposal of hazardous waste, construction activities associated with the Project would be required to comply with all applicable federal, state, and local regulations governing such activities. As the Project would not use a significant amount of hazardous materials during construction, it would not create a significant hazard to the public or the environment, and this impact would be less than significant.

The Project includes the partial demolition of existing surface parking lots and classroom buildings from the Main Campus, and the demolition of the shopping center and associated surface parking from the North Campus, and then the construction of new school uses, including a new Multistory Building on the Main Campus and athletic fields, pool, and pool house on the North Campus. The types of hazardous materials that would be found on the Project Site during the Project's operational phase would be those typically associated with a school use – paints, cleaning supplies, and small amounts of petroleum products. Such use of these materials would be consistent with the use of these materials currently occurring on the Project Site. The use of these materials would comply with all applicable federal, state, and local regulations, which may include the Resource Conservation and Recovery Act, California Hazardous Waste Control Law, Federal and State Occupational Safety and Health Acts, SCAQMD rules, and permits and associated conditions issued by LADBS. Therefore, the Project would not require the routine transport, use, or disposal of hazardous materials that would create a significant hazard to the public or the environment, and this impact would be less than significant.

b. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?

Less Than Significant with Mitigation Incorporated. A significant impact may occur if a project could potentially pose a hazard to the public or the environment by releasing hazardous materials into the environment through accident or upset conditions. The following provides a summary of observations from the Phase I Environmental Site Assessment and Limited Soil Vapor Survey (Phase I and II ESA) prepared by Dudek, which is included in Appendix F of this IS/MND).

The Phase I ESA identified the following recognized environmental conditions (RECs) in connection with the Project Site:

- The long-term presence of a dry cleaner at the Project Site with known solvent releases;
- The known release of hydrocarbons to soil and groundwater from the adjacent gas station;
- Potential vapor intrusion concerns from the dry cleaner and adjacent former gas station; and
- Former agricultural use from before 1928 until sometime after 1959.

As a result of the identification of these RECs, a limited Phase II ESA was performed related to the dry cleaner, adjacent former gas station, and former agricultural use of the Project Site. The results of the limited Phase II ESA are included in Appendix F of this IS/MND, and based on these results, the shallow perchloroethylene (PCE)-impacted soil vapor shall be remediated to mitigate potential vapor intrusion risk. This remediation is formally required as Mitigation Measure HAZ-1, provided below. With implementation of Mitigation Measure HAZ-1, Project impacts with respect to vapor intrusion would be less than significant. The results of the limited Phase II ESA also indicate that the former agricultural use of the Project Site is unlikely to present a risk to human health and is therefore considered to be de minimis.

The existing buildings were built between 1962 and 1964. Therefore, there is the potential for asbestos-containing materials (ACM) to be in the building materials. ACMs, which are carcinogenic and can cause lung disease, are derived from naturally occurring fibrous minerals that have been mined for their useful properties in built structures, such as thermal insulation, chemical and thermal stability, and high tensile strength. When left intact and undisturbed, these materials do not pose a health risk to building occupants. There is, however, a potential for exposure when the material becomes damaged to the extent that asbestos fibers become airborne and are inhaled. The principal federal government agencies that regulate asbestos exposure at the Occupational Safety and Health Administration (OSHA) and the US EPA, both of which began regulating asbestos exposure in the early 1970s. Additional regulation and oversight is provided by the SCAQMD.

Removal of asbestos in a building is not unusual and can be readily accomplished. In accordance with existing City, State, and federal rules and regulations, including the federal EPA's National Emission Standards for Hazardous Air Pollutants (NESHAP) regulation (40 Code of Federal Regulations 61 Subpart M), the federal regulations under the Occupational Safety and Health Act (29 Code of Federal Regulations Section 1926.1101) California Occupational Safety and Health Administration (CAL-OSHA) regulations (California Code of Regulations, title 8, Sections 341.15, 1529), and SCAQMD Rule 1403, all materials, which are identified as ACM, would be removed by a trained and licensed asbestos abatement contractor. Generally, asbestos removal is a low risk operation. When following asbestos-related regulations, the possibility of exposure to airborne asbestos fibers from asbestos removal projects is limited. The removal and disposal of ACMs

from the Project Site in accordance with existing regulations would ensure that the Project would not create a significant hazard to the public or the environment through accident or upset conditions, and the Project's impact would be less than significant.

As the existing buildings were constructed between 1962 and 1964, it is likely that they also contain lead-based paint (LBP). Demolition of the existing buildings could therefore release LBP present in the structures. In order to ensure minimal exposure to sensitive receptors and workers, LBP found in the buildings would be removed and disposed of as recommended by a qualified Department of Health Services lead consultant and in accordance with applicable federal, State, and City regulations, including the federal regulations under the Occupational Safety and Health Act (29 Code of Federal Regulations Section 1926 et seq.), CAL-OSHA regulations (California Code of Regulations, title 8, Sections 1532.1 and 35001 *et seq.*). The removal and disposal of LBP from the Project Site in accordance with existing regulations would ensure that the Project would not create a significant hazard to the public or the environment through accident or upset conditions, and the Project's impact would be less than significant.

Mitigation Measure

HAZ-1 Prior to the issuance of a grading permit, the shallow PCE-impacted soil vapor shall be remediated using soil vapor extraction (SVE) as the primary means of remediation. An SVE remediation system shall be installed consisting of 17 vapor extraction wells. Each vapor extraction well would have a 10-foot screened interval, from five to 15 feet below ground surface, and the wells would be connected to the SVE unit via sub-grade PVC-piping. The soil vapor shall be remediated to the satisfaction of the Los Angeles Fire Department and the Department of Building and Safety.

c. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

Less Than Significant Impact. A significant adverse effect may occur if a project site is located within one-quarter mile of an existing or proposed school site and is projected to release toxic emissions which pose a health hazard beyond regulatory thresholds. Pomelo Community Charter School is located approximately one-quarter mile west of the Main Campus and Justice Street Academy Charter School is located approximately one-quarter mile north of the North Campus. The types of hazardous materials that would be used during construction of the Project would be typical of those hazardous materials necessary for construction (e.g., paints, solvents, fuel for construction equipment, building materials, etc.), which could emit hazardous emissions. However, the use of these materials would comply with all applicable federal, state, and local regulations. In addition, there are intervening structures and roadways between the schools and the Project Site, and the distance between the Project Site and the nearest schools would ensure that the Project's use of these materials would not pose a hazard to these schools.

While the Project would be operational during school hours as it is also a school, to the extent that the Project would require the use of hazardous materials, such use would be in accordance

with existing local, state, and federal regulations. In addition, there are intervening structures and roadways between the schools and the Project Site. Therefore, the Project would not pose a significant risk involving the routine transport, use, and disposal of hazardous materials or the accidental release of hazardous materials, and impacts associated with the emission of hazardous materials near an existing or proposed school would be less than significant.

d. Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?

Less Than Significant Impact. California Government Code Section 65962.5 requires various state agencies, including but not limited to, the Department of Toxic Substances Control (DTSC) and SWRCB, to compile lists of hazardous waste disposal facilities, unauthorized releases from underground storage tanks, contaminated drinking water wells and solid waste facilities where there is known migration of hazardous waste and submit such information to the Secretary for Environmental Protection on at least an annual basis, commonly referred to as the "Cortese List." A significant impact may occur if a project site is included on any of the above lists and poses an environmental hazard to surrounding sensitive uses. According to the Phase I ESA (included in Appendix F of this IS/MND), the Project Site does not appear on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5, and therefore, this impact would be less than significant.

e. For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?

No Impact. A significant impact may occur if a project is located within an airport land use plan, or within two miles of a public airport or public use airport, and would subject people residing or working in the area to a safety hazard or excessive noise levels. The Project Site is not located within an airport land use plan or within two miles of a public airport or public use airport. Thus, implementation of the Project would not have the potential to exacerbate current environmental conditions as to result in a safety hazard or excessive noise for people residing or working in the area of the Project Site, and no impact would occur.

f. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

Less Than Significant Impact. A significant impact may occur if a project were to interfere with roadway operations used in conjunction with an emergency response plan or emergency evacuation plan or would generate traffic congestion that would interfere with the execution of such a plan. While it is expected that the majority of construction activities for the Project would be confined to the Project Site, temporary and limited off-site construction activities may occur in adjacent street rights-of-way during certain periods of the day, which could potentially affect emergency access adjacent to the Project Site. Access to the Project Site and surrounding area

during construction of the Project would be maintained in accordance with standard construction management plans that would be implemented to ensure adequate circulation and emergency access (Mitigation Measure TRANS-1 provides the requirement for a Construction Traffic Management Plan). Furthermore, prior to the issuance of a building permit, the Project Applicant would be required by the Los Angeles Fire Department (LAFD) and the Department of Building and Safety to develop an emergency response plan for the Project in consultation with the LAFD and the Los Angeles Department of Transportation (LADOT). The emergency response plan shall include but not be limited to the following: mapping of emergency exits, evacuation routes for vehicles and pedestrians, location of nearest hospitals, and fire departments. Preparation and implementation of the Project-specific emergency response plan as required by City regulations would ensure that Project impacts related to emergency response would be less than significant.

g. Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?

No Impact. A significant impact may occur if a project is located in proximity to wildland areas and poses a potential fire hazard, which could affect persons or structures in the area in the event of a fire. The Project Site is not located in a Very High Fire Hazard Severity Zone.[55] Therefore, no impact regarding this topic would occur.

Cumulative Impacts

The geographic extent of the Project's environmental impacts is limited to the Project Site and would not contribute to any other potential environmental impact that may occur beyond the Project Site boundaries. In addition, no related projects have been identified within one-half mile of the Project Site. As stated previously, the Project would not result in any significant impacts related to hazards and hazardous materials. Therefore, cumulative impacts related to hazards and hazardous materials would be less than significant.

[55] City of Los Angeles, ZIMAS Parcel Profile Report, website: http://zimas.lacity.org, June 12, 2023.

X. HYDROLOGY AND WATER QUALITY

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a. Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	☐	☐	☒	☐
b. Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	☐	☐	☒	☐
c. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:				
i. Result in substantial erosion or siltation on- or off-site;	☐	☐	☒	☐
ii. Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site;	☐	☐	☒	☐
iii. Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or	☐	☐	☒	☐
iv. Impede or redirect flood flows?	☐	☐	☐	☒
d. In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	☐	☐	☐	☒
e. Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	☐	☐	☐	☒

a. Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?

Less Than Significant Impact. A significant impact may occur if a project discharges water which does not meet the quality standards of agencies that regulate surface water quality and water discharge into stormwater drainage systems. Significant impacts would also occur if a project does not comply with all applicable regulations with regard to surface water quality as governed

by the State Water Resources Control Board (SWRCB). During construction of the Project, particularly during the grading and excavation phases, stormwater runoff from precipitation events could cause exposed and stockpiled soils to be subject to erosion and convey sediments into municipal storm drain systems. In addition, on-site watering activities to reduce airborne dust could contribute to pollutant loading in runoff. Pollutant discharges relating to the storage, handling, use and disposal of chemicals, adhesives, coatings, lubricants, and fuel could also occur. Thus, a significant impact could occur if a project discharges water that does not meet the quality standards of agencies that regulate surface water quality and water discharge into storm water drainage systems or would not comply with all applicable regulations as governed by the Los Angeles Regional Water Quality Control Board (LARWQCB).

The Project would be required to comply with the NPDES General Construction Permit, which satisfies the LARWQCB water quality standards, including the preparation of a SWPPP and implementation of BMPs, required to minimize soil erosion and sedimentation from entering the storm drains during the construction period. In addition, the Project would be subject to the City's Stormwater and Urban Runoff Pollution Control regulations (Ordinance No. 172,176 and No. 173,494) to ensure pollutant loads from the Project Site would be minimized for downstream receiving waters. Compliance with the NPDES and implementation of the SWPPP and BMPs, as well as the City's discharge requirements, would ensure that the Project complies with the LARWQCB standards and therefore that construction stormwater runoff would not violate water quality and/or discharge requirements.

Stormwater runoff generated during operation of the Project has the potential to introduce small amounts of pollutants (e.g., typical commercial cleaning products, landscaping pesticides, and vehicle petroleum products) into the stormwater system. Stormwater runoff from precipitation events could carry urban pollutants into municipal storm drains. However, during operation, the Project would be required to comply with the City's Low Impact Development (LID) Ordinance. The LID Ordinance applies to all development and redevelopment projects in the City that require a building permit. LID plans are required to include a site design approach and BMPs that address runoff and pollution at the source. Further, to comply with LID Ordinance, the Project would be required to capture and treat the first 3/4-inch of rainfall in accordance with established stormwater treatment protocols. Regulatory compliance with the LID Ordinance would reduce the amount of surface water runoff leaving the Project Site as compared to the current conditions. Regulatory compliance with the LID Plan and Standard Urban Stormwater Mitigation Plan (SUSMP), including the implementation of BMPs, would ensure that operation of the Project would not violate water quality standard and discharge requirements or otherwise substantially degrade water quality.

Compliance with these regulations would ensure construction and operational activities of the Project would not violate water quality standards, waste discharge requirements, or otherwise substantially degrade water quality, and Project impacts related to water quality would be less than significant.

b. Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?

Less Than Significant Impact. A significant impact may occur if a project includes deep excavations resulting in the potential to interfere with groundwater movement or includes withdrawal of groundwater or paving of existing permeable surfaces important to groundwater recharge. During a storm event, stormwater runoff flows to the adjacent roadways where it is directed into the City's storm drain system. As such, the Project Site is not a source of groundwater recharge. Following redevelopment of the Project Site, groundwater recharge would remain negligible, similar to existing conditions.

According to the Geotechnical Investigation conducted for the Project Site (refer to Appendix E-1 of this IS/MND), based on the reported historic high groundwater levels in the Project Site vicinity, the depth to groundwater encountered in the borings advanced as part of the Geotechnical Investigation, and the depth of proposed construction, static groundwater is not expected to be encountered during construction or to have a detrimental effect on the Project.[56] Therefore, it is not likely that any temporary dewatering would be required during construction. Finally, all water consumption associated with the Project would be supplied by LADWP and not from any groundwater beneath the Project Site. Thus, Project impacts with respect to groundwater would be less than significant.

c. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:

i. Result in substantial erosion or siltation on- or off-site;

Less Than Significant Impact. A significant impact may occur if a project results in a substantial alteration of drainage patterns that would result in a substantial increase in erosion or siltation. The Project Site is located in an urbanized area of the City, and there are no natural watercourses on the Project Site. The North Campus is currently developed with a shopping center and associated surface parking lot, and is almost entirely impervious. The Project would increase the amount of pervious surface on the North Campus as a new soccer and baseball field would be constructed on the North Campus. Current stormwater runoff flows to the local storm drain system. Under the post-Project condition, the Project Site would contain more pervious surface, based on the changes to the North Campus site. In addition, the Project Applicant would be required to prepare a SWPPP and implement BMPs to reduce runoff and preserve water quality during construction of the Project. While grading and construction activities may temporarily alter the existing drainage patterns of the Project Site, BMPs would be implemented to minimize soil erosion impacts during Project grading and construction activities. In addition, the Project

[56] Geotechnical Investigation, Geocon West, January 12, 2023, page 6.

Applicant would be required to implement a LID Plan (during operation), which would reduce the amount of surface water runoff leaving the Project Site after a storm event. Specifically, the LID Plan would require the implementation of stormwater BMPs to retain or treat the runoff from a storm event producing 3/4-inch of rainfall in a 24-hour period. Therefore, the Project would not result in substantial erosion or siltation on- or off-site, impacts would be less than significant.

ii. Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site;

Less Than Significant Impact. A significant impact may occur if a project results in increased runoff volumes during construction or operation of the project that would result in flooding conditions affecting the Project Site or nearby properties. Grading and construction activities on the Project Site may temporarily alter the existing drainage patterns and change off-site flows. However, construction and operation of the Project would not result in a significant increase in site runoff or any changes in the local drainage patterns that would result in flooding on- or off-site. The North Campus is currently developed with a shopping center and associated surface parking lot, and is almost entirely impervious. The Project would increase the amount of pervious surface on the North Campus as a new soccer and baseball field would be constructed on the North Campus. The Project would also be required to prepare a SWPPP and implement BMPs to reduce runoff and preserve water quality during construction of the Project. Regulatory compliance with the LID Ordinance would also reduce the amount of surface water runoff leaving the Project Site as compared to the current conditions. Project impacts would therefore be less than significant.

iii. Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or

Less Than Significant Impact. A significant impact may occur if a project would increase the volume of stormwater runoff to a level that exceeds the capacity of the storm drain system serving the Project Site, or if a project would substantially increase the probability that polluted runoff would reach storm drains. Runoff from the Project Site flows to the adjacent roadways where it is directed into the City's storm drain system. Three general sources of potential short-term construction-related stormwater pollution associated with the Project are: 1) the handling, storage, and disposal of construction materials containing pollutants; 2) the maintenance and operation of construction equipment; and 3) earth moving activities which, when not controlled, may generate soil erosion and transportation, via storm runoff or mechanical equipment. Pursuant to City policy, stormwater retention would be required as part of the LID/SUSMP implementation features (despite an increase in pervious surfaces on the North Campus). Any contaminants gathered during routine cleaning of construction equipment would be disposed of in compliance with applicable stormwater pollution prevention permits. During construction, the Applicant will be required to demonstrate compliance with NPDES permitting, and will implement all applicable and mandatory BMPs in accordance with the approved LID Plan and the SWPPP. These "good-

housekeeping" practices would ensure that short-term construction-related activities would not result in polluted stormwater leaving the site.

Pollutants resulting from Project operation, including petroleum products associated with the Project's parking and circulation areas, would be subject to the requirements and water quality standards and wastewater discharge BMPs set forth by the City, the SWRCB, and the Project's approved LID Plan. Further, the Project would be required to comply with the NPDES and applicable LID Ordinance requirements. Accordingly, the Project would be required to demonstrate compliance with LID Ordinance standards and retain or treat the first three-quarters inch of rainfall in a 24-hour period. Thus, the Project would not create or contribute surface runoff that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff. Therefore, Project impacts related to storm drain capacity and water quality would be less than significant.

iv. Impede or redirect flood flows?

No Impact. The Project Site is not located near any bodies of water, rivers, or streams that are subject to flooding. Thus, the Project would not have the potential to impede or redirect flood flows and no impact related to this issue would occur.

d. In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?

No Impact. A seiche is an oscillation of a body of water in an enclosed or semi-enclosed basin, such as a reservoir, harbor, lake, or storage tank. A tsunami is a great sea wave, commonly referred to as a tidal wave, produced by a significant disturbance undersea, such as a tectonic displacement of sea floor associated with large, shallow earthquakes. Mudflows occur as a result of downslope movement of soil and/or rock under the influence of gravity. The Project Site is not located within a 100-year flood zone, as mapped by the Federal Emergency Management Agency (FEMA, Flood Insurance Rate Map number 06037C1275F).[57] Further, the City of Los Angeles 2018 Local Hazard Mitigation Plan does not map the Project Site as being located within an area potentially affected by a tsunami.[58] Therefore, the Project would not expose people or structures to a significant risk of loss, injury, or death involving inundation by seiche, tsunami, or mudflow, and no impact would occur.

e. Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

Less Than Significant Impact. The Project is within the jurisdiction of the LARWQCB, and grading, excavation, and other construction activities associated with the implementation of the

[57] FEMA Flood Map Service Center, Search by Address, website: https://msc.fema.gov/portal/search#searchresultsanchor, accessed June 14, 2023.

[58] City of Los Angeles, 2018 Local Hazard Mitigation Plan, Figures 12-1 and 12-2.

Project could impact water quality due to erosion resulting from exposed soils that may be transported from the Project Site in stormwater runoff. Compliance with the NPDES program would ensure that stormwater pollutants would not substantially degrade water quality. Further, the Project would be required to comply with the City's SUSMP requirements. Compliance with these regulations would ensure that Project impacts with respect to a water quality control plan or groundwater management plan would be less than significant.

Cumulative Impacts

The Project would be located in an urbanized area where most of the surrounding properties are already developed. The existing storm drainage system serving this area has been designed to accommodate runoff from an urban built-out environment. Although no related projects have been identified within one-half mile of the Project Site, when new construction occurs, it generally does not lead to substantial additional runoff, since new developments are required to control the amount and quality of stormwater runoff coming from their respective sites. All new development in the City, such as the Project and any other development projects, is required to comply with the City's LID Ordinance and incorporate appropriate stormwater pollution control measures into the design plans to ensure that water quality impacts are minimized. Therefore, cumulative impacts related to hydrology and water quality would be less than significant.

XI. LAND USE AND PLANNING

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a. Physically divide an established community?	☐	☐	☐	☒
b. Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☒	☐

a. Physically divide an established community?

No Impact. A significant impact may occur if a project is sufficiently large enough or otherwise configured in such a way as to create a physical barrier within an established community (a typical example would be a project which involved a continuous right-of-way such as a roadway which would divide a community and impede access between parts of the community). The Project Site is located in an urbanized area of the City. The Main Campus site has been developed with the existing high school for over six decades. The North Campus site has been developed with a commercial shopping center. The Project includes the expansion of the existing school to include the North Campus site, to provide additional athletic and parking facilities to serve the existing student population. Overall, the Project would be compatible with and complement the existing uses in the surrounding area and would not be of a density, scale, or height to constitute a physical barrier separating an established community. Thus, no impact would occur.

b. Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?

Less Than Significant Impact. A project is considered consistent with the provisions and general policies of an applicable City or regional land use plans and regulations if it is consistent with the overall intent of the plans and would not preclude the attainment of its primary goals.[59] More specifically, according to the ruling in *Sequoyah Hills Homeowners Association v. City of Oakland*, state law does not require an exact match between a project and the applicable general plan. Rather, to be "consistent," the project must be "compatible with the objectives, policies, general land uses, and programs specified in the applicable plan," meaning that a project must be in "agreement or harmony" with the applicable land use plan to be consistent with that plan.

Various local and regional plans and regulatory documents guide development of the Project Site. The following discussion addresses the Project's consistency with the requirements and policies

[59] Sequoyah Hills Homeowners Association v. City of Oakland (1993) 23 Cal.App.4th 704, 719.

of SCAG's RTP/SCS, the City's General Plan (including the Framework Element), the Canoga Park – Winnetka – Woodland Hills – West Hills Community Plan, and the LAMC, to the extent that various goals, objectives, and policies of these plans have been adopted for the purpose of avoiding or mitigating an environmental effect.

As discussed below, the Project would be substantially consistent with all of the applicable plans, policies, and regulations adopted for the purpose of avoiding or mitigating an environmental effect associated with development of the Project Site. Therefore, Project impacts related to land use and planning would be less than significant, as further described below.

Regional

SCAG's 2020-2045 RTP/SCS

SB 375 requires MPOs such as SCAG to revise and update their RTPs and SCS' periodically. On September 3, 2020, SCAG's Regional Council formally adopted the 2020-2045 RTP/SCS (also known as Connect SoCal). The 2020-2045 RTP/SCS is a long-range visioning plan that builds upon and expands land use and transportation strategies established over several planning cycles to increase mobility options and achieve a more sustainable growth pattern. It charts a path toward a more mobile, sustainable, and prosperous region by making connections between transportation networks, between planning strategies and between the people whose collaboration can improve the quality of life for Southern Californians.

The 2020-2045 RTP/SCS outlines more than $638 billion in transportation system investments through 2045 and was prepared through a collaborative, continuous, and comprehensive process with input from local governments, county transportation commissions, tribal governments, non-profit organizations, businesses and local stakeholders within the counties of Imperial, Los Angeles, Orange, Riverside, San Bernardino and Ventura. The 2020-2045 RTP/SCS includes strategies for accommodating projected population, household, and employment growth in the SCAG region by 2045 as well as a transportation investment strategy for the region. These land use strategies are directly tied to supporting related GHG emissions reductions through increasing transportation choices with a reduced dependence on automobiles and an increase growth in walkable, mixed-use communities and HQTAs and by encouraging growth near destinations and mobility options, promoting diverse housing choices, leveraging technology innovations, supporting implementation of sustainability policies, and promoting a green region.

Project Consistency Discussion

As discussed on Table XI-1, the Project would be substantially consistent with the goals and principles contained in the 2020-2045 RTP/SCS.

Table XI-1
Project Consistency with the 2020-2045 RTP/SCS

Goals and Guiding Principles	Consistency Assessment
Goal 1 Encourage regional economic prosperity and global competitiveness.	**Not Applicable.** This goal is directed towards SCAG and the City and does not apply to the Project.
Goal 2 Improve mobility, accessibility, reliability, and travel safety for people and goods.	**Consistent.** The Project Site is located in an urbanized area of the City and involves the expansion and upgrade of an existing high school. The Project improves vehicular and pedestrian circulation with new access points and a pedestrian bridge. The Project also would be subject to the site plan review requirements of the City and would be required to coordinate with LADOT, the Department of Building and Safety and the Los Angeles Fire Department to ensure that all access points, driveways, and parking areas would not create a design hazard to local roadways. Therefore, the Project would allow for mobility, accessibility, reliability, and travel safety for people and goods.
Goal 3 Enhance the preservation, security, and resilience of the regional transportation system.	**Not Applicable.** This goal is directed toward SCAG and other jurisdictions that are responsible for developing, maintaining, and improving the regional transportation system.
Goal 4 Increase person and goods movement and travel choices within the transportation system.	**Consistent.** The Project includes the expansion and upgrade of an existing high school. With the removal of the existing uses on the North Campus, the Project would result in a net reduction of 1,355 daily trips and therefore would contribute to significant reductions in VMT. In addition, the Project would provide approximately 137 EV spaces and 17 EVCS, as well as 78 bicycle parking spaces.
Goal 5 Reduce greenhouse gas emissions and improve air quality.	**Consistent.** The Project would result in a net reduction of 1,355 daily trips and therefore would contribute to significant reductions in VMT and associated GHG and other pollutant emissions.
Goal 6 Support healthy and equitable communities.	**Consistent.** The Project includes development of additional recreational facilities, including a baseball/soccer field and pool, which would be made available on a limited basis to the community. In addition, the Project would result in a net reduction of 1,355 daily trips and therefore would contribute to significant reductions in VMT and associated GHG and other pollutant emissions.
Goal 7 Adapt to a changing climate and support an integrated regional development pattern and transportation network.	**Consistent.** The Project would result in a net reduction of 1,355 daily trips and therefore would contribute to significant reductions in VMT and associated mobile-source GHG emissions. In addition, the Project would provide approximately

Table XI-1
Project Consistency with the 2020-2045 RTP/SCS

Goals and Guiding Principles	Consistency Assessment
	137 EV spaces and 17 EVCS, as well as 78 bicycle parking spaces.
Goal 8 Leverage new transportation technologies and data-driven solutions that result in more efficient travel.	**Not Applicable.** This goal is directed toward SCAG and other jurisdictions that are responsible for developing, maintaining, and improving the regional transportation system.
Goal 10 Promote conservation of natural and agricultural lands and restoration of habitats.	**Consistent.** The Project is an infill development on a previously fully developed site that would not affect any natural or agricultural lands or restoration of habitats.
Guiding Principle 1 Base transportation investments on adopted regional performance indicators and MAP-21/FAST Act regional targets.	**Not Applicable.** This principle is directed toward SCAG and other jurisdictions/agencies that are responsible for developing, maintaining, and improving the regional transportation system.
Guiding Principle 2 Place high priority for transportation funding in the region on projects and programs that improve mobility, accessibility, reliability and safety, and that preserve the existing transportation system.	**Not Applicable.** This principle is directed toward SCAG and other jurisdictions/agencies that are responsible for developing, maintaining, and improving the regional transportation system.
Guiding Principle 3 Assure that land use and growth strategies recognize local input, promote sustainable transportation options, and support equitable and adaptable communities.	**Not Applicable.** This principle is directed toward SCAG and other jurisdictions/agencies that are responsible for developing and implementing growth strategies.
Guiding Principle 4 Encourage RTP/SCS investments and strategies that collectively result in reduced non-recurrent congestion and demand for single occupancy vehicle use, by leveraging new transportation technologies and expanding travel choices.	**Not Applicable.** This principle is directed toward SCAG and other jurisdictions/agencies that are responsible for developing, maintaining, and improving the regional transportation system.
Guiding Principle 5 Encourage transportation investments that will result in improved air quality and public health, and reduced greenhouse gas emissions.	**Not Applicable.** This principle is directed toward SCAG and other jurisdictions/agencies that have control over transportation investments.
Guiding Principle 6 Monitor progress on all aspects of the Plan, including the timely implementation of projects, programs, and strategies.	**Not Applicable.** This principle is directed toward SCAG that has the responsibility of monitoring the progress of Connect SoCal.
Guiding Principle 7 Regionally, transportation investments should reflect best-known science regarding climate change vulnerability, in order to design for long term resilience.	**Not Applicable.** This principle is directed toward SCAG and other jurisdictions/agencies that have control over transportation investments.
Source: 2020-2045 RTP/SCS.	

Local

City of Los Angeles General Plan

The City's General Plan, adopted December 1996 and re-adopted August 2001, provides general guidance on land use issues for the entire City. The General Plan consists of a Framework Element (including chapters pertaining to Land Use and Urban Form and Neighborhood Design), a Land Use Element (comprising 35 community plans prepared for distinct geographic areas of the City), and 10 Citywide elements.

Framework Element

The Framework Element of the General Plan serves as guide for the City's overall long-range growth and development policies and serves as a guide to update the community plans and the Citywide elements. The Citywide elements address functional topics that cross community boundaries, such as transportation, and address these topics in more detail than is appropriate in the Framework Element, which is the "umbrella document" that provides the direction and vision necessary to bring cohesion to the City's overall general plan. The Framework Element provides a conceptual relationship between land use and transportation and provides guidance for future updates to the various elements of the General Plan but does not supersede the more detailed community and specific plans. The Land Use chapter of the Framework Element contains Long Range Land Use Diagrams that depict the generalized distribution of centers, districts, and mixed-use boulevards throughout the City, but the community plans determine the specific land use designations. The Land Use Element of the General Plan is contained within 35 community plans. The Project Site is located in the Canoga Park – Winnetka – Woodland Hills – West Hills Community Plan (Community Plan) Area, discussed further below.

Project Consistency Analysis

As discussed on Table XI-2, the Project would be substantially consistent with policies contained in the Framework Element.

Table XI-2
Project Consistency with Applicable Policies of the Framework Element

Objective	Project Consistency
Framework Element: Land Use Chapter	
Goal 3A A physically balanced distribution of land uses that contributes towards and facilitates the • City's long-term fiscal and economic viability, • Revitalization of economically depressed areas, • Conservation of existing residential neighborhoods, • Equitable distribution of public resources, • Conservation of natural resources, • Provision of adequate infrastructure and public services, • Reduction of traffic congestion and improvement of air quality, • Enhancement of recreation and open space opportunities, • Assurance of environmental justice and a healthful living environment, and • Achievement of the vision for a more livable city.	**Consistent.** The Project includes the expansion and upgrade of an existing high school. The school is an educational resource that serves the community. The new North Campus would replace an existing shopping center and will provide additional sports facilities with a swimming pool available on a limited basis to the community. In addition, the improvements to the Main Campus would modernize the existing facilities. Finally, the Project would result in a net reduction of 1,355 daily trips and therefore would contribute to significant reductions in VMT and associated GHG and other pollutant emissions.
Objective 3.2 Provide for the spatial distribution of development that promotes an improved quality of life by facilitating a reduction of vehicular trips, vehicle miles traveled, and air pollution.	**Consistent.** The Project would result in a net reduction of 1,355 daily trips and therefore would contribute to significant reductions in VMT.
Framework Element: Urban Form & Neighborhood Design Chapter	
Policy 5.4.1 Encourage the design of existing and new schools for multiple functions, including, but not limited to, the following: a. Design of school yards to be used as parks accessible to the surrounding neighborhoods; b. Design of school libraries to be used as community libraries, where feasible; and c. Design of school auditoriums to be used as community meeting rooms.	**Consistent.** This policy is aimed at public schools. However, the existing private high school currently allows the community to utilize certain school facilities. It is anticipated that the new facilities included in the Project, including the swimming pool, will also be available on a limited basis to the local community.
Framework Element: Open Space and Conservation Chapter	
Policy 6.4.11 Seek opportunities to site open space adjacent to existing public facilities, such as schools, and encourage the establishment of mutually beneficial development agreements that make privately-owned open space accessible to the public. For example, encourage the improvement of scattered small open spaces for public access in private projects with small branch libraries, child care centers, or decentralized schools.	**Consistent.** The existing private high school currently allows the community to utilize certain school facilities. It is anticipated that the new facilities included in the Project, including the swimming pool, will also be available on a limited basis to the local community.

Table XI-2
Project Consistency with Applicable Policies of the Framework Element

Objective	Project Consistency
Framework Element: Infrastructure and Public Services Chapter	
Objective 9.33 Maximize the use of local schools for community use and local open space and parks for school use.	**Consistent.** This policy is aimed at public schools. However, the existing private high school currently allows the community to utilize certain school facilities. It is anticipated that the new facilities included in the Project, including the swimming pool, will also be available on a limited basis to the local community.
Source: City of Los Angeles General Plan Framework Element.	

Canoga Park – Winnetka – Woodland Hills – West Hills Community Plan

The Community Plan is one of 35 Community Plans established for different areas of the City that are intended to implement the policies of the General Plan Framework. Together, the plans make up the Land Use Element of the General Plan. The Community Plan is intended to promote an arrangement of land uses, streets, and services, which will encourage and contribute to the economic, social, and physical health, safety, and welfare of the people who live and work in the community. The Community Plan is also intended to guide development in order to create a healthful and pleasing environment. The community plans coordinate development among the various communities of Los Angeles and adjacent municipalities in a fashion both beneficial and desirable to the residents of the community.

Project Consistency Discussion

The Canoga Park – Winnetka – Woodland Hills – West Hills Community Plan objectives and guidelines related to school uses are:

- Policy 6.1.1: Explore creative alternatives for providing new school sites in the City, where appropriate.
- Objective 6.2: Maximize the use of local schools for community use and local open space and parks for school use.
- Policy 6.2.1: Encourage the siting of community facilities (libraries, parks, schools, and auditoriums) together.

The Project would be substantially consistent with these objectives and policies contained in the Community Plan. Specifically, the Project Applicant has the opportunity to expand the existing private high school facilities to a property located across the street (North Campus), to provide additional recreational and athletic programming opportunities and options for its students, in addition to additional surface parking, in close proximity to the existing campus (Main Campus). The Main Campus is also located in very close to Four Oaks Park, which is located across

Cohasset Street, to the south. The close proximity of the Main Campus to the proposed new North Campus and to Four Oaks Park allows for the Project to implement the objective to site community facilities together.

The Project would allow the expansion of an existing school in a residential neighborhood, following and keeping with the current land use pattern while expanding athletic and parking facilities. In addition, the existing private high school currently allows the community to utilize certain school facilities. It is anticipated that the new facilities included in the Project, including the swimming pool, will also be available on a limited basis to the local community. For these reasons, the Project substantially conforms with the purposes, intent, and provisions of the General Plan and the applicable community plan (Canoga Park – Winnetka – Woodland Hills – West Hills Community Plan).

City of Los Angeles Zoning Code

Use

The Main Campus is within the A1-1 and RS-1 zones, and the North Campus is currently located in the [Q]C1-1VL and P-1VL zones. The Applicant is proposing a Vesting Zone Change and Height District Change on the North Campus to the C2-1 zone. The proposed C2 zone corresponds to the existing Neighborhood Commercial land use designation of the North Campus and by re-zoning it entirely to C2-1, it eliminates the outdated “footprint” zoning. In addition, the private school use is permitted by-right within the C2 zone. Approval of the Zone Change would allow the existing high school, which has been operating at its current location for over six decades, to integrate additional area for athletic facilities that are needed to serve the existing student population.

Floor Area

The update and expansion of the high school would result in a total proposed floor area of approximately 196,468 square feet, representing a net increase of 28,556 square feet of floor area on the Main Campus (from the existing developed structures). Overall, however, the Project would result in a net decrease of approximately 14,229 square feet of floor area, including the demolition of the existing commercial structures on the site of the new North Campus as well as demolition of existing school structures on the Main Campus. It is important to note that although the physical expansion would result in a net increase of lot area with the addition of the 4.83-acre North Campus, the maximum permitted student enrollment of 1,360 students per the current Conditional Use Permit (CUP) would remain the same. Furthermore, the current CUP permits a maximum floor area of 203,896 square feet on the Main Campus, which is more than the approximately 196,458 square feet of total floor area proposed at Project completion (including the Main and North Campuses as well as the pedestrian bridge).

Cumulative Impacts

Given the built-out conditions of the greater Los Angeles region, including the Project area, cumulative development likely would convert existing underutilized properties in the Los Angeles area to revitalized higher-density developments to respond to the need for housing, sources of employment, and associated retail land uses. As discussed previously, no related projects have been identified within one-half mile of the Project Site. Nevertheless, like the Project, any other development projects would be subject to the same City development standards and requirements. As discussed above, the Project's impacts with respect to land use and planning would be less than significant, and cumulative impacts would also be less than significant.

XII. MINERAL RESOURCES

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a. Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☒
b. Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	☐	☐	☐	☒

a. Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?

No Impact. A significant impact may occur if the Project Site is located in an area used or available for extraction of a regionally-important mineral resource, or if the Project would convert an existing or future regionally-important mineral extraction use to another use, or if the Project would affect access to a site used or potentially available for regionally-important mineral resource extraction. The Project Site is not located in a City-designated Mineral Resource Zone 2 Area (MRZ-2). Therefore, the Project would have no impact with respect to the loss of availability of a known regionally-important mineral resource, and no impact would occur.

b. Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?

No Impact. A significant impact may occur if a project is located in an area used or available for extraction of a locally-important mineral resource extraction, and if the project converted an existing or potential future locally-important mineral extraction use to another use, or if the project affected access to a site used or potentially available for locally-important mineral resource extraction. Government Code Section 65302(d) states that a conservation element of the general plan shall address “minerals and other natural resources.” According to the Conservation Element of the City of Los Angeles General Plan, sites that contain potentially significant sand and gravel deposits which are to be conserved follow the Los Angeles River flood plain, coastal plain, and other water bodies and courses and lie along the flood plain from the San Fernando Valley through Downtown Los Angeles. The Project Site is not located within a City-designated Mineral Resource Zone where significant mineral deposits are known to be present. Furthermore, the Project Site is developed and located in an urbanized area. Development of the Project would therefore not result in impacts associated with the loss or availability of a known mineral resource that would be of value to the region and the residents of the state, and no impact would occur.

Cumulative Impacts

As discussed above, the Project would not result in any impacts related to mineral resources and no related projects have been identified within one-half mile of the Project Site. Therefore, no cumulative impacts related to mineral resources would occur.

XIII. NOISE

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project result in:				
a. Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☒	☐	☐
b. Generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☒	☐
c. For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

The analysis in this section is based on the following, which are included in Appendix G of this IS/MND:

- Noise Technical Modeling, Noah Tanski Environmental Consulting (NTEC), May 2023.
- Chaminade High School North Campus Athletic Facilities – Technical Memorandum, NTEC, April 2024.

Existing Conditions

Project Site

The Project Site is composed of the Main Campus property and the North Campus property. The Main Campus is currently developed with a private high school campus containing educational, athletic, performing arts, administrative, and religious facilities. Noise is regularly generated by the daily use of these facilities, including from events (e.g., athletic meets, etc.) and vehicle travel (e.g., student pick-up/drop-off). The North Campus is developed with a shopping center that contains a grocery store, restaurants, and other commercial uses, as well as surface parking for these uses. Noise associated with these uses include parking noises from patrons, delivery noises from trucks, and mechanical noises from rooftop heating, ventilation, and air conditioning (HVAC) equipment.

Noise-Sensitive Receptors

The Main Campus and North Campus sites are surrounded by predominantly residential uses, many of which directly abut the two sites. For example, single-family homes are located directly north of the North Campus site along Saticoy Street, Melba Street, and Bobbyboyar Avenue. Single-family homes are also located directly west of the Main Campus along Woodhall Avenue, Keswick Street, and Atron Avenue.

A map showing the location of the Project and the nearby residential uses is included in Appendix G of this IS/MND.

Existing Ambient Noise Conditions

On Thursday, August 18, 2022, noise measurements were obtained at multiple locations surrounding the Main Campus and North Campus sites to aid in the characterization of daytime ambient noise conditions at nearby sensitive receptors. The measured noise levels are shown in Table XIII-1, below. Descriptions of noise sources are also included for each noise measurement.

Table XIII-1
Existing Noise Levels

Noise Measurement Location	Noise Sources	Sound Level (dBA L_{eq})
1. Intersection of Keswick St. and Woodhall Ave.	Traffic along Woodhall Ave. and Saticoy St.	57.5
2. Intersection of Saticoy St. and Keswick St.	Traffic along Saticoy St.	64.1
3. Melba Street – End of Cul-de-sac	Shopping center to south, including delivery, mechanical, and parking noises. Traffic along Saticoy St.	53.9
4. Saticoy Street – Near 23309 Saticoy St. Residence	Traffic along Saticoy St.	66.3
5. Woodlake Ave. – S of Kens Way	Traffic along Woodlake Ave.	67.2
6. Intersection of Saticoy St. and Woodlake Ave.	Traffic along Saticoy St. and Woodlake Ave.	69.1
7. Saticoy Street – Near Main Campus Driveway	Traffic along Saticoy St.	68.6
8. Covello St. – End of Cul-de-sac	Traffic along Saticoy St.	49.5
9. Cohasset St. – Near Baseball Field	Traffic along Cohasset St.	62.4
10. Chaminade Ave. – Near Cul-de-sac	Traffic along Chaminade Ave., school parking lot	51.9
11. Atron Ave – End of Cul-de-sac	Traffic along Keswick St.	48.6

Source: Noise Technical Modeling, Noah Tanski Environmental Consulting (NTEC), May 2023, included in Appendix G of this IS/MND. (Appendix G).

Methodology

On-Site Construction Activities

The Project's construction noise impact associated with its on-site construction activities was determined by identifying the noise levels of construction equipment with the greatest potential to disrupt nearby sensitive receptors and assessing the noise increases that could result from their operations. Reference equipment noise levels were derived from the Federal Highway Administration's Roadway Construction Noise Model, version 2.0 (FHWA RCNM 2.0).

Off-Site Construction Activities

The Project's off-site construction noise impact from construction trucks was evaluated by using the FHWA's Traffic Noise Model version 2.5 (TNM 2.5). This noise prediction software uses traffic volumes, vehicle mix, average speeds, roadway geometry, and other inputs to calculate average noise levels along roadway segments. The Project's noise levels from its maximum construction trip generation were estimated with TNM 2.5 and then compared with existing ambient noise conditions along surrounding roadways to determine significance.

On-Site Operational Noise Sources

The Project's potential to result in significant noise impacts from on-site operational noise sources was assessed by identifying likely on-site noise sources and considering the impacts they could produce given the nature of the source (i.e., loudness and/or whether noise would be generated during daytime or more-sensitive nighttime hours), distances to nearby noise-sensitive receptors, surrounding ambient noise levels, the presence of similar noise sources in the vicinity, and maximum allowable noise levels permitted by the LAMC. The analysis also reviewed noise levels that were documented as part of studies for similar athletics facilities projects to aid in the characterization and prediction of noise impacts that would result from the Project's athletics activities. A more-detailed discussion of this methodology, including source documentation, is included in Appendix G of this IS/MND.

Off-Site Operational Noise Sources

The Project would result in a net-reduction in vehicle trips when compared to existing uses and therefore would not contribute to traffic-related noise increases.

Construction Vibration Sources

The Project's potential to generate damaging levels of groundborne vibration was analyzed by identifying construction vibration sources and estimating the maximum vibration levels that they

could produce at nearby buildings, all based on the principles and guidelines recommended by the Federal Transit Administration (FTA) in its 2018 Transit Noise and Vibration Impact Assessment manual. Vibration levels were then compared with the manual's suggested damage criteria for various building categories.

Operational Vibration Sources

Significant sources of operational vibration are generally limited to heavy equipment or industrial operations. The Project proposes to construct educational and athletics facilities, and no such operations would take place.

a. Would the project result in generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

Less Than Significant with Mitigation Incorporated.

Construction

On-Site Construction Activities

5 dBA L_{eq} Threshold Analysis

The Project may not be fully implemented until 2035, and there is currently no exact sequence of construction activities or phasing, though it would be necessary for some activities to occur before others. For example, grading of the North Campus would have to occur before construction of the new North Campus athletic and pool facilities, demolition of existing classroom buildings would have to occur before construction of the new Main Campus Multistory Building, etc.

Table XIII-2 (which is the same as Table 3-2 in Section 2, Project Description) presents a sequence of the Project's construction activities showing which construction activities/phases may overlap. The Project would include Project Design Feature 1 (PDF 1), which incorporates this construction sequence.

Table XIII-2
Construction Sequence

Construction Activity	Sequence									
	1	2	3	4	5	6	7	8	9	10
North Campus – Demolition†	X									
North Campus – Grading†		X								
North Campus – Construction of new surface parking lot			X							
North Campus – Construction of pedestrian bridge†				X						
North Campus – Construction of new athletic fields and ancillary facilities					X	X	X	X		
North Campus – Construction of new pool facilities										X
Main Campus – Parking Lot Demolition†					X					
Main Campus – Classroom Demolition†						X				
Main Campus – Multistory Building Grading							X			
Main Campus – Multistory Building Construction								X	X	X
Main Campus – Construction of upper-level student quad									X	
Main Campus – Renovation of surface parking lot along Cohasset Street									X	
Main Campus – Renovations to existing athletics facilities, classroom buildings, and administrative offices.								X	X	X

† Denotes construction activities chosen for detailed construction noise modeling.
Source: Project Applicant.

During all construction phases, noise-generating activities would be permitted to occur at the Project Site between the hours of 7:00 A.M. and 9:00 P.M. Monday through Friday, in accordance with Section 41.40(a) of the LAMC. On Saturdays, construction activities would be permitted to occur between 8:00 A.M. and 6:00 P.M. Although the Project is anticipated to utilize a five-day work week, it is anticipated that certain construction activities that have the potential to impact school operations may take place on Saturdays.

Some construction activities would result in greater noise impacts than others. For example, demolition and grading activities for the North Campus would require a variety of heavy-duty, diesel-powered earthmoving vehicles such as excavators and bulldozers, while renovations to the

administrative office would require mostly electric-powered hand tools. Noise impacts for the following construction activities were modeled to ascertain the Project's potential to exceed the threshold criteria, which is a 5 dBA L_{eq} increase over baseline ambient noise levels. The following modeled construction activities were chosen because they are the activities that would have the greatest potential to result exceedances of this threshold criteria, due to considerations such as noise levels from construction equipment, distances from sensitive receptors, potential for overlap, and ambient noise levels at sensitive receptors.

North Campus – Demolition

North Campus – Grading

North Campus – Construction of pedestrian bridge

Main Campus – Parking Lot Demolition

Main Campus – Classroom Demolition

North Campus - Demolition

Demolition of existing North Campus improvements would last approximately one month. The majority of demolition activities would be characterized by excavators demolishing existing structures and placing the debris into dumpsters for removal. As excavators perform work across the approximately 4.83-acre North Campus site, their construction noise levels at sensitive receptors would fluctuate depending on these vehicles' distances from them. Noise levels would be greater when excavators are in proximity of sensitive receptors and lower when they are farther away. Most excavator activities would be concentrated near the footprint of the existing shopping center building, as demolition of this structure would be more intensive than removal of the asphalt parking lot, which would be accomplished with smaller and less-noisy equipment such as skid steer loaders. Given these considerations, the noise impact associated with the demolition of North Campus improvements has been evaluated by modeling noise levels that would result from two excavators demolishing a half-acre portion of the existing shopping center building in proximity to nearby sensitive receptors.

Table XIII-3 shows the estimated noise increases that would result from the Project's demolition activities on the North Campus. As shown, noise increases at Melba Street Cul-de-Sac Residences and Bobbyboyar Avenue Residences could exceed the 5 dBA L_{eq} threshold of significance for daytime construction activities lasting more than 10 days in a three-month period. Here, without mitigation, the Project's construction noise impacts from demolition activities could be significant. Impacts to other sensitive receptors would not exceed the 5 dBA L_{eq} threshold of significance.

As shown in Table XIII-2, demolition activities on the North Campus would not overlap with any other construction activities, meaning there is no potential for simultaneous construction activities to result in combined noise levels that exceed the values shown in Table XIII-3.

Table XIII-3
Construction Noise Levels – North Campus Demolition (Unmitigated)

Receptor	Construction Noise Level (dBA L_{eq})	Existing Ambient Noise Level (dBA L_{eq})	New Noise Level (dBA L_{eq})	Increase
23309 Saticoy Street Residence	65.2	66.3	68.8	2.5
Saticoy Street Residences – South of North Campus	58.8	68.6	69.0	0.4
Melba Street Cul-de-Sac Residences	69.1	53.9	69.3	15.4
Bobbyboyar Avenue Cul-de-Sac Residences	69.1	53.9	69.3	15.4
Woodlake Avenue Residences	59.9	67.2	67.9	0.7
Source: Noise Technical Modeling, Noah Tanski Environmental Consulting (NTEC), May 2023, contained in Appendix G of this IS/MND.				

North Campus - Grading

Grading of the North Campus would involve grading for the proposed surface parking lot, pedestrian bridge abutments/landing, and athletic field facilities. Some trenching would also be required to install utilities. Overall, daily activities would be rather limited due to the fact that the North Campus site is already relatively level. Grading would require only approximately 720 cubic yards of export and would result in less than four haul truck trips per day, on average. An excavator or backhoe may be utilized to trench for utility connections and baseball field dugouts. A grader may be utilized to establish proper slopes and drainages for the surface parking lot and athletic field. A roller may be utilized to compact soils. A bulldozer may assist in moving soils across the site. Overall, the loudest noise impacts would be associated with a grader “finish” grading the North Campus Site. Graders operate by driving across a site while utilizing a blade to form level surfaces. As a grader works across the approximately 4.83-acre North Campus site, its construction noise level at sensitive receptors would fluctuate depending on its distances from sensitive receptors. Noise levels would be greater when operating in proximity of sensitive receptors and lower when farther away. Given these considerations, the noise impact associated with grading of the North Campus has been evaluated by modeling noise levels that would result from a grader “finish” grading a half-acre parcel in proximity to nearby sensitive receptors.

Table XIII-4 shows the estimated noise increases that would result from the Project’s “finish” grading activities on the North Campus. As shown, noise increases at Melba Street Cul-de-Sac

Residences and Bobbyboyar Avenue Residences could exceed the 5 dBA L_{eq} threshold of significance for daytime construction activities lasting more than 10 days in a three-month period. Here, without mitigation, the Project's construction noise impact from grading activities could be significant. Impacts to other sensitive receptors would not exceed the 5 dBA L_{eq} threshold of significance.

As shown in Table XIII-2, grading activities on the North Campus would not overlap with any other construction activities, meaning there is no potential for simultaneous construction activities to result in combined noise levels that exceed the values shown in Table XIII-4.

Table XIII-4
Construction Noise Levels – North Campus Grading (Unmitigated)

Receptor	Construction Noise Level (dBA L_{eq})	Existing Ambient Noise Level (dBA L_{eq})	New Noise Level (dBA L_{eq})	Increase
23309 Saticoy Street Residence	69.2	66.3	71.0	4.7
Saticoy Street Residences – South of North Campus	60.6	68.6	69.2	0.6
Melba Street Cul-de-Sac Residences	69.2	53.9	69.3	15.4
Bobbyboyar Avenue Cul-de-Sac Residences	69.2	53.9	69.3	15.4
Woodlake Avenue Residences	60.6	67.2	68.1	0.9
Source: Noise Technical Modeling, Noah Tanski Environmental Consulting (NTEC), May 2023, included in Appendix G of this IS/MND.				

North Campus – Construction of Pedestrian Bridge

The loudest construction equipment associated with construction of the pedestrian bridge would be a bore/drill rig, which would be utilized to install foundations for the pedestrian bridge on either side of Saticoy Street. Daily activity by this equipment would be limited, as there are only three locations for the bridge's foundations. Noise impacts associated with operations of a bore/drill rig has been evaluated by modeling noise levels that would result from a bore/drill rig operating at the foundation location that is nearest to surrounding sensitive receptors.

Table XIII-5 shows the estimated noise increases that would result from bore/drill rig activities. As shown, noise increases at 23309 Saticoy Street Residence, Melba Street Cul-de-Sac Residences, and Bobbyboyar Avenue Cul-de-Sac Residences could exceed the 5 dBA L_{eq} threshold of significance for daytime construction activities lasting more than 10 days in a three-month period. Here, without mitigation, the Project's construction noise impact from grading

activities could be significant. Impacts to other sensitive receptors would be far below the 5 dBA L_{eq} threshold of significance.

As shown in Table XIII-2, construction of the pedestrian bridge would not overlap with any other construction activities, meaning there is no potential for simultaneous construction activities to result in combined noise levels that exceed the values shown in Table XIII-5.

Table XIII-5
Construction Noise Levels – North Campus Construction of Pedestrian Bridge (Unmitigated)

Receptor	Construction Noise Level (dBA L_{eq})	Existing Ambient Noise Level (dBA L_{eq})	New Noise Level (dBA L_{eq})	Increase
23309 Saticoy Street Residence	74.0	66.3	74.7	8.4
Saticoy Street Residences – South of North Campus	61.9	68.6	69.4	0.8
Melba Street Cul-de-Sac Residences	71.9	53.9	72.0	18.1
Bobbyboyar Avenue Cul-de-Sac Residences	60.0	53.9	61.0	7.1
Woodlake Avenue Residences	54.0	67.2	67.4	0.2
Source: Noise Technical Modeling, Noah Tanski Environmental Consulting (NTEC), May 2023, included in Appendix G of this IS/MND.				

Main Campus – Parking Lot Demolition

Demolition of the upper-level parking lot would utilize smaller equipment such as a skid steer loader or mini-excavator to remove asphalt, hardscape, and landscaping. These activities would last no more than several workdays. Noise impacts associated with demolition of the upper-level parking lot have been evaluated by modeling noise levels that would result from two skid steer loaders demolishing a half-acre portion of the parking lot in proximity to nearby sensitive receptors.

Table XIII-6 shows the estimated noise increases that would result from demolition of the upper-level parking lot. As shown, demolition of the upper-level parking lot could expose Atron Avenue Cul-de-Sac Residences to noise increases in excess of the 5 dBA L_{eq} threshold of significance for daytime construction activities lasting more than 10 days in a three-month period. Without mitigation, this impact could be significant.

Table XIII-6
Construction Noise Levels – Main Campus Parking Lot Demolition
(Unmitigated)

Receptor	Construction Noise Level (dBA L_{eq})	Existing Ambient Noise Level (dBA L_{eq})	New Noise Level (dBA L_{eq})	Increase
Atron Avenue Cul-de-Sac Residences	60.6	48.6	60.9	12.3
Covello Street Cul-de-Sac Residences	51.9	49.5	53.9	4.4
Source: Noise Technical Modeling, Noah Tanski Environmental Consulting (NTEC), May 2023, contained in Appendix G of this IS/MND.				

Main Campus – Classroom Demolition

Demolition of classroom buildings on the Main Campus would last up to three weeks and would utilize excavators to demolish approximately 30,284 square feet of classroom building area. Debris would be placed into dumpsters for removal. Noise impacts associated with demolition of the classroom buildings have been evaluated by modeling noise levels that would result from two excavators demolishing a half-acre portion of the classroom buildings in proximity to nearby sensitive receptors.

Table XIII-7 shows the estimated noise increases that would result from demolition of the classroom buildings. As shown, demolition of the classroom buildings could expose Atron Avenue Cul-de-Sac Residences, Covello Street Cul-de-Sac Residences, and Chaminade Avenue Residences to noise increases in excess of the 5 dBA L_{eq} threshold of significance for daytime construction activities lasting more than 10 days in a three-month period. Without mitigation, this impact could be significant.

Table XIII-7
Construction Noise Levels – Main Campus Classroom Demolition
(Unmitigated)

Receptor	Construction Noise Level (dBA L_{eq})	Existing Ambient Noise Level (dBA L_{eq})	New Noise Level (dBA L_{eq})	Increase
Atron Avenue Cul-de-Sac Residences	60.3	48.6	60.6	12.0
Covello Street Cul-de-Sac Residences	61.8	49.5	62.1	12.6
Chaminade Avenue Residences	57.5	51.9	58.6	6.7
Source: Noise Technical Modeling, Noah Tanski Environmental Consulting (NTEC), May 2023, contained in Appendix G of this IS/MND.				

LAMC Section 112.05 Threshold Analysis

Section 112.05 of the LAMC establishes a noise limit of 75 dBA L_{eq} for powered equipment and hand tools operated within 500 feet of residential zones between the hours of 7:00 A.M. and 10:00 P.M. As the Project is located within 500 feet of numerous residential-zoned properties, this regulation would apply to the Project's construction noise levels. As shown in Table XIII-3 through Table XIII-7, construction of the Project would not expose nearby residential uses to noise levels in excess of 75 dBA L_{eq}. Therefore, the Project's construction noise levels would be consistent with the LAMC Section 112.05 noise limit, and this impact would be less than significant.

Construction Noise Mitigation Measures

To ensure that the Project's construction-related noise increases at sensitive receptors do not exceed the 5 dBA L_{eq} threshold of significance for daytime construction activities lasting more than 10 days in a three-month period, the following mitigation measures are required:

NOI-1 For construction activities occurring on the North Campus, sound barriers rated to achieve a sound attenuation of at least 15 dBA shall be erected to shield 23309 Saticoy Street Residences, Melba Street Cul-de-Sac Residences, and Bobbyboyar Avenue Cul-de-Sac Residences from on-site construction noise activities. Sound barriers shall be at least 15 feet in height and composed of materials rated to achieve a transmission loss of at least 25 dBA, which would correlate with the required 15 dBA of sound attenuation.

NOI-2 For construction activities occurring on the Main Campus, sound barriers rated to achieve a sound attenuation of at least 15 dBA shall be erected to shield Atron Avenue Cul-de-Sac Residences, Covello Street Cul-de-Sac Residences, and Chaminade Avenue Residences from on-site construction noise activities. Sound barriers shall be at least 15 feet in height and composed of materials rated to achieve a transmission loss of at least 25 dBA, which would correlate with the required 15 dBA of sound attenuation.

Construction Noise Impacts After Mitigation

<u>North Campus - Demolition</u>

Table XIII-8 shows the estimated noise increases that would occur at Melba Street Cul-de-Sac Residences and Bobbyboyar Avenue Cul-de-Sac Residences after implementation of Mitigation Measure NOI-1. As shown, implementation of noise barriers pursuant to Mitigation Measure NOI-1 would ensure that demolition-related noise increases at these receptors are below the 5 dBA L_{eq} threshold of significance. As a result, with mitigation, the Project's North Campus demolition-related noise impact from on-site construction sources would be less than significant.

Table XIII-8
Construction Noise Levels – North Campus Demolition (Mitigated)

Receptor	Construction Noise Level (dBA L_{eq})	Existing Ambient Noise Level (dBA L_{eq})	New Noise Level (dBA L_{eq})	Increase
Melba Street Cul-de-Sac Residences	54.1	53.9	57.0	3.1
Bobbyboyar Avenue Cul-de-Sac Residences	54.1	53.9	57.0	3.1
Source: Noise Technical Modeling, Noah Tanski Environmental Consulting (NTEC), May 2023, contained in Appendix G of this IS/MND.				

North Campus - Grading

Table XIII-9 shows the estimated noise increases that would occur at Melba Street Cul-de-Sac Residences and Bobbyboyar Avenue Cul-de-Sac Residences after implementation of Mitigation Measure NOI-1. As shown, implementation of noise barriers pursuant to Mitigation Measure NOI-1 would ensure that grading-related noise increases at these receptors are below the 5 dBA L_{eq} threshold of significance. As a result, with mitigation, the Project's North Campus grading-related noise impact from on-site construction sources would be less than significant.

Table XIII-9
Construction Noise Levels – North Campus Grading (Mitigated)

Receptor	Construction Noise Level (dBA L_{eq})	Existing Ambient Noise Level (dBA L_{eq})	New Noise Level (dBA L_{eq})	Increase
Melba Street Cul-de-Sac Residences	54.2	53.9	57.1	3.2
Bobbyboyar Avenue Cul-de-Sac Residences	54.2	53.9	57.1	3.2
Source: Noise Technical Modeling, Noah Tanski Environmental Consulting (NTEC), May 2023, contained in Appendix G of this IS/MND.				

North Campus – Construction of Pedestrian Bridge

Table XIII-10 shows the estimated noise increases that would occur at 23309 Saticoy Street Residence, Melba Street Cul-de-Sac Residences, and Bobbyboyar Avenue Cul-de-Sac Residences after implementation of Mitigation Measures NOI-1. As shown, implementation of noise barriers pursuant to Mitigation Measure NOI-1 would ensure that construction of the pedestrian bridge would not expose these receptors to noise increases that are in excess of the 5 dBA L_{eq} threshold of significance. As a result, with mitigation, this specific impact would be less than significant.

Table XIII-10
Construction Noise Levels – North Campus Construction of Pedestrian Bridge (Mitigated)

Receptor	Construction Noise Level (dBA L_{eq})	Existing Ambient Noise Level (dBA L_{eq})	New Noise Level (dBA L_{eq})	Increase
23309 Saticoy Street Residence	59.0	66.3	67.0	0.7
Melba Street Cul-de-Sac Residences	56.9	53.9	58.7	4.8
Bobbyboyar Avenue Cul-de-Sac Residences	45.0	53.9	54.4	0.5
Source: Noise Technical Modeling, Noah Tanski Environmental Consulting (NTEC), May 2023, contained in Appendix G of this IS/MND.				

Main Campus – Parking Lot Demolition

Table XIII-11 shows the estimated parking lot demolition-related noise increases that would occur at Atron Avenue Cul-de-Sac Residences after implementation of Mitigation Measure NOI-2. As shown, implementation of noise barriers pursuant to Mitigation Measure NOI-2 would ensure that demolition would not expose these receptors to noise increases that are in excess of the 5 dBA L_{eq} threshold of significance. As a result, with mitigation, this specific impact would be less than significant.

Table XIII-11
Construction Noise Levels – Main Campus Parking Lot Demolition (Mitigated)

Receptor	Construction Noise Level (dBA L_{eq})	Existing Ambient Noise Level (dBA L_{eq})	New Noise Level (dBA L_{eq})	Increase
Atron Avenue Cul-de-Sac Residences	45.6	48.6	50.4	1.8
Source: Noise Technical Modeling, Noah Tanski Environmental Consulting (NTEC), May 2023, contained in Appendix G of this IS/MND.				

Main Campus – Classroom Demolition

Table XIII-12 shows the estimated classroom demolition-related noise increases that would occur at Atron Avenue Cul-de-Sac Residences, Covello Street Cul-de-Sac Residences, and Chaminade Avenue Residences after implementation of Mitigation Measure NOI-2. As shown, implementation of noise barriers pursuant to Mitigation Measure NOI-2 would ensure that demolition would not expose these receptors to noise increases that are in excess of the 5 dBA L_{eq} threshold of significance. As a result, with mitigation, this specific impact would be less than significant.

Table XIII-12
Construction Noise Levels – Main Campus Classroom Demolition (Mitigated)

Receptor	Construction Noise Level (dBA L_{eq})	Existing Ambient Noise Level (dBA L_{eq})	New Noise Level (dBA L_{eq})	Increase
Atron Avenue Cul-de-Sac Residences	45.3	48.6	50.4	1.7
Covello Street Cul-de-Sac Residences	46.8	49.5	51.4	1.9
Chaminade Avenue Residences	42.5	51.9	52.4	0.5
Source: Noise Technical Modeling, Noah Tanski Environmental Consulting (NTEC), May 2023, in Appendix G of this IS/MND.				

Off-Site Construction Activities

Trucks and other construction-related vehicles would access the Project Site over the course of all construction phases. The Project's maximum truck trip generation would occur during grading for the Multistory Building on the Main Campus. During this one-month phase, up to 47 haul trucks per day (approximately 94 one-way trips) would remove approximately 18,764 cubic yards of cut soils from the Main Campus site for transportation to a regional landfill. This would translate to approximately six haul trucks per hour (12 one-way trips) over the course of a given workday. Haul trucks would immediately access Saticoy Street via existing driveways. Ultimately, this level of haul truck activity would have a minor effect on noise levels along Saticoy Street and other truck routes that would be utilized when accessing the freeway system. According to TNM 2.5 modeling, this level of haul truck activity would correlate with roadside noise levels of approximately 58 dBA L_{eq}. This is well below ambient noise levels along Saticoy Street and other major roadways that may be utilized by the Project's haul route. For example, daytime ambient noise levels east of the Project along Saticoy Street and Woodlake Avenue exceed 65 dBA L_{eq}. In these and similar ambient noise environments, noise increases related to the Project's maximum daily haul trips would be less than a 1 dBA L_{eq} increase, well below the 5 dBA L_{eq} threshold of significance and also indiscernible. Other construction phases would result in less trips haul trips. Therefore, the Project's noise impact from off-site construction sources would be less than significant.

Operation

On-Site Operational Noise

Prior to the impact analysis, it is important to discuss the City's threshold of significance for operational noise impacts, which is whether a project's operations would: (1) cause ambient noise levels to increase by 3 dBA CNEL or more to or within a sensitive receptor's "normally unacceptable" or "clearly unacceptable" noise and land use compatibility category, as defined by

the City's General Plan Noise Element; or (2) result in any 5 dBA $L_{eq\ (1\text{-}hour)}$ or CNEL noise increase to a sensitive receptor. CNEL is a 24-hour weighted average noise level that penalizes noise levels between 7:00 PM and 7:00 AM to account for people's increased noise sensitivity during these hours. L_{eq} represents the energy average noise level for a given time period, which for purposes of this operational impact analysis is a minimum of one hour. The Project's sensitive receptors for noise impact assessment are all single-family residential land uses. According to the General Plan Noise Element, noise levels between 70 and 75 dBA CNEL are considered "normally unacceptable" for these uses, and noise levels 75 dBA CNEL and above are considered "clearly unacceptable." Another way of understanding this threshold is that if the Project does not cause or contribute to noise levels of 70 dBA CNEL or greater at a sensitive receptor, then a 5 dBA CNEL increase is the appropriate threshold. If the Project may cause or contribute to noise levels of 70 dBA CNEL or greater at a sensitive receptor, then a 3 dBA CNEL increase is the appropriate threshold. Notwithstanding, any 5 dBA L_{eq} increase over an averaging period of one hour or more would also be considered significant.

The Project's potential on-site operational noise sources are identified and evaluated below:

Mechanical Equipment

The proposed Multistory Building on the Main Campus would be located over 200 feet from the nearest residential receptors. At these distances, noise from rooftop mechanical equipment would not be capable of increasing off-site noise levels by a discernable degree and are likely to be inaudible. Further, the existing classroom buildings contain mechanical equipment. Therefore, noise from mechanical equipment would not be a new source of noise at the location of the Multistory Building.

The proposed pool facilities on the North Campus would be located adjacent to Woodlake Avenue, over 50 feet from the nearest residential receptors. Given this location along a busy roadway, noise from rooftop mechanical equipment would also likely be inaudible at surrounding residential receptors. All pool equipment, including filtering and pumping equipment, would be enclosed in mechanical rooms located within the pool facility's building envelope and would not be audible at any surrounding receptors.

Parking-Related Activities

The Project would include the construction of two new surface parking lots – an 86-stall lot on the North Campus near the pedestrian bridge and a 15-stall lot on the North Campus supporting the pool facilities – as well the renovation of the existing parking lot on the southeast portion of the Main Campus, along Cohasset Street, to include 16 stalls. According to FTA equations for the prediction of parking facility noise impacts, a facility with an hourly activity of 86 vehicles (conservatively equal to the total capacity of the largest proposed parking lot) would result in a noise level of just 46 dBA L_{eq}. A facility with an hourly activity of 16 vehicles would result in a noise level of just 38 dBA L_{eq}. These noise levels are far below ambient noise conditions surrounding the proposed parking lots, which are in excess of 60 dBA L_{eq}. This demonstrates that parking-

related noises associated with the three new surfacing parking lots would have a nominal effect on surrounding noise conditions that is well below the minimum 3 dBA CNEL increase that would represent a significant impact.

Further, it is worth noting that the existing shopping center on the North Campus is associated with 2,307 daily trips, according to the Project's transportation study (contained in Appendix H of this IS/MND). This is far greater than the number of vehicles that would utilize the two North Campus parking lots on a daily basis. This suggests that parking-related noises associated with the North Campus site would likely decrease with implementation of the Project.

North Campus Athletics and Aquatic Facilities

The North Campus includes new athletics fields, to be used for soccer and baseball, and an outdoor swimming pool. Home and visitor bleachers would be located along the first and third base lines of the athletic field, providing approximately 350 seats. Bleachers are also proposed west of the pool, providing approximately 126 seats. Additionally, there would be a public address system on the new North Campus, similar to the public address system on the Main Campus.

Sports programming would remain substantially similar to existing programs with some activities/games that currently occur on the Main Campus shifting to the North Campus, except that the new outdoor pool would allow for an expanded swim program, including practices, classes, and meets, and would be made available on a limited basis to the local community. The following provides a summary of new activities at the North Campus (not including existing school events that would shift from the Main Campus to the North Campus):

- 10 high school swim competitions per year
- 10 middle school swim competitions per year
- Swim practice for other schools (limited to February through April)
- Swim lessons and water exercise classes daily
- Local community swimming (if there are no other activities at the pool)
- Local non-school athletic groups (limited to May through December)

The hours of operation for the North Campus would be more restrictive than the usage hours allowed by the school's current Conditional Use Permit for the Main Campus. The North Campus hours of operations would be:

- Athletic fields/stadium: Monday – Friday, 7:00 AM – 9:00 PM (with exception for overtime/extra inning play); Saturday, 8:00 AM – 9:00 PM; and Sunday, 9:00 AM – 8:00 PM (no more than 15 Sundays per year).

- Aquatic complex/pool: Monday – Friday, 8:00 AM – 8:00 PM; and Saturday 10:00 AM – 7:00 PM. No use is permitted on Sundays.

- Batting cage: Monday – Saturday, 7:00 AM – 8:00 PM. No use is permitted on Sundays.

Rental or lease of the North Campus athletic facilities would be subject to more restrictive day and hour limitations:

- Athletic fields/stadium: Use by community-based athletic organizations shall be limited to 36 days annually, Monday through Saturday, 8:00 AM – 6:00 PM. Use is not permitted on Sundays and national holidays. The rental or lease of the batting cages is not permitted at any time.

- Aquatic complex/pool: Use by community-based organizations, which shall travel to and from the North Campus by bus, shall be limited to daylight hours and end no later than 7:00 PM, Monday through Friday, and no later than 5:00 PM on Saturdays. For community member swim activities, use hours shall be limited to Monday through Saturday, 8:00 AM – 6:00 PM. Use is not permitted on Sundays and national holidays.

Studies show that the highest noise levels from baseball diamonds and soccr fields are associated with the amplified sound systems operated during games and not the individual sports activities/practices themselves. Similarly, the highest noise levels from aquatic facilities are associated with amplified sound systems during swim meets and not with regular pool activities like swimming. Given these considerations, the following analysis evaluates composite noise impacts that would result from a baseball game and swim meet held simultaneously on the North Campus. The composite noise levels shown in Table XIII-13 are based on individual swim meet and baseball game noise levels that were estimated in the technical memorandum included Appendix G to the IS/MND.[60] The selected receptors were chosen because they are the closest receptors to the athletic field and aquatic complex areas that would experience the most pronounced noise impacts from their operations. Table XIII-14 compares the composite noise levels estimated in Table XIII-13 with existing daytime noise levels at these receptors to determine the composite noise impact from a baseball game and swim meet held simultaneously. As shown in Table XIII-14, Melba Street Cul-de-Sac Residences could experience noise increases greater than 5 dBA L_{eq} during these occurrences.

[60] The batting cage would not be used while a baseball game is being played, so its usage does not figure into this analysis. However, batting cage noise levels were evaluated and that analysis can also be found in the technical memorandum included in Appendix G.

Table XIII-13
Composite Noise Levels – Swim Meet and Baseball Game (L_{eq} 1-hour)

Receptor	Swim Meet Noise Level (dBA L_{eq})	Baseball Game Noise Level (dBA L_{eq})	Composite Noise Level (dBA L_{eq})
23309 Saticoy Street Residence	<50.0	54.8	56.0
Saticoy Street Residences – South of North Campus	<50.0	65.2	65.3
Melba Street Cul-de-Sac Residences	53.4	55.7	57.7
Bobbyboyar Avenue Cul-de-Sac Residences	52.8	54.8	56.9
Woodlake Avenue Residences	61.3	<50.0	61.6
Source: Chaminade High School North Campus Athletic Facilities – Technical Memorandum, Noah Tanski Environmental Consulting (NTEC), April 2024, in Appendix G of this IS/MND.			

Table XIII-14
Composite Noise Level Impact at Receptors (L_{eq} 1-hour)

Receptor	Composite Noise Level From Table 4 (dBA L_{eq})	Existing Ambient Noise Level (dBA L_{eq})	New Noise Level (dBA L_{eq})	Threshold (dBA L_{eq})	Increase (dBA L_{eq})[A]
23309 Saticoy Street Residence	56.0	66.3	66.7	5.0	0.4
Saticoy Street Residences – South of North Campus	65.3	68.6	70.3	5.0	1.7
Melba Street Cul-de-Sac Residences	57.7	53.9	59.2	5.0	**5.3**
Bobbyboyar Avenue Cul-de-Sac Residences	56.9	53.9	58.7	5.0	4.8
Woodlake Avenue Residences	61.6	67.2	68.3	5.0	1.1
Note A: Potential significant impacts are shown in **bold**. Source: Chaminade High School North Campus Athletic Facilities – Technical Memorandum, Noah Tanski Environmental Consulting (NTEC), April 2024, in Appendix G of this IS/MND.					

The composite noise levels and maximum hourly impacts shown in Table XIII-13 and Table XIII-14 are also insightful regarding the Project's potential effects on 24-hour CNELs at surrounding noise-sensitive receptors. Given that existing daytime ambient noise conditions at Melba Street Cul-de-Sac Residences and Bobbyboyar Avenue Cul-de-Sac Residences are below 55 dBA L_{eq},

it is clear that their 24-hour noise levels are below at least 65 dBA CNEL, meaning that the 5 dBA CNEL increase threshold would apply at these receptors.[61] The following analysis evaluates the potential that 5 dBA CNEL increases could occur at Melba Street Cul-de-Sac Residences and Bobbyboyar Avenue Cul-de-Sac Residences. As explained previously, the composite noise levels shown in Table XIII-13 and Table XIII-14 are representative of a worst-case scenario in which there is a simultaneous swim meet and baseball game. These events last no more than a few hours each. However, if one assumes a conservative scenario in which the worst-case composite noise levels would be generated from 3:00 PM to 9:00 PM[62], then the corresponding CNEL at Melba Street Cul-de-Sac Residences and Bobbyboyar Avenue Cul-de-Sac Residences would be 53.5 dBA and 52.7 dBA, respectively, as shown in Table XIII-15. Measured ambient noise conditions and factors such as the urbanized nature of the neighborhood and proximity to roadways show that 24-hour noise levels for Melba Street Cul-de-Sac Residences and Bobbyboyar Avenue Cul-de-Sac Residences are between 50-55 dBA CNEL. Assuming a low-end 50 dBA CNEL value, the composite CNEL figures estimated in Table XIII-15 demonstrate that operational activities on the North Campus could result in a slight exceedance of the 5 dBA CNEL increase threshold at Melba Street Cul-de-Sac Residences, as shown in Table XIII-16.

Table XIII-15
24-Hour Noise Levels – Swim Meet and Baseball Game (dBA CNEL)

Receptor	Swim Meet Noise Level (dBA CNEL)	Baseball Game Noise Level (dBA CNEL)	Composite Noise Level (dBA CNEL)
Melba Street Cul-de-Sac Residences	48.1	52.0	53.5
Bobbyboyar Avenue Cul-de-Sac Residences	47.5	51.1	52.7
Source: Chaminade High School North Campus Athletic Facilities – Technical Memorandum, Noah Tanski Environmental Consulting (NTEC), April 2024, in Appendix G of this IS/MND.			

[61] In other words, it would take more than a 5 dBA CNEL increase for their 24-hour noise levels to exceed the 70 dBA CNEL "normally unacceptable" standard.

[62] Specifically, the assumes timed periods are 3:00 PM – 9:00 PM for baseball games and 3:00 PM – 8:00 PM for swim meets, consistent with their allowable usage hours.

Table XIII-16
24-Hour CNEL Noise Level Impact at Receptors

Receptor	Composite Noise Level From Table 6 (dBA CNEL)	Existing 24-Hour Noise Level (dBA CNEL)	New Noise Level (dBA CNEL)	Threshold (dBA CNEL)	Increase (dBA CNEL)[A]
Melba Street Cul-de-Sac Residences	53.5	50.0	55.1	5.0	**5.1**
Bobbyboyar Avenue Cul-de-Sac Residences	52.7	50.0	54.6	5.0	4.6

Note A: Potential significant impacts are shown in **bold**.

Source: Chaminade High School North Campus Athletic Facilities – Technical Memorandum, Noah Tanski Environmental Consulting (NTEC), April 2024, in Appendix G of this IS/MND.

With regard to the remaining receptors, 23309 Saticoy Street Residence, Saticoy Street Residences – South of North Campus, and Woodlake Avenue Residences: Table XIII-14 shows that worst-case hourly composite noise impacts at these receptors would be below 2 dBA. As such, there is no potential that corresponding 24-hour CNEL impacts at these receptors would exceed the minimum 3 dBA increase threshold.

Before discussing the recommended mitigation measure that would reduce hourly (i.e., 5 dBA L_{eq}) and 24-hour (i.e., 5 dBA CNEL) noise impacts at Melba Street Cul-de-Sac Residences, it is important to address LAMC Section 112.01 and the effect it would have on amplified baseball game and swim meet noise levels that are at the root of the potential noise impact affecting Melba Street Cul-de-Sac Residences (and to a less than significant degree, the other selected receptors, as well). LAMC Section 112.01(b) would prohibit any amplified noises from being audible at a distance greater than 150 feet from the North Campus property line, and compliance with this regulation would necessitate that the Project's amplified noise levels are much lower than the levels predicted by this analysis. For example, Table XIII-14 shows that composite swim meet and baseball game noise levels, which are mainly caused by amplified sounds at these events, would be as high as 56.9 dBA L_{eq} at Bobbyboyar Avenue Cul-de-Sac Residences. While this is shown to result in a less than significant 4.8 dBA L_{eq} hourly noise increase at Bobbyboyar Avenue Cul-de-Sac Residences, the 56.9 dBA L_{eq} noise level indicates that amplified sounds responsible for this noise level would be clearly audible over the receptor's 53.9 dBA L_{eq} ambient noise conditions. Therefore, despite the noise increase being less than significant with respect to the 5 dBA L_{eq} increase threshold of significance (as well as the 5 dBA L_{eq} increase limit established by LAMC Section 112.01(c)), the amplified sounds emanating from swim meets and baseball games held simultaneously would still need to be reduced to achieve compliance with the LAMC Section

112.01(b) audibility standard.[63] Without mitigation, this impact related to athletic operations on the North Campus could be significant.

On-Site Operational Noise Mitigation Measures

The Project's amplified sound systems can be designed in a way that achieves Project objectives (i.e., providing amplified sound for baseball games and swim meets) while complying with LAMC Section 112.01(b). For example, large outdoor music venues are often acoustically engineered to comply with similar noise standards, despite featuring much louder sound systems than the Project would employ. Acoustical design considerations commonly include techniques such as utilizing directional speakers rather than broadcast systems, mounting speakers low and oriented away from residential areas, and instituting maximum sound level limits. The facilities themselves may also be designed to aid noise control efforts. For example, bleachers may be located so that crowd-facing speakers are directed away from sensitive residential areas, and structures may be located in a way to buffer residential areas from noise sources. In fact, the Project's site plan already features some of these considerations. For example: the baseball field is oriented so that bleachers are located along Saticoy Street, not near the quieter residential neighborhood to the north; the batting cage is oriented so that batters would also be distanced from this neighborhood; and the aquatic complex is oriented so that the parking lot and athletic field/pool house provide a buffer between the pool and this neighborhood.

As shown above in Table XIII-14, maximum hourly noise impacts at Melba Street Cul-de-Sac Residences could be as high as a 5.3 dBA L_{eq} increase over existing daytime noise conditions, which would exceed the 5 dBA L_{eq} increase threshold of significance. As shown in Table XIII-16, 24-hour noise impacts at this same receptor could be as high as a 5.1 dBA CNEL increase, which would exceed the 5 dBA CNEL increase threshold of significance for this receptor, as well. Further, all amplified noise source operations would need to comply with the audibility standard established by LAMC Section 112.01(b). Noise reductions necessary to achieve compliance with LAMC Section 112.01(b) would also achieve the noise reductions necessary to reduce noise impacts at Melba Street Cul-de-Sac Residences to less than significant levels. The following mitigation measure to achieve compliance with LAMC Section 112.01(b), which would also reduce noise increases to a less than significant impact at Melba Street Cul-de-Sac Residences, is required:

NOI-3 Amplified sound systems for the Project's baseball field/bleachers and outdoor aquatics facility/bleacers shall be acoustically engineered with the following design and performance standards:

[63] In turn, this would reduce the noise increase experienced by Bobbyboyar Avenue Cul-de-Sac Residences.

- Amplified sound levels, as measured at the northern property line of the North Campus, shall not exceed 50 dBA.
- Amplified sound systems shall not be operated outside the operational hours established for the North Campus facilities.
- Speakers shall be directional and oriented away from the northern property line of the North Campus.
- Non-Chaminade users of the facilities shall not be permitted to utilize the facilities' amplified sound systems.

On-Site Operational Noise Impacts After Mitigation

Amplified sound systems designed in accordance with the design and performance standards required by Mitigation Measure NOI-3 would achieve the noise audibility standard established by LAMC Section 112.01(b) and would also reduce noise levels at Melba Street Cul-de-Sac Residences to below the applicable 5 dBA L_{eq} and 5 dBA CNEL thresholds of significance. As discussed above, the potentially significant impacts to this receptor were based on slight exceedances of these thresholds (0.3 dBA L_{eq} exceedance and 0.1 dBA CNEL exceedance). However, compliance with Mitigation Measure NOI-3 would ensure that amplified noise levels at this receptor do not exceed 50 dBA, which is substantially lower than the unmitigated 57.7 dBA figure estimated by this analysis. Accordingly, impacts to Melba Street Cul-de-Sac Residences would be reduced to well below the 5 dBA L_{eq} and 5 dBA CNEL noise-increase thresholds of significance. Therefore, after mitigation, this impact would be considered less than significant.

Off-Site Operational Noise

According to the Project's transportation study (contained in Appendix H of this IS/MND), the Project would result in a net reduction of 1,355 daily trips. Therefore, the Project would not result in traffic-related noise increases and this impact would be less than significant.

b. Would the project result in generation of excessive groundborne vibration or groundborne noise levels?

Less Than Significant Impact.

Construction

Construction of the Project would require the use of large earthmoving equipment and bore/drill rigs. Large earthmoving vehicles such as excavators and bulldozers can produce groundborne vibration levels up to 0.089 inches per second peak particle velocity (PPV) at a reference distance of 25 feet. Drill rigs can produce similar groundborne vibration levels.

On the North Campus site, excavators, bulldozers, and other similar earthmoving vehicles would be utilized extensively to demolish the existing shopping center and grade for the Project. Vehicles

operating up to 10 feet from homes to the north of this site could expose these structures to groundborne vibration levels up to 0.244 inches per second PPV, which is less than the FTA's 0.5 inches per second significance criteria for modern residential buildings. A bore/drill rig would operate over 70 feet from the nearest homes when installing foundations for the proposed pedestrian bridge. This would expose these structures to groundborne vibration levels no greater than 0.029 inches per second PPV, which is also below the significance criteria for modern residential buildings.

On the Main Campus site, earthmoving vehicles would operate over 100 feet from surrounding residential structures located along Atron Avenue, Chaminade Avenue, Windom Street, and other nearby roadways. Thus, groundborne vibration impacts would be even lower than the levels discussed above and similarly below significance criteria for modern residential buildings. The only potentially historic building in the general vicinity is the property located at 7572 Woodlake Avenue, which was identified in SurveyLA. However, this property is not located within the immediate vicinity of the Project Site and based on the distance from the Project Site to this building, there would be no potential for construction vibration to impact this building.

Given these considerations, the Project's construction-related groundborne vibration impacts would be less than significant.

Operation

The Project would not contain any significant stationary sources of groundborne vibration, such as heavy equipment or industrial operations. The Project's related vehicle travel would not be considered a significant source of vibration, as vehicle travel rarely generates perceptible groundborne vibration. Therefore, the Project's operations-related groundborne vibration impact would be less than significant.

c. For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

No Impact. The Project Site is not located within two miles of a public or public use airport and would not expose people residing or working in the project area to excessive noise levels from aircraft. Therefore, no impact would occur.

Cumulative Impacts

Construction

As discussed previously, the Project's construction activities would temporarily increase ambient noise levels at nearby sensitive receptors, but impacts would be considered less than significant after implementation of Mitigation Measures NOI-1 and NOI-2. Any other developments that are

built at the same time as the Project would contribute to additional increases in noise levels at sensitive receptors and result in cumulatively considerable impacts. This would occur if simultaneous construction noise from the Project and other nearby related projects results in ambient noise level increases in excess of 5 dBA L_{eq} at sensitive receptors. However, no related projects have been identified within one-half mile of the Project site. Therefore, there is no potential for nearby sensitive receptors to be exposed to potentially significant cumulative construction noise impacts.

Concerning vibration, the Project's construction activities would generate groundborne vibrations at surrounding structures that are below levels that the FTA associates with architectural or structural damages. Therefore, the Project's construction-related vibration impacts would be less than significant. As noted earlier, no related projects have been identified within one-half mile of the Project site. As such, there is no potential for related projects to expose nearby receptors to simultaneous construction-related groundborne vibrations capable of resulting in significant cumulative impacts.

Operation

The Project's on and off-site operational noise sources would have a minimal effect on surrounding ambient noise conditions that is below the minimum 3 dBA CNEL increase threshold of significance. Therefore, the Project's noise impact from operations would be less than significant. Because no related projects have been identified within one-half mile of the Project, there is no potential for on-site operational noise sources associated with the Project to be audible at sensitive receptors to any related projects (and vice versa). And because the Project would result in a net reduction of 1,355 daily trips, the Project would not contribute to increases in off-site traffic related noise levels, whether individually or cumulatively considered.

XIV. POPULATION AND HOUSING

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a. Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☐	☒
b. Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

No Impact. A significant impact may occur if a project would locate new development such as homes, businesses, or infrastructure, with the effect of substantially inducing population growth that would otherwise not have occurred as rapidly or in as great a magnitude.

Construction

The construction activities associated with the Project would create temporary construction-related jobs. Nevertheless, the work requirements of most construction activities are highly specialized, so that construction workers remain at a job site only for the time in which their specific skills are needed to complete a particular phase of the construction process. Thus, construction workers would not be anticipated to relocate their residence to the Project Site area and would not induce unplanned population growth and/or require permanent housing. Therefore, the Project would result in no impact with respect to indirect unplanned population growth associated with construction activities.

Operation

The Project consists of the physical expansion of the existing high school campus. However, this expansion would serve the existing student population and would not result in an increase in the number of faculty or the maximum student enrollment. In addition, the removal of the existing commercial development on the North Campus portion of the Project Site substantially decreases employment overall. Therefore, the Project would not induce substantial population growth, either directly or indirectly, and no impact would occur.

b. Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?

No Impact. A significant impact may occur if a project would result in the displacement of a substantial number of existing housing units or residents, necessitating the construction of replacement housing elsewhere. The Project Site is currently developed with the existing high school (Main Campus) and shopping center and associated surface parking (North Campus). The Project would not displace any housing or residents, as there is no housing on the Project Site. Although there is no existing housing on site, the North Campus property is designated in the City's Housing Element Inventory of Sites as potentially providing a maximum of 93 housing units (Base Zoning) and a maximum of 356 housing units (Bonus Zoning). Therefore, prior to Project approval, the City must make a finding that the Housing Element's remaining sites have sufficient capacity to accommodate the remaining unmet regional housing need allocation (RHNA) by each income level. Due to the fact that the Housing Element Inventory of Sites sets a target capacity (or buffer) that is 10% higher than the RHNA for lower income units, and 15% higher than the RHNA for moderate income units, sufficient capacity remains in other Housing Element Inventory Sites, and no impact would occur.

Cumulative Impacts

As the Project includes the physical expansion of the existing school, but would not increase student enrollment, the Project would not result in unplanned growth. In addition, as discussed previously, no related projects have been identified within one-half mile of the Project Site. Thus, the Project would not have the potential to contribute to any cumulative impacts related to unplanned growth.

XV. PUBLIC SERVICES

Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Fire protection?	☐	☐	☒	☐
b. Police protection?	☐	☐	☒	☐
c. Schools?	☐	☐	☐	☒
d. Parks?	☐	☐	☐	☒
e. Other public facilities?	☐	☐	☐	☒

a. Fire protection?

Less Than Significant Impact. A significant impact may occur if, as a result of LAFD not being able to adequately serve the Project with existing governmental facilities, there would be a need for a new or physically altered fire station to be constructed which would cause significant environmental impacts.[64] The need for, or deficiency in, adequate fire protection services as a result of the Project is not in and of itself is a potentially significant impact, but rather a social and/or economic impact for which CEQA does not require further analysis.[65] The ultimate determination of whether there is a significant impact to the environment related to fire protection from a project is determined by whether construction of new or expanded fire protection is a direct physical change or a reasonably foreseeable indirect change in the environment caused by the Project. To the extent the Project would result in a need for new or expanded fire facilities, based on existing zoning standards, past practices, and historical development of City fire facilities, the City makes the following assumptions: such facilities (1) would occur where allowed under the designated land use; (2) would be located on parcels that are infill opportunities on lots that are between 0.5 and 1 acre in size; and (3) would qualify for a categorical exemption under CEQA Guidelines Section 15301 or 15332 and/or a Mitigated Negative Declaration.

[64] City of Hayward v. Board of Trustees of California State University (2015) 242 Cal.App.4th 833, 847.

[65] City of Hayward v. Board of Trustees of California State University (2015) 242 Cal.App.4th 833, 847.

Construction

Construction and demolition activities associated with the Project could temporarily increase demand for fire protection. Such activities may also cause the occasional exposure of combustible materials, such as wood, plastics, sawdust, coverings and coatings, to heat sources from machinery and equipment sparking, exposed electrical lines, welding activities, and chemical reactions in combustible materials and coatings. Project construction activities would comply with all applicable federal, state, and City regulations related to fire safety, including federal regulations under the Occupational Safety and Health Acts (29 Code of Federal Regulations, Part 1926 Subpart F), the California Building Code (California Code of Regulations, Title 24), and the City's Fire Code (LAMC Chapter V, Article 7). To comply with California Department of Industrial Relations, Division of Occupational Safety and Health (Cal-OSHA) and Fire and Building Code requirements, construction managers and personnel will have training in fire prevention and emergency response, and fire suppression equipment specific to construction would be maintained on-site.[66] Project demolition and construction activities would comply with all applicable codes and ordinances related to the maintenance of mechanical equipment, handling and storage of flammable materials, and cleanup of spills of flammable materials. Construction is a regular activity in Los Angeles and, as demonstrated by past practice, the LAFD is equipped and prepared to deal with construction-related fire impacts should they occur, and no aspect of this Project raises the potential for unusual fire risks during construction to which the LAFD would be unable to respond.

Project construction could also potentially impact the provision of existing LAFD services to and within the vicinity of the Project Site as a result of construction impacts to the surrounding roadways. However, construction activity would be contained on-site (except as may be required for improvements to the adjacent sidewalks, if applicable, off-site utility connections, and for construction of the pedestrian bridge abutments/landings) and travel lanes would be maintained in each direction on all public streets around the Project Site throughout the construction period, and emergency access would not be impeded. Further, the Project would be required to implement a Construction Traffic Management Plan (formally required as Mitigation Measure TRANS-1), which would include traffic management strategies, and ensure that adequate and safe access for LAFD remains available within and near the Project Site during construction.

Construction activities would also generate traffic associated with the movement of construction equipment, the hauling of soil and construction materials to and from the Project Site, and construction worker traffic. Thus, although construction activities would be short-term and temporary for the area, Project construction activities could temporarily impact emergency access and response times. However, a Construction Traffic Management Plan would be implemented to minimize disruptions to through traffic flow and maintain emergency vehicle access to the Project Site and neighboring land uses. The majority of construction-related traffic, including deliveries, hauling activities, and construction worker trips, would occur outside the typical

[66] Cal. Code of Regs., tit. 8, § 1920.

weekday commuter AM and PM peak periods, thereby reducing the potential for traffic-related conflicts and the slowing of emergency response times. In addition, temporary traffic controls would be implemented to improve traffic flow around the Project Site during the construction period, and construction activity would be contained on-site (except as may be required for improvements to the adjacent sidewalks, if applicable, off-site utility connections, and for construction of the pedestrian bridge abutments/landings).

Furthermore, Section 21055 of the California Vehicle Code (CVC) exempts drivers of authorized emergency vehicles from adherence to the rules of the road, and Section 21806 of the CVC requires drivers to yield to emergency vehicles. Finally, construction is a temporary condition which would not itself require the construction of specific new governmental facilities to maintain adequate fire protection services.

The Project is similar to other construction projects, uses standard materials and construction practices similar to such projects, and as a result, LAFD possesses sufficient equipment, knowledge, and resources to addresses any concerns related to fire protection from the Project. Furthermore, as discussed above, the Project would comply with relevant regulations for workplace safety, best management practices for material use and storage, and ensuring emergency access to the site.

Based on the above, construction of the Project would not result in substantial adverse physical impacts associated with the provision of, or need for, new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives related to fire protection. Therefore, impacts to fire protection during Project construction would be less than significant.

Operation

The Project involves the removal of the existing shopping center and the expansion of an existing high school use. The removal of the shopping center from the North Campus would decrease the need for fire protection services, and the types of fires that could potentially occur at the expanded high school would be similar to those that could occur at the existing high school campus and would be adequately suppressed with the fire equipment found at the fire stations nearest to the Project Site.

Compliance with applicable regulatory requirements, including LAFD’s fire/life safety plan review and LAFD’s fire/life safety inspection for new construction projects, would ensure that adequate fire prevention features that would reduce the demand on LAFD facilities and equipment resulting from the Project are implemented during Project operation. As such, compliance with Fire Code requirements would minimize the potential for incidents requiring an emergency response by LAFD and therefore reduce the need for a new fire station, or the expansion, consolidation, or relocation of an existing fire station.

The factors that the LAFD considers in determining whether fire protection services for a project are adequate include whether the project: (1) is within the maximum response distance for the land uses proposed; (2) complies with emergency access requirements; (3) complies with fire-flow requirements; and (4) complies with fire hydrant placement.

Pursuant to LAMC Section 57.09.07, the maximum response distance is 1.5 miles for an engine and truck company. If this maximum distance is exceeded, all structures shall be constructed with automatic fire sprinkler systems. LAFD Station No. 106, located at 23004 Roscoe Boulevard, which is approximately 0.68 miles from the North Campus and approximately 0.8 miles from the Main Campus, would serve the Project Site. Station No. 106 is equipped with a truck company and an engine company. As the Project Site is within 1.5 miles of this station, automatic fire sprinklers would not be required.

Emergency vehicle access to the Project Site would continue to be provided from local and major roadways (i.e., Chaminade Avenue, Cohasset Street, Keswick Street, Saticoy Street, and Woodlake Avenue) and would be maintained at all times during both Project construction and operation. All ingress/egress associated with the Project would be designed and constructed in conformance to all applicable City Department of Building and Safety and LAFD standards and requirements for design and construction.

Final fire-flow demands, fire hydrant placement, and other fire protection equipment would be determined for the Project during LAFD's plan check building permit process. Furthermore, significant impacts under CEQA consist of adverse changes in any of the physical conditions within the area of a project resulting from the construction or alteration of fire facilities, and the obligation to provide adequate fire protection is the responsibility of the City. The City meets this constitutional requirement by preparing for long-term growth and demographic changes. The City along with LAFD continue to monitor the demand for existing and projected fire facilities (refer to Objective 9.16 of the Framework Element, Policy 2.1.6 of the Safety Element, and Fire Protection Objective 6-1 of the Central City Community Plan), and coordinate the development of new fire facilities to be phased with growth (Objective 9.18 of the Framework Element). Further, LAFD has identified future strategies in their 2018-2020 Strategic Plan as critical goals to continue to provide excellent service and meet future needs. These strategies consist of better integration of technology in dispatch, vehicle location systems, and staffing as a key component of LAFD's strategy. LAFD is adapting more advanced technological strategies to deploy resources and address life safety issues, maximizing existing resources. LAFD continues to improve and provide for adequate fire protection services, and the Project would not trigger any requirements outlined which would necessitate the need for additional or expanded fire protection facilities. Based on this analysis, it is reasonable to conclude that Project operation would not require the addition of a new fire station or the expansion, consolidation, or relocation of an existing facility in order to maintain service; such services will be provided by a local jurisdiction, and would not inhibit LAFD emergency response.

In conclusion, as described above, the Project would not result in substantial adverse physical impacts associated with the provision of, or need for, new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives related to fire protection. Therefore, impacts to fire protection during Project operation would be less than significant.

Cumulative Impacts

No related projects have been identified within one-half mile of the Project Site. Cumulative development requires the LAFD to continually evaluate the need for new or physically altered facilities in order to maintain adequate service ratios. Similar to the Project, any other development projects in the area would be subject to the Fire Code and other applicable regulations of the LAMC including, but not limited to, automatic fire sprinkler systems for high-rise buildings and/or projects located farther than 1.5 miles from the nearest LAFD Engine or Truck Company to compensate for additional response time, and other recommendations made by the LAFD to ensure fire protection safety. Through the process of compliance, the ability of the LAFD to provide adequate facilities to accommodate future growth and maintain acceptable levels of service would be ensured. Furthermore, the increased demands for additional LAFD staffing, equipment, and facilities would be funded via existing mechanisms (e.g., property taxes and government funding) to which the Project and any other development projects would contribute. Therefore, cumulative impacts related to fire protection services would be less than significant.

b. Police protection?

Less Than Significant Impact. A significant impact may occur if a project creates the need for new or physically altered police facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives.[67] The need for, or deficiency in, adequate police protection services as a result of the Project is not in and of itself is a potentially significant impact, but rather a social and/or economic impact for which CEQA does not require further analysis.[68] The ultimate determination of whether there is a significant impact to the environment related to police protection from a project is determined by whether construction of new or expanded police protection is a direct physical change or a reasonably foreseeable indirect change in the environment caused by the Project. To the extent the Project would result in a need for new or expanded police facilities, based on existing zoning standards, past practices, and historical development of City police facilities, the City makes the following assumptions: such facilities (1) would occur where allowed under the designated land use; (2) would be located on parcels that are infill opportunities on lots that are between 0.5 and 1 acre in size; and (3) would qualify for a

[67] City of Hayward v. Board of Trustees of California State University (2015) 242 Cal.App.4th 833, 847.

[68] City of Hayward v. Board of Trustees of California State University (2015) 242 Cal.App.4th 833, 847.

categorical exemption under CEQA Guidelines Section 15301 or 15332 and/or a Mitigated Negative Declaration.

Construction and operation of new buildings can result in additional calls for service from the Los Angeles Police Department (LAPD). The Project includes proposed construction methods and building uses currently widespread in the City of Los Angeles, which LAPD has sufficient specialized equipment and training with which to respond. LAPD dispatches resources dynamically, with officers responding from the field, patrols, or facilities depending on their location at the time. Due to the nature of dispatching police calls for service, facilities are not the limiting factor in responding to calls for service, but rather equipment and staffing as police are infrequently in one location for extended periods of time. LAPD continually evaluates their equipment and staff levels, making adjustments as necessary, with a focus towards advanced technology, operational efficiencies, community involvement, and advanced training to maximize current resources community involvement, as outlined in the LAPD Strategic Plan, *LAPD 2020 & Beyond.* [69] Due to the unpredictable nature of deploying resources, developments such as advanced equipment in vehicles, improved access to digital resources in vehicles, and advanced mobile phone capabilities all allow for a more mobile and dynamically deployed workforce. These advances, such as in car computers, mobile phone advancements, mapping and navigation improvements, and dispatch center advancements allow for resources to be deployed from the field rather than a static office or station.

The Project would not introduce physical obstructions, inhibiting the LAPD, nor would the uses contain novel activities that would require new police facilities to adequately ensure public safety. In addition, the Project involves the removal of the existing shopping center from the North Campus, which would decrease the need for police protection services, as the need for police protection services on the North Campus would be similar to the need already occurring for the existing high school on the Main Campus. Further, the Project would not increase the maximum student enrollment beyond what is currently permitted. The Project would also comply with relevant laws, as well as industry standards in securing the property during both construction and operation. The Project would include security measures during operation, such as secured access, closed circuit video surveillance, security alarm systems, and ample lighting. The Main Campus would retain the existing eight-foot tall fence, gates, and block wall currently securing the campus perimeter. In addition, new fencing and vehicular gates, to be located along the northwest drive aisle and parent drop-off area along Chaminade Avenue and at the southeastern access point along Cohasset Street, would be provided on the Main Campus to complete the perimeter security. A new 10-foot high ornamental fence would be provided around the perimeter of the North Campus. The Project would not constitute a novel arrangement of uses or use type which would require the construction of altered or new specialized facilities.

The Project Site is served by the City of Los Angeles Police Department's (LAPD) Valley Bureau, which oversees LAPD operations in the Devonshire, Foothill, Mission, North Hollywood, Topanga,

[69] http://lapd-assets.lapdonline.org/assets/pdf/Strategic%20Plan%202019-2021.pdf

Van Nuys, and West Valley areas, and would be served by the Topanga Community Police Station, located at 21501 Schoenborn Street.[70] The Valley Bureau service area is 226 square miles in size has approximately 1.8 million residents. LAPD has identified the need for more reserve officers in its Strategic Plan, and identifies staffing needs yearly during the budgeting process. New staffing is subject to approval by the City Council and is based on a complex set of socio-economic factors, which are outside the purview of CEQA. Changes in LAPD staffing levels do not typically result in substantial adverse physical impacts on the environment. The Project would not introduce population to an area not served by a police station or an area otherwise not currently served by existing police services, and would not result in an increase in maximum student enrollment beyond what is currently permitted. Therefore, the Project would not require new facilities or staffing requiring dedicated facilities.

Furthermore, the protection of the public safety is the responsibility of local government where local officials have an obligation to give priority to the provision of adequate public safety services. Based on this analysis, it is reasonable to conclude that Project operation would not require the addition of a new police station or the expansion, consolidation, or relocation of an existing facility in order to maintain service; such services will be provided by a local jurisdiction, and would not inhibit LAPD emergency response. In conclusion, as described above, the Project would not result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios or other performance objectives for police protection. Therefore, Project impacts would be less than significant.

Cumulative Impacts

No related projects have been identified within one-half mile of the Project Site. Cumulative development requires the LAPD to continually evaluate the need for new or physically altered facilities in order to maintain adequate service ratios. Similar to the Project, any other development projects in the area would be subject to the site plan review and approval requirements, recommendations of the LAPD related to crime prevention features, and other applicable regulations of the LAMC. Through the process of compliance, the ability of the LAPD to provide adequate facilities to accommodate future growth and maintain acceptable levels of service would be ensured. Furthermore, the increased demands for additional LAPD staffing, equipment, and facilities would be funded via existing mechanisms (e.g., property taxes and government funding) to which the Project and any other development projects would contribute. Therefore, cumulative impacts related to police protection services would be less than significant.

[70] LAPD, Valley Bureau: http://www.lapdonline.org/valley_bureau

c. Schools?

No Impact. The Project includes the physical expansion and improvements to the existing high school. Thus, the Project would not result in the direct demand for school services. Additionally, pursuant to the California Government Code Section 65995, the Project Applicant would be required to pay school fees established by the Los Angeles Unified School District (LAUSD), payment of which in accordance with existing rules and regulations regarding the calculation and payment of such fees would, by law, provide full and complete mitigation for any potential direct and indirect impacts to schools as a result of the Project. Therefore, no impact would occur.

Cumulative Impacts

No related projects have been identified within one-half mile of the Project Site. In addition, the Project would not result in the demand for school services, as the Project involves the expansion of an existing high school. Regardless, and similar to the Applicant of the Project, the applicants of any other development projects would be required to pay the applicable school fees to the LAUSD to ensure that no significant impacts to school services would occur. Therefore, cumulative impacts to school services would be less than significant.

d. Parks?

No Impact. A significant impact to parks would occur if implementation of a project includes a new or physically altered park or creates the need for a new or physically altered park, the construction of which could cause substantial adverse physical impacts. The Project includes the physical expansion of the existing high school campus, including new athletic fields and an outdoor swimming pool, which would provide additional recreational space for students, but would not result in an increase in maximum student enrollment. Therefore, it is expected that the recreational needs of the students would be satisfied through the provision of on-site recreational facilities, and the Project would not result in additional demand for parks and recreational facilities. As such, no impact would occur.

Cumulative Impacts

No related projects have been identified within one-half mile of the Project Site. In addition, the Project would not result in the demand for parks and recreational facilities, as the Project includes new recreational space that would serve the needs of its students. Any other development projects that include residential uses could result in an increase demand for parks and recreational services, and the applicants of any such development projects would be required to meet LAMC open space requirements and would be subject to the park fees pursuant to LAMC Section 12.33, ensuring that any potential impacts to parks and recreational facilities would be less than significant. As stated previously, the Project would not result in any impacts related to parks and recreational facilities. Therefore, cumulative impacts to park and recreational facilities would be less than significant.

e. Other public facilities?

No Impact. The Project includes the physical expansion and improvements to the existing high school, and does not increase the maximum student enrollment beyond what is currently permitted. The Project would not create a residential population that could then create the need for additional library facilities. As the Project is a high school, students would be supplied with textbooks and other supplemental materials for their classes. In addition, students would have access to a new library contained within the new Multistory Building and it is also likely that the students would have individual access to internet service, which provides information and research capabilities that studies have shown to reduce demand at physical library locations.[71],[72] As such, the Project would not necessitate the need for a new library facility, and no impact would occur.

Cumulative Impacts

No related projects have been identified within one-half mile of the Project Site. In addition, the Project would not result in the demand for library facilities, as the Project includes a new library within the new Multistory Building. Any other development projects that include residential uses could result in an increase demand for library services. The anticipated revenue to the General Fund generated by any other development projects through business taxes and other revenue sources would help offset any increase in demand for library services and fund necessary library improvements. As such, the demand for library services created by any other development projects could be accommodated, and impacts would be less than significant. As stated previously, the Project would not result in any impacts related to library services. Therefore, cumulative impacts to library services would be less than significant.

[71] "To Read or Not To Read", see pg. 10: "Literary reading declined significantly in a period of rising Internet use": http://www.nea.gov/research/toread.pdf.

[72] "How and Why Are Libraries Changing?" Denise A. Troll, Distinguished Fellow, Digital Library Federation: http://old.diglib.org/use/whitepaper.htm.

XVI. RECREATION

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☐	☒
b. Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	☐	☐	☒	☐

a. Would the project Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facilities would occur or be accelerated?

No Impact. As discussed in response to Checklist Question XV(d) (Public Services – Parks), the Project includes physical upgrades to and the expansion of the existing high school campus, including new athletic fields, an outdoor swimming pool, and new parking facilities which would provide and allow for additional recreational space for students, but would not result in an increase in maximum student enrollment. Therefore, it is expected that the recreational needs of the students would be satisfied through the provision of on-site recreational facilities, and as such, no impact would occur.

b. Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?

Less Than Significant Impact. A significant impact may occur if a project includes the construction or expansion of park facilities, the construction of which could have a significant adverse effect on the environment. While the Project includes the construction of new athletic fields and an outdoor swimming pool on the North Campus and the resurfacing of the existing baseball field on the Main Campus to be used as a softball field, as demonstrated throughout this IS/MND, the construction of these facilities would not have an adverse physical effect on the environment. Further, as the Project would not result in additional demand for parks and recreational facilities, the Project would not require the construction or expansion of recreational facilities, and this impact would be less than significant.

Cumulative Impacts

Refer to discussion of cumulative impacts related to parks and recreational facilities under response to Checklist Question XV(d) (Public Services – Parks). As discussed therein, cumulative impacts related to parks and recreational facilities would be less than significant.

XVII. TRANSPORTATION

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a. Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	☐	☐	☒	☐
b. Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?	☐	☐	☐	☒
c. Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☒	☐	☐
d. Result in inadequate emergency access?	☐	☐	☒	☐

This section is based on the following items, which are included in Appendix H of this IS/MND:

- Transportation Assessment Report, Armen Hovanessian Transportation Consulting, May 4, 2023.
- Transportation Assessment Letter, Los Angeles Department of Transportation, May 16, 2023.

a. Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?

Less Than Significant Impact. A significant impact would occur if a project conflicts with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadways, bicycle, and pedestrian facilities. The Project would not conflict with the relevant City plans, policies, and programs and does not include any features that would preclude the City from completing and complying with these guiding documents and policy objectives. The Project will not conflict with any plans or policies that govern the public right-of-way, such as the Los Angeles Department of Transportation's (LADOT) Manual of Policy and Procedures (MPP) Section 321, Driveway Design. The Project has been found to be consistent with the GHG reduction targets forecasted in the SCAG RTP/SCS as it would result in a decrease of 1,355 net daily vehicle trips

when compared to existing conditions. Additionally, the Project has been found to be consistent with the transportation-related elements of the Plan for a Healthy Los Angeles (Healthy LA), Vision Zero, the Mobility Hubs Reader's Guide, the City's Walkability Checklist, and the Canoga Park – Winnetka – Woodland Hills – West Hills Community Plan. Therefore, the Project would not conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadways, bicycle, and pedestrian facilities, and the impact would therefore be less than significant.

b. Would the project conflict or be inconsistent with CEQA Guidelines section 15064.3 subdivision (b)?

No Impact. This question was revised to address consistency with CEQA Guidelines Section 15064.3, subdivision (b), which relates to use of vehicle miles traveled (VMT) as the methodology for evaluating traffic impacts. The Los Angeles Department of City Planning (LADCP) and LADOT updated the Transportation Section of the City's CEQA Thresholds Guide to comply with and implement Senate Bill 743 (SB 743).

On September 27, 2013, Governor Brown signed SB 743. Under SB 743, the focus of transportation analysis pursuant to CEQA shifts from driver delay, or Level of Service (LOS), to reduction in VMT, reduction in GHG emissions, creation of multimodal networks, and promotion of mixed-use developments. In December 2018, the California Natural Resources Agency certified and adopted amendments to the CEQA Guidelines implementing SB 743 with a target implementation date of July 1, 2020. City staff presented the CEQA Appendix G environmental checklist update to the City Council, which led to the adoption of new VMT-based significance thresholds and its subsequent incorporation into the City's CEQA Threshold Guide. In the course of this update, LADOT has developed a VMT Calculator tool to "screen" projects to determine if a VMT analysis is required, and if so, then to estimate project specific daily household VMT per capita and daily work VMT per employee for land use development projects. This tool is intended to be used for the development projects within the City, and the VMT methodology is tailored to the Transportation Assessment Guidelines (TAG).

LADOT's VMT Calculator, version 1.3, was used to determine whether the Project would exceed any of the Transportation Impact Assessment criteria, which would require further transportation impact analysis. The VMT Calculator sheets are included in Appendix 5 of the Transportation Assessment Report (which is included as Appendix H-1 of this IS/MND) and demonstrate that the Project would result in a net decrease of daily vehicle trips when compared to existing conditions.[73] This reduction is the result of demolishing an existing shopping center which is a high trip-generating use and replacing it with athletic and ancillary facilities for a high school. Based on the results using the City's VMT Calculator, a formal VMT assessment is not required

[73] The VMT calculator sheets included in Appendix 5 of the Transportation Assessment Report show a decrease of 1,179 net daily trips, and the trip generation analysis provided in Table 8 of the Transportation Assessment Report show a decrease of 1,355 net daily trips.

to be performed because the Project does not exceed the daily trip threshold of 250 net new daily vehicle trips established as the screening criteria in the TAG. Accordingly, the Project would not conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b), and no impact with respect to VMT would occur.

c. Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

Less Than Significant Impact with Mitigation. A significant impact may occur if a project were to include a new roadway design, introduce a new land use or project features into an area with specific transportation requirements and characteristics that have not been previously experienced in that area, or if project access or other features were designed in such a way as to create hazardous conditions.

Construction

Trucks and other construction-related vehicles would access the Project Site over the course of all construction phases. The Project's maximum truck trip generation would occur during grading and hauling operations for the Multistory Building on the Main Campus. During this one-month phase, up to 47 haul trucks per day (approximately 94 one-way trips) would remove cut soils for transportation to a regional landfill. The Project also requires a haul route approval for the export of approximately 17,800 cubic yards from the Main Campus and approximately 720 cubic yards of export from the North Campus. The proposed haul route would exit the school Project Site and travel west on Saticoy Street (which then turns into Ingomar Street), south on Valley Circle Boulevard, and west on Long Valley Road to the Ventura Freeway (US-101) on-ramps. Empty trucks returning to the Project Site would exit the Ventura Freeway at Mulholland/Valley Circle, travel east on Calabasas Road, north on Valley Circle Boulevard, east on Ingomar Street, and east on Saticoy Street. Saticoy is designated as an Avenue II Street generally improved to an 85-foot width with sufficient capacity for the haul trucks. Valley Circle Boulevard is a generally commercial street designated Avenue I in this location improved up to100 feet.

As part of the Project approvals, the Advisory Agency will approve the haul route for the haul trucks. In addition, LADOT requires implementation of worksite traffic control plans to ensure that any construction-related effects are minimized to the greatest extent possible. To be conservative, a Construction Traffic Management Plan (CTMP) will be implemented (see TRAN-MM-1), which would ensure that construction related traffic impacts are less than significant.

Operation

The Transportation Assessment Report (included in Appendix H-1 of this IS/MND) addresses traffic anticipated to be generated by the Project. As the Project would not increase student enrollment or faculty or staff, it would not result in any new trips as a result of students or employees traveling to and from the Project Site. However, new trips would be generated by new special events and activities associated with the new outdoor pool on the North Campus. The

following provides a summary of new events and activities at the North Campus (not including existing school events that would shift from the Main Campus to the North Campus):

- 10 high school swim competitions per year
- 10 middle school swim competitions per year
- Swim practice for other schools (limited to February through April)
- Swim lessons and water exercise classes daily
- Local community swimming (if there are no other activities at the pool)
- Local non-school athletic groups (limited to May through December)

When taking into account the removal of the existing shopping center on the North Campus portion of the Project Site, the Project would result in no net new AM peak hour trips, 292 net new PM peak hour trips, and a reduction of 1,355 daily trips. The net new PM peak hour trips would be generated by the activities at the North Campus that are listed above.

The Project would not substantially increase hazards due to a geometric design feature. Vehicular access to the Project Site would be provided via Chaminade Avenue, Cohasset Street, Keswick Street, Saticoy Street, and Woodlake Avenue. The Project would not add or shift any access points on the Main Campus. For the North Campus, there are currently four access points along Saticoy Street which would be reduced to the two access points for the Project. There are also currently two access points along Woodlake Avenue which would be reduced to one access point at the approximate location of the existing north access point. The Project driveways (existing and new) will meet the standards set forth by LADOT and BOE.

In addition, the Transportation Assessment Report (included as Appendix H-1 of this IS/MND) included an access, safety, and circulation evaluation to determine whether Project traffic would cause or substantially extend queueing at nearby intersections. As shown in Table 15 of the Transportation Assessment Report, with the addition of Project traffic, the queueing length would only increase by less than one car length. Further, the Project would include a Traffic Management Plan (TMP), formally provided as PDF-2 in Section 3, Project Description. The purpose of this plan is to establish operational procedures to improve traffic circulation, student safety, maximize the efficiency of drop-off and pick-up operations, and reduce delays during those time periods. Therefore, the Project would not create hazardous conditions and this impact would be less than significant.

Mitigation Measure

TRANS-1 Construction Traffic Management Plan

Prior to the start of construction, a Construction Traffic Management Plan (CTMP) shall be submitted to LADOT for review and approval. The CTMP will include a Worksite Traffic Control Plan, which will facilitate traffic and pedestrian movement, and minimize the potential conflicts between construction activities, street traffic, bicycles, and pedestrians. The CTMP will include, but not limited to, the following measures:

- Maintaining access for land uses in the vicinity of the Project Site during construction.
- Schedule construction materials deliveries during off-peak periods to the extent practical.
- Organize deliveries and staging of all equipment and materials in the most efficient manner possible, and on-site where possible, to avoid an impact to surrounding roadways.
- Coordinate deliveries to ensure trucks do not wait to unload or load and impact surrounding roadways, and if needed, utilize an off-site staging area.
- Control truck and vehicle access to the Project Site with flagmen.
- Limit lane closures to the maximum extent possible and avoid peak period hours to the extent possible. Where such closures are necessary, the Worksite Traffic Control Plan will identify the location of lane closures and identify all traffic control measures, signs, delineators, and work instructions to be implemented by the construction contractor through the duration of demolition and construction activity.
- Parking for construction workers will be provided either on-site or at off-site, off-street locations.

d. Result in inadequate emergency access?

Less Than Significant Impact. A significant impact would occur if a project would significantly impede emergency vehicle response times. Emergency vehicular access to the Project Site would be maintained from all Project driveways, and the Project's driveways and internal circulation would be designed to meet all applicable City Building Code and Fire Code requirements regarding site access, including providing adequate emergency vehicle access both during construction as well as after completion of the Project. Compliance with applicable City Building Code and Fire Code requirements, including emergency vehicle access and fire lanes, would be

confirmed as part of LAFD's fire/life safety plan review and inspection required in Section 57.118 of the LAMC. The Project also would not include the installation of barriers that could impede emergency vehicle access both during and operation. The Transportation Assessment Report (included in Appendix H-1 of this IS/MND) demonstrates that the Project would result in a decrease of daily vehicle trips when compared to existing conditions, and therefore Project traffic will not impact surrounding roadways or impede emergency vehicles from access adjacent streets. Emergency access to the Project Site and surrounding area would be maintained both during Project construction and operation. Therefore, the Project would not result in inadequate emergency access during construction or operation, and impacts to emergency access during construction and operation of the Project would be less than significant.

Cumulative Impacts

Pursuant to the TAG, each of the plans, programs, ordinances, and policies to assess potential conflicts with proposed projects should be reviewed to assess cumulative impacts that may result from the Project in combination with other nearby development projects. A cumulative impact could occur if the Project, with other future development projects located on the same block were to cumulatively preclude the City's ability to serve transportation user needs as defined by the City's transportation policy framework. As stated above, no related projects have been identified within one-half mile of the Project Site. Therefore, cumulative impacts would be less than significant.

As described above, a formal VMT assessment is not required to be performed for the Project because the forecast of net new daily vehicle trips does not exceed the daily trip threshold of 250 net new daily vehicle trips established as the screening criteria in the TAG, and the Project was determined to result in no impact related to VMT as it results in a decrease of 1,355 net daily vehicle trips when compared to existing conditions. As identified in the TAG, development projects that do not exhibit significant VMT impacts are considered to align with the long-term VMT and greenhouse gas reduction goals of both the City and regional SCAG transportation plans. Therefore, since the Project itself does not result in VMT impacts, it is also deemed to have a less than significant cumulative VMT impact.

Pursuant to the TAG, the potential for cumulative impacts related to hazardous design features should be determined by reviewing project site access plans for cumulative development projects with access points proposed along the same block(s) as a proposed project. As stated above, no related projects have been identified within one-half mile of the Project Site. Therefore, there would be no cumulative impacts related to substantially increasing hazards due to geometric design features or incompatible uses, and this impact would be less than significant.

Finally, similar to the Project, all ingress/egress and access associated with any other development projects would be designed and constructed in conformance to all applicable requirements, including the City Building Code, City Fire Code, LAMC, and other LAFD standards and requirements for design and construction. As all projects, including the Project and any other

development projects, would be required to comply with existing regulations related to access, cumulative impacts with respect to emergency access would be less than significant.

XVIII. TRIBAL CULTURAL RESOURCES

Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or	☐	☒	☐	☐
b. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	☐	☒	☐	☐

The analysis in this section is based on the following, which are included in Appendix I of this IS/MND:

- Tribal Cultural Resources Technical Memorandum, SWCA Environmental Consultants, March 9, 2023.
- AB 52 Letter, City of Los Angeles, June 6, 2023.

a. Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is: Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k)?

b. Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American

tribe, and that is: A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe?

Less Than Significant with Mitigation Incorporated. A significant impact would occur if the project would cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place or object with cultural value to a California Native American tribe, which is Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k).

Approved by Governor Brown on September 25, 2014, Assembly Bill 52 (AB 52) establishes a formal consultation process for California Native American Tribes to identify potential significant impacts to Tribal Cultural Resources (TCRs), as defined in Public Resources Code Section 21074, as part of CEQA. Effective July 1, 2015, AB 52 applies to projects that file a Notice of Preparation of an MND or EIR on or after July 1, 2015. PRC Section 21084.2 now establishes that a project with an effect that may cause a substantial adverse change in the significance of a TCR is a project that may have a significant effect on the environment. To help determine whether a project may have such an effect, PRC Section 21080.3.1 requires a lead agency to consult with any California Native American tribe that requests consultation and is traditionally and culturally affiliated with the geographic area of a proposed project. That consultation must take place prior to the release of a negative declaration, mitigated negative declaration, or environmental impact report for a project. As a result of AB 52, the following must take place: 1) prescribed notification and response timelines; 2) consultation on alternatives, resource identification, significance determinations, impact evaluation, and mitigation measures; and 3) documentation of all consultation efforts to support CEQA findings for the administrative record.

Under AB 52, if a lead agency determines that a project may cause a substantial adverse change to a TCR, the lead agency must consider measures to mitigate that impact. PRC Section 21074 provides a definition of a TCR. In brief, in order to be considered a TCR, a resource must be either: 1) listed, or determined to be eligible for listing, on the national, State, or local register of historic resources, or 2) a resource that the lead agency chooses, in its discretion supported by substantial evidence, to treat as a TCR. In the latter instance, the lead agency must determine that the resource meets the criteria for listing in the State register of historic resources or City Designated Cultural Resource. In applying those criteria, a lead agency shall consider the value of the resource to the tribe.

As specified in AB 52, lead agencies must provide notice to tribes that are traditionally and culturally affiliated with the geographic area of a proposed project if the tribe has submitted a written request to be notified. The tribe must respond to the lead agency within 30 days of receipt

of the notification if it wishes to engage in consultation on the project, and the lead agency must begin the consultation process within 30 days of receiving the request for consultation. An informational letter (included in Appendix I-2 of this IS/MND) was mailed to a total of 10 Tribes known to have resources in this area, on June 6, 2023, describing the Project and requesting any information regarding resources that may exist on or near the Project Site.

On June 9, 2023, staff received an email from Sarah Brunzell, on behalf of the Cultural Resources Management (CRM) Division of the Fernandeño Tatviam Band of Mission Indians (FTBMI), requesting a Tribal Consultation meeting for the Project. The Tribal representative requested that the Applicant submit a FTBMI Project Intake Form, in order to further evaluate the Project's impacts related to Tribal Cultural Resources. On June 27, 2023, the Tribal representative indicated that the Project is categorized as Medium Sensitivity and directed the Applicant to complete a new consultation form. On June 29, 2023, the Planning staff had a meeting with the Tribal representative to discuss the Project's potential impacts to Tribal Cultural Resources in the region. During that meeting, the Tribal representative provided the following information. The Tribal representative stated that the Project is in close proximity to a number of Tribal Cultural Resource Sites, some of which have also been documented as Cultural Resources (CA-LAN-413, CA-LAN-0834, etc). The Tribal representative also stated that the village of Jucayunga is also near the proposed undertaking as well as Rancho El Escorpion, a site that is both historic and prehistoric in nature. Although the Project location has been previously developed, the construction occurred prior to AB 52 presumably with no Tribal Monitor(s) present and the current proposed undertaking will disturb native soil. The FTBMI CRM Division requested the following: that prior to the initiation of ground-disturbing activities, the Project to retain a professional Native American monitor procured by the Fernandeño Tataviam Band of Mission Indians; that the Lead Agency and/or applicant shall, in good faith, consult with the FTBMI on the disposition and treatment of any Tribal Cultural Resource encountered during all ground disturbing activities; and if human remains or funerary objects are encountered during any activities associated with the Project, work in the immediate vicinity (within a 100-foot buffer of the find) shall cease and the County Coroner shall be contacted.

According to the tribal cultural resources technical memorandum (included in Appendix I-1 of this IS/MND), no resources that could qualify as tribal cultural resources were identified in a CHRIS records search within the Project Site or a half-mile radius. The results of the sacred lands file (SLF) search conducted by the Native American Heritage Commission (NAHC) indicated that there are known tribal cultural resources in the vicinity of the Project Site. A review of ethnographic literature and historical maps document significant Native American villages and sites nearby. The Chumash village known as *Atavsanga* (also known as *Ataguama* or *Totongna*) is the closest ethnographically documented village to the Project Site, located approximately two miles to the southwest. The Tatavian village known as *Momonga* is located approximately 3.5 miles to the north (near present-day Chatsworth), and the Gabrielino village known as *Siutcanga* is located approximately 8.4 miles to the southeast (near present-day Encino). These villages are often correlated with the later Spanish and Mexican period ranchos, as ranchos developed around existing Native American settlements. *Atavsanga* and *Siutcanga* are both believed to have been

located within the boundaries of Ranchos El Escorpion and Encino, respectively.

The Project Site (both the Main and proposed North Campuses) was developed in the early 1960s with the Main Campus buildings and sports field, and a multi-tenant mini shopping center and paved parking lot within the proposed North Campus. The shopping center was expanded in 1981 to its current size. The development of the Project Site and its prior use as agricultural fields is likely to have substantially compromised the integrity of the physical setting and likely destroyed or displaced any tribal cultural resources that may have been deposited on the surface or shallowly buried. Furthermore, the surficial geology of the Project Site has been identified as late to middle Pleistocene old alluvial fan deposits. According to the paleontological resources study conducted for this Project (contained in Appendix E of this IS/MND), the depth to the underlying, previously undisturbed sediments is unknown, but likely very shallow (e.g., three feet below ground surface). These types of sediments are naturally less likely to contain buried archaeological resources.

Archaeological remains that are tribal cultural resources can occur below paved surfaces within developed urban settings. While the CHRIS records search results did not identify any such archaeological resources within the Project Site or vicinity, most of the Project Site was not inspected for archaeological resources before being developed. SWCA (the preparer of the tribal cultural resources technical memorandum) considers the greater region of the Project Site as having moderate sensitivity for tribal cultural resources. However, the Project Site consists of a comparatively small area within the greater region and has been subject to multiple episodes of ground disturbances. As a result, archaeological materials once located on the surface or in shallow deposits are very unlikely to have been preserved within the Project Site, and though more deeply buried deposits could exist, SWCA considers the sensitivity for archaeological resources to decrease within the Project Site. Based on the Historic period developments within the Project Site and SWCA's interpretation of the sediment profiles across the entire Project Site, the sensitivity for tribal cultural resources within the near-surface is considered low.

While there are known significant Native American village sites located in the general vicinity of the Project Site, such as *Atavsanga* and *Momonga*, the Project Site is not located near or in a comparable environmental setting to suggest an increased likelihood for associated tribal cultural resources to be discovered within the Project Site. The Project Site is set within what has been a broad floodplain of the Los Angeles River for which there are only generalized indicators of former use by Native Americans such that substantial material deposits are likely to have occurred. These generalized indicators include a reasonable proximity to former stream courses and important natural resources that occur in higher densities near waterways. Two intermittent streams are located in the vicinity of the Project Site: Dayton Creek formed approximately 0.6 mile to the north, and Bell Creek is approximately 0.7 miles to the south. Dayton Creek connects to Chatsworth Creek, which is located approximately 0.7 miles east of the Project Site. Both Chatsworth and Bell Creeks connect to the south-flowing Los Angeles River, currently located approximately 2.1 miles southeast of the Project Site. The proximity to these streams could suggest the area was more intensively used by Native Americans, such that there would be a

corresponding increase in the potential for a tribal cultural resource to be present.

Overall, late to middle Pleistocene old alluvial fan deposits below the artificial fill within the Project Site are naturally less likely to contain buried archaeological resources. The depth to the depth to the underlying, previously undisturbed sediments is unknown, but likely very shallow (e.g., three feet below ground surface). Additionally, the impacts to the near-surface from Historic period agricultural use and developments further decreases the likelihood of encountering any buried archaeological resources due to the compromised integrity of the physical setting. Based on these findings, SWCA considers the sensitivity for tribal cultural resources to be low.

Nevertheless, should tribal cultural resources be inadvertently encountered, the Project would comply with Mitigation Measures MM-TCR-1 through MM-TCR-3, provided below, regarding the discovery and handling of any potential resources. With implementation of MM-TCR-1 through MM-TCR-3, impacts with respect to tribal cultural resources would be less than significant.

Cumulative Impacts

Impacts related to tribal cultural resources tend to be site-specific and are assessed on a site-by-site basis. The Project's impacts with respect to tribal cultural resources would be less than significant with implementation of Mitigation Measures MM-TCR-1 through MM-TCR-3. In addition, no related projects have been identified within one-half mile of the Project Site. As such, the Project would not contribute to any potential cumulative impacts related to tribal cultural resources, cumulative impacts related to tribal cultural resources would be less than significant.

Mitigation Measures

MM-TCR-1 Prior to commencing any ground disturbance activities at the Project Site, the Applicant, or its successor, shall retain one (1) tribal monitor that is qualified to identify subsurface tribal cultural resources. Ground disturbance activities shall include excavating, digging, trenching, plowing, drilling, tunneling, quarrying, grading, leveling, removing peat, clearing, driving posts, augering, backfilling, blasting, stripping topsoil or a similar activity at the Project Site. The qualified tribal monitor shall be approved by the Fernandeño Tataviam Band of Mission Indians.

If cultural resources are discovered during Project activities, all work in the immediate vicinity of the find (within a 60-foot buffer) shall cease and a qualified archaeologist meeting Secretary of Interior standards shall be retained by the Applicant, or its successor, to assess the find. A qualified archaeologist/archaeological monitor shall be identified as principal personnel who must meet the Secretary of the Interior's Standards and Guidelines for Archeology and have a minimum of 10 years of experience as a principal investigator working with Native American archaeological sites in Southern California. The archaeologist shall ensure that all other personnel associated with and hired for the archaeological monitoring are appropriately trained and qualified. Work on the

portions of the Project outside of the buffered area may continue during this assessment period. The Fernandeño Tataviam Band of Mission Indians shall be contacted about any pre-contact and/or post-contact finds and be provided information after the archaeologist makes their initial assessment of the nature of the find, to provide Tribal input with regards to significance and treatment.

MM-TCR-2 The Lead Agency and/or Applicant shall, in good faith, consult with the Fernandeño Tataviam Band of Mission Indians on the disposition and treatment of any Tribal Cultural Resource encountered during all ground disturbing activities.

MM-TCR-3 If human remains or funerary objects are encountered during any activities associated with the Project, work in the immediate vicinity (within a 100-foot buffer of the find) shall cease and the County Coroner shall be contacted pursuant to State Health and Safety Code §7050.5 and that code shall be enforced for the duration of the Project.

XIX. UTILITIES AND SERVICE SYSTEMS

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a. Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	☐	☐	☒	☐
b. Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	☐	☐	☒	☐
c. Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☒	☐
d. Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	☐	☐	☒	☐
e. Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	☐	☐	☒	☐

a. Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?

Less Than Significant Impact. As discussed below, Project impacts related to these issues would be less than significant.

Water

Local water conveyance infrastructure in the vicinity of the Project Site is maintained and operated by the Los Angeles Department of Water and Power (LADWP). As shown on Table XIX-1, the Project would consume approximately 2,663,284 gallons of water per year, or approximately 7,297 gallons of water per day. This is a conservative estimate that does not take into account

the water consumed by the existing shopping center on the North Campus, which would be removed as part of the Project.

Table XIX-1
Estimated Water Consumption and Wastewater Generation[1]

Land Use	Total (gallons/year)[2]
High School Expansion	2,299,554
Recreational Swimming Pool	363,730
Total	**2,663,284**

1 Conservatively assumes that all water converts to wastewater.
2 Calculated via CalEEMod. Refer to Appendix B of this IS/MND and conservatively does not take credit for the removal of the existing shopping center uses on the North Campus.

As part of the permitting process for the Project, the Project Applicant would be required to coordinate with the LADWP Water Service Organization to determine if the existing water supply infrastructure maintains sufficient capacity to accommodate the Project's demand for water, which is done through a Service Advisory Request (SAR). When completed, the SAR provides information regarding the range of flows and pressures that can be expected at the requested service location. The type and cost of improvements are also provided in the SAR. A project developer will then be required to participate in the cost of any necessary new water main extensions and/or replacements required to serve a project. In the event LADWP is unable to perform required installations and replacements in a timely manner, the project developer can have the work performed by a private contractor, in consultation with LADWP.[74] Water main and related infrastructure upgrades would not be expected to create a significant impact to the physical environment because: (1) any disruption of service would be of a short-term nature; (2) replacement of the water mains would be within public and private rights-of-way; and (3) the existing infrastructure would be replaced with new infrastructure in areas that have already been significantly disturbed. For these reasons, the Project would not require or result in relocation or the construction of new or expanded water facilities, the construction or relocation of which could cause significant environmental effects. Therefore, Project impacts related to water facilities would be less than significant.

Cumulative Impacts

As described previously, no related projects have been identified within one-half mile of the Project Site. Nevertheless, implementation of the Project in conjunction with other development projects could result in an increased impact on water conveyance infrastructure. As with the Project, any other development projects would be subject to review by LADWP to ensure that existing infrastructure would be adequate to meet the water demand requirements for each project. All development in the City is subject to LADWP and City requirements regarding potential infrastructure improvements need to meet respective water infrastructure needs. Additionally, all

74 *Los Angeles Department of Water and Power,* Guide to Water Services.

development in the City is required to comply with Fire Code requirements for fire flow and other fire protection requirements and are subject to ongoing evaluations by LADWP, the City's Department of Public Works, and the Los Angeles Fire Department to ensure water conveyance infrastructure is adequate. Compliance with existing regulations would ensure that cumulative impacts related to water infrastructure would be less than significant.

Wastewater

LA Sanitation (LASAN) operates and maintains the wastewater treatment, reclamation and collection facilities serving most of the City of Los Angeles incorporated areas as well as several other cities and unincorporated areas in the Los Angeles basin and San Fernando Valley. The collection infrastructure consists of over 6,700 miles of local, trunk, mainline and major interceptor sewers, five major outfall sewers, and 46 pumping plants. The wastewater generated by the Project would ultimately flow to the Hyperion Treatment Plant (HTP) System. The existing design capacity of the Hyperion Service Area is approximately 550 mgd and the existing average daily flow for the system is approximately 300 mgd.[75] Thus, there is approximately 250 mgd of available capacity within the Hyperion Service Area. As identified on Table XIX-1, above, the Project would generate approximately 2,663,284 gallons of wastewater per year, or approximately 7,297 gallons of wastewater per day. This is a conservative estimate that does not take into account the wastewater generated by the existing shopping center on the North Campus, which would be removed as part of the Project. With a remaining daily capacity of 250 mgd, the Hyperion Service Area would have adequate capacity to serve the Project. Therefore, Project impacts related to wastewater treatment would be less than significant.

Regarding sewer infrastructure capacity, the City has a codified regulatory process to confirm that there is sufficient infrastructure capacity to serve a project. The LAMC includes regulations that require the City to assure available sewer capacity for new projects and to collect fees for improvements to the infrastructure system. LAMC Section 64.15 requires that the City perform a Sewer Capacity Availability Review (SCAR) when an applicant seeks a sewer permit to connect a property to the City's sewer system, proposes additional discharge through their existing public sewer connection, or proposes a future sewer connection or future development that is anticipated to generate 10,000 gallons or more of sewage per day. A SCAR provides a preliminary assessment of the capacity of the existing municipal sewer system to safely convey a project's newly generated wastewater to the appropriate sewage treatment plant.

LAMC Sections 64.11 and 64.12 require approval of a sewer permit, also called an "S" Permit, prior to connection to the wastewater system. LAMC Sections 64.11.2 and 64.16.1 require the payment of fees for new connections to the City's sewer system to assure the sufficiency of sewer infrastructure. New connections to the sewer system are assessed a Sewerage Facilities Charge. The rate structure for the Sewerage Facilities Charge is based upon wastewater flow strength as

[75] City of Los Angeles Department of Public Works, LA Sanitation, Sewer System Management Plan, Hyperion Sanitary Sewer System, January 2019.

well as volume. The determination of wastewater flow strength for each applicable project is based on City guidelines for the average wastewater concentrations of two parameters, biological oxygen demand and suspended solids, for each type of land use. Sewerage Facilities Charge fees are deposited in the City's Sewer Construction and Maintenance Fund for sewer and sewage-related purposes, including, but not limited to, industrial waste control and water reclamation purposes. As the Project would comply with the City's codified regulatory process to ensure adequate sewer capacity, Project impacts with respect to wastewater infrastructure would be less than significant.

Cumulative Impacts

As described previously, no related projects have been identified within one-half mile of the Project Site. Nevertheless, implementation of the Project combined with other development projects in the area could increase the need for wastewater treatment. As with the Project, other development projects would be subject to review by the Bureau of Sanitation to ensure that existing infrastructure would be adequate to meet the requirements for each project. All development in the City is subject to City requirements regarding potential infrastructure improvements need to meet respective wastewater infrastructure needs. Further, with a remaining treatment capacity of approximately 250 mgd, the Hyperion Service Area would have adequate capacity to accommodate the wastewater treatment requirements of cumulative development, and no new or upgraded treatment facilities would be required. Therefore, the cumulative wastewater treatment impacts would be less than significant.

Storm Water Drainage

As discussed in response to Checklist Question X(c)(iii) (Hydrology and Water Quality – Storm Drain Capacity), Project impacts related to storm drainage facilities would be less than significant.

Cumulative Impacts

Refer to the cumulative impact discussion provided in response to Checklist Topic X (Hydrology and Water Quality).

Electrical Power

As discussed in response to Checklist Questions VI(a) and (b) (Energy), Project impact related to electric power facilities would be less than significant.

Cumulative Impacts

Refer to the cumulative impact discussion provided in response to Checklist Topic VI (Energy).

Natural Gas

As discussed in response to Checklist Question VI(a) and (b) (Energy), Project impact related to natural gas facilities would be less than significant.

Cumulative Impacts

Refer to the cumulative impact discussion provided in response to Checklist Topic VI (Energy).

Telecommunications

In the Project Site area, existing telephone, cable television, and internet service is available from a variety of providers, including AT&T, Spectrum, and Frontier. The Project Site could be served by existing telecommunications facilities that are available in the Project Site area and would not require new or expanded facilities. Therefore, Project impacts related to telecommunications facilities would be less than significant.

Cumulative Impacts

As described previously, no related projects have been identified within one-half mile of the Project Site. Nevertheless, like the Project, any other development projects would represent infill development served by existing utilities, including telecommunications infrastructure. As with the Project, any other development projects would likely require project- or site-specific infrastructure to connect to the existing infrastructure, would not require new or expanded facilities. Therefore, cumulative impacts related to telecommunications infrastructure would be less than significant.

b. Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?

Less Than Significant Impact. A significant impact may occur if a project were to increase water consumption to such a degree that new water sources would need to be identified, or that existing resources would be consumed at a pace greater than planned for by purveyors, distributors, and service providers. The City's water supply comes from local groundwater sources, the Los Angeles-Owens River Aqueduct, State Water Project, and from the Metropolitan Water District of Southern California, which is obtained from the Colorado River Aqueduct. These sources, along with recycled water, are expected to supply the City's water needs in the years to come. As concluded in LADWP's 2020 Urban Water Management Plan (UWMP), projected water demand for the City would be met by the available supplies during an average year, single dry year, and multiple dry year in each year from 2025 to 2045. LADWP's 2020 UWMP also includes a drought risk assessment, which shows that there would be no water shortages over the five-year drought, which started in 2021.[76]

[76] Los Angeles Department of Water and Power, 2020 Urban Water Management Plan, page 11-13.

As shown on Table XIX-1, above, the Project would consume approximately 2,663,284 gallons of water per year, or approximately 7,297 gallons of water per day. According to LADWP, if a project is consistent with the City's General Plan, the projected water demand associated with that project is considered to be accounted for in the most recently adopted UWMP, which is prepared by the LADWP to ensure that existing and projected water demand within its service area can be accommodated. As discussed previously in response to Checklist Question XI(b) (Land Use and Planning), the Project is consistent with the City's General Plan land use designation for the Project Site. As discussed in previously in response to Checklist Question III(a) (Air Quality), the Project would not result in an increase in student enrollment beyond the currently permitted maximum enrollment and therefore the Project would be within the population projections contained in SCAG's RTP/SCS, upon which the current UWMP was based. Thus, the Project's demand for water could be accommodated by LADWP's existing and projected water supplies. As such, the Project would not require new or additional water supply or entitlements, and impacts related to water supply would be less than significant.

Cumulative Impacts

As described previously, no related projects have been identified within one-half mile of the Project Site. Nevertheless, implementation of the Project in conjunction with other development projects could increase demand for water services provided by the City's water supply system. LADWP (through its UWMP) anticipates that its projected water supplies will meet demand through the year 2040. In terms of the City's overall water supply condition, any project that is consistent with the City's General Plan has been taken into account in the planned growth of the water system. In addition, any project that conforms to the demographic projections from SCAG's RTP/SCS and is located in the service area is considered to have been included in LADWP's water supply planning efforts so that projected water supplies would meet projected demands. For projects that meet the requirements established pursuant to SB 610, SB 221, and Sections 10910-10915 of the State Water Code, a water supply assessment demonstrating sufficient water availability is required on a project-by-project basis. Similar to the Project, any other development projects would be required to comply with City and State water code and conservation programs for both water supply and infrastructure.

Both the Project and any other development projects would be subject to the water conservation measures outlined in the City's Green Building Code, which would partially offset the cumulative demand for water. LADWP undertakes expansion or modification of water service infrastructure to serve future growth in the City as required in the normal process of providing water service. For these reasons, cumulative impacts related to water would be less than significant.

c. Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?

Less Than Significant Impact. A significant impact may occur if a project would increase wastewater generation to such a degree that the capacity of facilities currently serving the Project Site would be exceeded. As discussed in subsection (a), above, with a remaining daily capacity of approximately 250 mgd, the Hyperion Service Area would have adequate capacity to serve the Project. Therefore, Project impacts related to wastewater treatment would be less than significant.

Cumulative Impacts

For a full discussion of cumulative impacts with respect to wastewater treatment, please see subsection (a), above. As discussed therein, cumulative impacts related to wastewater treatment would be less than significant.

d. Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?

Less Than Significant Impact. A significant impact may occur if a project were to increase solid waste generation to a degree that existing and projected landfill capacity would be insufficient to accommodate the additional solid waste or impair the attainment of solid waste reduction goals. The landfills that serve the City and the capacity of these landfills are shown in Table XIX-2, below. As shown, the landfills have an approximate available daily intake of 19,957 tons.

Table XIX-2
Landfill Capacity

Landfill Facility	Estimated Remaining Life (years)	Estimated Remaining Disposal Capacity (million tons)	Permitted Intake (tons/day)	2019 Average Daily Disposal (tons/day)	Available Daily Intake (tons/day)
Antelope Valley	10	10.97	5,548	2,079	3,469
Chiquita Canyon	28	56.99	12,000	5,436	6,564
Lancaster	22	9.95	5,100	357	4,743
Sunshine Canyon	18	55.16	12,100	6,919	5,181
				Total	**19,957**
Source: County of Los Angeles, Countywide Integrated Waste Management Plan, 2019 Annual Report, September 2020.					

As shown on Table XIX-3, the Project would generate approximately 125.1 tons of solid waste per year, or approximately 0.34 tons of solid waste per day. This is a conservative estimate that does not take into account the solid waste generated by the existing shopping center on the North Campus, which would be removed as part of the Project. With a remaining daily intake capacity

of approximately 19,957 tons of solid waste per day, the four Class III landfills serving the City that accept commercial solid waste could accommodate the Project's increase of approximately 0.34 tons of solid waste per day. Further, pursuant to AB 939, each city and county in the state must divert 50 percent of its solid waste from landfill disposal through source reduction, recycling, and composting. Therefore, Project impacts related to solid waste would be less than significant.

Table XIX-3
Estimated Solid Waste Generation

Land Use	Total (tons/year)[1]
High School Expansion	90.0
Recreational Swimming Pool	35.1
Total	**125.1**

[1] Calculated via CalEEMod. Refer to Appendix B of this IS/MND and conservatively does not take credit for the removal of the existing shopping center uses on the North Campus.

Cumulative Impacts

As described previously, no related projects have been identified within one-half mile of the Project Site. Nevertheless, the Project in combination with any other development projects could generate additional solid waste. As shown in Table XIX-2, above, the landfills serving the City have an approximate available daily intake of 19,957 tons. Therefore, the facilities serving the Project area would have adequate capacity to accommodate the solid waste generated by cumulative development. Similar to the Project, any other development projects would be required by the City to participate in regional source reduction and recycling programs pursuant to AB 939, which would further reduce the amount of solid waste to be disposed of at the landfills. Thus, cumulative development would not create the need for new or expanded landfills, and cumulative impacts with respect to solid waste service would be less than significant.

e. Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?

Less Than Significant Impact. Solid waste management in the State is primarily guided by the California Integrated Waste Management Act of 1989 (AB 939), which emphasizes resource conservation through reduction, recycling, and reuse of solid waste. AB 939 establishes an integrated waste management hierarchy consisting of (in order of priority): 1) source reduction; 2) recycling and composting; and 3) environmentally safe transformation and land disposal. In addition to AB 939, SB 1374 requires that the Project implement a construction waste management plan to recycle and/or salvage a minimum of 75 percent of non-hazardous demolition and construction debris. Additionally, the City is currently implementing its "Zero-Waste-to-Landfill" goal to achieve zero waste to landfills by 2025 to enhance the Solid Waste Integrated Resources Planning Process. The Project would comply with the applicable regulations associated with solid waste, including AB 939, SB 1374, and the Construction and Demolition Waste Recycling Ordinance (Ordinance No. 181,519), which requires all mixed construction and demolition waste generated within City limits be taken to City certified construction and demolition

waste processors. Since the Project would comply with federal, State, and local statutes and regulations related to solid waste, a less than significant impact would occur.

Cumulative Impacts

All development in the City, including the Project and any other development projects, would be required to comply with the City's recycling programs. Therefore, cumulative impacts related to this issue would be less than significant.

XX. WILDFIRE

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
If located in or near state responsibility areas or lands classified as very high fire hazard severity zones would the project:				
a. Substantially impair an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒
b. Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	☐	☐	☐	☒
c. Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	☐	☐	☐	☒
d. Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	☐	☐	☐	☒

a. Substantially impair an adopted emergency response plan or emergency evacuation plan?

No Impact. The Project Site is not located in or near a state responsibility area, nor is the Project Site located in a Very High Fire Hazard Severity Zone.[77] Therefore, no impact would occur.

b. Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?

No Impact. The Project Site is not located in or near a state responsibility area, nor is the Project Site located in a Very High Fire Hazard Severity Zone.[78] In addition, the Project Site is not located in a hillside zone. Therefore, no impact would occur.

[77] City of Los Angeles, ZIMAS Parcel Profile Report, website: http://zimas.lacity.org, June 13, 2023.

[78] City of Los Angeles, ZIMAS Parcel Profile Report, website: http://zimas.lacity.org, June 13, 2023.

c. Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?

No Impact. The Project Site is not located in or near a state responsibility area, nor is the Project Site located in a Very High Fire Hazard Severity Zone.[79] Therefore, no impact would occur.

d. Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?

No Impact. The Project Site is not located in or near a state responsibility area, nor is the Project Site located in a Very High Fire Hazard Severity Zone.[80] Therefore, no impact would occur.

Cumulative Impacts

The Project vicinity is not within or near a very high fire severity zone, and the Project would not result in any impacts related to wildfire. In addition, no related projects have been identified within one-half mile of the Project Site. Therefore, no cumulative impacts related to wildfire would occur.

[79] City of Los Angeles, ZIMAS Parcel Profile Report, website: http://zimas.lacity.org, June 13, 2023.

[80] City of Los Angeles, ZIMAS Parcel Profile Report, website: http://zimas.lacity.org, June 13, 2023.

XXI. MANDATORY FINDINGS OF SIGNIFICANCE

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☐	☒	☐	☐
b. Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	☐	☐	☒	☐
c. Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	☒	☐

a. Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?

Less Than Significant with Mitigation Incorporated. As discussed under Checklist Topics IV (Biological Resources) and V (Cultural Resources), the Project would not have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory. As discussed under Checklist Topic VII (Geology and Soils, Paleontological Resources), with implementation of mitigation, the Project would not have the potential to eliminate important examples of the major periods of California history or prehistory related to paleontological resources. As discussed under Checklist Topic XVIII (Tribal Cultural Resources), with implementation of mitigation (MM-TCR-1 through MM-TCR-3), the Project would

not have the potential to eliminate important examples of the major periods of California history or prehistory related to tribal cultural resources. Therefore, these impacts would be less than significant.

b. Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?

Less Than Significant Impact. Based on the analysis contained in this IS/MND, the Project's contribution to cumulative impacts would not be considerable.

c. Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?

Less Than Significant Impact. Based on the analysis contained in this IS/MND, the Project would not result in any direct or indirect adverse effects on human beings, and all Project impacts would be less than significant.

MITIGATION MONITORING PROGRAM

1. INTRODUCTION

This Mitigation Monitoring Program (MMP) has been prepared pursuant to Public Resources Code Section 21081.6, which requires a Lead Agency to adopt a "reporting or monitoring program for changes to the project or conditions of project approval, adopted in order to mitigate or avoid significant effects on the environment." In addition, Section 15097(a) of the State CEQA Guidelines requires that a public agency adopt a program for monitoring or reporting mitigation measures and project revisions that are required to mitigate or avoid significant environmental effects. This MMP has been prepared in compliance with the requirements of CEQA, Public Resources Code Section 21081.6, and Section 15097 of the State CEQA Guidelines.

The City of Los Angeles (City) is the Lead Agency for the Project and therefore, is responsible for administering and implementing the MMP. A public agency may delegate reporting or monitoring responsibilities to another public agency or to a private entity that accepts the delegation. However, until mitigation measures have been completed, the Lead Agency remains responsible for ensuring that implementation of the mitigation measures occurs in accordance with the program.

A Mitigated Negative Declaration (MND) has been prepared to address the potential environmental impacts of the Project. Where appropriate, the MND identified mitigation measures to avoid or reduce potentially significant environmental impacts of the Project. This MMP is designed to monitor the implementation of the mitigation measures identified for the Project.

2. ORGANIZATION

As shown on the pages below, each identified mitigation measure and/or Project Design Feature (PDF) for the Project is listed and categorized by environmental issue area, with accompanying discussion of the following:

Enforcement Agency – the agency with the power to enforce the mitigation measure and/or PDF.

Monitoring Agency – the agency to which reports involving feasibility, compliance, implementation, and development are made, or who physically monitors the Project for compliance with the mitigation measure and/or PDF.

Monitoring Phase – the phase of the Project during which the mitigation measure and/or PDF shall be monitored. Examples include the following general categories:

- Pre-Construction, including the design phase

- Construction
- Pre-Operation
- Operation (Post-construction)

Monitoring Frequency – the frequency of which the mitigation measure and/or PDF shall be monitored.

Action Indicating Compliance – the action of which the enforcement or monitoring agency indicates that compliance with the required mitigation measure and/or PDF has been implemented.

The Project Applicant shall be responsible for implementing all mitigation measures and/or PDFs unless otherwise noted and shall be obligated to provide documentation concerning the implementation of the listed mitigation measures and/or PDFs to the appropriate monitoring agency and the appropriate enforcement agency. All departments listed in the MMP are within the City unless otherwise noted. It is noted that while certain agencies outside of the City may be listed as the monitoring/enforcement agencies for individual mitigation measures and/or PDFs listed in this MMP, the City, as the Lead Agency for the Project, is responsible for overseeing and enforcing implementation of the MMP as a whole.

3. ADMINISTRATIVE PROCEDURES AND ENFORCEMENT

This MMP shall be enforced throughout all phases of the Project. The Project Applicant shall be responsible for implementing each mitigation measure and/or PDF and shall be obligated to provide certification, as identified below, to the appropriate monitoring agency and the appropriate enforcement agency that each mitigation measure and/or PDF has been implemented. The Project Applicant shall maintain records demonstrating compliance with each mitigation measure and/or PDF. Such records shall be made available to the City upon request.

4. PROGRAM MODIFICATION

After review and approval of the final MMP by the Lead Agency, minor changes and modifications to the MMP are permitted, but can only be made subject to City approval. The Lead Agency, in conjunction with any appropriate agencies or departments, will determine the adequacy of any proposed change or modification. This flexibility is necessary in light of the nature of the MMP and the need to protect the environment. No changes will be permitted unless the MMP continues to satisfy the requirements of CEQA, as determined by the Lead Agency.

The Project shall be in substantial conformance with the mitigation measures and/or PDFs contained in this MMP. The enforcing departments or agencies may determine substantial conformance with the mitigation measures and/or PDFs in the MMP in their reasonable discretion. If the department or agency cannot find substantial conformance, a mitigation measure and/or

PDF may be modified or deleted, if the enforcing department or agency or the decision maker for a subsequent discretionary Project-related approval finds that the modification or deletion complies with CEQA, including State CEQA Guidelines Sections 15162 and 15164, which could include the preparation of an addendum or subsequent environmental clearance, if necessary, to analyze the impacts from the modification to or deletion of mitigation measures and/or PDFs. Any addendum or subsequent CEQA clearance that may be required in connection with the modification or deletion shall explain why the mitigation measure and/or PDF is no longer needed, not feasible, or the other basis for modifying or deleting the mitigation measure and/or PDF. Under this process, the modification or deletion of a mitigation measure and/or PDF shall not in and of itself require a modification to any Project discretionary approval unless the Director of Planning also finds that the change to the mitigation measures and/or PDFs results in a substantial change to the Project or the non-environmental conditions of approval.

5. MMP

5.1 MITIGATION MEASURES

Air Quality

MM-AQ-1 All off-road diesel-powered construction equipment shall meet, at a minimum, USEPA Tier 4 Interim off-road emissions standards, or if such equipment is not commercially available for lease or short-term rental within 50 miles of the Project Site, USEPA Tier 3 off-road emissions standards.

Enforcement Agency: South Coast Air Quality Management District (SCAQMD)

Monitoring Agency: Department of City Planning; Department of Building and Safety

Monitoring Phase: Pre-construction; Construction

Monitoring Frequency: Once at Project plan check; Periodic field inspection

Action Indicating Compliance: Field inspection sign-off

Geology and Soils

MM-GEO-1 The Project Applicant shall implement the following best practices with respect to paleontology:

- **Retain a Qualified Professional Paleontologist:** The Project Applicant shall retain a Qualified Professional Paleontologist (Project Paleontologist), who meets or

exceeds the SVP standards, to oversee all regulatory compliance measures and protocols related to paleontological resources.

- **Conduct Worker Training:** The Project Paleontologist should develop a Worker Environmental Awareness Program (WEAP) to train the construction crew on the legal requirements for preserving fossil resources, as well as the procedures to follow in the event of a fossil discovery. This training program would be given to the crew before ground-disturbing work commences and would include handouts to be given to new workers as needed.

- **Monitor for Paleontological Resources:** Ground disturbances greater than or equal to 3 feet below ground surface with the potential to impact late to middle Pleistocene old alluvial fan deposits (Qof) and/or late Miocene Modelo Formation (Tm) should be monitored full-time. Monitoring should be reduced or ceased once over-excavations into the underlying previously undisturbed deposits have been completed, or if Recent to late Holocene artificial fill (Qaf) is the only geologic units encountered during earthwork activities. Ground disturbances in previously disturbed sediments should not be monitored, regardless of depth.

  Monitoring should be conducted by a paleontological monitor who meets the standards of the SVP (2010) working under the supervision of the Project Paleontologist. The Project Paleontologist may periodically inspect construction activities to adjust the level of monitoring in response to subsurface conditions. In consultation with the lead agency and the Project Applicant, monitoring efforts can be increased, reduced, or ceased entirely if determined adequate by the Project Paleontologist. Paleontological monitoring should include inspection of exposed sedimentary units during active excavations within sensitive geologic sediments. The monitor should have authority to temporarily divert activity away from exposed fossils to evaluate the significance of the find and, should the fossils be determined significant, professionally and efficiently recover the fossil specimens and collect associated data. Paleontological monitors should record pertinent geologic data and collect appropriate sediment samples from any fossil localities.

- **Prepare a Paleontological Resources Monitoring Report:** Upon conclusion of ground-disturbing activities, the Project Paleontologist overseeing paleontological monitoring should prepare a final Paleontological Resources Monitoring Report (PRMR) that documents the paleontological monitoring efforts for the Project and describes any paleontological resources discoveries observed and/or recorded during the life of the Project. If paleontological resources are curated, the final PRMR and any associated data pertinent to the curated specimen(s) should be submitted to the designated repository. A copy of the final PRMR should be filed with the lead agency.

Enforcement Agency: Department of City Planning

Monitoring Agency: Department of City Planning

Monitoring Phase: Construction

Monitoring Frequency: Periodic field inspection

Action Indicating Compliance: Field inspection sign-off

Hazards and Hazardous Materials

MM-HAZ-1 Prior to the issuance of a grading permit, the shallow PCE-impacted soil vapor shall be remediated using soil vapor extraction (SVE) as the primary means of remediation. An SVE remediation system shall be installed consisting of 17 vapor extraction wells. Each vapor extraction well would have a 10-foot screened interval, from five to 15 feet below ground surface, and the wells would be connected to the SVE unit via sub-grade PVC-piping. The soil vapor shall be remediated to the satisfaction of the Los Angeles Fire Department and the Department of Building and Safety.

Enforcement Agency: Department of Building and Safety; Los Angeles Fire Department

Monitoring Agency: Department of Building and Safety

Monitoring Phase: Prior to issuance of grading permit

Monitoring Frequency: Once during field inspection

Action Indicating Compliance: Issuance of grading permit

Noise

MM-NOI-1 For construction activities occurring on the North Campus, sound barriers rated to achieve a sound attenuation of at least 15 dBA shall be erected to shield 23309 Saticoy Street Residences, Melba Street Cul-de-Sac Residences, and Bobbyboyar Avenue Cul-de-Sac Residences from on-site construction noise activities. Sound barriers shall be at least 15 feet in height and composed of materials rated to achieve a transmission loss of at least 25 dBA, which would correlate with the required 15 dBA of sound attenuation.

Enforcement Agency: Department of City Planning

Monitoring Agency: Department of City Planning

Monitoring Phase: Construction

Monitoring Frequency: Periodic field inspection

Action Indicating Compliance: Field inspection sign-off

MM-NOI-2 For construction activities occurring on the Main Campus, sound barriers rated to achieve a sound attenuation of at least 15 dBA shall be erected to shield Atron Avenue Cul-de-Sac Residences, Covello Street Cul-de-Sac Residences, and Chaminade Avenue Residences from on-site construction noise activities. Sound barriers shall be at least 15 feet in height and composed of materials rated to achieve a transmission loss of at least 25 dBA, which would correlate with the required 15 dBA of sound attenuation.

Enforcement Agency: Department of City Planning

Monitoring Agency: Department of City Planning

Monitoring Phase: Construction

Monitoring Frequency: Periodic field inspection

Action Indicating Compliance: Field inspection sign-off

MM-NOI-3 Amplified sound systems for the Project's baseball field/bleachers and outdoor aquatics facility/bleacers shall be acoustically engineered with the following design and performance standards:

- Amplified sound levels, as measured at the northern property line of the North Campus, shall not exceed 50 dBA.
- Amplified sound systems shall not be operated outside the operational hours established for the North Campus facilities.
- Speakers shall be directional and oriented away from the northern property line of the North Campus.
- Non-Chaminade users of the facilities shall not be permitted to utilize the facilities' amplified sound systems.

Enforcement Agency: Department of City Planning

Monitoring Agency: Department of City Planning

Monitoring Phase: Construction; Operation

Monitoring Frequency: Once during Project plan check; Field inspection once amplified sound systems have been installed

Action Indicating Compliance: Field inspection sign-off

Transportation

MM-TRANS-1 Construction Traffic Management Plan

Prior to the start of construction, a Construction Traffic Management Plan (CTMP) shall be submitted to LADOT for review and approval. The CTMP will include a Worksite Traffic Control Plan, which will facilitate traffic and pedestrian movement, and minimize the potential conflicts between construction activities, street traffic, bicycles, and pedestrians. The CTMP will include, but not limited to, the following measures:

- Maintaining access for land uses in the vicinity of the Project Site during construction.
- Schedule construction materials deliveries during off-peak periods to the extent practical.
- Organize deliveries and staging of all equipment and materials in the most efficient manner possible, and on-site where possible, to avoid an impact to surrounding roadways.
- Coordinate deliveries to ensure trucks do not wait to unload or load and impact surrounding roadways, and if needed, utilize an off-site staging area.
- Control truck and vehicle access to the Project Site with flagmen.
- Limit lane closures to the maximum extent possible and avoid peak period hours to the extent possible. Where such closures are necessary, the Worksite Traffic Control Plan will identify the location of lane closures and identify all traffic control measures, signs, delineators, and work instructions to be implemented by the construction contractor through the duration of demolition and construction activity.

- Parking for construction workers will be provided either on-site or at off-site, off-street locations.

Enforcement Agency: Los Angeles Department of Transportation

Monitoring Agency: Los Angeles Department of Transportation

Monitoring Phase: Pre-construction; construction

Monitoring Frequency: Once at Project plan check; periodic field inspection

Action Indicating Compliance: Plan approval; field inspection sign-off

Tribal Cultural Resources

MM-TCR-1 Prior to commencing any ground disturbance activities at the Project Site, the Applicant, or its successor, shall retain one (1) tribal monitor that is qualified to identify subsurface tribal cultural resources. Ground disturbance activities shall include excavating, digging, trenching, plowing, drilling, tunneling, quarrying, grading, leveling, removing peat, clearing, driving posts, augering, backfilling, blasting, stripping topsoil or a similar activity at the Project Site. The qualified tribal monitor shall be approved by the Fernandeño Tataviam Band of Mission Indians.

If cultural resources are discovered during Project activities, all work in the immediate vicinity of the find (within a 60-foot buffer) shall cease and a qualified archaeologist meeting Secretary of Interior standards shall be retained by the Applicant, or its successor, to assess the find. A qualified archaeologist/archaeological monitor shall be identified as principal personnel who must meet the Secretary of the Interior's Standards and Guidelines for Archeology and have a minimum of 10 years of experience as a principal investigator working with Native American archaeological sites in Southern California. The archaeologist shall ensure that all other personnel associated with and hired for the archaeological monitoring are appropriately trained and qualified. Work on the portions of the Project outside of the buffered area may continue during this assessment period. The Fernandeño Tataviam Band of Mission Indians shall be contacted about any pre-contact and/or post-contact finds and be provided information after the archaeologist makes their initial assessment of the nature of the find, to provide Tribal input with regards to significance and treatment.

Enforcement Agency: Department of City Planning

Monitoring Agency: Department of City Planning

Monitoring Phase: Construction

Monitoring Frequency: Periodic field inspection

Action Indicating Compliance: Field inspection sign-off

MM-TCR-2 The Lead Agency and/or Applicant shall, in good faith, consult with the Fernandeño Tataviam Band of Mission Indians on the disposition and treatment of any Tribal Cultural Resource encountered during all ground disturbing activities.

Enforcement Agency: Department of City Planning

Monitoring Agency: Department of City Planning

Monitoring Phase: Construction

Monitoring Frequency: Periodic field inspection

Action Indicating Compliance: Field inspection sign-off

MM-TCR-3 If human remains or funerary objects are encountered during any activities associated with the Project, work in the immediate vicinity (within a 100-foot buffer of the find) shall cease and the County Coroner shall be contacted pursuant to State Health and Safety Code §7050.5 and that code shall be enforced for the duration of the Project.

Enforcement Agency: Department of City Planning

Monitoring Agency: Department of City Planning

Monitoring Phase: Construction

Monitoring Frequency: Periodic field inspection

Action Indicating Compliance: Field inspection sign-off

5.2. PROJECT DESIGN FEATURES

PDF-1 The Project will adhere to the construction sequence shown in Table 3-2, except:

- Construction of the new surface parking lot on the North Campus and construction of the pedestrian bridge may interchange in the overall sequence of construction activities, but shall not overlap with each other; and
- Demolition of parking lots on the Main Campus and demolition of classroom buildings on the Main Campus may interchange in the overall sequence of construction activities, but shall not overlap with each other.

Enforcement Agency: Department of City Planning

Monitoring Agency: Department of City Planning

Monitoring Phase: Construction

Monitoring Frequency: Periodic field inspection

Action Indicating Compliance: Field inspection sign-off

PDF-2 The Project will prepare a Traffic Management Plan (TMP) to establish operational procedures for traffic flow around the school related to self-driving students and student drop-off and pick-up operations. The purpose of the plan will be to establish operational procedures to improve traffic circulation utilizing the enhanced access points and parking areas, improve student safety, maximize the efficiency of drop-off and pick-up operations, and reduce delays during those time periods.

Enforcement Agency: Los Angeles Department of Transportation

Monitoring Agency: Los Angeles Department of Transportation

Monitoring Phase: Operation

Monitoring Frequency: Periodic field inspection

Action Indicating Compliance: Field inspection sign-off

Memorandum

To: Stacie Henderson
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cc:

From: Dr. Darcie Chinnis
Shelby Allen

Date: 27 September 2023

Pages: 14

Project: Chaminade College Prep Lighting Analysis
#220848.000

Sent via: E-Mail

Regarding: Technical Lighting Analysis

1. Executive Summary

Chaminade College Preparatory School has proposed the construction of new recreational fields and supporting facilities at the parcel of land on the NW corner of Saticoy St. and Woodlake Ave. This existing location consists of a commercial shopping center and associated surface parking.

The purpose of this analysis is to provide information regarding the existing lighting conditions at the proposed project site and to provide analysis of the proposed lighting design to assess if it is anticipated to create “a new source of substantial glare” per CEQA requirements.

Review of the existing lighting conditions showed very low light levels with minimum light spill onto immediately adjacent residential properties and greater spill into adjacent public right-of-ways.

Calculations provided by the manufacturer for the proposed lighting conditions demonstrate that, while the proposed lighting will result in increased maximum intensity (glare potential) and spill light in many locations, the values are anticipated to remain under the thresholds of significance.

2. Project Description

2.1. Existing use

The existing use of the proposed site is a single-story, multi-tenant commercial property. The central building is surrounded by asphalt surface parking on the east, south, and west sides, and asphalt loading dock and support spaces on the north side.

Residential neighborhoods abut the project site immediately to the north, while the site is flanked by two streets, Woodlake Ave. on the east and Saticoy St on the west and south.

2.2. Anticipated use

The proposed site is anticipated to be used by the school for recreational purposes which would include the construction of an outdoor soccer field, baseball field, and indoor swimming facility with exterior pool. The addition of two surface parking lots is anticipated as well.

3. Metrics and Threshold of Significance

3.1. Metrics:

- **Maximum Intensity** Maximum intensity is used to capture the apparent brightness of a light source as viewed from a distance. Maximum intensity, measured in units of candela, is used to evaluate the glare potential of a lighting installation. Maximum intensity is measured using a two-part method, combining luminance measurements taken with a meter with high-dynamic range photography analysis.

  Anticipated intensity can also be captured in proposed designs through extensive modeling exercises which rely on manufacturer-provided photometric data which has been developed using laboratory measured light output from discrete luminaires.

  For the purpose of this analysis, units of intensity (candela, or cd) and luminance (candelas per square meter, or cd/m2) are used interchangeably. Per photometric standards, all luminance measurements were conducted at a distance of more than 5x the largest dimension of the measured source, which creates a mathematical equivalence between intensity and luminance.

- **Light Spill** Light spill is used to capture the amount of spill light at a discrete point and is often referred to as "Light Trespass". Light spill is the illuminance (measured in units of footcandles or lux) falling on a horizontal or vertical surface, meter or calculation point, and is used to evaluate the impact of a lighting installation on another location. Spill light is measured using an illuminance meter. For reference, a full moon on a clear night typically produces about 0.01 footcandle (fc).

3.2. Thresholds of Significance:

Per the City of Los Angeles CEQA guide, the analysis must determine if the project "would create a new source of substantial glare which would adversely affect day or nighttime views in the area." To provide this analysis, thresholds of significance must be determined and are proposed to be the following:

- **Maximum Intensity** Section 93.0117 of the Los Angeles Municipal Code, "Lighting Impacting Residential Property" states that "No person shall construct, establish, create, or maintain any stationary exterior light sources that may cause [property containing a residential unit] to…receive direct glare from the light source."

  Direct glare is defined as glare "resulting from high luminance or insufficiently shielded light sources that is in the field of view."

  There is an exemption from the above restriction for tennis court exterior lighting provided that the luminaire has a light intensity of less than 25,00cd/m2. It is assumed that the cutoff metric of 25,000cd/m2 can be applied to other sporting field and facilities besides exclusively tennis.

- **Light Spill** Section 93.0117 of the Los Angeles Municipal code states that "Light Sources shall be designed and maintained so as to produce not more than two footcandles of illumination as measured at the property line of the nearest residentially zoned property…"

4. Existing Condition Analysis

4.1. Site Visit Conditions

A site visit was conducted by HLB Lighting Design on 6 February 2023. At the time of the measurements the temperature was 56°F with clear skies and 35% humidity. Sunset time was 5:29pm Pacific Standard Time. Measurements commenced at 7:03pm Pacific Standard Time.

4.2. Existing lighting conditions

Existing lighting at the proposed site is mainly provided by three main sources:

- Dropped-lens (aka "sag lens") non-cutoff pole-mounted parking area lights (see Figure 1 and Figure 2))
- Full-cutoff wall-mounted lights on the north side of the western portion of the building (see Figure 3)
- Non-cutoff wall-mounted lights on the north side of the eastern portion of the building (Fields Market, Figure 4)



Figure 1: Approximate location of existing pole-mounted parking lot lighting



Figure 2: Google street view showing relationship between pole and adjacent residential property in the Northeast corner of the site



Figure 3: Google street view showing the full-cutoff wall-mounted lighting on the north side of the existing commercial building at the eastern end



Figure 4: Google street view showing the non-cutoff wall-mounted lighting on the north side of the existing commercial building at the western end

4.3. Equipment

All luminance measurements were taken using a Sekonic L-758 light meter, as shown in Figure 5.



Figure 5: Light meter used for luminance and illuminance measurements

All photographs were taken using a Canon EOS Rebel T6i with an 18-55mm IS SM lens kit and a 24.2 megapixel CMOS sensor as seen in Figure 6. Camera allows for fully manual modes, including manual focus capabilities.



Figure 6: Camera used for photography

4.4. Receptor Site Identification

Five sensitive receptor sites were identified to capture a full picture of the directional impact of the proposed sports and to specifically provide measurements at adjacent existing residential properties. These receptor site locations are identified in Figure 7.



Figure 7: Receptor Site Locations

Receptor Site 1 is located at the NW corner of the proposed site along Saticoy St. (Figure 8).



Figure 8: Receptor Site 1

Receptor Sites 2 (Figure 9) and 3 (Figure 10) are located in the two residential cul-de-sacs that immediately abut the project site on the North at the end of Melba Ave. and Bobbyboyar Ave.



Figure 9: Receptor Site 2



Figure 10: Receptor Site 3

Receptor Sites 4 (Figure 11) and 5 (Figure 12) are located along Woodlake Ave to the east of the property.



Figure 11: Receptor Site 4



Figure 12: Receptor Site 5

Receptor Site 6 (Figure 13) is located immediately South of the site along Saticoy St.



Figure 13: Receptor Site 6

4.5. Receptor Site Measurements

The Receptor Sites were first visited during the day to establish a reference daytime photograph and identify ideal location for nighttime photographs and measurements. After dark, luminance and illuminance measurements were taken at each Site to capture values for existing light spill and glare.

4.6. Maximum Intensity Measurements

To measure maximum intensity, a typical HDRI procedure was employed which consisted of taking a series of bracketed photographs taken at optimal exposures from underexposed to overexposed. Photos were taken by mounting to a tripod so that each image was taken from the same mounting height (5'6") and orientation. Exposures were manually adjusted by varying aperture speed to achieve a step of +/- 1EV. A minimum of seven images were taken at each receptor site location.

Additionally, a reference image was taken for each view. These reference images were taken at the approximate height and orientation of the HDR images. These reference images were used to calibrate the final images.

Finally, a series of luminance measurements were taken at each Receptor Site. The luminance meter was once again located at approximately the same height of the camera. A minimum of two luminance values were taken at markpoints (objects) which could be used to calibrate the final images. These values and markpoint locations were identified on the reference images.

4.7. Maximum Intensity Analysis

The bracketed exposure photographs taken were then used to assess the existing maximum intensity at each Receptor Site and to produce a false-color image showing the scale of measured intensities in the field of view. Both Adobe Photoshop and hdrscope were used to perform the HDR calibration and extract relevant data and images.

4.8. Maximum Intensity Results

The following HDR falsecolor images were developed using the outlined process and demonstrate the maximum intensity (cd/m2) at each Receptor Site.



Figure 14: Maximum intensity at Receptor Site 1



Figure 15: Maximum intensity at Receptor Site 2



Figure 16: Maximum intensity at Receptor Site 4



Figure 17: Maximum intensity at Receptor Site 5



Figure 18: Maximum intensity at Receptor Site 6

Note that the average image luminances at Receptor Site 3 were too low for the image analysis software to produce a falsecolor image. Table 1 contains the maximum intensity values for all Receptor Sites.

Maximum Intensity, [cd/m2]

Receptor Site	Maximum Intensity
1	30
2	170
3	267*
4	170
5	217
6	256

Table 1: Measured maximum intensity

*Since no falsecolor HDR image was able to be produced at this location, maximum intensity value is based on luminance measurements taken in the field.

4.9. Spill Light

To measure spill light, four sets of vertical illuminance measurements were taken with the illuminance meter at a height of approximately 5'-6" above ground level at each receptor site. Additionally, four sets of horizontal illuminance measurements were taken with the illuminance meter at grade at each receptor site. Multiple measurements were necessary to provide accurate accommodations for conditions caused by variables such as traffic, pedestrians, etc. Averages of measured values are shown in Table 2.

For Receptor Sites 2 and 3, measurements were taken at the property line (fence) location, with the vertical spill light measured immediately above the ~6' tall privacy fence to capture the property line condition rather than the spill into the cul-de-sac. For receptor sites 5 and 6, which are located across the public right-of-ways from the property, horizontal measurements were not recorded since the points are offset from the property line.

Vertical & Horizontal Light Spill, [fc]

Receptor Site	Average Vertical Illuminance (Ev)	Average Horizontal Illuminance (Eh)
1	1.45	3.7
2	0.8	1.28
3	0.77	1.3
4	3.8	3.55
5	2.5	n/a
6	2.9	n/a

Table 2: Average measured vertical and horizontal spill light at Receptor Sites

Additionally, horizontal and vertical illuminance measurements were taken along the property line at the east side of the project site and the south side of the project site, shown in **Error! Reference s ource not found.**.

Property Line Light Spill

	Vertical Illuminance (fc), Max	Vertical Illuminance (fc), Min	Horizontal Illuminance (fc), Max	Horizontal Illuminance (fc), Min
East Property Line	19	1.5	6.6	1.2
South Property Line	25	1.2	21	1.9

Table 3: Maximum and minimum vertical and horizontal spill light along property lines

5. Analysis of Proposed Design

5.1. Proposed Sports Lighting Design

Lighting design analysis for proposed sport field design and adjacent pool was conducted by the proposed lighting manufacturer. The proposed lighting design for the sports field calls for 8 poles supporting sport lighting equipment surrounding the recreational field. These poles would range in height from 70'-90' and contain between 5 and 10 directional luminaires per pole. These luminaires are mounted at varying heights and range from 500W-1,430W. Additionally, four smaller poles are proposed to be located at the exterior pool. These poles

would range in height from 40'-50' and contain 3 luminaires each. These luminaires range in wattage from 400W-580W. All proposed luminaires are LED with a standard 5700K color temperature, 75CRI, and estimated lifespan of L90 >120,000hrs.

5.2. Proposed Light Levels and Metrics

Maximum Intensity Maximum intensity was calculated by the manufacturer to capture potential brightness at glare. Calculation points were placed along Saticoy St, which bounds the property to the south and west, with the points specifically located on the sidewalk across the right-of-way and closest to the existing residential. Calculation points were also placed along the north property line, abutting the existing residential properties. The reported maximum intensity values are summarized in Table 4.

	Maximum Intensity (Cd)
Saticoy St – Sidewalk on Opposite Side	11,448
North Property Spill	24,736

Table 4: Anticipated maximum intensity reported by manufacturer

Spill Light The anticipated illuminance, both horizontal and vertical, along the various property lines were reported by the manufacturer to capture potential spill light.

Additionally, horizontal illuminance calculation points were placed extending beyond the property line to the north to capture potential spill light onto the adjacent residential properties. These calculation points were placed at grade with a spacing of 5.0' x 5.0', extending approximately 160' to the north of the property line. The reported values are summarized in Table 5.

	Maximum Horizontal Illuminance (fc)	**Maximum Vertical Illuminance (fc)**
Saticoy St – Sidewalk on Opposite Side	0.72	1.27
North Property Off-Site Spill	1.9	n/a

Table 5: Maximum vertical and horizontal spill light for proposed lighting

5.3 Comparison to CEQA Thresholds

Maximum Intensity The maximum intensity values for the proposed design are 11,448 cd and 24,736 cd at the Saticoy St. and Norther property lines respectively. These values both fall below the established threshold of significance of 25,000cd/m2.

Light Spill The maximum spill light value for the calculation points are reported to be 0.72fc along Saticoy St and 1.9fc to the north. These values fall below the threshold of significance of 2fc of illumination at the property line of the nearest residentially zoned property.

6. Conclusion

In conclusion, the proposed sports lighting design does demonstrate an increase in both spill light and maximum intensity in comparison to the existing lighting conditions. However, the proposed design does not exceed the threshold of significance outlined for maximum intensity nor does it exceed the threshold for spill light for the land immediately adjacent to the property lines.

Chaminade College Preparatory High School Project

CalEEMod Notes

General Note:

Different naming conventions for Project phases are used in the analysis and CalEEMod modeling runs. The following table clarifies which phase names correspond with the CalEEMod runs:

Phase	CalEEMod Name	Description
North Campus – Demolition	CCP HS – North Lot Demolition	Concerns demolition of existing uses on the North Campus site.
North Campus – Grading	CCP HS – North Lot Grading v2	Concerns grading activities on the North Campus site.
North Campus – Construction of new athletic fields and ancillary facilities	CCP HS – North Lot Field Construction	Concerns construction of the athletic field and ancillary facilities on the North Campus site.
North Campus – Construction of new pool facilities	CCP HS – North Lot Pool Facility	Concerns grading, building construction, paving, and architectural coatings activities for construction of the proposed pool facilities on the North Campus site.
Main Campus – Parking Lot Demolition *and* Main Campus – Classroom Demolition	CCP HS – Main Campus Demo	Concerns demolition of the upper-level parking lot and classroom buildings on the Main Campus site. Though the phases would be separate, they were conservatively modeled as one CalEEMod scenario.
Main Campus – Multistory Building Grading	CCP HS – Main Campus Grading	Concerns grading for construction of the proposed multistory building on the Main Campus site.
Main Campus – Multistory Building Grading	CCP HS – Main Campus Building Construction Detailed Report	Concerns building construction and architectural coatings activities for construction of the proposed multistory building on the Main Campus site.
Existing Project Site Emissions	CCP HS – Existing Shopping Center *and* CCP HS - Existing	These two CalEEMod runs estimate emissions associated with existing operations of the shopping center on the North Campus site and Chaminade College Preparatory High School on the Main Campus site.
N/A	CCP HS – Proposed Additions	Concerns increases in additional buildings, uses, and campus area associated with the Project.

Note A.1 This analysis estimates emissions associated with demolition of existing uses on the North Campus only.

Note A.2 Construction equipment selections were based on information provided by the Project applicant, as well as the consultant's experience with similar projects. For excavators, CalEEMod default horsepower assumptions were replaced with more conservative default estimates from previous versions of CalEEMod. CalEEMod version 2022 seems to underestimate default horsepower ratings for this equipment.

Note A.3 Estimated haul trips were increased to account for the removal of additional hardscape. Because it is not known which landfill would be utilized, export trip lengths were conservatively increased to 40 miles per trip (one-way) to account for a range of possible destinations. However, it is worth noting that Sunshine Canyon Landfill, the likeliest destination, is located within 20 miles of the Project Site.

Note B.1 This analysis estimates emissions associated with grading for the proposed North Campus uses.

Note B.2 Construction equipment selections were based on information provided by the Project applicant, as well as the consultant's experience with similar projects. For excavators, CalEEMod default horsepower assumptions were replaced with more conservative default estimates from previous versions of CalEEMod. CalEEMod version 2022 seems to underestimate default horsepower ratings for this equipment.

Note B.3 Because it is not known which landfill would be utilized, export trip lengths were conservatively increased to 40 miles per trip (one-way) to account for a range of possible destinations. However, it is worth noting that Sunshine Canyon Landfill, the likeliest destination, is located within 20 miles of the Project Site.

Note C.1 This analysis estimates emissions associated with demolition of the Main Campus' upper-level parking area and classroom buildings.

Note C.2 Construction equipment selections were based on information provided by the Project applicant, as well as the consultant's experience with similar projects. For excavators, CalEEMod default horsepower assumptions were replaced with more conservative default estimates from previous versions of CalEEMod. CalEEMod version 2022 seems to underestimate default horsepower ratings for this equipment.

Note C.3 Estimated haul trips were increased to account for the removal of additional hardscape. Because it is not known which landfill would be utilized, export trip lengths were conservatively increased to 40 miles per trip (one-way) to account for a range of possible destinations. However, it is worth noting that Sunshine Canyon Landfill, the likeliest destination, is located within 20 miles of the Project Site.

Note D.1 This analysis estimates emissions associated with grading for the multistory building.

Note D.2 Construction equipment selections were based on information provided by the Project applicant, as well as the consultant's experience with similar projects. For excavators, CalEEMod default horsepower assumptions were replaced with more conservative default

estimates from previous versions of CalEEMod. CalEEMod version 2022 seems to underestimate default horsepower ratings for this equipment.

Note D.3 Because it is not known which landfill would be utilized, export trip lengths were conservatively increased to 40 miles per trip (one-way) to account for a range of possible destinations. However, it is worth noting that Sunshine Canyon Landfill, the likeliest destination, is located within 20 miles of the Project Site.

Note E.1 This analysis estimates emissions associated with building construction and the application of architectural coatings for the multistory building.

Note E.2 Construction equipment selections were based on information provided by the Project applicant, as well as the consultant's experience with similar projects.

Note F.1 Land use subtypes for this analysis were set to reflect those that would comprise the pool facility.

Note F.2 This analysis estimates emissions associated with grading, building construction, paving, and application of architectural coatings for the pool facility. Construction equipment selections were based on information provided by the Project applicant, as well as the consultant's experience with similar projects. For excavators, CalEEMod default horsepower assumptions were replaced with more conservative default estimates from previous versions of CalEEMod. CalEEMod version 2022 seems to underestimate default horsepower ratings for this equipment.

Note F.3 Because it is not known which landfill would be utilized, export trip lengths were conservatively increased to 40 miles per trip (one-way) to account for a range of possible destinations. However, it is worth noting that Sunshine Canyon Landfill, the likeliest destination, is located within 20 miles of the Project Site.

Note G.1 Trip generation rates were set to reflect the trip rates established for this use in the Project's Transportation Assessment Report.

Note H.1 Land uses for this analysis reflect the net additional improvements that are proposed by the Project (i.e., additional square footage associated with the multistory building and pool facility, swimming pool, new parking lots, etc.).

Note H.2 Trip generation rates were set to reflect the 952 daily trips associated with the pool facility ("Athletic Center"), as determined in the Project's Transportation Assessment Report.

Note I.1 This analysis estimates emissions associated with the construction of the new athletic field and ancillary structures on the North Campus site.

Note I.2 Construction equipment selections were based on information provided by the Project applicant, as well as the consultant's experience with similar projects.

Note I.3 Worker trips were estimated based on information provided by the Project applicant, as well as the consultant's experience with similar projects.

CCP HS - Existing Detailed Report

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1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	CCP HS - Existing
Operational Year	2021
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	2.50
Precipitation (days)	19.2
Location	34.20863337948791, -118.63649006204344
County	Los Angeles-South Coast
City	Los Angeles
Air District	South Coast AQMD
Air Basin	South Coast
TAZ	3868
EDFZ	17
Electric Utility	Los Angeles Department of Water & Power
Gas Utility	Southern California Gas
App Version	2022.1.1.13

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
High School	928	1000sqft	21.3	185,324	0.00	0.00	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.4. Operations Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	15.3	18.3	12.0	120	0.21	0.25	6.71	6.96	0.24	1.19	1.43	710	25,237	25,947	72.6	1.08	103	28,187
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	13.7	16.8	13.0	103	0.20	0.24	6.71	6.94	0.22	1.19	1.42	710	24,287	24,997	72.6	1.13	3.38	27,155
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	10.7	14.1	9.71	81.3	0.15	0.20	4.79	4.99	0.19	0.85	1.05	710	18,714	19,424	72.3	0.86	32.4	21,520
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.96	2.58	1.77	14.8	0.03	0.04	0.87	0.91	0.04	0.16	0.19	117	3,098	3,216	12.0	0.14	5.36	3,563

2.5. Operations Emissions by Sector, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Mobile	13.8	12.5	10.9	111	0.21	0.16	6.71	6.87	0.15	1.19	1.34	—	21,121	21,121	1.20	0.91	103	21,524
Area	1.43	5.76	0.07	8.04	< 0.005	0.01	—	0.01	0.01	—	0.01	—	33.1	33.1	< 0.005	< 0.005	—	33.3
Energy	0.11	0.06	1.01	0.85	0.01	0.08	—	0.08	0.08	—	0.08	—	3,686	3,686	0.28	0.03	—	3,701
Water	—	—	—	—	—	—	—	—	—	—	—	59.1	397	456	6.09	0.15	—	652
Waste	—	—	—	—	—	—	—	—	—	—	—	651	0.00	651	65.0	0.00	—	2,276
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.72	0.72
Total	15.3	18.3	12.0	120	0.21	0.25	6.71	6.96	0.24	1.19	1.43	710	25,237	25,947	72.6	1.08	103	28,187
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	13.6	12.3	12.0	102	0.20	0.16	6.71	6.87	0.15	1.19	1.34	—	20,204	20,204	1.27	0.96	2.66	20,525
Area	—	4.44	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.11	0.06	1.01	0.85	0.01	0.08	—	0.08	0.08	—	0.08	—	3,686	3,686	0.28	0.03	—	3,701
Water	—	—	—	—	—	—	—	—	—	—	—	59.1	397	456	6.09	0.15	—	652
Waste	—	—	—	—	—	—	—	—	—	—	—	651	0.00	651	65.0	0.00	—	2,276
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.72	0.72
Total	13.7	16.8	13.0	103	0.20	0.24	6.71	6.94	0.22	1.19	1.42	710	24,287	24,997	72.6	1.13	3.38	27,155
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	9.64	8.72	8.65	75.0	0.14	0.11	4.79	4.91	0.11	0.85	0.96	—	14,609	14,609	0.90	0.69	31.7	14,868
Area	0.98	5.34	0.05	5.51	< 0.005	0.01	—	0.01	0.01	—	0.01	—	22.7	22.7	< 0.005	< 0.005	—	22.8
Energy	0.11	0.06	1.01	0.85	0.01	0.08	—	0.08	0.08	—	0.08	—	3,686	3,686	0.28	0.03	—	3,701
Water	—	—	—	—	—	—	—	—	—	—	—	59.1	397	456	6.09	0.15	—	652
Waste	—	—	—	—	—	—	—	—	—	—	—	651	0.00	651	65.0	0.00	—	2,276
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.72	0.72
Total	10.7	14.1	9.71	81.3	0.15	0.20	4.79	4.99	0.19	0.85	1.05	710	18,714	19,424	72.3	0.86	32.4	21,520
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	1.76	1.59	1.58	13.7	0.03	0.02	0.87	0.90	0.02	0.16	0.17	—	2,419	2,419	0.15	0.11	5.24	2,462
Area	0.18	0.98	0.01	1.00	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.76	3.76	< 0.005	< 0.005	—	3.77

Energy	0.02	0.01	0.18	0.16	< 0.005	0.01	—	0.01	0.01	—	0.01	—	610	610	0.05	< 0.005	—	613
Water	—	—	—	—	—	—	—	—	—	—	—	9.78	65.7	75.5	1.01	0.02	—	108
Waste	—	—	—	—	—	—	—	—	—	—	—	108	0.00	108	10.8	0.00	—	377
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.12	0.12
Total	1.96	2.58	1.77	14.8	0.03	0.04	0.87	0.91	0.04	0.16	0.19	117	3,098	3,216	12.0	0.14	5.36	3,563

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	13.8	12.5	10.9	111	0.21	0.16	6.71	6.87	0.15	1.19	1.34	—	21,121	21,121	1.20	0.91	103	21,524
Total	13.8	12.5	10.9	111	0.21	0.16	6.71	6.87	0.15	1.19	1.34	—	21,121	21,121	1.20	0.91	103	21,524
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	13.6	12.3	12.0	102	0.20	0.16	6.71	6.87	0.15	1.19	1.34	—	20,204	20,204	1.27	0.96	2.66	20,525
Total	13.6	12.3	12.0	102	0.20	0.16	6.71	6.87	0.15	1.19	1.34	—	20,204	20,204	1.27	0.96	2.66	20,525
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	1.76	1.59	1.58	13.7	0.03	0.02	0.87	0.90	0.02	0.16	0.17	—	2,419	2,419	0.15	0.11	5.24	2,462
Total	1.76	1.59	1.58	13.7	0.03	0.02	0.87	0.90	0.02	0.16	0.17	—	2,419	2,419	0.15	0.11	5.24	2,462

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	—	—	—	—	—	—	2,478	2,478	0.18	0.02	—	2,490
Total	—	—	—	—	—	—	—	—	—	—	—	—	2,478	2,478	0.18	0.02	—	2,490
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	—	—	—	—	—	—	2,478	2,478	0.18	0.02	—	2,490
Total	—	—	—	—	—	—	—	—	—	—	—	—	2,478	2,478	0.18	0.02	—	2,490
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	—	—	—	—	—	—	410	410	0.03	< 0.005	—	412
Total	—	—	—	—	—	—	—	—	—	—	—	—	410	410	0.03	< 0.005	—	412

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

High School	0.11	0.06	1.01	0.85	0.01	0.08	—	0.08	0.08	—	0.08	—	1,207	1,207	0.11	< 0.005	—	1,211
Total	0.11	0.06	1.01	0.85	0.01	0.08	—	0.08	0.08	—	0.08	—	1,207	1,207	0.11	< 0.005	—	1,211
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	0.11	0.06	1.01	0.85	0.01	0.08	—	0.08	0.08	—	0.08	—	1,207	1,207	0.11	< 0.005	—	1,211
Total	0.11	0.06	1.01	0.85	0.01	0.08	—	0.08	0.08	—	0.08	—	1,207	1,207	0.11	< 0.005	—	1,211
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	0.02	0.01	0.18	0.16	< 0.005	0.01	—	0.01	0.01	—	0.01	—	200	200	0.02	< 0.005	—	200
Total	0.02	0.01	0.18	0.16	< 0.005	0.01	—	0.01	0.01	—	0.01	—	200	200	0.02	< 0.005	—	200

4.3. Area Emissions by Source

4.3.2. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	3.97	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.47	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	1.43	1.32	0.07	8.04	< 0.005	0.01	—	0.01	0.01	—	0.01	—	33.1	33.1	< 0.005	< 0.005	—	33.3
Total	1.43	5.76	0.07	8.04	< 0.005	0.01	—	0.01	0.01	—	0.01	—	33.1	33.1	< 0.005	< 0.005	—	33.3

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	3.97	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.47	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	4.44	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	0.72	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.09	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.18	0.17	0.01	1.00	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.76	3.76	< 0.005	< 0.005	—	3.77
Total	0.18	0.98	0.01	1.00	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.76	3.76	< 0.005	< 0.005	—	3.77

4.4. Water Emissions by Land Use

4.4.2. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	—	—	—	—	—	59.1	397	456	6.09	0.15	—	652

Total	—	—	—	—	—	—	—	—	—	—	—	59.1	397	456	6.09	0.15	—	652
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	—	—	—	—	—	59.1	397	456	6.09	0.15	—	652
Total	—	—	—	—	—	—	—	—	—	—	—	59.1	397	456	6.09	0.15	—	652
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	—	—	—	—	—	9.78	65.7	75.5	1.01	0.02	—	108
Total	—	—	—	—	—	—	—	—	—	—	—	9.78	65.7	75.5	1.01	0.02	—	108

4.5. Waste Emissions by Land Use

4.5.2. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	—	—	—	—	—	651	0.00	651	65.0	0.00	—	2,276
Total	—	—	—	—	—	—	—	—	—	—	—	651	0.00	651	65.0	0.00	—	2,276
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	—	—	—	—	—	651	0.00	651	65.0	0.00	—	2,276
Total	—	—	—	—	—	—	—	—	—	—	—	651	0.00	651	65.0	0.00	—	2,276
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

High School	—	—	—	—	—	—	—	—	—	—	—	108	0.00	108	10.8	0.00	—	377
Total	—	—	—	—	—	—	—	—	—	—	—	108	0.00	108	10.8	0.00	—	377

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.72	0.72
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.72	0.72
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.72	0.72
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.72	0.72
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.12	0.12
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.12	0.12

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Remove	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
High School	2,953	0.00	0.00	769,766	24,112	0.00	0.00	6,286,280

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
0	0.00	277,986	92,662	—

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	250

5.11. Operational Energy Consumption

5.11.1. Unmitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
High School	1,310,271	690	0.0489	0.0069	3,767,208

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
High School	30,829,446	0.00

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
High School	1,207	—

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
High School	Household refrigerators and/or freezers	R-134a	1,430	0.02	0.60	0.00	1.00
High School	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0
High School	Stand-alone retail refrigerators and freezers	R-134a	1,430	< 0.005	1.00	0.00	1.00
High School	Walk-in refrigerators and freezers	R-404A	3,922	< 0.005	7.50	7.50	20.0

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

Equipment Type	Fuel Type	Number per Day	Hours per Day	Hours per Year	Horsepower	Load Factor

5.16.2. Process Boilers

Equipment Type	Fuel Type	Number	Boiler Rating (MMBtu/hr)	Daily Heat Input (MMBtu/day)	Annual Heat Input (MMBtu/yr)

5.17. User Defined

Equipment Type	Fuel Type
—	—

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	17.8	annual days of extreme heat
Extreme Precipitation	6.15	annual days with precipitation above 20 mm
Sea Level Rise	0.00	meters of inundation depth
Wildfire	21.8	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider different increments of sea level rise coupled with extreme storm events. Users may select from four model simulations to view the range in potential inundation depth for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 50 meters (m) by 50 m, or about 164 feet (ft) by 164 ft.
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A

Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	N/A	N/A	N/A	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	N/A	N/A	N/A	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	80.0
AQ-PM	53.2
AQ-DPM	24.5
Drinking Water	83.1
Lead Risk Housing	34.0
Pesticides	42.0
Toxic Releases	48.6
Traffic	29.9
Effect Indicators	—
CleanUp Sites	0.00
Groundwater	47.9
Haz Waste Facilities/Generators	38.7
Impaired Water Bodies	43.8
Solid Waste	0.00
Sensitive Population	—
Asthma	43.8
Cardio-vascular	46.5
Low Birth Weights	70.6
Socioeconomic Factor Indicators	—
Education	14.2
Housing	17.9

Linguistic	23.8
Poverty	7.83
Unemployment	56.2

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	83.63916335
Employed	91.08174002
Median HI	84.31926088
Education	—
Bachelor's or higher	72.53945849
High school enrollment	19.24804312
Preschool enrollment	76.10676248
Transportation	—
Auto Access	81.29090209
Active commuting	39.76645708
Social	—
2-parent households	66.57256512
Voting	53.76620044
Neighborhood	—
Alcohol availability	70.76863852
Park access	40.45938663
Retail density	73.80982933
Supermarket access	81.67586295
Tree canopy	72.97574747

Housing	—
Homeownership	83.34402669
Housing habitability	86.70601822
Low-inc homeowner severe housing cost burden	23.72642115
Low-inc renter severe housing cost burden	90.56845887
Uncrowded housing	79.21211344
Health Outcomes	—
Insured adults	63.91633517
Arthritis	30.2
Asthma ER Admissions	67.4
High Blood Pressure	34.2
Cancer (excluding skin)	15.0
Asthma	76.7
Coronary Heart Disease	31.2
Chronic Obstructive Pulmonary Disease	50.7
Diagnosed Diabetes	57.0
Life Expectancy at Birth	43.1
Cognitively Disabled	72.6
Physically Disabled	63.7
Heart Attack ER Admissions	76.9
Mental Health Not Good	72.2
Chronic Kidney Disease	55.3
Obesity	68.7
Pedestrian Injuries	72.9
Physical Health Not Good	62.9
Stroke	51.7
Health Risk Behaviors	—

Binge Drinking	52.5
Current Smoker	71.8
No Leisure Time for Physical Activity	73.2
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	0.0
Children	82.0
Elderly	21.1
English Speaking	52.4
Foreign-born	58.7
Outdoor Workers	57.7
Climate Change Adaptive Capacity	—
Impervious Surface Cover	68.9
Traffic Density	56.1
Traffic Access	51.4
Other Indices	—
Hardship	24.1
Other Decision Support	—
2016 Voting	44.4

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	39.0
Healthy Places Index Score for Project Location (b)	82.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	No
Project Located in a Low-Income Community (Assembly Bill 1550)	No
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Land Use	See Note G.1
Operations: Vehicle Data	See Note G.2

CCP HS - Existing Shopping Center Detailed Report

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8. User Changes to Default Data

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	CCP HS - Existing Shopping Center
Operational Year	2022
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	2.50
Precipitation (days)	19.2
Location	34.20867473409058, -118.63328749569371
County	Los Angeles-South Coast
City	Los Angeles
Air District	South Coast AQMD
Air Basin	South Coast
TAZ	3868
EDFZ	17
Electric Utility	Los Angeles Department of Water & Power
Gas Utility	Southern California Gas
App Version	2022.1.1.13

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
Parking Lot	3.59	Acre	3.59	0.00	0.00	—	—	—

Supermarket	27.0	1000sqft	0.62	27,000	0.00	—	—	—
Strip Mall	26.9	1000sqft	0.62	26,929	0.00	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.4. Operations Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	11.1	11.3	9.01	95.4	0.19	0.15	6.33	6.47	0.14	1.13	1.27	108	21,707	21,814	11.9	0.83	5,686	28,044
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	10.5	10.7	9.85	84.9	0.18	0.14	6.33	6.47	0.14	1.13	1.26	108	20,857	20,964	12.0	0.87	5,600	27,123
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	10.0	10.4	8.25	73.7	0.14	0.12	4.91	5.03	0.11	0.87	0.99	108	16,987	17,095	11.8	0.73	5,627	23,236
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.83	1.90	1.51	13.5	0.03	0.02	0.90	0.92	0.02	0.16	0.18	17.8	2,812	2,830	1.96	0.12	932	3,847

2.5. Operations Emissions by Sector, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	10.6	9.58	8.85	93.0	0.19	0.13	6.33	6.46	0.13	1.13	1.25	—	19,417	19,417	0.99	0.78	88.0	19,762
Area	0.42	1.70	0.02	2.34	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	9.65	9.65	< 0.005	< 0.005	—	9.68
Energy	0.01	0.01	0.13	0.11	< 0.005	0.01	—	0.01	0.01	—	0.01	—	2,212	2,212	0.16	0.02	—	2,222
Water	—	—	—	—	—	—	—	—	—	—	—	10.2	68.5	78.7	1.05	0.03	—	113
Waste	—	—	—	—	—	—	—	—	—	—	—	97.3	0.00	97.3	9.73	0.00	—	340
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	5,598	5,598
Total	11.1	11.3	9.01	95.4	0.19	0.15	6.33	6.47	0.14	1.13	1.27	108	21,707	21,814	11.9	0.83	5,686	28,044
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	10.5	9.42	9.72	84.8	0.18	0.13	6.33	6.46	0.13	1.13	1.25	—	18,576	18,576	1.03	0.82	2.28	18,850
Area	—	1.32	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.01	0.01	0.13	0.11	< 0.005	0.01	—	0.01	0.01	—	0.01	—	2,212	2,212	0.16	0.02	—	2,222
Water	—	—	—	—	—	—	—	—	—	—	—	10.2	68.5	78.7	1.05	0.03	—	113
Waste	—	—	—	—	—	—	—	—	—	—	—	97.3	0.00	97.3	9.73	0.00	—	340
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	5,598	5,598
Total	10.5	10.7	9.85	84.9	0.18	0.14	6.33	6.47	0.14	1.13	1.26	108	20,857	20,964	12.0	0.87	5,600	27,123
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	9.73	8.84	8.10	72.0	0.14	0.11	4.91	5.02	0.10	0.87	0.97	—	14,701	14,701	0.89	0.68	29.5	14,957
Area	0.29	1.58	0.01	1.60	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	6.61	6.61	< 0.005	< 0.005	—	6.63
Energy	0.01	0.01	0.13	0.11	< 0.005	0.01	—	0.01	0.01	—	0.01	—	2,212	2,212	0.16	0.02	—	2,222
Water	—	—	—	—	—	—	—	—	—	—	—	10.2	68.5	78.7	1.05	0.03	—	113
Waste	—	—	—	—	—	—	—	—	—	—	—	97.3	0.00	97.3	9.73	0.00	—	340
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	5,598	5,598
Total	10.0	10.4	8.25	73.7	0.14	0.12	4.91	5.03	0.11	0.87	0.99	108	16,987	17,095	11.8	0.73	5,627	23,236

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	1.78	1.61	1.48	13.1	0.03	0.02	0.90	0.92	0.02	0.16	0.18	—	2,434	2,434	0.15	0.11	4.89	2,476
Area	0.05	0.29	< 0.005	0.29	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.09	1.09	< 0.005	< 0.005	—	1.10
Energy	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	366	366	0.03	< 0.005	—	368
Water	—	—	—	—	—	—	—	—	—	—	—	1.69	11.3	13.0	0.17	< 0.005	—	18.6
Waste	—	—	—	—	—	—	—	—	—	—	—	16.1	0.00	16.1	1.61	0.00	—	56.4
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	927	927
Total	1.83	1.90	1.51	13.5	0.03	0.02	0.90	0.92	0.02	0.16	0.18	17.8	2,812	2,830	1.96	0.12	932	3,847

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Supermarket	5.33	4.80	4.43	46.6	0.10	0.07	3.17	3.23	0.06	0.56	0.63	—	9,721	9,721	0.49	0.39	44.1	9,894
Strip Mall	5.32	4.78	4.42	46.4	0.09	0.07	3.16	3.23	0.06	0.56	0.62	—	9,696	9,696	0.49	0.39	44.0	9,868
Total	10.6	9.58	8.85	93.0	0.19	0.13	6.33	6.46	0.13	1.13	1.25	—	19,417	19,417	0.99	0.78	88.0	19,762
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Supermarket	5.26	4.71	4.86	42.5	0.09	0.07	3.17	3.23	0.06	0.56	0.63	—	9,300	9,300	0.52	0.41	1.14	9,438
Strip Mall	5.24	4.70	4.85	42.3	0.09	0.07	3.16	3.23	0.06	0.56	0.62	—	9,276	9,276	0.51	0.41	1.14	9,413
Total	10.5	9.42	9.72	84.8	0.18	0.13	6.33	6.46	0.13	1.13	1.25	—	18,576	18,576	1.03	0.82	2.28	18,850
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Supermarket	0.82	0.76	0.58	5.19	0.01	0.01	0.32	0.33	0.01	0.06	0.06	—	879	879	0.06	0.04	1.74	896
Strip Mall	0.95	0.85	0.90	7.95	0.02	0.01	0.58	0.59	0.01	0.10	0.11	—	1,555	1,555	0.08	0.07	3.14	1,580
Total	1.78	1.61	1.48	13.1	0.03	0.02	0.90	0.92	0.02	0.16	0.18	—	2,434	2,434	0.15	0.11	4.89	2,476

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	259	259	0.02	< 0.005	—	260
Supermarket	—	—	—	—	—	—	—	—	—	—	—	—	1,282	1,282	0.09	0.01	—	1,288
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	510	510	0.04	0.01	—	513
Total	—	—	—	—	—	—	—	—	—	—	—	—	2,051	2,051	0.15	0.02	—	2,061
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	259	259	0.02	< 0.005	—	260
Supermarket	—	—	—	—	—	—	—	—	—	—	—	—	1,282	1,282	0.09	0.01	—	1,288
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	510	510	0.04	0.01	—	513
Total	—	—	—	—	—	—	—	—	—	—	—	—	2,051	2,051	0.15	0.02	—	2,061
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	42.9	42.9	< 0.005	< 0.005	—	43.1
Supermarket	—	—	—	—	—	—	—	—	—	—	—	—	212	212	0.02	< 0.005	—	213
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	84.5	84.5	0.01	< 0.005	—	84.9
Total	—	—	—	—	—	—	—	—	—	—	—	—	340	340	0.02	< 0.005	—	341

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Supermarket	0.01	0.01	0.10	0.08	< 0.005	0.01	—	0.01	0.01	—	0.01	—	118	118	0.01	< 0.005	—	119
Strip Mall	< 0.005	< 0.005	0.04	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	42.1	42.1	< 0.005	< 0.005	—	42.3
Total	0.01	0.01	0.13	0.11	< 0.005	0.01	—	0.01	0.01	—	0.01	—	160	160	0.01	< 0.005	—	161
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00

Superma	0.01	0.01	0.10	0.08	< 0.005	0.01	—	0.01	0.01	—	0.01	—	118	118	0.01	< 0.005	—	119
Strip Mall	< 0.005	< 0.005	0.04	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	42.1	42.1	< 0.005	< 0.005	—	42.3
Total	0.01	0.01	0.13	0.11	< 0.005	0.01	—	0.01	0.01	—	0.01	—	160	160	0.01	< 0.005	—	161
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Superma rket	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	19.6	19.6	< 0.005	< 0.005	—	19.6
Strip Mall	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	6.98	6.98	< 0.005	< 0.005	—	7.00
Total	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	26.5	26.5	< 0.005	< 0.005	—	26.6

4.3. Area Emissions by Source

4.3.2. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consum er Products	—	1.17	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architect ural Coatings	—	0.15	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landsca pe Equipme nt	0.42	0.38	0.02	2.34	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	9.65	9.65	< 0.005	< 0.005	—	9.68
Total	0.42	1.70	0.02	2.34	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	9.65	9.65	< 0.005	< 0.005	—	9.68

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	1.17	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.15	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	1.32	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	0.21	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.05	0.05	< 0.005	0.29	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.09	1.09	< 0.005	< 0.005	—	1.10
Total	0.05	0.29	< 0.005	0.29	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.09	1.09	< 0.005	< 0.005	—	1.10

4.4. Water Emissions by Land Use

4.4.2. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00

Superma	—	—	—	—	—	—	—	—	—	—	—	6.38	42.9	49.2	0.66	0.02	—	70.4
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	3.82	25.7	29.5	0.39	0.01	—	42.2
Total	—	—	—	—	—	—	—	—	—	—	—	10.2	68.5	78.7	1.05	0.03	—	113
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Superma rket	—	—	—	—	—	—	—	—	—	—	—	6.38	42.9	49.2	0.66	0.02	—	70.4
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	3.82	25.7	29.5	0.39	0.01	—	42.2
Total	—	—	—	—	—	—	—	—	—	—	—	10.2	68.5	78.7	1.05	0.03	—	113
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Superma rket	—	—	—	—	—	—	—	—	—	—	—	1.06	7.10	8.15	0.11	< 0.005	—	11.7
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	0.63	4.25	4.89	0.07	< 0.005	—	6.99
Total	—	—	—	—	—	—	—	—	—	—	—	1.69	11.3	13.0	0.17	< 0.005	—	18.6

4.5. Waste Emissions by Land Use

4.5.2. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00

Superma	—	—	—	—	—	—	—	—	—	—	—	82.1	0.00	82.1	8.20	0.00	—	287
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	15.2	0.00	15.2	1.52	0.00	—	53.3
Total	—	—	—	—	—	—	—	—	—	—	—	97.3	0.00	97.3	9.73	0.00	—	340
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Superma rket	—	—	—	—	—	—	—	—	—	—	—	82.1	0.00	82.1	8.20	0.00	—	287
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	15.2	0.00	15.2	1.52	0.00	—	53.3
Total	—	—	—	—	—	—	—	—	—	—	—	97.3	0.00	97.3	9.73	0.00	—	340
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Superma rket	—	—	—	—	—	—	—	—	—	—	—	13.6	0.00	13.6	1.36	0.00	—	47.5
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	2.52	0.00	2.52	0.25	0.00	—	8.83
Total	—	—	—	—	—	—	—	—	—	—	—	16.1	0.00	16.1	1.61	0.00	—	56.4

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Superma rket	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	5,598	5,598

Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.17	0.17
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	5,598	5,598
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Supermarket	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	5,598	5,598
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.17	0.17
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	5,598	5,598
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Supermarket	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	927	927
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.03	0.03
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	927	927

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Remove	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Supermarket	1,155	1,155	1,155	421,597	4,271	11,381	11,381	2,300,369
Strip Mall	1,152	1,152	1,152	420,488	11,351	11,351	11,351	4,142,974

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
0	0.00	80,894	26,965	9,383

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	250

5.11. Operational Energy Consumption

5.11.1. Unmitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
Parking Lot	136,989	690	0.0489	0.0069	0.00
Supermarket	677,694	690	0.0489	0.0069	368,795
Strip Mall	269,726	690	0.0489	0.0069	131,504

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Parking Lot	0.00	0.00
Supermarket	3,328,242	0.00

Strip Mall	1,994,699	0.00

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Parking Lot	0.00	—
Supermarket	152	—
Strip Mall	28.3	—

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
Supermarket	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0
Supermarket	Supermarket refrigeration and condensing units	R-404A	3,922	26.5	16.5	16.5	18.0
Strip Mall	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0
Strip Mall	Stand-alone retail refrigerators and freezers	R-134a	1,430	0.04	1.00	0.00	1.00
Strip Mall	Walk-in refrigerators and freezers	R-404A	3,922	< 0.005	7.50	7.50	20.0

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

Equipment Type	Fuel Type	Number per Day	Hours per Day	Hours per Year	Horsepower	Load Factor

5.16.2. Process Boilers

Equipment Type	Fuel Type	Number	Boiler Rating (MMBtu/hr)	Daily Heat Input (MMBtu/day)	Annual Heat Input (MMBtu/yr)

5.17. User Defined

Equipment Type	Fuel Type
—	—

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	17.8	annual days of extreme heat
Extreme Precipitation	6.15	annual days with precipitation above 20 mm
Sea Level Rise	0.00	meters of inundation depth
Wildfire	21.8	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider different increments of sea level rise coupled with extreme storm events. Users may select from four model simulations to view the range in potential inundation depth for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 50 meters (m) by 50 m, or about 164 feet (ft) by 164 ft.
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A

Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	N/A	N/A	N/A	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	N/A	N/A	N/A	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	80.0
AQ-PM	53.1
AQ-DPM	11.5
Drinking Water	83.1
Lead Risk Housing	25.9
Pesticides	0.00
Toxic Releases	41.0
Traffic	12.8
Effect Indicators	—
CleanUp Sites	19.9
Groundwater	56.9
Haz Waste Facilities/Generators	35.6
Impaired Water Bodies	43.8
Solid Waste	0.00
Sensitive Population	—
Asthma	63.0
Cardio-vascular	52.8
Low Birth Weights	36.7
Socioeconomic Factor Indicators	—
Education	26.4
Housing	60.6

Linguistic	14.9
Poverty	23.3
Unemployment	32.3

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	84.28076479
Employed	66.08494803
Median HI	86.21840113
Education	—
Bachelor's or higher	83.84447581
High school enrollment	100
Preschool enrollment	66.7393815
Transportation	—
Auto Access	19.90247658
Active commuting	33.44026691
Social	—
2-parent households	86.52636982
Voting	69.83190042
Neighborhood	—
Alcohol availability	61.34992942
Park access	37.11022713
Retail density	40.20274605
Supermarket access	46.97805723
Tree canopy	72.5009624

Housing	—
Homeownership	84.9993584
Housing habitability	15.70640318
Low-inc homeowner severe housing cost burden	46.50327217
Low-inc renter severe housing cost burden	0.705761581
Uncrowded housing	87.19363531
Health Outcomes	—
Insured adults	77.62094187
Arthritis	13.5
Asthma ER Admissions	34.6
High Blood Pressure	13.8
Cancer (excluding skin)	6.0
Asthma	83.3
Coronary Heart Disease	13.8
Chronic Obstructive Pulmonary Disease	45.1
Diagnosed Diabetes	54.0
Life Expectancy at Birth	86.5
Cognitively Disabled	50.3
Physically Disabled	28.8
Heart Attack ER Admissions	43.7
Mental Health Not Good	80.9
Chronic Kidney Disease	27.1
Obesity	74.1
Pedestrian Injuries	19.6
Physical Health Not Good	62.9
Stroke	34.3
Health Risk Behaviors	—

Binge Drinking	69.8
Current Smoker	82.0
No Leisure Time for Physical Activity	76.1
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	0.0
Children	90.9
Elderly	13.9
English Speaking	64.2
Foreign-born	31.5
Outdoor Workers	49.5
Climate Change Adaptive Capacity	—
Impervious Surface Cover	66.8
Traffic Density	26.6
Traffic Access	23.0
Other Indices	—
Hardship	25.6
Other Decision Support	—
2016 Voting	61.0

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	35.0
Healthy Places Index Score for Project Location (b)	75.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	No
Project Located in a Low-Income Community (Assembly Bill 1550)	No
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Operations: Vehicle Data	See Note G.1

CCP HS - North Lot Demolition Detailed Report

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8. User Changes to Default Data

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	CCP HS - North Lot Demolition
Construction Start Date	1/1/2024
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	2.50
Precipitation (days)	19.2
Location	34.20885629376022, -118.63313713978262
County	Los Angeles-South Coast
City	Los Angeles
Air District	South Coast AQMD
Air Basin	South Coast
TAZ	3868
EDFZ	17
Electric Utility	Los Angeles Department of Water & Power
Gas Utility	Southern California Gas
App Version	2022.1.1.12

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
Other Non-Asphalt Surfaces	4.83	Acre	4.83	0.00	0.00	0.00	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

Sector	#	Measure Title
Construction	C-5	Use Advanced Engine Tiers

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	3.68	2.88	32.8	30.4	0.08	1.24	3.17	4.41	1.15	0.68	1.83	—	10,228	10,228	0.46	0.94	0.36	10,519
Mit.	1.01	0.73	20.4	28.6	0.08	0.15	3.17	3.32	0.15	0.68	0.83	—	10,228	10,228	0.46	0.94	0.36	10,519
% Reduced	72%	75%	38%	6%	—	88%	—	25%	87%	—	54%	—	—	—	—	—	—	—
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.23	0.18	2.08	1.92	< 0.005	0.08	0.20	0.28	0.07	0.04	0.11	—	645	645	0.03	0.06	0.38	663
Mit.	0.06	0.05	1.29	1.80	< 0.005	0.01	0.20	0.21	0.01	0.04	0.05	—	645	645	0.03	0.06	0.38	663
% Reduced	72%	75%	38%	6%	—	88%	—	25%	87%	—	55%	—	—	—	—	—	—	—
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.04	0.03	0.38	0.35	< 0.005	0.01	0.04	0.05	0.01	0.01	0.02	—	107	107	< 0.005	0.01	0.06	110
Mit.	0.01	0.01	0.24	0.33	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01	—	107	107	< 0.005	0.01	0.06	110
% Reduced	72%	75%	38%	6%	—	88%	—	25%	87%	—	55%	—	—	—	—	—	—	—

2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	3.68	2.88	32.8	30.4	0.08	1.24	3.17	4.41	1.15	0.68	1.83	—	10,228	10,228	0.46	0.94	0.36	10,519
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	0.23	0.18	2.08	1.92	< 0.005	0.08	0.20	0.28	0.07	0.04	0.11	—	645	645	0.03	0.06	0.38	663
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	0.04	0.03	0.38	0.35	< 0.005	0.01	0.04	0.05	0.01	0.01	0.02	—	107	107	< 0.005	0.01	0.06	110

2.3. Construction Emissions by Year, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	1.01	0.73	20.4	28.6	0.08	0.15	3.17	3.32	0.15	0.68	0.83	—	10,228	10,228	0.46	0.94	0.36	10,519
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	0.06	0.05	1.29	1.80	< 0.005	0.01	0.20	0.21	0.01	0.04	0.05	—	645	645	0.03	0.06	0.38	663
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

2024	0.01	0.01	0.24	0.33	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01	—	107	107	< 0.005	0.01	0.06	110

3. Construction Emissions Details

3.1. Demolition (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.23	2.72	26.0	27.2	0.04	1.17	—	1.17	1.08	—	1.08	—	4,455	4,455	0.18	0.04	—	4,470
Demolition	—	—	—	—	—	—	1.49	1.49	—	0.23	0.23	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.20	0.17	1.64	1.71	< 0.005	0.07	—	0.07	0.07	—	0.07	—	281	281	0.01	< 0.005	—	282
Demolition	—	—	—	—	—	—	0.09	0.09	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04	0.03	0.30	0.31	< 0.005	0.01	—	0.01	0.01	—	0.01	—	46.5	46.5	< 0.005	< 0.005	—	46.6

Demolition	—	—	—	—	—	—	0.02	0.02	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.07	0.08	0.96	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	201	201	0.01	0.01	0.02	203
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.37	0.09	6.73	2.27	0.04	0.07	1.48	1.55	0.07	0.41	0.48	—	5,572	5,572	0.28	0.89	0.34	5,846
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.06	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	12.8	12.8	< 0.005	< 0.005	0.02	13.0
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.43	0.14	< 0.005	< 0.005	0.09	0.10	< 0.005	0.03	0.03	—	351	351	0.02	0.06	0.35	369
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.13	2.13	< 0.005	< 0.005	< 0.005	2.15
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.08	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	58.1	58.1	< 0.005	0.01	0.06	61.0

3.2. Demolition (2024) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.57	0.57	13.6	25.4	0.04	0.08	—	0.08	0.08	—	0.08	—	4,455	4,455	0.18	0.04	—	4,470
Demolition	—	—	—	—	—	—	1.49	1.49	—	0.23	0.23	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04	0.04	0.86	1.60	< 0.005	0.01	—	0.01	0.01	—	0.01	—	281	281	0.01	< 0.005	—	282
Demolition	—	—	—	—	—	—	0.09	0.09	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.16	0.29	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	46.5	46.5	< 0.005	< 0.005	—	46.6
Demolition	—	—	—	—	—	—	0.02	0.02	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.07	0.07	0.08	0.96	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	201	201	0.01	0.01	0.02	203
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.37	0.09	6.73	2.27	0.04	0.07	1.48	1.55	0.07	0.41	0.48	—	5,572	5,572	0.28	0.89	0.34	5,846
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.06	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	12.8	12.8	< 0.005	< 0.005	0.02	13.0
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.43	0.14	< 0.005	< 0.005	0.09	0.10	< 0.005	0.03	0.03	—	351	351	0.02	0.06	0.35	369
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.13	2.13	< 0.005	< 0.005	< 0.005	2.15
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.08	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	58.1	58.1	< 0.005	0.01	0.06	61.0

4. Operations Emissions Details

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.4. Soil Carbon Accumulation By Vegetation Type - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.5. Above and Belowground Carbon Accumulation by Land Use Type - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.6. Avoided and Sequestered Emissions by Species - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Demolition	Demolition	1/1/2024	1/31/2024	5.00	23.0	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Demolition	Rubber Tired Dozers	Diesel	Average	2.00	8.00	367	0.40
Demolition	Excavators	Diesel	Average	2.00	8.00	158	0.38
Demolition	Tractors/Loaders/Backhoes	Diesel	Average	2.00	8.00	84.0	0.37

5.2.2. Mitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Demolition	Rubber Tired Dozers	Diesel	Tier 4 Interim	2.00	8.00	367	0.40
Demolition	Excavators	Diesel	Tier 4 Interim	2.00	8.00	158	0.38
Demolition	Tractors/Loaders/Backhoes	Diesel	Tier 4 Interim	2.00	8.00	84.0	0.37

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Demolition	—	—	—	—
Demolition	Worker	15.0	18.5	LDA,LDT1,LDT2
Demolition	Vendor	—	10.2	HHDT,MHDT
Demolition	Hauling	40.0	40.0	HHDT
Demolition	Onsite truck	—	—	HHDT

5.3.2. Mitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Demolition	—	—	—	—
Demolition	Worker	15.0	18.5	LDA,LDT1,LDT2
Demolition	Vendor	—	10.2	HHDT,MHDT
Demolition	Hauling	40.0	40.0	HHDT
Demolition	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (cy)	Material Exported (cy)	Acres Graded (acres)	Material Demolished (Building Square Footage)	Acres Paved (acres)
Demolition	0.00	0.00	0.00	53,929	—

5.6.2. Construction Earthmoving Control Strategies

Control Strategies Applied	Frequency (per day)	PM10 Reduction	PM2.5 Reduction
Water Exposed Area	2	61%	61%
Water Demolished Area	2	36%	36%

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
Other Non-Asphalt Surfaces	4.83	0%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2024	0.00	690	0.05	0.01

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

5.18.2.2. Mitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	17.8	annual days of extreme heat
Extreme Precipitation	6.15	annual days with precipitation above 20 mm
Sea Level Rise	0.00	meters of inundation depth
Wildfire	21.8	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider different increments of sea level rise coupled with extreme storm events. Users may select from four model simulations to view the range in potential inundation depth for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 50 meters (m) by 50 m, or about 164 feet (ft) by 164 ft.
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	N/A	N/A	N/A	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.

The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	N/A	N/A	N/A	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	80.0
AQ-PM	53.1
AQ-DPM	11.5
Drinking Water	83.1

Lead Risk Housing	25.9
Pesticides	0.00
Toxic Releases	41.0
Traffic	12.8
Effect Indicators	—
CleanUp Sites	19.9
Groundwater	56.9
Haz Waste Facilities/Generators	35.6
Impaired Water Bodies	43.8
Solid Waste	0.00
Sensitive Population	—
Asthma	63.0
Cardio-vascular	52.8
Low Birth Weights	36.7
Socioeconomic Factor Indicators	—
Education	26.4
Housing	60.6
Linguistic	14.9
Poverty	23.3
Unemployment	32.3

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	84.28076479
Employed	66.08494803

Median HI	86.21840113
Education	—
Bachelor's or higher	83.84447581
High school enrollment	100
Preschool enrollment	66.7393815
Transportation	—
Auto Access	19.90247658
Active commuting	33.44026691
Social	—
2-parent households	86.52636982
Voting	69.83190042
Neighborhood	—
Alcohol availability	61.34992942
Park access	37.11022713
Retail density	40.20274605
Supermarket access	46.97805723
Tree canopy	72.5009624
Housing	—
Homeownership	84.9993584
Housing habitability	15.70640318
Low-inc homeowner severe housing cost burden	46.50327217
Low-inc renter severe housing cost burden	0.705761581
Uncrowded housing	87.19363531
Health Outcomes	—
Insured adults	77.62094187
Arthritis	13.5
Asthma ER Admissions	34.6

High Blood Pressure	13.8
Cancer (excluding skin)	6.0
Asthma	83.3
Coronary Heart Disease	13.8
Chronic Obstructive Pulmonary Disease	45.1
Diagnosed Diabetes	54.0
Life Expectancy at Birth	86.5
Cognitively Disabled	50.3
Physically Disabled	28.8
Heart Attack ER Admissions	43.7
Mental Health Not Good	80.9
Chronic Kidney Disease	27.1
Obesity	74.1
Pedestrian Injuries	19.6
Physical Health Not Good	62.9
Stroke	34.3
Health Risk Behaviors	—
Binge Drinking	69.8
Current Smoker	82.0
No Leisure Time for Physical Activity	76.1
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	0.0
Children	90.9
Elderly	13.9
English Speaking	64.2
Foreign-born	31.5

Outdoor Workers	49.5
Climate Change Adaptive Capacity	—
Impervious Surface Cover	66.8
Traffic Density	26.6
Traffic Access	23.0
Other Indices	—
Hardship	25.6
Other Decision Support	—
2016 Voting	61.0

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	35.0
Healthy Places Index Score for Project Location (b)	75.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	No
Project Located in a Low-Income Community (Assembly Bill 1550)	No
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Construction: Construction Phases	See Note A.1
Construction: Off-Road Equipment	See Note A.2
Construction: Trips and VMT	See Note A.3

CCP HS - North Lot Grading v2 Detailed Report

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8. User Changes to Default Data

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	CCP HS - North Lot Grading v2
Construction Start Date	1/1/2024
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	2.50
Precipitation (days)	19.2
Location	34.20900131811341, -118.63318847541322
County	Los Angeles-South Coast
City	Los Angeles
Air District	South Coast AQMD
Air Basin	South Coast
TAZ	3868
EDFZ	17
Electric Utility	Los Angeles Department of Water & Power
Gas Utility	Southern California Gas
App Version	2022.1.1.13

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
Other Non-Asphalt Surfaces	4.83	Acre	4.83	0.00	0.00	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

Sector	#	Measure Title
Construction	C-5	Use Advanced Engine Tiers

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	2.66	2.22	20.5	23.4	0.04	0.93	3.14	4.07	0.86	1.43	2.29	—	4,297	4,297	0.18	0.12	0.06	4,338
Mit.	1.07	0.94	14.4	22.6	0.04	0.33	3.14	3.46	0.30	1.43	1.73	—	4,297	4,297	0.18	0.12	0.06	4,338
% Reduced	60%	58%	30%	4%	—	65%	—	15%	64%	—	24%	—	—	—	—	—	—	—
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.17	0.14	1.29	1.48	< 0.005	0.06	0.20	0.26	0.05	0.09	0.14	—	271	271	0.01	0.01	0.06	274
Mit.	0.07	0.06	0.91	1.43	< 0.005	0.02	0.20	0.22	0.02	0.09	0.11	—	271	271	0.01	0.01	0.06	274
% Reduced	60%	58%	30%	4%	—	65%	—	15%	64%	—	24%	—	—	—	—	—	—	—
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.03	0.03	0.24	0.27	< 0.005	0.01	0.04	0.05	0.01	0.02	0.03	—	44.9	44.9	< 0.005	< 0.005	0.01	45.3
Mit.	0.01	0.01	0.17	0.26	< 0.005	< 0.005	0.04	0.04	< 0.005	0.02	0.02	—	44.9	44.9	< 0.005	< 0.005	0.01	45.3
% Reduced	60%	58%	30%	4%	—	65%	—	15%	64%	—	24%	—	—	—	—	—	—	—

2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	2.66	2.22	20.5	23.4	0.04	0.93	3.14	4.07	0.86	1.43	2.29	—	4,297	4,297	0.18	0.12	0.06	4,338
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	0.17	0.14	1.29	1.48	< 0.005	0.06	0.20	0.26	0.05	0.09	0.14	—	271	271	0.01	0.01	0.06	274
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	0.03	0.03	0.24	0.27	< 0.005	0.01	0.04	0.05	0.01	0.02	0.03	—	44.9	44.9	< 0.005	< 0.005	0.01	45.3

2.3. Construction Emissions by Year, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	1.07	0.94	14.4	22.6	0.04	0.33	3.14	3.46	0.30	1.43	1.73	—	4,297	4,297	0.18	0.12	0.06	4,338
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	0.07	0.06	0.91	1.43	< 0.005	0.02	0.20	0.22	0.02	0.09	0.11	—	271	271	0.01	0.01	0.06	274
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

2024	0.01	0.01	0.17	0.26	< 0.005	< 0.005	0.04	0.04	< 0.005	0.02	0.02	—	44.9	44.9	< 0.005	< 0.005	0.01	45.3

3. Construction Emissions Details

3.1. Grading (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.53	2.13	19.7	22.1	0.03	0.93	—	0.93	0.85	—	0.85	—	3,517	3,517	0.14	0.03	—	3,530
Dust From Material Movemen	—	—	—	—	—	—	2.76	2.76	—	1.34	1.34	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.16	0.13	1.24	1.39	< 0.005	0.06	—	0.06	0.05	—	0.05	—	222	222	0.01	< 0.005	—	222
Dust From Material Movemen	—	—	—	—	—	—	0.17	0.17	—	0.08	0.08	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.03	0.02	0.23	0.25	< 0.005	0.01	—	0.01	0.01	—	0.01	—	36.7	36.7	< 0.005	< 0.005	—	36.8
Dust From Material Movemen	—	—	—	—	—	—	0.03	0.03	—	0.02	0.02	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.08	0.10	1.12	0.00	0.00	0.23	0.23	0.00	0.05	0.05	—	234	234	0.01	0.01	0.03	237
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.04	0.01	0.66	0.22	< 0.005	0.01	0.15	0.15	0.01	0.04	0.05	—	545	545	0.03	0.09	0.03	572
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	< 0.005	0.01	0.07	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	15.0	15.0	< 0.005	< 0.005	0.03	15.2
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.04	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	34.3	34.3	< 0.005	0.01	0.03	36.1
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.48	2.48	< 0.005	< 0.005	< 0.005	2.51
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	5.69	5.69	< 0.005	< 0.005	0.01	5.97

3.2. Grading (2024) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.95	0.85	13.7	21.3	0.03	0.32	—	0.32	0.30	—	0.30	—	3,517	3,517	0.14	0.03	—	3,530
Dust From Material Movemen	—	—	—	—	—	—	2.76	2.76	—	1.34	1.34	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.06	0.05	0.86	1.34	< 0.005	0.02	—	0.02	0.02	—	0.02	—	222	222	0.01	< 0.005	—	222
Dust From Material Movemen	—	—	—	—	—	—	0.17	0.17	—	0.08	0.08	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.16	0.24	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	36.7	36.7	< 0.005	< 0.005	—	36.8
Dust From Material Movemen	—	—	—	—	—	—	0.03	0.03	—	0.02	0.02	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.08	0.10	1.12	0.00	0.00	0.23	0.23	0.00	0.05	0.05	—	234	234	0.01	0.01	0.03	237
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.04	0.01	0.66	0.22	< 0.005	0.01	0.15	0.15	0.01	0.04	0.05	—	545	545	0.03	0.09	0.03	572
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	< 0.005	0.01	0.07	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	15.0	15.0	< 0.005	< 0.005	0.03	15.2
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.04	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	34.3	34.3	< 0.005	0.01	0.03	36.1
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.48	2.48	< 0.005	< 0.005	< 0.005	2.51
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	5.69	5.69	< 0.005	< 0.005	0.01	5.97

4. Operations Emissions Details

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.4. Soil Carbon Accumulation By Vegetation Type - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.5. Above and Belowground Carbon Accumulation by Land Use Type - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.6. Avoided and Sequestered Emissions by Species - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Sequest	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Grading	Grading	1/1/2024	1/31/2024	5.00	23.0	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Grading	Excavators	Diesel	Average	1.00	8.00	158	0.38
Grading	Graders	Diesel	Average	1.00	8.00	148	0.41
Grading	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Grading	Tractors/Loaders/Backhoes	Diesel	Average	3.00	8.00	84.0	0.37
Grading	Rollers	Diesel	Average	1.00	8.00	36.0	0.38

5.2.2. Mitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Grading	Excavators	Diesel	Tier 4 Interim	1.00	8.00	158	0.38

Grading	Graders	Diesel	Average	1.00	8.00	148	0.41
Grading	Rubber Tired Dozers	Diesel	Tier 4 Interim	1.00	8.00	367	0.40
Grading	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37
Grading	Tractors/Loaders/Backhoes	Diesel	Tier 4 Interim	2.00	8.00	84.0	0.37
Grading	Rollers	Diesel	Tier 4 Interim	1.00	8.00	36.0	0.38

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Grading	—	—	—	—
Grading	Worker	17.5	18.5	LDA,LDT1,LDT2
Grading	Vendor	—	10.2	HHDT,MHDT
Grading	Hauling	3.91	40.0	HHDT
Grading	Onsite truck	—	—	HHDT

5.3.2. Mitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Grading	—	—	—	—
Grading	Worker	17.5	18.5	LDA,LDT1,LDT2
Grading	Vendor	—	10.2	HHDT,MHDT
Grading	Hauling	3.91	40.0	HHDT
Grading	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (Cubic Yards)	Material Exported (Cubic Yards)	Acres Graded (acres)	Material Demolished (sq. ft.)	Acres Paved (acres)
Grading	—	720	23.0	0.00	—

5.6.2. Construction Earthmoving Control Strategies

Control Strategies Applied	Frequency (per day)	PM10 Reduction	PM2.5 Reduction
Water Exposed Area	2	61%	61%

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
Other Non-Asphalt Surfaces	4.83	0%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2024	0.00	690	0.05	0.01

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

5.18.2.2. Mitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	17.8	annual days of extreme heat
Extreme Precipitation	6.15	annual days with precipitation above 20 mm
Sea Level Rise	0.00	meters of inundation depth
Wildfire	21.8	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider different increments of sea level rise coupled with extreme storm events. Users may select from four model simulations to view the range in potential inundation depth for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 50 meters (m) by 50 m, or about 164 feet (ft) by 164 ft.
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A

Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	N/A	N/A	N/A	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	N/A	N/A	N/A	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract

Exposure Indicators	—
AQ-Ozone	80.0
AQ-PM	53.1
AQ-DPM	11.5
Drinking Water	83.1
Lead Risk Housing	25.9
Pesticides	0.00
Toxic Releases	41.0
Traffic	12.8
Effect Indicators	—
CleanUp Sites	19.9
Groundwater	56.9
Haz Waste Facilities/Generators	35.6
Impaired Water Bodies	43.8
Solid Waste	0.00
Sensitive Population	—
Asthma	63.0
Cardio-vascular	52.8
Low Birth Weights	36.7
Socioeconomic Factor Indicators	—
Education	26.4
Housing	60.6
Linguistic	14.9
Poverty	23.3
Unemployment	32.3

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	84.28076479
Employed	66.08494803
Median HI	86.21840113
Education	—
Bachelor's or higher	83.84447581
High school enrollment	100
Preschool enrollment	66.7393815
Transportation	—
Auto Access	19.90247658
Active commuting	33.44026691
Social	—
2-parent households	86.52636982
Voting	69.83190042
Neighborhood	—
Alcohol availability	61.34992942
Park access	37.11022713
Retail density	40.20274605
Supermarket access	46.97805723
Tree canopy	72.5009624
Housing	—
Homeownership	84.9993584
Housing habitability	15.70640318
Low-inc homeowner severe housing cost burden	46.50327217
Low-inc renter severe housing cost burden	0.705761581
Uncrowded housing	87.19363531

Health Outcomes	—
Insured adults	77.62094187
Arthritis	13.5
Asthma ER Admissions	34.6
High Blood Pressure	13.8
Cancer (excluding skin)	6.0
Asthma	83.3
Coronary Heart Disease	13.8
Chronic Obstructive Pulmonary Disease	45.1
Diagnosed Diabetes	54.0
Life Expectancy at Birth	86.5
Cognitively Disabled	50.3
Physically Disabled	28.8
Heart Attack ER Admissions	43.7
Mental Health Not Good	80.9
Chronic Kidney Disease	27.1
Obesity	74.1
Pedestrian Injuries	19.6
Physical Health Not Good	62.9
Stroke	34.3
Health Risk Behaviors	—
Binge Drinking	69.8
Current Smoker	82.0
No Leisure Time for Physical Activity	76.1
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	0.0

Children	90.9
Elderly	13.9
English Speaking	64.2
Foreign-born	31.5
Outdoor Workers	49.5
Climate Change Adaptive Capacity	—
Impervious Surface Cover	66.8
Traffic Density	26.6
Traffic Access	23.0
Other Indices	—
Hardship	25.6
Other Decision Support	—
2016 Voting	61.0

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	35.0
Healthy Places Index Score for Project Location (b)	75.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	No
Project Located in a Low-Income Community (Assembly Bill 1550)	No
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Construction: Construction Phases	See Note B.1
Construction: Off-Road Equipment	See Note B.2
Construction: Trips and VMT	See Note B.3

CCP HS - North Lot Field Construction Detailed Report

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8. User Changes to Default Data

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	CCP HS - North Lot Field Construction
Construction Start Date	1/1/2024
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	2.50
Precipitation (days)	19.2
Location	34.20905539636914, -118.63347504508877
County	Los Angeles-South Coast
City	Los Angeles
Air District	South Coast AQMD
Air Basin	South Coast
TAZ	3868
EDFZ	17
Electric Utility	Los Angeles Department of Water & Power
Gas Utility	Southern California Gas
App Version	2022.1.1.17

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
Other Non-Asphalt Surfaces	106	1000sqft	2.42	0.00	0.00	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

Sector	#	Measure Title
Construction	C-5	Use Advanced Engine Tiers

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.65	1.38	12.6	15.9	0.03	0.55	0.35	0.90	0.51	0.08	0.59	—	3,293	3,293	0.13	0.08	0.05	3,319
Mit.	0.60	0.55	10.8	18.1	0.03	0.12	0.35	0.46	0.11	0.08	0.20	—	3,293	3,293	0.13	0.08	0.05	3,319
% Reduced	64%	60%	15%	-14%	—	79%	—	48%	78%	—	67%	—	—	—	—	—	—	—
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.10	0.09	0.80	1.01	< 0.005	0.03	0.02	0.06	0.03	0.01	0.04	—	208	208	0.01	< 0.005	0.05	209
Mit.	0.04	0.03	0.68	1.15	< 0.005	0.01	0.02	0.03	0.01	0.01	0.01	—	208	208	0.01	< 0.005	0.05	209
% Reduced	64%	60%	15%	-14%	—	79%	—	49%	78%	—	67%	—	—	—	—	—	—	—
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.02	0.02	0.15	0.18	< 0.005	0.01	< 0.005	0.01	0.01	< 0.005	0.01	—	34.4	34.4	< 0.005	< 0.005	0.01	34.7
Mit.	0.01	0.01	0.12	0.21	< 0.005	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	—	34.4	34.4	< 0.005	< 0.005	0.01	34.7
% Reduced	64%	60%	15%	-14%	—	79%	—	49%	78%	—	67%	—	—	—	—	—	—	—

2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	1.65	1.38	12.6	15.9	0.03	0.55	0.35	0.90	0.51	0.08	0.59	—	3,293	3,293	0.13	0.08	0.05	3,319
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	0.10	0.09	0.80	1.01	< 0.005	0.03	0.02	0.06	0.03	0.01	0.04	—	208	208	0.01	< 0.005	0.05	209
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	0.02	0.02	0.15	0.18	< 0.005	0.01	< 0.005	0.01	0.01	< 0.005	0.01	—	34.4	34.4	< 0.005	< 0.005	0.01	34.7

2.3. Construction Emissions by Year, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	0.60	0.55	10.8	18.1	0.03	0.12	0.35	0.46	0.11	0.08	0.20	—	3,293	3,293	0.13	0.08	0.05	3,319
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	0.04	0.03	0.68	1.15	< 0.005	0.01	0.02	0.03	0.01	0.01	0.01	—	208	208	0.01	< 0.005	0.05	209
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

2024	0.01	0.01	0.12	0.21	< 0.005	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	—	34.4	34.4	< 0.005	< 0.005	0.01	34.7

3. Construction Emissions Details

3.1. Building Construction (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.53	1.28	12.1	14.4	0.03	0.54	—	0.54	0.50	—	0.50	—	2,702	2,702	0.11	0.02	—	2,712
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.10	0.08	0.76	0.91	< 0.005	0.03	—	0.03	0.03	—	0.03	—	170	170	0.01	< 0.005	—	171
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.01	0.14	0.17	< 0.005	0.01	—	0.01	0.01	—	0.01	—	28.2	28.2	< 0.005	< 0.005	—	28.3
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.10	0.09	0.11	1.28	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	268	268	0.01	0.01	0.03	—
Vendor	0.03	0.01	0.39	0.19	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	323	323	0.01	0.04	0.02	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.08	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	17.1	17.1	< 0.005	< 0.005	0.03	—
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	20.3	20.3	< 0.005	< 0.005	0.02	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.83	2.83	< 0.005	< 0.005	0.01	—
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	3.37	3.37	< 0.005	< 0.005	< 0.005	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—

3.2. Building Construction (2024) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.48	0.46	10.3	16.6	0.03	0.11	—	0.11	0.11	—	0.11	—	2,702	2,702	0.11	0.02	—	2,712

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.03	0.65	1.05	< 0.005	0.01	—	0.01	0.01	—	0.01	—	170	170	0.01	< 0.005	—	171
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.12	0.19	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	28.2	28.2	< 0.005	< 0.005	—	28.3
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.10	0.09	0.11	1.28	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	268	268	0.01	0.01	0.03	—
Vendor	0.03	0.01	0.39	0.19	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	323	323	0.01	0.04	0.02	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.08	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	17.1	17.1	< 0.005	< 0.005	0.03	—
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	20.3	20.3	< 0.005	< 0.005	0.02	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.83	2.83	< 0.005	< 0.005	0.01	—
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	3.37	3.37	< 0.005	< 0.005	< 0.005	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—

4. Operations Emissions Details

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.4. Soil Carbon Accumulation By Vegetation Type - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.5. Above and Belowground Carbon Accumulation by Land Use Type - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.6. Avoided and Sequestered Emissions by Species - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Sequest	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Remove d	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequest ered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Remove d	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Building Construction	Building Construction	1/1/2024	1/31/2024	5.00	23.0	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Building Construction	Cranes	Diesel	Average	1.00	8.00	367	0.29

Building Construction	Forklifts	Diesel	Average	2.00	8.00	82.0	0.20
Building Construction	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	4.00	8.00	84.0	0.37
Building Construction	Rollers	Diesel	Average	1.00	8.00	36.0	0.38

5.2.2. Mitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Building Construction	Cranes	Diesel	Tier 4 Interim	1.00	8.00	367	0.29
Building Construction	Forklifts	Diesel	Tier 4 Interim	2.00	8.00	82.0	0.20
Building Construction	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Building Construction	Tractors/Loaders/Backhoes	Diesel	Tier 4 Interim	4.00	8.00	84.0	0.37
Building Construction	Rollers	Diesel	Tier 4 Interim	1.00	8.00	36.0	0.38

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Building Construction	—	—	—	—
Building Construction	Worker	20.0	18.5	LDA,LDT1,LDT2
Building Construction	Vendor	10.0	10.2	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT

5.3.2. Mitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix

Building Construction	—	—	—	—
Building Construction	Worker	20.0	18.5	LDA,LDT1,LDT2
Building Construction	Vendor	10.0	10.2	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (cy)	Material Exported (cy)	Acres Graded (acres)	Material Demolished (sq. ft.)	Acres Paved (acres)

5.6.2. Construction Earthmoving Control Strategies

Non-applicable. No control strategies activated by user.

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
Other Non-Asphalt Surfaces	2.42	0%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2024	0.00	690	0.05	0.01

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

5.18.2.2. Mitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	17.8	annual days of extreme heat
Extreme Precipitation	6.15	annual days with precipitation above 20 mm
Sea Level Rise	0.00	meters of inundation depth
Wildfire	21.8	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider different increments of sea level rise coupled with extreme storm events. Users may select from four model simulations to view the range in potential inundation depth for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 50 meters (m) by 50 m, or about 164 feet (ft) by 164 ft.
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A

Wildfire	N/A	N/A	N/A	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	N/A	N/A	N/A	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	N/A	N/A	N/A	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	80.0
AQ-PM	53.1
AQ-DPM	11.5
Drinking Water	83.1
Lead Risk Housing	25.9
Pesticides	0.00
Toxic Releases	41.0
Traffic	12.8
Effect Indicators	—
CleanUp Sites	19.9
Groundwater	56.9
Haz Waste Facilities/Generators	35.6
Impaired Water Bodies	43.8
Solid Waste	0.00
Sensitive Population	—
Asthma	63.0
Cardio-vascular	52.8
Low Birth Weights	36.7
Socioeconomic Factor Indicators	—
Education	26.4
Housing	60.6
Linguistic	14.9
Poverty	23.3

Unemployment	32.3

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	84.28076479
Employed	66.08494803
Median HI	86.21840113
Education	—
Bachelor's or higher	83.84447581
High school enrollment	100
Preschool enrollment	66.7393815
Transportation	—
Auto Access	19.90247658
Active commuting	33.44026691
Social	—
2-parent households	86.52636982
Voting	69.83190042
Neighborhood	—
Alcohol availability	61.34992942
Park access	37.11022713
Retail density	40.20274605
Supermarket access	46.97805723
Tree canopy	72.5009624
Housing	—
Homeownership	84.9993584

Housing habitability	15.70640318
Low-inc homeowner severe housing cost burden	46.50327217
Low-inc renter severe housing cost burden	0.705761581
Uncrowded housing	87.19363531
Health Outcomes	—
Insured adults	77.62094187
Arthritis	13.5
Asthma ER Admissions	34.6
High Blood Pressure	13.8
Cancer (excluding skin)	6.0
Asthma	83.3
Coronary Heart Disease	13.8
Chronic Obstructive Pulmonary Disease	45.1
Diagnosed Diabetes	54.0
Life Expectancy at Birth	86.5
Cognitively Disabled	50.3
Physically Disabled	28.8
Heart Attack ER Admissions	43.7
Mental Health Not Good	80.9
Chronic Kidney Disease	27.1
Obesity	74.1
Pedestrian Injuries	19.6
Physical Health Not Good	62.9
Stroke	34.3
Health Risk Behaviors	—
Binge Drinking	69.8
Current Smoker	82.0

No Leisure Time for Physical Activity	76.1
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	0.0
Children	90.9
Elderly	13.9
English Speaking	64.2
Foreign-born	31.5
Outdoor Workers	49.5
Climate Change Adaptive Capacity	—
Impervious Surface Cover	66.8
Traffic Density	26.6
Traffic Access	23.0
Other Indices	—
Hardship	25.6
Other Decision Support	—
2016 Voting	61.0

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	35.0
Healthy Places Index Score for Project Location (b)	75.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	No
Project Located in a Low-Income Community (Assembly Bill 1550)	No
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Construction: Construction Phases	See Note I.1
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CCP HS - North Lot Pool Facility Detailed Report

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6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

7.2. Healthy Places Index Scores

7.3. Overall Health & Equity Scores

7.4. Health & Equity Measures

7.5. Evaluation Scorecard

7.6. Health & Equity Custom Measures

8. User Changes to Default Data

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	CCP HS - North Lot Pool Facility
Construction Start Date	1/1/2024
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	2.50
Precipitation (days)	19.2
Location	34.20902743962172, -118.63308335117472
County	Los Angeles-South Coast
City	Los Angeles
Air District	South Coast AQMD
Air Basin	South Coast
TAZ	3868
EDFZ	17
Electric Utility	Los Angeles Department of Water & Power
Gas Utility	Southern California Gas
App Version	2022.1.1.12

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
Parking Lot	8.90	1000sqft	0.20	0.00	0.00	—	—	—

Recreational Swimming Pool	6.15	1000sqft	0.14	6,150	0.00	—	—	—
High School	6.09	1000sqft	0.14	6,090	0.00	0.00	—	—
Other Non-Asphalt Surfaces	9.86	1000sqft	0.23	0.00	0.00	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

Sector	#	Measure Title
Construction	C-5	Use Advanced Engine Tiers

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.93	1.72	13.8	16.8	0.03	0.61	0.33	0.93	0.56	0.08	0.64	—	3,144	3,144	0.13	0.04	1.49	3,161
Mit.	0.73	0.78	11.7	18.7	0.03	0.18	0.33	0.51	0.17	0.08	0.25	—	3,144	3,144	0.13	0.04	1.49	3,161
% Reduced	62%	55%	15%	-11%	—	70%	—	46%	70%	—	61%	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	2.13	1.62	19.2	17.0	0.05	0.69	3.85	4.54	0.64	1.66	2.30	—	6,863	6,863	0.32	0.72	0.28	7,087
Mit.	0.64	0.42	13.2	16.1	0.05	0.13	3.85	3.98	0.13	1.66	1.79	—	6,863	6,863	0.32	0.72	0.28	7,087
% Reduced	70%	74%	31%	6%	—	81%	—	12%	80%	—	22%	—	—	—	—	—	—	—

Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.38	0.31	3.10	3.30	0.01	0.13	0.14	0.27	0.12	0.05	0.18	—	823	823	0.03	0.03	0.20	832
Mit.	0.11	0.10	2.24	3.94	0.01	0.02	0.14	0.16	0.02	0.05	0.07	—	823	823	0.03	0.03	0.20	832
% Reduced	71%	68%	28%	-20%	—	87%	—	43%	86%	—	60%	—	—	—	—	—	—	—
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.07	0.06	0.57	0.60	< 0.005	0.02	0.03	0.05	0.02	0.01	0.03	—	136	136	0.01	< 0.005	0.03	138
Mit.	0.02	0.02	0.41	0.72	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	136	136	0.01	< 0.005	0.03	138
% Reduced	71%	68%	28%	-20%	—	87%	—	43%	86%	—	60%	—	—	—	—	—	—	—

2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	1.93	1.72	13.8	16.8	0.03	0.61	0.33	0.93	0.56	0.08	0.64	—	3,144	3,144	0.13	0.04	1.49	3,161
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	2.13	1.62	19.2	17.0	0.05	0.69	3.85	4.54	0.64	1.66	2.30	—	6,863	6,863	0.32	0.72	0.28	7,087
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	0.38	0.31	3.10	3.30	0.01	0.13	0.14	0.27	0.12	0.05	0.18	—	823	823	0.03	0.03	0.20	832
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	0.07	0.06	0.57	0.60	< 0.005	0.02	0.03	0.05	0.02	0.01	0.03	—	136	136	0.01	< 0.005	0.03	138

2.3. Construction Emissions by Year, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	0.73	0.78	11.7	18.7	0.03	0.18	0.33	0.51	0.17	0.08	0.25	—	3,144	3,144	0.13	0.04	1.49	3,161
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	0.64	0.42	13.2	16.1	0.05	0.13	3.85	3.98	0.13	1.66	1.79	—	6,863	6,863	0.32	0.72	0.28	7,087
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	0.11	0.10	2.24	3.94	0.01	0.02	0.14	0.16	0.02	0.05	0.07	—	823	823	0.03	0.03	0.20	832
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	0.02	0.02	0.41	0.72	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	136	136	0.01	< 0.005	0.03	138

3. Construction Emissions Details

3.1. Grading (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	1.79	1.51	13.9	14.6	0.02	0.63	—	0.63	0.58	—	0.58	—	2,369	2,369	0.10	0.02	—	2,377
Dust From Material Movemen	—	—	—	—	—	—	2.56	2.56	—	1.31	1.31	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.05	0.04	0.38	0.40	< 0.005	0.02	—	0.02	0.02	—	0.02	—	64.9	64.9	< 0.005	< 0.005	—	65.1
Dust From Material Movemen	—	—	—	—	—	—	0.07	0.07	—	0.04	0.04	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.07	0.07	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	10.7	10.7	< 0.005	< 0.005	—	10.8
Dust From Material Movemen	—	—	—	—	—	—	0.01	0.01	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.04	0.06	0.64	0.00	0.00	0.13	0.13	0.00	0.03	0.03	—	134	134	0.01	< 0.005	0.01	135

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.29	0.07	5.27	1.78	0.03	0.06	1.16	1.22	0.06	0.32	0.37	—	4,360	4,360	0.22	0.70	0.26	4,574
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	3.72	3.72	< 0.005	< 0.005	0.01	3.77
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.15	0.05	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	119	119	0.01	0.02	0.12	125
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.62	0.62	< 0.005	< 0.005	< 0.005	0.62
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	19.8	19.8	< 0.005	< 0.005	0.02	20.8

3.2. Grading (2024) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.31	0.31	7.89	13.7	0.02	0.07	—	0.07	0.07	—	0.07	—	2,369	2,369	0.10	0.02	—	2,377
Dust From Material Movemen	—	—	—	—	—	—	2.56	2.56	—	1.31	1.31	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.22	0.37	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	64.9	64.9	< 0.005	< 0.005	—	65.1
Dust From Material Movemen	—	—	—	—	—	—	0.07	0.07	—	0.04	0.04	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.04	0.07	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	10.7	10.7	< 0.005	< 0.005	—	10.8
Dust From Material Movemen	—	—	—	—	—	—	0.01	0.01	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.04	0.06	0.64	0.00	0.00	0.13	0.13	0.00	0.03	0.03	—	134	134	0.01	< 0.005	0.01	135
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.29	0.07	5.27	1.78	0.03	0.06	1.16	1.22	0.06	0.32	0.37	—	4,360	4,360	0.22	0.70	0.26	4,574
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	3.72	3.72	< 0.005	< 0.005	0.01	3.77
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Hauling	0.01	< 0.005	0.15	0.05	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	119	119	0.01	0.02	0.12	125
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.62	0.62	< 0.005	< 0.005	< 0.005	0.62
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	19.8	19.8	< 0.005	< 0.005	0.02	20.8

3.3. Building Construction (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.81	0.68	6.79	7.16	0.01	0.31	—	0.31	0.28	—	0.28	—	1,586	1,586	0.06	0.01	—	1,591
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.81	0.68	6.79	7.16	0.01	0.31	—	0.31	0.28	—	0.28	—	1,586	1,586	0.06	0.01	—	1,591
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.29	0.24	2.42	2.55	0.01	0.11	—	0.11	0.10	—	0.10	—	565	565	0.02	< 0.005	—	567
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.05	0.04	0.44	0.47	< 0.005	0.02	—	0.02	0.02	—	0.02	—	93.5	93.5	< 0.005	< 0.005	—	93.8
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.02	0.39	0.00	0.00	0.07	0.07	0.00	0.02	0.02	—	72.6	72.6	< 0.005	< 0.005	0.29	73.7
Vendor	0.01	< 0.005	0.08	0.04	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	64.7	64.7	< 0.005	0.01	0.18	67.6
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.03	0.33	0.00	0.00	0.07	0.07	0.00	0.02	0.02	—	68.8	68.8	< 0.005	< 0.005	0.01	69.6
Vendor	0.01	< 0.005	0.08	0.04	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	64.7	64.7	< 0.005	0.01	< 0.005	67.5
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.12	0.00	0.00	0.02	0.02	0.00	0.01	0.01	—	24.9	24.9	< 0.005	< 0.005	0.04	25.2
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	23.1	23.1	< 0.005	< 0.005	0.03	24.1
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	4.12	4.12	< 0.005	< 0.005	0.01	4.17
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	3.82	3.82	< 0.005	< 0.005	< 0.005	3.98
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.4. Building Construction (2024) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.20	0.20	4.84	9.05	0.01	0.03	—	0.03	0.03	—	0.03	—	1,586	1,586	0.06	0.01	—	1,591
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.20	0.20	4.84	9.05	0.01	0.03	—	0.03	0.03	—	0.03	—	1,586	1,586	0.06	0.01	—	1,591
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.07	0.07	1.73	3.22	0.01	0.01	—	0.01	0.01	—	0.01	—	565	565	0.02	< 0.005	—	567
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.31	0.59	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	93.5	93.5	< 0.005	< 0.005	—	93.8
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.02	0.39	0.00	0.00	0.07	0.07	0.00	0.02	0.02	—	72.6	72.6	< 0.005	< 0.005	0.29	73.7
Vendor	0.01	< 0.005	0.08	0.04	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	64.7	64.7	< 0.005	0.01	0.18	67.6
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.03	0.33	0.00	0.00	0.07	0.07	0.00	0.02	0.02	—	68.8	68.8	< 0.005	< 0.005	0.01	69.6
Vendor	0.01	< 0.005	0.08	0.04	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	64.7	64.7	< 0.005	0.01	< 0.005	67.5
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.12	0.00	0.00	0.02	0.02	0.00	0.01	0.01	—	24.9	24.9	< 0.005	< 0.005	0.04	25.2
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	23.1	23.1	< 0.005	< 0.005	0.03	24.1
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	4.12	4.12	< 0.005	< 0.005	0.01	4.17
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	3.82	3.82	< 0.005	< 0.005	< 0.005	3.98
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.5. Paving (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.77	0.64	5.57	6.30	0.01	0.26	—	0.26	0.24	—	0.24	—	981	981	0.04	0.01	—	984
Paving	—	0.10	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.08	0.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	13.4	13.4	< 0.005	< 0.005	—	13.5
Paving	—	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.01	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.23	2.23	< 0.005	< 0.005	—	2.23
Paving	—	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.08	0.08	1.32	0.00	0.00	0.23	0.23	0.00	0.05	0.05	—	247	247	0.01	0.01	0.97	251
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	3.26	3.26	< 0.005	< 0.005	0.01	3.30
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.54	0.54	< 0.005	< 0.005	< 0.005	0.55
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.6. Paving (2024) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.38	0.33	5.26	6.59	0.01	0.11	—	0.11	0.10	—	0.10	—	981	981	0.04	0.01	—	984
Paving	—	0.10	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	< 0.005	0.07	0.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	13.4	13.4	< 0.005	< 0.005	—	13.5
Paving	—	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.01	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.23	2.23	< 0.005	< 0.005	—	2.23
Paving	—	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.08	0.08	1.32	0.00	0.00	0.23	0.23	0.00	0.05	0.05	—	247	247	0.01	0.01	0.97	251
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	3.26	3.26	< 0.005	< 0.005	0.01	3.30
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.54	0.54	< 0.005	< 0.005	< 0.005	0.55
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.7. Architectural Coating (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.22	0.18	1.21	1.53	< 0.005	0.04	—	0.04	0.04	—	0.04	—	178	178	0.01	< 0.005	—	179
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	< 0.005	0.03	0.04	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	4.88	4.88	< 0.005	< 0.005	—	4.89
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.81	0.81	< 0.005	< 0.005	—	0.81
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	< 0.005	< 0.005	0.08	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	14.5	14.5	< 0.005	< 0.005	0.06	14.7
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.38	0.38	< 0.005	< 0.005	< 0.005	0.39
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.06	0.06	< 0.005	< 0.005	< 0.005	0.06
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.8. Architectural Coating (2024) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.03	1.43	1.28	< 0.005	0.04	—	0.04	0.04	—	0.04	—	178	178	0.01	< 0.005	—	179
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.04	0.04	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	4.88	4.88	< 0.005	< 0.005	—	4.89
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.81	0.81	< 0.005	< 0.005	—	0.81
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	< 0.005	< 0.005	0.08	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	14.5	14.5	< 0.005	< 0.005	0.06	14.7
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.38	0.38	< 0.005	< 0.005	< 0.005	0.39
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.06	0.06	< 0.005	< 0.005	< 0.005	0.06
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

4. Operations Emissions Details

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.4. Soil Carbon Accumulation By Vegetation Type - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.5. Above and Belowground Carbon Accumulation by Land Use Type - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.6. Avoided and Sequestered Emissions by Species - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Sequest	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Grading	Grading	1/1/2024	1/12/2024	5.00	10.0	—
Building Construction	Building Construction	1/15/2024	7/12/2024	5.00	130	—
Paving	Paving	7/1/2024	7/5/2024	5.00	5.00	—
Architectural Coating	Architectural Coating	7/1/2024	7/12/2024	5.00	10.0	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Grading	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Grading	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37
Grading	Excavators	Diesel	Average	1.00	8.00	158	0.38
Grading	Rollers	Diesel	Average	1.00	8.00	36.0	0.38
Building Construction	Cranes	Diesel	Average	1.00	8.00	367	0.29
Building Construction	Forklifts	Diesel	Average	2.00	8.00	82.0	0.20

Building Construction	Tractors/Loaders/Backh	Diesel	Average	1.00	8.00	84.0	0.37
Paving	Cement and Mortar Mixers	Diesel	Average	4.00	8.00	10.0	0.56
Paving	Pavers	Diesel	Average	1.00	8.00	81.0	0.42
Paving	Rollers	Diesel	Average	1.00	8.00	36.0	0.38
Paving	Paving Equipment	Diesel	Average	1.00	8.00	89.0	0.36
Architectural Coating	Air Compressors	Diesel	Average	1.00	8.00	37.0	0.48

5.2.2. Mitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Grading	Rubber Tired Dozers	Diesel	Tier 4 Interim	1.00	8.00	367	0.40
Grading	Tractors/Loaders/Backhoes	Diesel	Tier 4 Interim	1.00	8.00	84.0	0.37
Grading	Excavators	Diesel	Tier 4 Interim	1.00	8.00	158	0.38
Grading	Rollers	Diesel	Tier 4 Interim	1.00	8.00	36.0	0.38
Building Construction	Cranes	Diesel	Tier 4 Interim	1.00	8.00	367	0.29
Building Construction	Forklifts	Diesel	Tier 4 Interim	2.00	8.00	82.0	0.20
Building Construction	Tractors/Loaders/Backhoes	Diesel	Tier 4 Interim	1.00	8.00	84.0	0.37
Paving	Cement and Mortar Mixers	Diesel	Average	4.00	8.00	10.0	0.56
Paving	Pavers	Diesel	Tier 4 Interim	1.00	8.00	81.0	0.42
Paving	Rollers	Diesel	Tier 4 Interim	1.00	8.00	36.0	0.38
Paving	Paving Equipment	Diesel	Tier 4 Interim	1.00	8.00	89.0	0.36
Architectural Coating	Air Compressors	Diesel	Tier 4 Interim	1.00	8.00	37.0	0.48

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Grading	—	—	—	—
Grading	Worker	10.0	18.5	LDA,LDT1,LDT2
Grading	Vendor	—	10.2	HHDT,MHDT
Grading	Hauling	31.3	40.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	5.14	18.5	LDA,LDT1,LDT2
Building Construction	Vendor	2.01	10.2	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	17.5	18.5	LDA,LDT1,LDT2
Paving	Vendor	—	10.2	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	1.03	18.5	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	10.2	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	HHDT

5.3.2. Mitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Grading	—	—	—	—

Grading	Worker	10.0	18.5	LDA,LDT1,LDT2
Grading	Vendor	—	10.2	HHDT,MHDT
Grading	Hauling	31.3	40.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	5.14	18.5	LDA,LDT1,LDT2
Building Construction	Vendor	2.01	10.2	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	17.5	18.5	LDA,LDT1,LDT2
Paving	Vendor	—	10.2	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	1.03	18.5	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	10.2	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (Cubic Yards)	Material Exported (Cubic Yards)	Acres Graded (acres)	Material Demolished (sq. ft.)	Acres Paved (acres)
Grading	—	2,500	5.00	0.00	—
Paving	0.00	0.00	0.00	0.00	0.43

5.6.2. Construction Earthmoving Control Strategies

Control Strategies Applied	Frequency (per day)	PM10 Reduction	PM2.5 Reduction
Water Exposed Area	2	61%	61%

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
Parking Lot	0.20	100%
Recreational Swimming Pool	0.00	0%
High School	0.00	0%
Other Non-Asphalt Surfaces	0.23	0%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2024	0.00	690	0.05	0.01

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

5.18.2.2. Mitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	17.8	annual days of extreme heat
Extreme Precipitation	6.15	annual days with precipitation above 20 mm
Sea Level Rise	0.00	meters of inundation depth
Wildfire	21.8	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider different increments of sea level rise coupled with extreme storm events. Users may select from four model simulations to view the range in potential inundation depth for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 50 meters (m) by 50 m, or about 164 feet (ft) by 164 ft.
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	N/A	N/A	N/A	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.

The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	N/A	N/A	N/A	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	80.0
AQ-PM	53.1
AQ-DPM	11.5

Drinking Water	83.1
Lead Risk Housing	25.9
Pesticides	0.00
Toxic Releases	41.0
Traffic	12.8
Effect Indicators	—
CleanUp Sites	19.9
Groundwater	56.9
Haz Waste Facilities/Generators	35.6
Impaired Water Bodies	43.8
Solid Waste	0.00
Sensitive Population	—
Asthma	63.0
Cardio-vascular	52.8
Low Birth Weights	36.7
Socioeconomic Factor Indicators	—
Education	26.4
Housing	60.6
Linguistic	14.9
Poverty	23.3
Unemployment	32.3

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	84.28076479

Employed	66.08494803
Median HI	86.21840113
Education	—
Bachelor's or higher	83.84447581
High school enrollment	100
Preschool enrollment	66.7393815
Transportation	—
Auto Access	19.90247658
Active commuting	33.44026691
Social	—
2-parent households	86.52636982
Voting	69.83190042
Neighborhood	—
Alcohol availability	61.34992942
Park access	37.11022713
Retail density	40.20274605
Supermarket access	46.97805723
Tree canopy	72.5009624
Housing	—
Homeownership	84.9993584
Housing habitability	15.70640318
Low-inc homeowner severe housing cost burden	46.50327217
Low-inc renter severe housing cost burden	0.705761581
Uncrowded housing	87.19363531
Health Outcomes	—
Insured adults	77.62094187
Arthritis	13.5

Asthma ER Admissions	34.6
High Blood Pressure	13.8
Cancer (excluding skin)	6.0
Asthma	83.3
Coronary Heart Disease	13.8
Chronic Obstructive Pulmonary Disease	45.1
Diagnosed Diabetes	54.0
Life Expectancy at Birth	86.5
Cognitively Disabled	50.3
Physically Disabled	28.8
Heart Attack ER Admissions	43.7
Mental Health Not Good	80.9
Chronic Kidney Disease	27.1
Obesity	74.1
Pedestrian Injuries	19.6
Physical Health Not Good	62.9
Stroke	34.3
Health Risk Behaviors	—
Binge Drinking	69.8
Current Smoker	82.0
No Leisure Time for Physical Activity	76.1
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	0.0
Children	90.9
Elderly	13.9
English Speaking	64.2

Foreign-born	31.5
Outdoor Workers	49.5
Climate Change Adaptive Capacity	—
Impervious Surface Cover	66.8
Traffic Density	26.6
Traffic Access	23.0
Other Indices	—
Hardship	25.6
Other Decision Support	—
2016 Voting	61.0

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	35.0
Healthy Places Index Score for Project Location (b)	75.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	No
Project Located in a Low-Income Community (Assembly Bill 1550)	No
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Land Use	See Note F.1
Construction: Construction Phases	See Note F.2
Construction: Off-Road Equipment	See Note F.2
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CCP HS - Main Campus Demo Detailed Report

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8. User Changes to Default Data

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	CCP HS - Main Campus Demo
Construction Start Date	1/1/2024
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	2.50
Precipitation (days)	19.2
Location	34.208354353238164, -118.63628280038029
County	Los Angeles-South Coast
City	Los Angeles
Air District	South Coast AQMD
Air Basin	South Coast
TAZ	3868
EDFZ	17
Electric Utility	Los Angeles Department of Water & Power
Gas Utility	Southern California Gas
App Version	2022.1.1.12

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
Other Non-Asphalt Surfaces	2.75	Acre	2.75	0.00	0.00	0.00	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

Sector	#	Measure Title
Construction	C-5	Use Advanced Engine Tiers

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	2.31	1.78	20.7	21.3	0.06	0.76	2.64	3.40	0.71	0.55	1.25	—	7,424	7,424	0.34	0.70	0.27	7,641
Mit.	0.75	0.54	15.4	21.1	0.06	0.11	2.64	2.75	0.11	0.55	0.66	—	7,424	7,424	0.34	0.70	0.27	7,641
% Reduced	67%	70%	26%	1%	—	85%	—	19%	84%	—	47%	—	—	—	—	—	—	—
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.10	0.07	0.86	0.88	< 0.005	0.03	0.11	0.14	0.03	0.02	0.05	—	305	305	0.01	0.03	0.18	314
Mit.	0.03	0.02	0.64	0.87	< 0.005	< 0.005	0.11	0.11	< 0.005	0.02	0.03	—	305	305	0.01	0.03	0.18	314
% Reduced	67%	70%	26%	1%	—	85%	—	19%	84%	—	47%	—	—	—	—	—	—	—
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.02	0.01	0.16	0.16	< 0.005	0.01	0.02	0.03	0.01	< 0.005	0.01	—	50.5	50.5	< 0.005	< 0.005	0.03	52.0
Mit.	0.01	< 0.005	0.12	0.16	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	< 0.005	—	50.5	50.5	< 0.005	< 0.005	0.03	52.0
% Reduced	67%	70%	26%	1%	—	85%	—	19%	84%	—	47%	—	—	—	—	—	—	—

2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	2.31	1.78	20.7	21.3	0.06	0.76	2.64	3.40	0.71	0.55	1.25	—	7,424	7,424	0.34	0.70	0.27	7,641
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	0.10	0.07	0.86	0.88	< 0.005	0.03	0.11	0.14	0.03	0.02	0.05	—	305	305	0.01	0.03	0.18	314
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	0.02	0.01	0.16	0.16	< 0.005	0.01	0.02	0.03	0.01	< 0.005	0.01	—	50.5	50.5	< 0.005	< 0.005	0.03	52.0

2.3. Construction Emissions by Year, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	0.75	0.54	15.4	21.1	0.06	0.11	2.64	2.75	0.11	0.55	0.66	—	7,424	7,424	0.34	0.70	0.27	7,641
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	0.03	0.02	0.64	0.87	< 0.005	< 0.005	0.11	0.11	< 0.005	0.02	0.03	—	305	305	0.01	0.03	0.18	314
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

2024	0.01	< 0.005	0.12	0.16	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	< 0.005	—	50.5	50.5	< 0.005	< 0.005	0.03	52.0

3. Construction Emissions Details

3.1. Demolition (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.97	1.66	15.6	18.8	0.03	0.71	—	0.71	0.65	—	0.65	—	3,077	3,077	0.12	0.02	—	3,088
Demolition	—	—	—	—	—	—	1.36	1.36	—	0.21	0.21	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.07	0.64	0.77	< 0.005	0.03	—	0.03	0.03	—	0.03	—	126	126	0.01	< 0.005	—	127
Demolition	—	—	—	—	—	—	0.06	0.06	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.12	0.14	< 0.005	0.01	—	0.01	< 0.005	—	< 0.005	—	20.9	20.9	< 0.005	< 0.005	—	21.0

Demolition	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.06	0.07	0.80	0.00	0.00	0.16	0.16	0.00	0.04	0.04	—	167	167	0.01	0.01	0.02	169
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.28	0.07	5.05	1.70	0.03	0.05	1.11	1.17	0.05	0.30	0.36	—	4,179	4,179	0.21	0.67	0.25	4,384
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	6.98	6.98	< 0.005	< 0.005	0.01	7.07
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.21	0.07	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	—	172	172	0.01	0.03	0.17	180
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.16	1.16	< 0.005	< 0.005	< 0.005	1.17
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.04	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	28.4	28.4	< 0.005	< 0.005	0.03	29.9

3.2. Demolition (2024) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.41	0.41	10.3	18.6	0.03	0.06	—	0.06	0.06	—	0.06	—	3,077	3,077	0.12	0.02	—	3,088
Demolition	—	—	—	—	—	—	1.36	1.36	—	0.21	0.21	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.02	0.42	0.77	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	126	126	0.01	< 0.005	—	127
Demolition	—	—	—	—	—	—	0.06	0.06	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.08	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	20.9	20.9	< 0.005	< 0.005	—	21.0
Demolition	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.06	0.06	0.07	0.80	0.00	0.00	0.16	0.16	0.00	0.04	0.04	—	167	167	0.01	0.01	0.02	169
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.28	0.07	5.05	1.70	0.03	0.05	1.11	1.17	0.05	0.30	0.36	—	4,179	4,179	0.21	0.67	0.25	4,384
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	6.98	6.98	< 0.005	< 0.005	0.01	7.07
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.21	0.07	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	—	172	172	0.01	0.03	0.17	180
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.16	1.16	< 0.005	< 0.005	< 0.005	1.17
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.04	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	28.4	28.4	< 0.005	< 0.005	0.03	29.9

4. Operations Emissions Details

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.4. Soil Carbon Accumulation By Vegetation Type - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.5. Above and Belowground Carbon Accumulation by Land Use Type - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.6. Avoided and Sequestered Emissions by Species - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Demolition	Demolition	1/1/2024	1/19/2024	5.00	15.0	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Demolition	Tractors/Loaders/Backhoes	Diesel	Average	2.00	8.00	84.0	0.37
Demolition	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Demolition	Excavators	Diesel	Average	2.00	8.00	158	0.38

5.2.2. Mitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Demolition	Tractors/Loaders/Backhoes	Diesel	Tier 4 Interim	2.00	8.00	84.0	0.37
Demolition	Rubber Tired Dozers	Diesel	Tier 4 Interim	1.00	8.00	367	0.40
Demolition	Excavators	Diesel	Tier 4 Interim	2.00	8.00	158	0.38

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Demolition	—	—	—	—
Demolition	Worker	12.5	18.5	LDA,LDT1,LDT2
Demolition	Vendor	—	10.2	HHDT,MHDT
Demolition	Hauling	30.0	40.0	HHDT
Demolition	Onsite truck	—	—	HHDT

5.3.2. Mitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Demolition	—	—	—	—
Demolition	Worker	12.5	18.5	LDA,LDT1,LDT2
Demolition	Vendor	—	10.2	HHDT,MHDT
Demolition	Hauling	30.0	40.0	HHDT
Demolition	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (cy)	Material Exported (cy)	Acres Graded (acres)	Material Demolished (Building Square Footage)	Acres Paved (acres)
Demolition	0.00	0.00	0.00	32,204	—

5.6.2. Construction Earthmoving Control Strategies

Control Strategies Applied	Frequency (per day)	PM10 Reduction	PM2.5 Reduction
Water Exposed Area	2	61%	61%
Water Demolished Area	2	36%	36%

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
Other Non-Asphalt Surfaces	2.75	0%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2024	0.00	690	0.05	0.01

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

5.18.2.2. Mitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	17.8	annual days of extreme heat
Extreme Precipitation	6.15	annual days with precipitation above 20 mm
Sea Level Rise	0.00	meters of inundation depth
Wildfire	21.8	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider different increments of sea level rise coupled with extreme storm events. Users may select from four model simulations to view the range in potential inundation depth for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 50 meters (m) by 50 m, or about 164 feet (ft) by 164 ft.
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	N/A	N/A	N/A	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.

The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	N/A	N/A	N/A	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	80.0
AQ-PM	53.2
AQ-DPM	24.5
Drinking Water	83.1

Lead Risk Housing	34.0
Pesticides	42.0
Toxic Releases	48.6
Traffic	29.9
Effect Indicators	—
CleanUp Sites	0.00
Groundwater	47.9
Haz Waste Facilities/Generators	38.7
Impaired Water Bodies	43.8
Solid Waste	0.00
Sensitive Population	—
Asthma	43.8
Cardio-vascular	46.5
Low Birth Weights	70.6
Socioeconomic Factor Indicators	—
Education	14.2
Housing	17.9
Linguistic	23.8
Poverty	7.83
Unemployment	56.2

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	83.63916335
Employed	91.08174002

Median HI	84.31926088
Education	—
Bachelor's or higher	72.53945849
High school enrollment	19.24804312
Preschool enrollment	76.10676248
Transportation	—
Auto Access	81.29090209
Active commuting	39.76645708
Social	—
2-parent households	66.57256512
Voting	53.76620044
Neighborhood	—
Alcohol availability	70.76863852
Park access	40.45938663
Retail density	73.80982933
Supermarket access	81.67586295
Tree canopy	72.97574747
Housing	—
Homeownership	83.34402669
Housing habitability	86.70601822
Low-inc homeowner severe housing cost burden	23.72642115
Low-inc renter severe housing cost burden	90.56845887
Uncrowded housing	79.21211344
Health Outcomes	—
Insured adults	63.91633517
Arthritis	30.2
Asthma ER Admissions	67.4

High Blood Pressure	34.2
Cancer (excluding skin)	15.0
Asthma	76.7
Coronary Heart Disease	31.2
Chronic Obstructive Pulmonary Disease	50.7
Diagnosed Diabetes	57.0
Life Expectancy at Birth	43.1
Cognitively Disabled	72.6
Physically Disabled	63.7
Heart Attack ER Admissions	76.9
Mental Health Not Good	72.2
Chronic Kidney Disease	55.3
Obesity	68.7
Pedestrian Injuries	72.9
Physical Health Not Good	62.9
Stroke	51.7
Health Risk Behaviors	—
Binge Drinking	52.5
Current Smoker	71.8
No Leisure Time for Physical Activity	73.2
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	0.0
Children	82.0
Elderly	21.1
English Speaking	52.4
Foreign-born	58.7

Outdoor Workers	57.7
Climate Change Adaptive Capacity	—
Impervious Surface Cover	68.9
Traffic Density	56.1
Traffic Access	51.4
Other Indices	—
Hardship	24.1
Other Decision Support	—
2016 Voting	44.4

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	39.0
Healthy Places Index Score for Project Location (b)	82.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	No
Project Located in a Low-Income Community (Assembly Bill 1550)	No
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Construction: Construction Phases	See Note C.1
Construction: Off-Road Equipment	See Note C.2
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CCP HS - Main Campus Grading Detailed Report

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8. User Changes to Default Data

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	CCP HS - Main Campus Grading
Construction Start Date	1/1/2024
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	2.50
Precipitation (days)	19.2
Location	34.20796443200095, -118.63599753335887
County	Los Angeles-South Coast
City	Los Angeles
Air District	South Coast AQMD
Air Basin	South Coast
TAZ	3868
EDFZ	17
Electric Utility	Los Angeles Department of Water & Power
Gas Utility	Southern California Gas
App Version	2022.1.1.12

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
Other Non-Asphalt Surfaces	2.75	Acre	2.75	0.00	0.00	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

Sector	#	Measure Title
Construction	C-5	Use Advanced Engine Tiers

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	2.67	1.74	30.0	21.5	0.11	0.80	6.18	6.99	0.75	2.30	3.05	—	15,724	15,724	0.75	2.12	0.80	16,376
Mit.	1.25	0.59	23.8	20.7	0.11	0.21	6.18	6.39	0.21	2.30	2.51	—	15,724	15,724	0.75	2.12	0.80	16,376
% Reduced	53%	66%	21%	4%	—	74%	—	8%	72%	—	18%	—	—	—	—	—	—	—
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.18	0.12	2.08	1.47	0.01	0.06	0.42	0.48	0.05	0.16	0.21	—	1,077	1,077	0.05	0.15	0.92	1,123
Mit.	0.09	0.04	1.65	1.42	0.01	0.01	0.42	0.44	0.01	0.16	0.17	—	1,077	1,077	0.05	0.15	0.92	1,123
% Reduced	53%	66%	21%	4%	—	74%	—	9%	72%	—	18%	—	—	—	—	—	—	—
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.03	0.02	0.38	0.27	< 0.005	0.01	0.08	0.09	0.01	0.03	0.04	—	178	178	0.01	0.02	0.15	186
Mit.	0.02	0.01	0.30	0.26	< 0.005	< 0.005	0.08	0.08	< 0.005	0.03	0.03	—	178	178	0.01	0.02	0.15	186
% Reduced	53%	66%	21%	4%	—	74%	—	9%	72%	—	18%	—	—	—	—	—	—	—

2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	2.67	1.74	30.0	21.5	0.11	0.80	6.18	6.99	0.75	2.30	3.05	—	15,724	15,724	0.75	2.12	0.80	16,376
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	0.18	0.12	2.08	1.47	0.01	0.06	0.42	0.48	0.05	0.16	0.21	—	1,077	1,077	0.05	0.15	0.92	1,123
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	0.03	0.02	0.38	0.27	< 0.005	0.01	0.08	0.09	0.01	0.03	0.04	—	178	178	0.01	0.02	0.15	186

2.3. Construction Emissions by Year, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	1.25	0.59	23.8	20.7	0.11	0.21	6.18	6.39	0.21	2.30	2.51	—	15,724	15,724	0.75	2.12	0.80	16,376
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	0.09	0.04	1.65	1.42	0.01	0.01	0.42	0.44	0.01	0.16	0.17	—	1,077	1,077	0.05	0.15	0.92	1,123
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

2024	0.02	0.01	0.30	0.26	< 0.005	< 0.005	0.08	0.08	< 0.005	0.03	0.03	—	178	178	0.01	0.02	0.15	186

3. Construction Emissions Details

3.1. Grading (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.76	1.48	14.2	15.5	0.02	0.64	—	0.64	0.59	—	0.59	—	2,518	2,518	0.10	0.02	—	2,527
Dust From Material Movemen	—	—	—	—	—	—	2.57	2.57	—	1.32	1.32	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.12	0.10	0.97	1.06	< 0.005	0.04	—	0.04	0.04	—	0.04	—	172	172	0.01	< 0.005	—	173
Dust From Material Movemen	—	—	—	—	—	—	0.18	0.18	—	0.09	0.09	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.02	0.02	0.18	0.19	< 0.005	0.01	—	0.01	0.01	—	0.01	—	28.6	28.6	< 0.005	< 0.005	—	28.7
Dust From Material Movemen	—	—	—	—	—	—	0.03	0.03	—	0.02	0.02	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.04	0.06	0.64	0.00	0.00	0.13	0.13	0.00	0.03	0.03	—	134	134	0.01	< 0.005	0.01	135
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.87	0.22	15.8	5.33	0.08	0.17	3.48	3.65	0.17	0.95	1.12	—	13,073	13,073	0.65	2.10	0.79	13,714
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.05	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	9.30	9.30	< 0.005	< 0.005	0.02	9.43
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.06	0.02	1.10	0.36	0.01	0.01	0.24	0.25	0.01	0.06	0.08	—	895	895	0.04	0.14	0.90	940
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.54	1.54	< 0.005	< 0.005	< 0.005	1.56
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.20	0.07	< 0.005	< 0.005	0.04	0.05	< 0.005	0.01	0.01	—	148	148	0.01	0.02	0.15	156

3.2. Grading (2024) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.33	0.33	7.97	14.7	0.02	0.05	—	0.05	0.05	—	0.05	—	2,518	2,518	0.10	0.02	—	2,527
Dust From Material Movemen	—	—	—	—	—	—	2.57	2.57	—	1.32	1.32	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.02	0.55	1.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	172	172	0.01	< 0.005	—	173
Dust From Material Movemen	—	—	—	—	—	—	0.18	0.18	—	0.09	0.09	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.10	0.18	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	28.6	28.6	< 0.005	< 0.005	—	28.7
Dust From Material Movemen	—	—	—	—	—	—	0.03	0.03	—	0.02	0.02	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.04	0.06	0.64	0.00	0.00	0.13	0.13	0.00	0.03	0.03	—	134	134	0.01	< 0.005	0.01	135
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.87	0.22	15.8	5.33	0.08	0.17	3.48	3.65	0.17	0.95	1.12	—	13,073	13,073	0.65	2.10	0.79	13,714
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.05	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	9.30	9.30	< 0.005	< 0.005	0.02	9.43
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.06	0.02	1.10	0.36	0.01	0.01	0.24	0.25	0.01	0.06	0.08	—	895	895	0.04	0.14	0.90	940
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.54	1.54	< 0.005	< 0.005	< 0.005	1.56
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.20	0.07	< 0.005	< 0.005	0.04	0.05	< 0.005	0.01	0.01	—	148	148	0.01	0.02	0.15	156

4. Operations Emissions Details

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.4. Soil Carbon Accumulation By Vegetation Type - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.5. Above and Belowground Carbon Accumulation by Land Use Type - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.6. Avoided and Sequestered Emissions by Species - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Sequest	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Grading	Grading	1/1/2024	2/2/2024	5.00	25.0	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Grading	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Grading	Tractors/Loaders/Backhoes	Diesel	Average	2.00	8.00	84.0	0.37
Grading	Excavators	Diesel	Average	1.00	8.00	158	0.38

5.2.2. Mitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Grading	Rubber Tired Dozers	Diesel	Tier 4 Interim	1.00	8.00	367	0.40
Grading	Tractors/Loaders/Backhoes	Diesel	Tier 4 Interim	2.00	8.00	84.0	0.37

Grading	Excavators	Diesel	Tier 4 Interim	1.00	8.00	158	0.38

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Grading	—	—	—	—
Grading	Worker	10.0	18.5	LDA,LDT1,LDT2
Grading	Vendor	—	10.2	HHDT,MHDT
Grading	Hauling	93.8	40.0	HHDT
Grading	Onsite truck	—	—	HHDT

5.3.2. Mitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Grading	—	—	—	—
Grading	Worker	10.0	18.5	LDA,LDT1,LDT2
Grading	Vendor	—	10.2	HHDT,MHDT
Grading	Hauling	93.8	40.0	HHDT
Grading	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (Cubic Yards)	Material Exported (Cubic Yards)	Acres Graded (acres)	Material Demolished (sq. ft.)	Acres Paved (acres)
Grading	—	18,764	12.5	0.00	—

5.6.2. Construction Earthmoving Control Strategies

Control Strategies Applied	Frequency (per day)	PM10 Reduction	PM2.5 Reduction
Water Exposed Area	2	61%	61%

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
Other Non-Asphalt Surfaces	2.75	0%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2024	0.00	690	0.05	0.01

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

5.18.2.2. Mitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	17.8	annual days of extreme heat

Extreme Precipitation	6.15	annual days with precipitation above 20 mm
Sea Level Rise	0.00	meters of inundation depth
Wildfire	21.8	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider different increments of sea level rise coupled with extreme storm events. Users may select from four model simulations to view the range in potential inundation depth for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 50 meters (m) by 50 m, or about 164 feet (ft) by 164 ft.
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	N/A	N/A	N/A	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	N/A	N/A	N/A	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	80.0
AQ-PM	53.2
AQ-DPM	24.5
Drinking Water	83.1
Lead Risk Housing	34.0
Pesticides	42.0

Toxic Releases	48.6
Traffic	29.9
Effect Indicators	—
CleanUp Sites	0.00
Groundwater	47.9
Haz Waste Facilities/Generators	38.7
Impaired Water Bodies	43.8
Solid Waste	0.00
Sensitive Population	—
Asthma	43.8
Cardio-vascular	46.5
Low Birth Weights	70.6
Socioeconomic Factor Indicators	—
Education	14.2
Housing	17.9
Linguistic	23.8
Poverty	7.83
Unemployment	56.2

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	83.63916335
Employed	91.08174002
Median HI	84.31926088
Education	—

Bachelor's or higher	72.53945849
High school enrollment	19.24804312
Preschool enrollment	76.10676248
Transportation	—
Auto Access	81.29090209
Active commuting	39.76645708
Social	—
2-parent households	66.57256512
Voting	53.76620044
Neighborhood	—
Alcohol availability	70.76863852
Park access	40.45938663
Retail density	73.80982933
Supermarket access	81.67586295
Tree canopy	72.97574747
Housing	—
Homeownership	83.34402669
Housing habitability	86.70601822
Low-inc homeowner severe housing cost burden	23.72642115
Low-inc renter severe housing cost burden	90.56845887
Uncrowded housing	79.21211344
Health Outcomes	—
Insured adults	63.91633517
Arthritis	30.2
Asthma ER Admissions	67.4
High Blood Pressure	34.2
Cancer (excluding skin)	15.0

Asthma	76.7
Coronary Heart Disease	31.2
Chronic Obstructive Pulmonary Disease	50.7
Diagnosed Diabetes	57.0
Life Expectancy at Birth	43.1
Cognitively Disabled	72.6
Physically Disabled	63.7
Heart Attack ER Admissions	76.9
Mental Health Not Good	72.2
Chronic Kidney Disease	55.3
Obesity	68.7
Pedestrian Injuries	72.9
Physical Health Not Good	62.9
Stroke	51.7
Health Risk Behaviors	—
Binge Drinking	52.5
Current Smoker	71.8
No Leisure Time for Physical Activity	73.2
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	0.0
Children	82.0
Elderly	21.1
English Speaking	52.4
Foreign-born	58.7
Outdoor Workers	57.7
Climate Change Adaptive Capacity	—

Impervious Surface Cover	68.9
Traffic Density	56.1
Traffic Access	51.4
Other Indices	—
Hardship	24.1
Other Decision Support	—
2016 Voting	44.4

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	39.0
Healthy Places Index Score for Project Location (b)	82.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	No
Project Located in a Low-Income Community (Assembly Bill 1550)	No
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification

Construction: Construction Phases	See Note D.1
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CCP HS - Main Campus Building Construction Detailed Report

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8. User Changes to Default Data

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	CCP HS - Main Campus Building Construction
Construction Start Date	1/1/2024
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	2.50
Precipitation (days)	19.2
Location	34.20827583527711, -118.63619915313473
County	Los Angeles-South Coast
City	Los Angeles
Air District	South Coast AQMD
Air Basin	South Coast
TAZ	3868
EDFZ	17
Electric Utility	Los Angeles Department of Water & Power
Gas Utility	Southern California Gas
App Version	2022.1.1.12

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
High School	60.8	1000sqft	1.39	60,760	0.00	0.00	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

Sector	#	Measure Title
Construction	C-5	Use Advanced Engine Tiers

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	2.05	6.07	13.8	18.3	0.03	0.54	0.49	0.99	0.50	0.12	0.60	—	3,520	3,520	0.14	0.08	2.41	3,550
Mit.	0.66	4.98	13.7	19.7	0.03	0.26	0.49	0.74	0.24	0.12	0.35	—	3,520	3,520	0.14	0.08	2.41	3,550
% Reduced	68%	18%	1%	-7%	—	53%	—	25%	52%	—	41%	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	2.04	6.07	13.9	18.0	0.03	0.54	0.49	0.99	0.50	0.12	0.60	—	3,498	3,498	0.14	0.08	0.06	3,526
Mit.	0.66	4.98	13.7	19.4	0.03	0.26	0.49	0.74	0.24	0.12	0.35	—	3,498	3,498	0.14	0.08	0.06	3,526
% Reduced	68%	18%	1%	-8%	—	53%	—	25%	52%	—	41%	—	—	—	—	—	—	—
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.38	2.15	9.65	11.8	0.02	0.39	0.30	0.68	0.36	0.07	0.43	—	2,342	2,342	0.10	0.06	0.71	2,362
Mit.	0.44	1.76	8.84	12.9	0.02	0.15	0.30	0.45	0.14	0.07	0.22	—	2,342	2,342	0.10	0.06	0.71	2,362
% Reduced	68%	18%	8%	-9%	—	60%	—	34%	59%	—	49%	—	—	—	—	—	—	—

Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.25	0.39	1.76	2.16	< 0.005	0.07	0.05	0.12	0.06	0.01	0.08	—	388	388	0.02	0.01	0.12	391
Mit.	0.08	0.32	1.61	2.35	< 0.005	0.03	0.05	0.08	0.03	0.01	0.04	—	388	388	0.02	0.01	0.12	391
% Reduced	68%	18%	8%	-9%	—	60%	—	34%	59%	—	49%	—	—	—	—	—	—	—

2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	1.93	1.61	13.4	16.7	0.03	0.54	0.42	0.96	0.50	0.10	0.60	—	3,284	3,284	0.13	0.08	2.29	3,313
2025	2.05	6.07	13.8	18.3	0.03	0.51	0.49	0.99	0.47	0.12	0.58	—	3,520	3,520	0.14	0.08	2.41	3,550
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	1.93	1.61	13.5	16.4	0.03	0.54	0.42	0.96	0.50	0.10	0.60	—	3,265	3,265	0.13	0.08	0.06	3,292
2025	2.04	6.07	13.9	18.0	0.03	0.51	0.49	0.99	0.47	0.12	0.58	—	3,498	3,498	0.14	0.08	0.06	3,526
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	1.38	1.15	9.65	11.8	0.02	0.39	0.30	0.68	0.36	0.07	0.43	—	2,342	2,342	0.10	0.06	0.71	2,362
2025	0.72	2.15	4.91	6.41	0.01	0.18	0.17	0.35	0.16	0.04	0.21	—	1,241	1,241	0.05	0.03	0.37	1,251
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	0.25	0.21	1.76	2.16	< 0.005	0.07	0.05	0.12	0.06	0.01	0.08	—	388	388	0.02	0.01	0.12	391
2025	0.13	0.39	0.90	1.17	< 0.005	0.03	0.03	0.06	0.03	0.01	0.04	—	205	205	0.01	< 0.005	0.06	207

2.3. Construction Emissions by Year, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	0.62	0.57	12.3	18.2	0.03	0.22	0.42	0.63	0.20	0.10	0.30	—	3,284	3,284	0.13	0.08	2.29	3,313
2025	0.66	4.98	13.7	19.7	0.03	0.26	0.49	0.74	0.24	0.12	0.35	—	3,520	3,520	0.14	0.08	2.41	3,550
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	0.62	0.57	12.3	17.9	0.03	0.22	0.42	0.63	0.20	0.10	0.30	—	3,265	3,265	0.13	0.08	0.06	3,292
2025	0.66	4.98	13.7	19.4	0.03	0.26	0.49	0.74	0.24	0.12	0.35	—	3,498	3,498	0.14	0.08	0.06	3,526
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	0.44	0.41	8.84	12.9	0.02	0.15	0.30	0.45	0.14	0.07	0.22	—	2,342	2,342	0.10	0.06	0.71	2,362
2025	0.23	1.76	4.87	6.89	0.01	0.09	0.17	0.26	0.08	0.04	0.12	—	1,241	1,241	0.05	0.03	0.37	1,251
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	0.08	0.07	1.61	2.35	< 0.005	0.03	0.05	0.08	0.03	0.01	0.04	—	388	388	0.02	0.01	0.12	391
2025	0.04	0.32	0.89	1.26	< 0.005	0.02	0.03	0.05	0.02	0.01	0.02	—	205	205	0.01	< 0.005	0.06	207

3. Construction Emissions Details

3.1. Building Construction (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	1.78	1.48	12.9	14.6	0.03	0.53	—	0.53	0.49	—	0.49	—	2,602	2,602	0.11	0.02	—	2,611
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.78	1.48	12.9	14.6	0.03	0.53	—	0.53	0.49	—	0.49	—	2,602	2,602	0.11	0.02	—	2,611
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.27	1.06	9.26	10.5	0.02	0.38	—	0.38	0.35	—	0.35	—	1,864	1,864	0.08	0.02	—	1,870
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.23	0.19	1.69	1.91	< 0.005	0.07	—	0.07	0.06	—	0.06	—	309	309	0.01	< 0.005	—	310
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.13	0.11	0.12	1.92	0.00	0.00	0.33	0.33	0.00	0.08	0.08	—	360	360	0.01	0.01	1.42	366
Vendor	0.03	0.01	0.38	0.19	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	321	321	0.01	0.04	0.87	336
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.13	0.11	0.14	1.63	0.00	0.00	0.33	0.33	0.00	0.08	0.08	—	341	341	0.02	0.01	0.04	346

Vendor	0.03	0.01	0.39	0.19	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	321	321	0.01	0.04	0.02	335
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.08	0.10	1.23	0.00	0.00	0.24	0.24	0.00	0.06	0.06	—	248	248	0.01	0.01	0.44	252
Vendor	0.02	0.01	0.28	0.13	< 0.005	< 0.005	0.06	0.06	< 0.005	0.02	0.02	—	230	230	0.01	0.03	0.27	240
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.01	0.02	0.22	0.00	0.00	0.04	0.04	0.00	0.01	0.01	—	41.1	41.1	< 0.005	< 0.005	0.07	41.7
Vendor	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	38.1	38.1	< 0.005	0.01	0.04	39.8
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.2. Building Construction (2024) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.47	0.44	11.8	16.1	0.03	0.21	—	0.21	0.20	—	0.20	—	2,602	2,602	0.11	0.02	—	2,611
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.47	0.44	11.8	16.1	0.03	0.21	—	0.21	0.20	—	0.20	—	2,602	2,602	0.11	0.02	—	2,611
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.33	0.32	8.46	11.5	0.02	0.15	—	0.15	0.14	—	0.14	—	1,864	1,864	0.08	0.02	—	1,870
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.06	0.06	1.54	2.10	< 0.005	0.03	—	0.03	0.03	—	0.03	—	309	309	0.01	< 0.005	—	310
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.13	0.11	0.12	1.92	0.00	0.00	0.33	0.33	0.00	0.08	0.08	—	360	360	0.01	0.01	1.42	366
Vendor	0.03	0.01	0.38	0.19	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	321	321	0.01	0.04	0.87	336
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.13	0.11	0.14	1.63	0.00	0.00	0.33	0.33	0.00	0.08	0.08	—	341	341	0.02	0.01	0.04	346
Vendor	0.03	0.01	0.39	0.19	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	321	321	0.01	0.04	0.02	335
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.08	0.10	1.23	0.00	0.00	0.24	0.24	0.00	0.06	0.06	—	248	248	0.01	0.01	0.44	252
Vendor	0.02	0.01	0.28	0.13	< 0.005	< 0.005	0.06	0.06	< 0.005	0.02	0.02	—	230	230	0.01	0.03	0.27	240
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.01	0.02	0.22	0.00	0.00	0.04	0.04	0.00	0.01	0.01	—	41.1	41.1	< 0.005	< 0.005	0.07	41.7

Vendor	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	38.1	38.1	< 0.005	0.01	0.04	39.8
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.3. Building Construction (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.67	1.39	12.2	14.5	0.03	0.47	—	0.47	0.43	—	0.43	—	2,602	2,602	0.11	0.02	—	2,611
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.67	1.39	12.2	14.5	0.03	0.47	—	0.47	0.43	—	0.43	—	2,602	2,602	0.11	0.02	—	2,611
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.59	0.49	4.31	5.14	0.01	0.17	—	0.17	0.15	—	0.15	—	922	922	0.04	0.01	—	925
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.79	0.94	< 0.005	0.03	—	0.03	0.03	—	0.03	—	153	153	0.01	< 0.005	—	153
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.12	0.11	0.11	1.78	0.00	0.00	0.33	0.33	0.00	0.08	0.08	—	353	353	0.01	0.01	1.29	358
Vendor	0.02	0.01	0.36	0.18	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	316	316	0.01	0.04	0.86	330
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.12	0.11	0.12	1.51	0.00	0.00	0.33	0.33	0.00	0.08	0.08	—	334	334	0.02	0.01	0.03	339
Vendor	0.02	0.01	0.37	0.18	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	316	316	0.01	0.04	0.02	330
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.05	0.56	0.00	0.00	0.12	0.12	0.00	0.03	0.03	—	120	120	0.01	< 0.005	0.20	122
Vendor	0.01	< 0.005	0.13	0.06	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	112	112	< 0.005	0.02	0.13	117
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.10	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	19.9	19.9	< 0.005	< 0.005	0.03	20.2
Vendor	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	18.5	18.5	< 0.005	< 0.005	0.02	19.3
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.4. Building Construction (2025) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.47	0.44	11.8	16.1	0.03	0.21	—	0.21	0.20	—	0.20	—	2,602	2,602	0.11	0.02	—	2,611
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.47	0.44	11.8	16.1	0.03	0.21	—	0.21	0.20	—	0.20	—	2,602	2,602	0.11	0.02	—	2,611
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.16	0.16	4.18	5.70	0.01	0.07	—	0.07	0.07	—	0.07	—	922	922	0.04	0.01	—	925
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.03	0.76	1.04	< 0.005	0.01	—	0.01	0.01	—	0.01	—	153	153	0.01	< 0.005	—	153
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.12	0.11	0.11	1.78	0.00	0.00	0.33	0.33	0.00	0.08	0.08	—	353	353	0.01	0.01	1.29	358
Vendor	0.02	0.01	0.36	0.18	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	316	316	0.01	0.04	0.86	330
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.12	0.11	0.12	1.51	0.00	0.00	0.33	0.33	0.00	0.08	0.08	—	334	334	0.02	0.01	0.03	339

Vendor	0.02	0.01	0.37	0.18	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	316	316	0.01	0.04	0.02	330
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.05	0.56	0.00	0.00	0.12	0.12	0.00	0.03	0.03	—	120	120	0.01	< 0.005	0.20	122
Vendor	0.01	< 0.005	0.13	0.06	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	112	112	< 0.005	0.02	0.13	117
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.10	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	19.9	19.9	< 0.005	< 0.005	0.03	20.2
Vendor	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	18.5	18.5	< 0.005	< 0.005	0.02	19.3
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.5. Architectural Coating (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.21	0.17	1.18	1.52	< 0.005	0.04	—	0.04	0.03	—	0.03	—	178	178	0.01	< 0.005	—	179
Architectural Coatings	—	4.37	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.21	0.17	1.18	1.52	< 0.005	0.04	—	0.04	0.03	—	0.03	—	178	178	0.01	< 0.005	—	179

Architect Coatings	—	4.37	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.07	0.06	0.42	0.54	< 0.005	0.01	—	0.01	0.01	—	0.01	—	62.9	62.9	< 0.005	< 0.005	—	63.1
Architectural Coatings	—	1.54	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.08	0.10	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	10.4	10.4	< 0.005	< 0.005	—	10.5
Architectural Coatings	—	0.28	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.36	0.00	0.00	0.07	0.07	0.00	0.02	0.02	—	70.6	70.6	< 0.005	< 0.005	0.26	71.6
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.30	0.00	0.00	0.07	0.07	0.00	0.02	0.02	—	66.9	66.9	< 0.005	< 0.005	0.01	67.7
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.11	0.00	0.00	0.02	0.02	0.00	0.01	0.01	—	24.0	24.0	< 0.005	< 0.005	0.04	24.3
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	3.97	3.97	< 0.005	< 0.005	0.01	4.03
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.6. Architectural Coating (2025) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.03	1.43	1.28	< 0.005	0.04	—	0.04	0.04	—	0.04	—	178	178	0.01	< 0.005	—	179
Architectural Coatings	—	4.37	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.03	1.43	1.28	< 0.005	0.04	—	0.04	0.04	—	0.04	—	178	178	0.01	< 0.005	—	179

Architectural	—	4.37	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.50	0.45	< 0.005	0.01	—	0.01	0.01	—	0.01	—	62.9	62.9	< 0.005	< 0.005	—	63.1
Architectural Coatings	—	1.54	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.09	0.08	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	10.4	10.4	< 0.005	< 0.005	—	10.5
Architectural Coatings	—	0.28	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.36	0.00	0.00	0.07	0.07	0.00	0.02	0.02	—	70.6	70.6	< 0.005	< 0.005	0.26	71.6
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.30	0.00	0.00	0.07	0.07	0.00	0.02	0.02	—	66.9	66.9	< 0.005	< 0.005	0.01	67.7
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.11	0.00	0.00	0.02	0.02	0.00	0.01	0.01	—	24.0	24.0	< 0.005	< 0.005	0.04	24.3
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	3.97	3.97	< 0.005	< 0.005	0.01	4.03
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

4. Operations Emissions Details

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.4. Soil Carbon Accumulation By Vegetation Type - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.5. Above and Belowground Carbon Accumulation by Land Use Type - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.6. Avoided and Sequestered Emissions by Species - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Sequest	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Building Construction	Building Construction	1/1/2024	6/30/2025	5.00	391	—
Architectural Coating	Architectural Coating	1/1/2025	6/30/2025	5.00	129	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Building Construction	Cranes	Diesel	Average	1.00	8.00	367	0.29
Building Construction	Forklifts	Diesel	Average	2.00	8.00	82.0	0.20
Building Construction	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	2.00	8.00	84.0	0.37
Building Construction	Welders	Diesel	Average	3.00	8.00	46.0	0.45
Architectural Coating	Air Compressors	Diesel	Average	1.00	8.00	37.0	0.48

5.2.2. Mitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Building Construction	Cranes	Diesel	Tier 4 Interim	1.00	8.00	367	0.29
Building Construction	Forklifts	Diesel	Tier 4 Interim	2.00	8.00	82.0	0.20
Building Construction	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Building Construction	Tractors/Loaders/Backhoes	Diesel	Tier 4 Interim	2.00	8.00	84.0	0.37
Building Construction	Welders	Diesel	Tier 4 Interim	3.00	8.00	46.0	0.45

Architectural Coating	Air Compressors	Diesel	Tier 4 Interim	1.00	8.00	37.0	0.48

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Building Construction	—	—	—	—
Building Construction	Worker	25.5	18.5	LDA,LDT1,LDT2
Building Construction	Vendor	9.96	10.2	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	5.10	18.5	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	10.2	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	HHDT

5.3.2. Mitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Building Construction	—	—	—	—
Building Construction	Worker	25.5	18.5	LDA,LDT1,LDT2
Building Construction	Vendor	9.96	10.2	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	5.10	18.5	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	10.2	HHDT,MHDT

Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
Architectural Coating	0.00	0.00	91,140	30,380	—

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (cy)	Material Exported (cy)	Acres Graded (acres)	Material Demolished (sq. ft.)	Acres Paved (acres)

5.6.2. Construction Earthmoving Control Strategies

Non-applicable. No control strategies activated by user.

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
High School	0.00	0%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O

2024	0.00	690	0.05	0.01
2025	0.00	690	0.05	0.01

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

5.18.2.2. Mitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	17.8	annual days of extreme heat
Extreme Precipitation	6.15	annual days with precipitation above 20 mm
Sea Level Rise	0.00	meters of inundation depth
Wildfire	21.8	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider different increments of sea level rise coupled with extreme storm events. Users may select from four model simulations to view the range in potential inundation depth for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 50 meters (m) by 50 m, or about 164 feet (ft) by 164 ft.
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A
Flooding	N/A	N/A	N/A	N/A

Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	N/A	N/A	N/A	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	N/A	N/A	N/A	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	80.0
AQ-PM	53.2
AQ-DPM	24.5
Drinking Water	83.1
Lead Risk Housing	34.0
Pesticides	42.0
Toxic Releases	48.6
Traffic	29.9
Effect Indicators	—
CleanUp Sites	0.00
Groundwater	47.9
Haz Waste Facilities/Generators	38.7
Impaired Water Bodies	43.8
Solid Waste	0.00
Sensitive Population	—
Asthma	43.8
Cardio-vascular	46.5
Low Birth Weights	70.6
Socioeconomic Factor Indicators	—
Education	14.2
Housing	17.9
Linguistic	23.8
Poverty	7.83
Unemployment	56.2

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	83.63916335
Employed	91.08174002
Median HI	84.31926088
Education	—
Bachelor's or higher	72.53945849
High school enrollment	19.24804312
Preschool enrollment	76.10676248
Transportation	—
Auto Access	81.29090209
Active commuting	39.76645708
Social	—
2-parent households	66.57256512
Voting	53.76620044
Neighborhood	—
Alcohol availability	70.76863852
Park access	40.45938663
Retail density	73.80982933
Supermarket access	81.67586295
Tree canopy	72.97574747
Housing	—
Homeownership	83.34402669
Housing habitability	86.70601822
Low-inc homeowner severe housing cost burden	23.72642115

Low-inc renter severe housing cost burden	90.56845887
Uncrowded housing	79.21211344
Health Outcomes	—
Insured adults	63.91633517
Arthritis	30.2
Asthma ER Admissions	67.4
High Blood Pressure	34.2
Cancer (excluding skin)	15.0
Asthma	76.7
Coronary Heart Disease	31.2
Chronic Obstructive Pulmonary Disease	50.7
Diagnosed Diabetes	57.0
Life Expectancy at Birth	43.1
Cognitively Disabled	72.6
Physically Disabled	63.7
Heart Attack ER Admissions	76.9
Mental Health Not Good	72.2
Chronic Kidney Disease	55.3
Obesity	68.7
Pedestrian Injuries	72.9
Physical Health Not Good	62.9
Stroke	51.7
Health Risk Behaviors	—
Binge Drinking	52.5
Current Smoker	71.8
No Leisure Time for Physical Activity	73.2
Climate Change Exposures	—

Wildfire Risk	0.0
SLR Inundation Area	0.0
Children	82.0
Elderly	21.1
English Speaking	52.4
Foreign-born	58.7
Outdoor Workers	57.7
Climate Change Adaptive Capacity	—
Impervious Surface Cover	68.9
Traffic Density	56.1
Traffic Access	51.4
Other Indices	—
Hardship	24.1
Other Decision Support	—
2016 Voting	44.4

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	39.0
Healthy Places Index Score for Project Location (b)	82.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	No
Project Located in a Low-Income Community (Assembly Bill 1550)	No
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Construction: Construction Phases	See Note E.1
Construction: Off-Road Equipment	See Note D.2

CCP HS - Proposed Additions Detailed Report

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8. User Changes to Default Data

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	CCP HS - Proposed Additions
Operational Year	2022
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	2.50
Precipitation (days)	19.2
Location	34.20884078286427, -118.63498318165364
County	Los Angeles-South Coast
City	Los Angeles
Air District	South Coast AQMD
Air Basin	South Coast
TAZ	3868
EDFZ	17
Electric Utility	Los Angeles Department of Water & Power
Gas Utility	Southern California Gas
App Version	2022.1.1.13

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
High School	69.3	1000sqft	3.08	69,254	0.00	0.00	—	—

Parking Lot	1.39	Acre	1.39	0.00	0.00	—	—	—
Recreational Swimming Pool	6.15	1000sqft	0.14	6,150	0.00	—	—	—
Other Non-Asphalt Surfaces	9.86	1000sqft	0.23	0.00	0.00	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.4. Operations Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	4.79	6.02	3.57	36.5	0.07	0.08	2.16	2.24	0.08	0.39	0.46	72.5	8,197	8,270	7.74	0.30	30.4	8,584
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	4.15	5.41	3.85	30.7	0.06	0.08	2.16	2.24	0.07	0.39	0.46	72.5	7,897	7,969	7.76	0.32	1.08	8,259
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	4.52	5.76	3.91	33.7	0.07	0.08	2.16	2.24	0.08	0.39	0.46	72.5	7,983	8,056	7.76	0.32	13.3	8,359
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.83	1.05	0.71	6.16	0.01	0.01	0.39	0.41	0.01	0.07	0.08	12.0	1,322	1,334	1.28	0.05	2.20	1,384

2.5. Operations Emissions by Sector, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	4.17	3.79	3.17	33.0	0.07	0.05	2.16	2.21	0.04	0.39	0.43	—	6,672	6,672	0.37	0.28	30.1	6,794
Area	0.58	2.21	0.03	3.27	< 0.005	< 0.005	—	< 0.005	0.01	—	0.01	—	13.5	13.5	< 0.005	< 0.005	—	13.5
Energy	0.04	0.02	0.38	0.32	< 0.005	0.03	—	0.03	0.03	—	0.03	—	1,478	1,478	0.11	0.01	—	1,484
Water	—	—	—	—	—	—	—	—	—	—	—	5.10	34.3	39.4	0.53	0.01	—	56.3
Waste	—	—	—	—	—	—	—	—	—	—	—	67.4	0.00	67.4	6.74	0.00	—	236
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.30	0.30
Total	4.79	6.02	3.57	36.5	0.07	0.08	2.16	2.24	0.08	0.39	0.46	72.5	8,197	8,270	7.74	0.30	30.4	8,584
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	4.11	3.72	3.47	30.4	0.06	0.05	2.16	2.21	0.04	0.39	0.43	—	6,385	6,385	0.38	0.30	0.78	6,483
Area	—	1.67	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.04	0.02	0.38	0.32	< 0.005	0.03	—	0.03	0.03	—	0.03	—	1,478	1,478	0.11	0.01	—	1,484
Water	—	—	—	—	—	—	—	—	—	—	—	5.10	34.3	39.4	0.53	0.01	—	56.3
Waste	—	—	—	—	—	—	—	—	—	—	—	67.4	0.00	67.4	6.74	0.00	—	236
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.30	0.30
Total	4.15	5.41	3.85	30.7	0.06	0.08	2.16	2.24	0.07	0.39	0.46	72.5	7,897	7,969	7.76	0.32	1.08	8,259
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	4.08	3.70	3.51	31.2	0.06	0.05	2.16	2.21	0.04	0.39	0.43	—	6,462	6,462	0.38	0.30	13.0	6,573
Area	0.40	2.04	0.02	2.24	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	9.24	9.24	< 0.005	< 0.005	—	9.27
Energy	0.04	0.02	0.38	0.32	< 0.005	0.03	—	0.03	0.03	—	0.03	—	1,478	1,478	0.11	0.01	—	1,484
Water	—	—	—	—	—	—	—	—	—	—	—	5.10	34.3	39.4	0.53	0.01	—	56.3
Waste	—	—	—	—	—	—	—	—	—	—	—	67.4	0.00	67.4	6.74	0.00	—	236

Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.30	0.30
Total	4.52	5.76	3.91	33.7	0.07	0.08	2.16	2.24	0.08	0.39	0.46	72.5	7,983	8,056	7.76	0.32	13.3	8,359
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.75	0.68	0.64	5.69	0.01	0.01	0.39	0.40	0.01	0.07	0.08	—	1,070	1,070	0.06	0.05	2.15	1,088
Area	0.07	0.37	< 0.005	0.41	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.53	1.53	< 0.005	< 0.005	—	1.53
Energy	0.01	< 0.005	0.07	0.06	< 0.005	0.01	—	0.01	0.01	—	0.01	—	245	245	0.02	< 0.005	—	246
Water	—	—	—	—	—	—	—	—	—	—	—	0.84	5.68	6.52	0.09	< 0.005	—	9.33
Waste	—	—	—	—	—	—	—	—	—	—	—	11.2	0.00	11.2	1.12	0.00	—	39.0
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.05	0.05
Total	0.83	1.05	0.71	6.16	0.01	0.01	0.39	0.41	0.01	0.07	0.08	12.0	1,322	1,334	1.28	0.05	2.20	1,384

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Recreational Swimming Pool	4.17	3.79	3.17	33.0	0.07	0.05	2.16	2.21	0.04	0.39	0.43	—	6,672	6,672	0.37	0.28	30.1	6,794

Other Non-Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	4.17	3.79	3.17	33.0	0.07	0.05	2.16	2.21	0.04	0.39	0.43	—	6,672	6,672	0.37	0.28	30.1	6,794
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Recreational Swimming Pool	4.11	3.72	3.47	30.4	0.06	0.05	2.16	2.21	0.04	0.39	0.43	—	6,385	6,385	0.38	0.30	0.78	6,483
Other Non-Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	4.11	3.72	3.47	30.4	0.06	0.05	2.16	2.21	0.04	0.39	0.43	—	6,385	6,385	0.38	0.30	0.78	6,483
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Recreational Swimming Pool	0.75	0.68	0.64	5.69	0.01	0.01	0.39	0.40	0.01	0.07	0.08	—	1,070	1,070	0.06	0.05	2.15	1,088
Other Non-Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.75	0.68	0.64	5.69	0.01	0.01	0.39	0.40	0.01	0.07	0.08	—	1,070	1,070	0.06	0.05	2.15	1,088

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	—	—	—	—	—	—	926	926	0.07	0.01	—	931
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	100	100	0.01	< 0.005	—	101
Recreational Swimming Pool	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	1,026	1,026	0.07	0.01	—	1,031
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	—	—	—	—	—	—	926	926	0.07	0.01	—	931
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	100	100	0.01	< 0.005	—	101
Recreational Swimming Pool	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00

Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	1,026	1,026	0.07	0.01	—	1,031
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	—	—	—	—	—	—	153	153	0.01	< 0.005	—	154
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	16.6	16.6	< 0.005	< 0.005	—	16.7
Recreational Swimming Pool	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	170	170	0.01	< 0.005	—	171

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	0.04	0.02	0.38	0.32	< 0.005	0.03	—	0.03	0.03	—	0.03	—	451	451	0.04	< 0.005	—	452
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00

Recreational Swimming Pool	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Other Non-Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.04	0.02	0.38	0.32	< 0.005	0.03	—	0.03	0.03	—	0.03	—	451	451	0.04	< 0.005	—	452
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	0.04	0.02	0.38	0.32	< 0.005	0.03	—	0.03	0.03	—	0.03	—	451	451	0.04	< 0.005	—	452
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Recreational Swimming Pool	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Other Non-Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.04	0.02	0.38	0.32	< 0.005	0.03	—	0.03	0.03	—	0.03	—	451	451	0.04	< 0.005	—	452
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	0.01	< 0.005	0.07	0.06	< 0.005	0.01	—	0.01	0.01	—	0.01	—	74.7	74.7	0.01	< 0.005	—	74.9
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Recreational Swimming Pool	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00

Other Non-Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.01	< 0.005	0.07	0.06	< 0.005	0.01	—	0.01	0.01	—	0.01	—	74.7	74.7	0.01	< 0.005	—	74.9

4.3. Area Emissions by Source

4.3.2. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	1.49	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.18	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.58	0.54	0.03	3.27	< 0.005	< 0.005	—	< 0.005	0.01	—	0.01	—	13.5	13.5	< 0.005	< 0.005	—	13.5
Total	0.58	2.21	0.03	3.27	< 0.005	< 0.005	—	< 0.005	0.01	—	0.01	—	13.5	13.5	< 0.005	< 0.005	—	13.5
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	1.49	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.18	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	1.67	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	0.27	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.07	0.07	< 0.005	0.41	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.53	1.53	< 0.005	< 0.005	—	1.53
Total	0.07	0.37	< 0.005	0.41	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.53	1.53	< 0.005	< 0.005	—	1.53

4.4. Water Emissions by Land Use

4.4.2. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	—	—	—	—	—	4.41	29.6	34.0	0.45	0.01	—	48.7
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Recreational Swimming Pool	—	—	—	—	—	—	—	—	—	—	—	0.70	4.68	5.38	0.07	< 0.005	—	7.70
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00

Total	—	—	—	—	—	—	—	—	—	—	—	5.10	34.3	39.4	0.53	0.01	—	56.3
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	—	—	—	—	—	4.41	29.6	34.0	0.45	0.01	—	48.7
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Recreational Swimming Pool	—	—	—	—	—	—	—	—	—	—	—	0.70	4.68	5.38	0.07	< 0.005	—	7.70
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	5.10	34.3	39.4	0.53	0.01	—	56.3
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	—	—	—	—	—	0.73	4.90	5.63	0.08	< 0.005	—	8.05
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Recreational Swimming Pool	—	—	—	—	—	—	—	—	—	—	—	0.12	0.78	0.89	0.01	< 0.005	—	1.27
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	0.84	5.68	6.52	0.09	< 0.005	—	9.33

4.5. Waste Emissions by Land Use

4.5.2. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	—	—	—	—	—	48.5	0.00	48.5	4.85	0.00	—	170
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Recreational Swimming Pool	—	—	—	—	—	—	—	—	—	—	—	18.9	0.00	18.9	1.89	0.00	—	66.1
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	67.4	0.00	67.4	6.74	0.00	—	236
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	—	—	—	—	—	48.5	0.00	48.5	4.85	0.00	—	170
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Recreational Swimming Pool	—	—	—	—	—	—	—	—	—	—	—	18.9	0.00	18.9	1.89	0.00	—	66.1
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00

Total	—	—	—	—	—	—	—	—	—	—	—	67.4	0.00	67.4	6.74	0.00	—	236
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	—	—	—	—	—	8.03	0.00	8.03	0.80	0.00	—	28.1
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Recreational Swimming Pool	—	—	—	—	—	—	—	—	—	—	—	3.13	0.00	3.13	0.31	0.00	—	10.9
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	11.2	0.00	11.2	1.12	0.00	—	39.0

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.27	0.27
Recreational Swimming Pool	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.03	0.03
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.30	0.30

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.27	0.27
Recreational Swimming Pool	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.03	0.03
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.30	0.30
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.04	0.04
Recreational Swimming Pool	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	< 0.005	< 0.005
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.05	0.05

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
High School	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Recreational Swimming Pool	952	952	952	347,487	7,775	7,775	7,775	2,837,748
Other Non-Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
0	0.00	103,881	34,627	4,225

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	250

5.11. Operational Energy Consumption

5.11.1. Unmitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
High School	489,637	690	0.0489	0.0069	1,407,774
Parking Lot	53,040	690	0.0489	0.0069	0.00

Recreational Swimming Pool	0.00	690	0.0489	0.0069	0.00
Other Non-Asphalt Surfaces	0.00	690	0.0489	0.0069	0.00

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
High School	2,299,554	0.00
Parking Lot	0.00	0.00
Recreational Swimming Pool	363,730	0.00
Other Non-Asphalt Surfaces	0.00	0.00

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
High School	90.0	—
Parking Lot	0.00	—
Recreational Swimming Pool	35.1	—
Other Non-Asphalt Surfaces	0.00	—

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
High School	Household refrigerators and/or freezers	R-134a	1,430	0.02	0.60	0.00	1.00

High School	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0
High School	Stand-alone retail refrigerators and freezers	R-134a	1,430	< 0.005	1.00	0.00	1.00
High School	Walk-in refrigerators and freezers	R-404A	3,922	< 0.005	7.50	7.50	20.0
Recreational Swimming Pool	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0
Recreational Swimming Pool	Stand-alone retail refrigerators and freezers	R-134a	1,430	0.04	1.00	0.00	1.00

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

Equipment Type	Fuel Type	Number per Day	Hours per Day	Hours per Year	Horsepower	Load Factor

5.16.2. Process Boilers

Equipment Type	Fuel Type	Number	Boiler Rating (MMBtu/hr)	Daily Heat Input (MMBtu/day)	Annual Heat Input (MMBtu/yr)

5.17. User Defined

Equipment Type	Fuel Type
—	—

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	17.8	annual days of extreme heat
Extreme Precipitation	6.15	annual days with precipitation above 20 mm
Sea Level Rise	0.00	meters of inundation depth
Wildfire	21.8	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider different increments of sea level rise coupled with extreme storm events. Users may select from four model simulations to view the range in potential inundation depth for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 50 meters (m) by 50 m, or about 164 feet (ft) by 164 ft.
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	N/A	N/A	N/A	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A

Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	N/A	N/A	N/A	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	80.0
AQ-PM	53.2
AQ-DPM	24.5
Drinking Water	83.1
Lead Risk Housing	34.0
Pesticides	42.0
Toxic Releases	48.6
Traffic	29.9
Effect Indicators	—

CleanUp Sites	0.00
Groundwater	47.9
Haz Waste Facilities/Generators	38.7
Impaired Water Bodies	43.8
Solid Waste	0.00
Sensitive Population	—
Asthma	43.8
Cardio-vascular	46.5
Low Birth Weights	70.6
Socioeconomic Factor Indicators	—
Education	14.2
Housing	17.9
Linguistic	23.8
Poverty	7.83
Unemployment	56.2

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	83.63916335
Employed	91.08174002
Median HI	84.31926088
Education	—
Bachelor's or higher	72.53945849
High school enrollment	19.24804312
Preschool enrollment	76.10676248

Transportation	—
Auto Access	81.29090209
Active commuting	39.76645708
Social	—
2-parent households	66.57256512
Voting	53.76620044
Neighborhood	—
Alcohol availability	70.76863852
Park access	40.45938663
Retail density	73.80982933
Supermarket access	81.67586295
Tree canopy	72.97574747
Housing	—
Homeownership	83.34402669
Housing habitability	86.70601822
Low-inc homeowner severe housing cost burden	23.72642115
Low-inc renter severe housing cost burden	90.56845887
Uncrowded housing	79.21211344
Health Outcomes	—
Insured adults	63.91633517
Arthritis	30.2
Asthma ER Admissions	67.4
High Blood Pressure	34.2
Cancer (excluding skin)	15.0
Asthma	76.7
Coronary Heart Disease	31.2
Chronic Obstructive Pulmonary Disease	50.7

Diagnosed Diabetes	57.0
Life Expectancy at Birth	43.1
Cognitively Disabled	72.6
Physically Disabled	63.7
Heart Attack ER Admissions	76.9
Mental Health Not Good	72.2
Chronic Kidney Disease	55.3
Obesity	68.7
Pedestrian Injuries	72.9
Physical Health Not Good	62.9
Stroke	51.7
Health Risk Behaviors	—
Binge Drinking	52.5
Current Smoker	71.8
No Leisure Time for Physical Activity	73.2
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	0.0
Children	82.0
Elderly	21.1
English Speaking	52.4
Foreign-born	58.7
Outdoor Workers	57.7
Climate Change Adaptive Capacity	—
Impervious Surface Cover	68.9
Traffic Density	56.1
Traffic Access	51.4

Other Indices	—
Hardship	24.1
Other Decision Support	—
2016 Voting	44.4

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	39.0
Healthy Places Index Score for Project Location (b)	82.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	No
Project Located in a Low-Income Community (Assembly Bill 1550)	No
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Land Use	See Note H.1
Operations: Vehicle Data	See Note H.2

PROTECTED TREE REPORT

PREPARED FOR

Chaminade College Preparatory - High School

PROPERTY

Chaminade College Preparatory - High School

7500 Chaminade Ave

West Hills, CA 91304

CONTACT

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December 7, 2023

PREPARED BY

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PROTECTED TREE REPORT

7500 Chaminade Ave, West Hills, CA 91304

SUMMARY

PROJECT OVERVIEW	
Site Address	**7500 Chaminade Ave, West Hills, CA 91304**
Location and/or Specific Plan	**Chatsworth**
Project Description	**New Buildings and Revised Campus Plans**
Date of Site Visit	**1/13/23 & 01/25/23**
Number of Protected Trees on Site	**0**
Number of Non-Protected Significant Trees 8"+ on Site	**364 Trees**
REMOVAL of Non-Protected Significant 8"+ Trees on Site	**40 removals**
Number of Street Parkway Trees on Site	**33 Trees with 1 removal**

This Tree Report was prepared at the request of the property owner, Chaminade College Preparatory High School, who is preparing to revise and update the campus plan to build two new buildings, relocate and upgrade existing athletic and other outdoor facilities, and reconfigure existing on-site surface parking areas, in conjunction with the continued operation of the HighSchool on this property. The subject property is x square feet and is located in the Chatsworth area of Los Angeles.

PROTECTED TREES, URBAN FORESTRY DIVISION

This property is under the jurisdiction of the City of Los Angeles and guided by the Native Tree Protection Ordinance No. 186873. **Protected Trees** are defined by this ordinance as oaks (*Quercus* sp) indigenous to California but excluding the scrub oak (*Quercus dumosa*); Southern California black walnut (*Juglans californica var. californica)*; Western sycamore (*Platanus racemosa*) and California bay laurel (*Umbellularia californica*) trees with a diameter at breast height (DBH) of four inches (4") or greater. **Protected Shrubs** are defined as Mexican elderberry (*Sambucus mexicana*); Toyon (*Heteromeles arbutifolia*) which measure four inches or more in cumulative diameter, four and one-half feet above the ground level at the base of the shrub.

There are NO trees or shrubs on this property that would be considered protected native within the City of Los Angeles Native Tree Protection Ordinance.

NEIGHBOR TREES

I have also inspected the neighboring properties to confirm there are no protected tree or shrub species that are adjacent to the construction zone, or in areas of impact.

CITY OF LOS ANGELES PARKWAY STREET TREES, URBAN FORESTRY DIVISION

At this time, I observed (33) Parkway Street Trees, 32 to be retained and protected in place. 1 removal.
Cohasset Street - There are (13) thirteen Parkway Street Trees - all Chitalpa 'Pink Dawn'
Saticoy Street - There are (13) thirteen Parkway Street Trees - all Chitalpa 'Pink Dawn'
Saticoy Street- There are (3) three Parkway Street Trees- all Crepe Myrtle
Keswick Avenue - There are (4) four Parkway Street Trees - 2 Pear and 2 African Sumac

One of these parkway street trees #ST489 will be impacted by the proposed project installation of a pedestrian bridge located over Saticoy Street.
All other street trees will be retained and protected in place.

NON-PROTECTED SIGNIFICANT TREES, DEPARTMENT OF CITY PLANNING

The Department of City Planning requires the identification of the location, size, type and condition of all existing trees on the site with a DBH (Diameter at Breast Height) of 8 inches (8") or greater. These trees will be identified as **Non-Protected Significant Trees.**

ACCURATE TOTAL: At this time, I observed three hundred and sixty-four (364) **Non-Protected Significant Trees 8" DBH (Diameter at Breast Height) or greater** on the property.
RETAIN: Three Hundred and twenty-four (324) trees will be retained and protected in place.
REMOVAL: Forty (40) non-protected significant trees 8" + will be impacted by construction and are recommended for removal and replacement to the satisfaction of the City of Los Angeles Department of City Planning.

SMALLER THAN 8" - Non-Protected and NON significant Trees (1" - 8" trunk diameter)
There are one-hundred and eight (108) **Non-protected NON significant trees** on the property.

Seven (7) will be removed. These trees require no replacement. Most of these trees are small, such as 1" - 2" diameter, newly installed, poorly establishing, such as Pink Trumpet Trees that are averaging 2" in diameter, and a few small pepper trees and London plane trees.

One-hundred and one trees (101) will be retained and protected in place.

No Existing Trees from old Survey - 12 trees not on map, placeholder #'s are in the spreadsheet.
The original survey had inadvertently mapped some trees that are not there, and appear to not have been there or died due to the mega-drought and were removed.
These trees #'s are on the spreadsheet, but indicated as a GREY numbered circle on the map.
These #'s are 23, 24, 118, 119, 131, 170, 180, 191, 203, 204, 220 & 478

ASSIGNMENT

The Assignment included:

- Field Observation and Inventory of Trees on Site
- Recommendations for the protection of trees to remain
- Photographs of the subject trees are included in Appendix B
- Matrix of proposed protected tree removals and protected trees to remain
- Evaluation of potential construction impacts
- A Tree Location Plot Map is included in Appendix A
- Protected tree construction impact guidelines

LIMITS OF THE ASSIGNMENT

The field inspection was a visual, grade level tree assessment. No special tools or equipment were used. No tree risk assessments were performed. My site examination and the information in this report is limited to the date and time the inspection occurred. The information in this report is limited to the condition of the trees at the time of my inspection.

TREE CHARACTERISTICS AND SITE CONDITIONS

Detailed information with respect to size, condition, species and recommendations are included in the Summary of Field Inspections in Appendix C. The trees are numbered on the Tree Location Map in Appendix A.

IMPACT ANALYSIS AND SPECIFIC RECOMMENDATIONS

NON-PROTECTED SIGNIFICANT TREES 8" or GREATER in Trunk Diameter

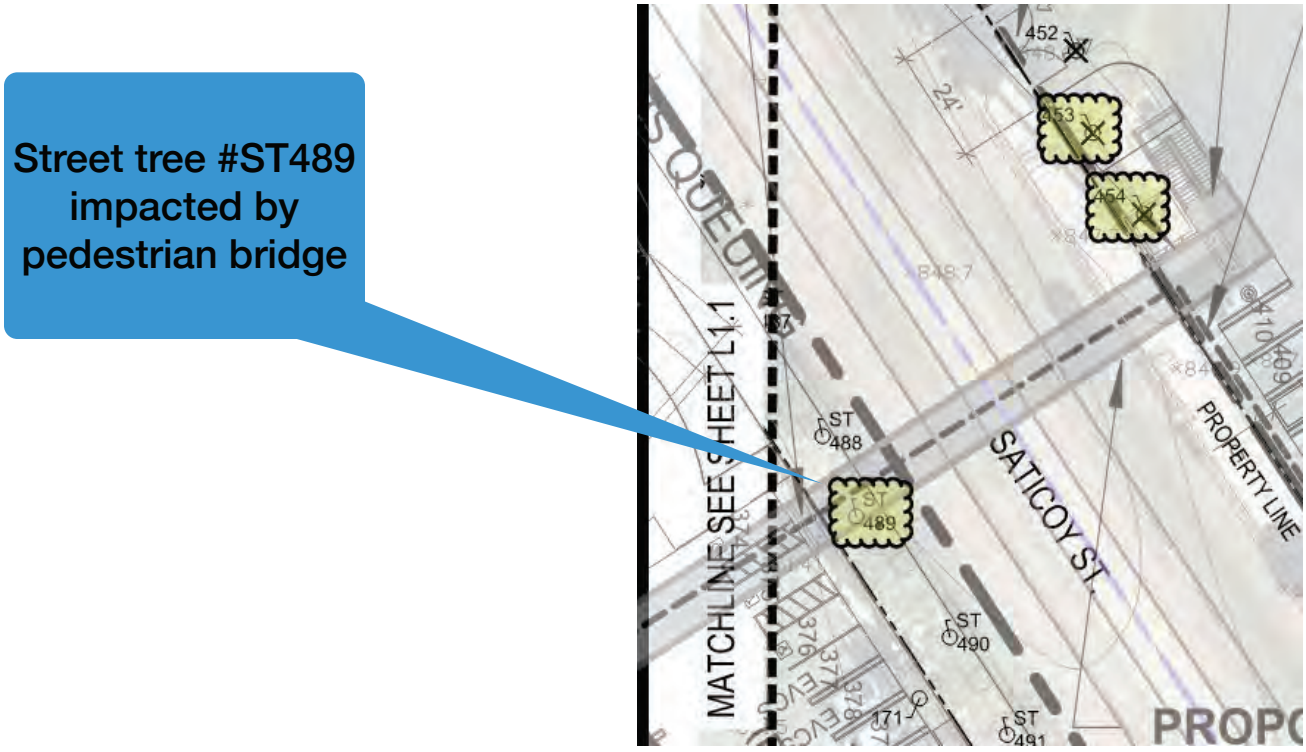
TOTAL: At this time, I observed three hundred and sixty-four (364) **Non-Protected Significant Trees 8" or greater** on the property.

RETAINED: Three hundred and twenty-four (324) trees will be retained and protected in place.

REMOVAL: Forty (40) non-protected significant trees 8" or greater will be impacted by construction and are recommended for removal and replacement to the satisfaction of the City of Los Angeles Department of City Planning.
The majority of these removals are less desirable species, such as stone pine which are highly prone to root plate failure when overly mature. Other species are Redwood (*Sequoia sempervirens*), which are not climate adapted, and do not perform well in the San Fernando Valley. Other removal species are non-native and less desirable, such as evergreen ash, Mexican fan palms, which provide no shade and queen palms.

STREET TREES

Thirty-two parkway trees to be retained and protected in place. One parkway street tree #ST489 a Pink Dawn *(Chitalpa tashkentensis)* will be impacted by the proposed pedestrian bridge This tree will be removed and replaced at a 2:1 ratio to the satisfaction of the Urban Forestry Division.



SUMMARY OF DATA COUNTS

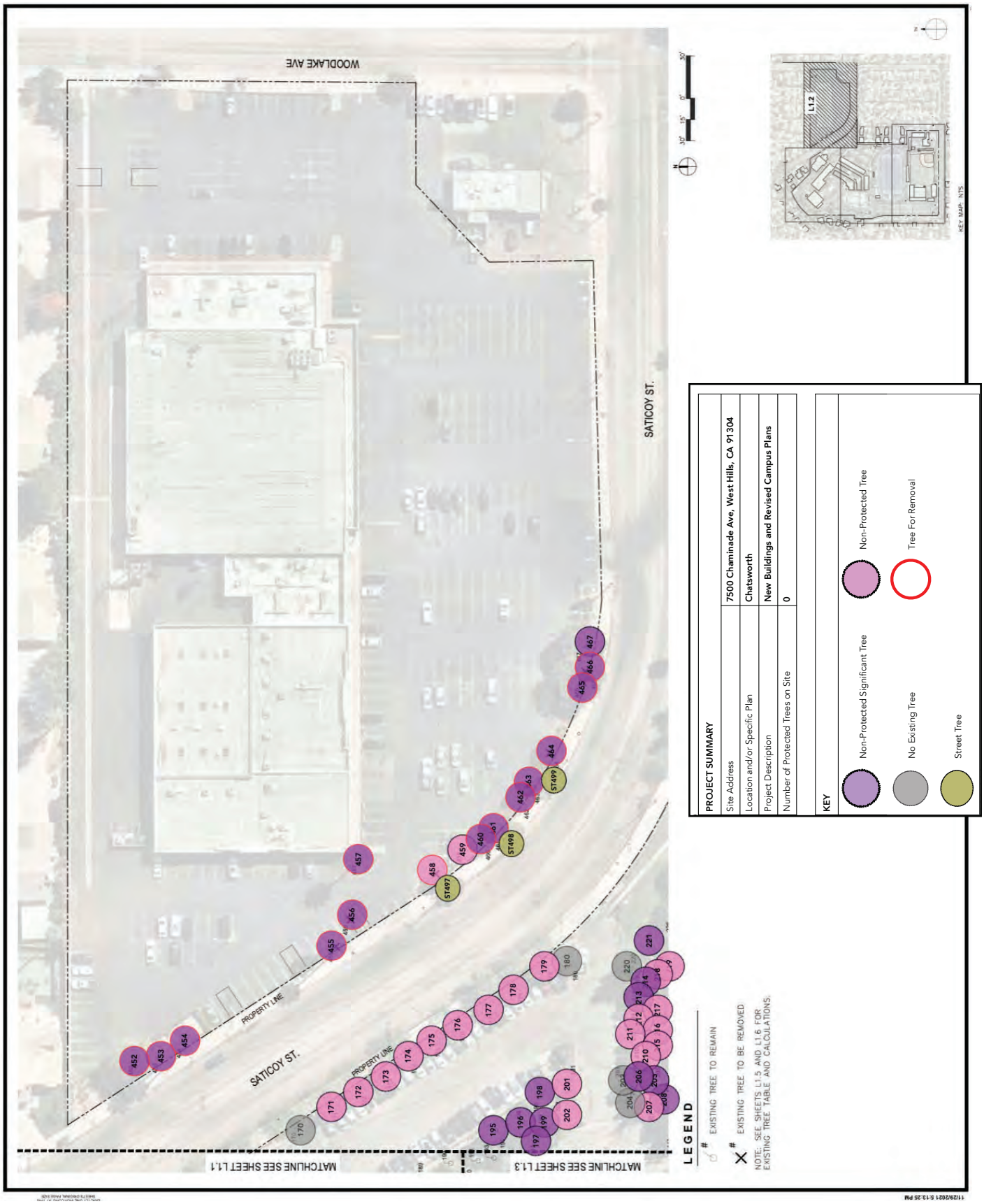
Summary of Data (also located on page 47)

	TOTAL	TOTAL FOR REMOVAL	TOTAL TO BE RETAINED	Trees to be Planted in Replacement
Non-Protected Significant Trees 8" or Greater (Less than 12")	54	10	44	10
Non-Protected Significant Trees 12" or Greater	310	30	280	30
Non-Protected Trees LESS than 8"	108	7	101	0
Street Trees	33	1	32	2
Not existing trees - place holder # (grey circle on map)	12	0	0	0
Totals	517	48	457	42

APPENDIX A - TREE LOCATION - SURVEY MAP, REDUCED L1.1



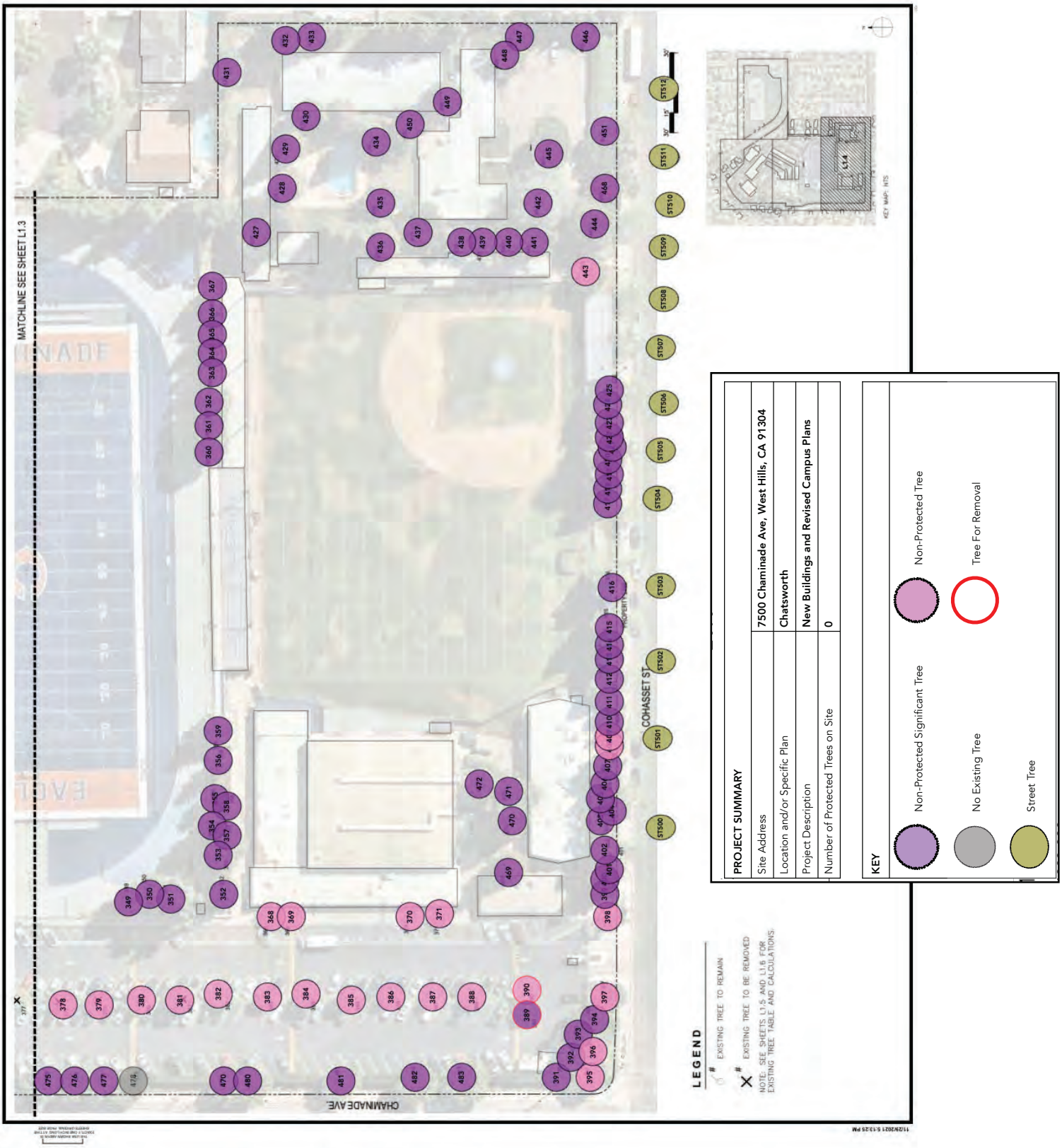
APPENDIX A - TREE LOCATION MAP, SITE PLAN REDUCED L1.2



APPENDIX A - TREE LOCATION MAP, SITE PLAN REDUCED L1.3



APPENDIX A - TREE LOCATION MAP, SITE PLAN REDUCED L1.4



APPENDIX B - PHOTOGRAPHS



PHOTO 1 - Shows parkway street tree #ST489 a Pink Dawn *(Chitalpa tashkentensis)* that will be impacted by the proposed pedestrian bridge. This tree will be removed and replaced to the satisfaction of the Urban Forestry Division.

APPENDIX B - PHOTOGRAPHS



PHOTO 2 - Shows some of the trees on site.

APPENDIX B - PHOTOGRAPHS



PHOTO 3 - Shows some of the trees on site.

APPENDIX B - PHOTOGRAPHS



PHOTO 4 - Shows some of the trees on site.

APPENDIX B - PHOTOGRAPHS



PHOTO 5- Shows some of the trees on site.

APPENDIX B - PHOTOGRAPHS



PHOTO 6 - Shows some of the trees on site.

APPENDIX B - PHOTOGRAPHS



PHOTO 7 - Shows some of the trees on site.

APPENDIX B - PHOTOGRAPHS



PHOTO 8 - Shows some of the trees on site.

APPENDIX B - PHOTOGRAPHS



PHOTO 9 - Shows some of the trees on site.

APPENDIX B - PHOTOGRAPHS



PHOTO 10 - Shows some of the trees on site.

APPENDIX B - PHOTOGRAPHS



PHOTO 11 - Shows some of the trees on site.

APPENDIX C - SUMMARY OF FIELD INSPECTION

KEY	12" or Greater	8" or greater	Remove

Rating Code: A = Excellent, B = Good, C = Fair, D = Poor, E = Nearly Dead, F = Dead

Tree #	Species	Status	DBH (")	Height (')	Spread (')	Summary of Condition	REMOVE	RETAIN
1	Coast Redwood *Sequoia sempervirens*	Non-Protected Significant	12	60	20	C-D		RETAIN
2	Coast Redwood *Sequoia sempervirens*	Non-Protected Significant	20	65	25	C-D		RETAIN
3	Coast Redwood *Sequoia sempervirens*	Non-Protected Significant	12	50	20	D		RETAIN
4	Coast Redwood *Sequoia sempervirens*	Non-Protected Significant	15	50	20	D		RETAIN
5	Coast Redwood *Sequoia sempervirens*	Non-Protected Significant	12	40	20	D		RETAIN
6	Coast Redwood *Sequoia sempervirens*	Non-Protected Significant	14	50	20	D		RETAIN
7	Coast Redwood *Sequoia sempervirens*	Non-Protected Significant	14	50	20	D		RETAIN
8	Coast Redwood *Sequoia sempervirens*	Non-Protected Significant	14	40	20	D		RETAIN
9	Coast Redwood *Sequoia sempervirens*	Non-Protected Significant	13	40	20	D		RETAIN
10	Coast Redwood *Sequoia sempervirens*	Non-Protected Significant	12	40	20	D		RETAIN
11	Coast Redwood *Sequoia sempervirens*	Non-Protected Significant	12	40	20	D		RETAIN
12	California Pepper *Schinus molle*	Non-Protected	5	15	6	C		RETAIN
13	California Pepper *Schinus molle*	Non-Protected	4	15	6	C		RETAIN
14	Coast Redwood *Sequoia sempervirens*	Non-Protected Significant	12	15	15	C-D		RETAIN
15	Canary Island Pine *Pinus canariensis*	Non-Protected Significant	14	45	15	C		RETAIN
16	Canary Island Pine *Pinus canariensis*	Non-Protected Significant	14	45	15	C		RETAIN
17	Canary Island Pine *Pinus canariensis*	Non-Protected Significant	18	50	20	C		RETAIN
18	Canary Island Pine *Pinus canariensis*	Non-Protected Significant	15	55	15	C		RETAIN
19	Canary Island Pine *Pinus canariensis*	Non-Protected Significant	20	55	15	C		RETAIN
20	Canary Island Pine *Pinus canariensis*	Non-Protected Significant	20	60	15	C		RETAIN

APPENDIX C - SUMMARY OF FIELD INSPECTION

KEY	12" or Greater	8" or greater	Remove

Tree #	Species	Status	DBH (")	Height (')	Spread (')	Summary of Condition	REMOVE	RETAIN
21	Canary Island Pine *Pinus canariensis*	Non-Protected Significant	19	60	20	C		RETAIN
22	Canary Island Pine *Pinus canariensis*	Non-Protected Significant	16	60	20	C		RETAIN
23	Canary Island Pine *Pinus canariensis*	No Existing Tree						
24	Canary Island Pine *Pinus canariensis*	No Existing Tree						
25	Canary Island Pine *Pinus canariensis*	Non-Protected Significant	19	60	20	C		RETAIN
26	Canary Island Pine *Pinus canariensis*	Non-Protected Significant	18	50	20	C		RETAIN
27	Canary Island Pine *Pinus canariensis*	Non-Protected Significant	18	50	15	C		RETAIN
28	Canary Island Pine *Pinus canariensis*	Non-Protected Significant	14	60	15	C		RETAIN
29	Canary Island Pine *Pinus canariensis*	Non-Protected Significant	14	60	15	C		RETAIN
30	Coast Redwood *Sequoia sempervirens*	Non-Protected Significant	16	60	15	C		RETAIN
31	Coast Redwood *Sequoia sempervirens*	Non-Protected Significant	10	40	10	D		RETAIN
32	Coast Redwood *Sequoia sempervirens*	Non-Protected Significant	11	45	15	D		RETAIN
33	Coast Redwood *Sequoia sempervirens*	Non-Protected Significant	12	45	15	D		RETAIN
34	Coast Redwood *Sequoia sempervirens*	Non-Protected Significant	12	40	15	D		RETAIN
35	Coast Redwood *Sequoia sempervirens*	Non-Protected Significant	20	65	20	C		RETAIN
36	Coast Redwood *Sequoia sempervirens*	Non-Protected Significant	12	45	15	C-D		RETAIN
37	Canary Island Pine *Pinus canariensis*	Non-Protected Significant	10	45	15	C-D		RETAIN
38	Canary Island Pine *Pinus canariensis*	Non-Protected Significant	18	65	20	C		RETAIN
39	Canary Island Pine *Pinus canariensis*	Non-Protected Significant	14	55	15	C		RETAIN
40	Canary Island Pine *Pinus canariensis*	Non-Protected Significant	19	65	20	C		RETAIN

APPENDIX C - SUMMARY OF FIELD INSPECTION

KEY	12" or Greater	8" or greater	Remove

Rating Code: A = Excellent, B = Good, C = Fair, D = Poor, E = Nearly Dead, F = Dead

Tree #	Species	Status	DBH (")	Height (')	Spread (')	Summary of Condition	REMOVE	RETAIN
41	Canary Island Pine *Pinus canariensis*	Non-Protected Significant	19	65	20	C		RETAIN
42	California Pepper *Schinus molle*	Non-Protected	5	15	12	D		RETAIN
43	California Pepper *Schinus molle*	Non-Protected	6	15	15	C-D		RETAIN
44	California Pepper Schinus molle	Non-Protected	6	15	12	C		RETAIN
45	California Pepper *Schinus molle*	Non-Protected Significant	25	25	20	C-D		RETAIN
46	California Pepper *Schinus molle*	Non-Protected Significant	8, 8	25	20	C-D		RETAIN
47	California Pepper *Schinus molle*	Non-Protected Significant	12	25	15	D		RETAIN
48	Camphor Tree Cinnamomum camphora	Non-Protected Significant	9	25	25	D		RETAIN
49	Camphor Tree Cinnamomum camphora	Non-Protected Significant	9	25	25	D		RETAIN
50	Camphor Tree Cinnamomum camphora	Non-Protected Significant	8	25	25	D		RETAIN
51	Coast Redwood *Sequoia sempervirens*	Non-Protected Significant	14	40	15	C-D		RETAIN
52	Coast Redwood *Sequoia sempervirens*	Non-Protected Significant	14	40	15	C-D		RETAIN
53	Coast Redwood *Sequoia sempervirens*	Non-Protected Significant	19	40	15	C-D		RETAIN
54	Coast Redwood *Sequoia sempervirens*	Non-Protected Significant	19	40	15	C-D		RETAIN
55	Coast Redwood *Sequoia sempervirens*	Non-Protected Significant	18	40	15	C-D		RETAIN
56	Coast Redwood *Sequoia sempervirens*	Non-Protected Significant	18	40	15	C		RETAIN
57	Canary Island Pine *Pinus canariensis*	Non-Protected Significant	19	50	25	C		RETAIN
58	Canary Island Pine *Pinus canariensis*	Non-Protected Significant	19	50	25	C		RETAIN
59	Canary Island Pine *Pinus canariensis*	Non-Protected	5	30	6	C		RETAIN
60	Canary Island Pine *Pinus canariensis*	Non-Protected Significant	12	45	20	C		RETAIN

APPENDIX C - SUMMARY OF FIELD INSPECTION

KEY	12" or Greater	8" or greater	Remove

Rating Code: A = Excellent, B = Good, C = Fair, D = Poor, E = Nearly Dead, F = Dead

Tree #	Species	Status	DBH (")	Height (')	Spread (')	Summary of Condition	REMOVE	RETAIN
61	Sweetgum *Liquidambar styraciflua*	Non-Protected Significant	8	35	25	C		RETAIN
62	Canary Island Pine *Pinus canariensis*	Non-Protected	2	25	20	C		RETAIN
63	Canary Island Pine *Pinus canariensis*	Non-Protected	2	25	20	C		RETAIN
64	Canary Island Pine *Pinus canariensis*	Non-Protected	3	15	15	C		RETAIN
65	Canary Island Pine *Pinus canariensis*	Non-Protected	3	25	25	D		RETAIN
66	Canary Island Pine *Pinus canariensis*	Non-Protected	4	20	15	C		RETAIN
67	Canary Island Pine *Pinus canariensis*	Non-Protected	4	45	25	D		RETAIN
68	Canary Island Pine *Pinus canariensis*	Non-Protected Significant	16	65	25	C		RETAIN
69	Mexican Fan palm *Washingtonia robusta*	Non-Protected Significant	16	50	5	C		RETAIN
70	Mexican Fan palm *Washingtonia robusta*	Non-Protected Significant	16	50	5	C		RETAIN
71	Mexican Fan palm *Washingtonia robusta*	Non-Protected Significant	16	50	5	C		RETAIN
72	Windmill Palm *Trachycarpus fortunei*	Non-Protected Significant	16	10	5	C		RETAIN
73	Windmill Palm *Trachycarpus fortunei*	Non-Protected Significant	16	10	5	C		RETAIN
74	Mexican Fan palm *Washingtonia robusta*	Non-Protected Significant	16	50	5	C		RETAIN
75	Mexican Fan palm *Washingtonia robusta*	Non-Protected Significant	16	65	10	C		RETAIN
76	Mexican Fan palm *Washingtonia robusta*	Non-Protected Significant	16	25	10	C		RETAIN
77	Mexican Fan palm *Washingtonia robusta*	Non-Protected Significant	16	20	10	C		RETAIN
78	Mexican Fan palm *Washingtonia robusta*	Non-Protected Significant	16	20	10	C		RETAIN
79	Mexican Fan palm *Washingtonia robusta*	Non-Protected Significant	16	50	10	C		RETAIN
80	Mexican Fan Palm *Washingtonia robusta*	Non-Protected Significant	16	50	10	C		RETAIN

APPENDIX C - SUMMARY OF FIELD INSPECTION

KEY	12" or Greater	8" or greater	Remove

Rating Code: A = Excellent, B = Good, C = Fair, D = Poor, E = Nearly Dead, F = Dead

Tree #	Species	Status	DBH (")	Height (')	Spread (')	Summary of Condition	REMOVE	RETAIN
81	Windmill Palm *Trachycarpus fortunei*	Non-Protected	4	10	5	C		RETAIN
82	Windmill Palm *Trachycarpus fortunei*	Non-Protected	5	10	5	C		RETAIN
83	Jacaranda *Jacaranda mimosifolia*	Non-Protected Significant	20	40	40	C		RETAIN
84	Jacaranda *Jacaranda mimosifolia*	Non-Protected Significant	20	40	40	C		RETAIN
85	Stone pine *Pinus pinea*	Non-Protected Significant	18	35	30	C		RETAIN
86	Deodar Cedar *Cedrus deodara*	Non-Protected Significant	20	50	35	C		RETAIN
87	Deodar Cedar *Cedrus deodara*	Non-Protected Significant	15	45	20	C		RETAIN
88	Silver Dollar Gum *Eucalyptus polyanthemos*	Non-Protected Significant	22	40	20	C-D		RETAIN
89	Citrus *Citrus sp.*	Non-Protected	5	8	8	C		RETAIN
90	Citrus *Citrus sp.*	Non-Protected	6	8	8	C		RETAIN
91	Citrus *Citrus sp.*	Non-Protected	7	8	8	C		RETAIN
92	Avocado *Persea americana*	Non-Protected	6	10	8	C		RETAIN
93	Sweetgum *Liquidambar styraciflua*	Non-Protected Significant	14	35	20	C		RETAIN
94	Coast Redwood *Sequoia sempervirens*	Non-Protected Significant	31	60	25	C		RETAIN
95	Coast Redwood *Sequoia sempervirens*	Non-Protected Significant	32	55	25	D		RETAIN
96	Coast Redwood *Sequoia sempervirens*	Non-Protected Significant	30	55	25	D		RETAIN
97	Coast Redwood *Sequoia sempervirens*	Non-Protected Significant	30	55	25	D		RETAIN
98	Coast Redwood *Sequoia sempervirens*	Non-Protected Significant	30	55	25	D		RETAIN
99	Coast Redwood *Sequoia sempervirens*	Non-Protected Significant	30	55	25	D		RETAIN
100	Coast Redwood *Sequoia sempervirens*	Non-Protected Significant	24	55	25	D		RETAIN

APPENDIX C - SUMMARY OF FIELD INSPECTION

KEY	12" or Greater	8" or greater	Remove

Rating Code: A = Excellent, B = Good, C = Fair, D = Poor, E = Nearly Dead, F = Dead

Tree #	Species	Status	DBH (")	Height (')	Spread (')	Summary of Condition	REMOVE	RETAIN
101	Sweetgum *Liquidambar styraciflua*	Non-Protected Significant	18	30	15	C-D		RETAIN
102	Queen Palm *Syagrus romanzoffiana*	Non-Protected Significant	9	25	10	C	REMOVE	
103	Queen Palm *Syagrus romanzoffiana*	Non-Protected Significant	11	25	10	C	REMOVE	
104	Queen Palm *Syagrus romanzoffiana*	Non-Protected Significant	11	25	10	C	REMOVE	
105	Windmill Palm *Trachycarpus fortunei*	Non-Protected	7	20	5	C	REMOVE	
106	Windmill Palm *Trachycarpus fortunei*	Non-Protected	7	20	5	C		RETAIN
107	Queen Palm *Syagrus romanzoffiana*	Non-Protected Significant	12	25	4	D	REMOVE	
108	Queen Palm *Syagrus romanzoffiana*	Non-Protected Significant	12	35	10	C	REMOVE	
109	Stone Pine *Pinus pinea*	Non-Protected Significant	40	70	35	C-D	REMOVE	
110	Stone Pine *Pinus pinea*	Non-Protected Significant	29	70	35	C-D	REMOVE	
111	Stone Pine *Pinus pinea*	Non-Protected Significant	30	70	35	C-D	REMOVE	
112	Stone Pine *Pinus pinea*	Non-Protected Significant	35	70	35	C-D	REMOVE	
113	Stone Pine *Pinus pinea*	Non-Protected Significant	30	70	35	C-D	REMOVE	
114	Stone Pine *Pinus pinea*	Non-Protected Significant	30	70	35	C-D	REMOVE	
115	Coast Redwood *Sequoia sempervirens*	Non-Protected Significant	18	50	20	C-D	REMOVE	
116	Coast Redwood *Sequoia sempervirens*	Non-Protected Significant	20	50	20	C-D	REMOVE	
117	Coast Redwood *Sequoia sempervirens*	Non-Protected Significant	24	50	20	C-D	REMOVE	
118	Stone Pine *Pinus pinea*	No Existing Tree						
119	Stone Pine *Pinus pinea*	No Existing Tree						
120	Canary Island Pine *Pinus canariensis*	Non-Protected Significant	20	75	20	C	REMOVE	

APPENDIX C - SUMMARY OF FIELD INSPECTION

KEY	12" or Greater	8" or greater	Remove

Rating Code: A = Excellent, B = Good, C = Fair, D = Poor, E = Nearly Dead, F = Dead

Tree #	Species	Status	DBH (")	Height (')	Spread (')	Summary of Condition	REMOVE	RETAIN
121	Stone Pine *Pinus pinea*	Non-Protected Significant	40	80	40	C-D	REMOVE	
122	Stone Pine *Pinus pinea*	Non-Protected Significant	30	80	35	C-D	REMOVE	
123	Stone Pine *Pinus pinea*	Non-Protected Significant	30	80	35	C-D	REMOVE	
124	Stone Pine *Pinus pinea*	Non-Protected Significant	27	80	35	C-D	REMOVE	
125	Stone Pine *Pinus pinea*	Non-Protected Significant	25	80	35	C-D	REMOVE	
126	Stone Pine *Pinus pinea*	Non-Protected Significant	30	80	35	C-D	REMOVE	
127	Stone Pine *Pinus pinea*	Non-Protected Significant	30	80	45	C-D	REMOVE	
128	Stone Pine *Pinus pinea*	Non-Protected Significant	30	80	40	C-D	REMOVE	
129	Golden Trumpet *Handroanthus chrysotrichus*	Non-Protected	6	15	12	C-D	REMOVE	
130	Purple Leaf Plum *Prunus cerasifera*	Non-Protected	5	6	5	C-D	REMOVE	
131	Purple Leaf Plum *Prunus cerasifera*	No Existing Tree						
132	Coast Redwood *Sequoia sempervirens*	Non-Protected Significant	21	40	20	C-D	REMOVE	
133	Canary Island Pine *Pinus canariensis*	Non-Protected Significant	15	60	20	C		RETAIN
134	Coast Redwood *Sequoia sempervirens*	Non-Protected Significant	13	40	20	D		RETAIN
135	Canary Island Pine *Pinus canariensis*	Non-Protected Significant	17	60	20	C		RETAIN
136	Canary Island Pine *Pinus canariensis*	Non-Protected Significant	15	65	20	C		RETAIN
137	Canary Island Pine *Pinus canariensis*	Non-Protected Significant	18	65	20	C		RETAIN
138	Canary Island Pine *Pinus canariensis*	Non-Protected Significant	19	65	20	C		RETAIN
139	Canary Island Pine *Pinus canariensis*	Non-Protected Significant	17	65	20	C		RETAIN
140	Canary Island Pine *Pinus canariensis*	Non-Protected Significant	18	65	20	C		RETAIN

APPENDIX C - SUMMARY OF FIELD INSPECTION

KEY	12" or Greater	8" or greater	Remove

Rating Code: A = Excellent, B = Good, C = Fair, D = Poor, E = Nearly Dead, F = Dead

Tree #	Species	Status	DBH (")	Height (')	Spread (')	Summary of Condition	REMOVE	RETAIN
141	Canary Island Pine *Pinus canariensis*	Non-Protected Significant	22	65	20	C		RETAIN
142	Canary Island Pine *Pinus canariensis*	Non-Protected	4	12	3	C		RETAIN
143	Canary Island Pine *Pinus canariensis*	Non-Protected	3	15	3	C		RETAIN
144	Canary Island Pine *Pinus canariensis*	Non-Protected	3	15	3	C		RETAIN
145	Canary Island Pine *Pinus canariensis*	Non-Protected	4	40	20	C		RETAIN
146	Coast Redwood *Sequoia sempervirens*	Non-Protected Significant	17	35	20	C		RETAIN
147	Coast Redwood *Sequoia sempervirens*	Non-Protected Significant	11	40	20	C		RETAIN
148	Coast Redwood *Sequoia sempervirens*	Non-Protected Significant	14	40	20	C		RETAIN
149	Melaleuca *Melaleuca quinquenervia*	Non-Protected	7	30	10	C		RETAIN
150	Sweetgum *Liquidambar styraciflua*	Non-Protected Significant	9	25	20	C		RETAIN
151	Sweetgum *Liquidambar styraciflua*	Non-Protected	4	20	8	C		RETAIN
152	Sweetgum *Liquidambar styraciflua*	Non-Protected	6	30	15	C		RETAIN
153	Canary Island Pine *Pinus canariensis*	Non-Protected Significant	23	65	30	C		RETAIN
154	Coast Redwood *Sequoia sempervirens*	Non-Protected Significant	18	55	25	C-D		RETAIN
155	Coast Redwood *Sequoia sempervirens*	Non-Protected Significant	18	55	25	C-D		RETAIN
156	Coast Redwood *Sequoia sempervirens*	Non-Protected Significant	11	35	20	C-D		RETAIN
157	Sweetgum *Liquidambar styraciflua*	Non-Protected	5	25	15	C		RETAIN
158	Sweetgum *Liquidambar styraciflua*	Non-Protected	6	15	15	C-D		RETAIN
159	Sweetgum *Liquidambar styraciflua*	Non-Protected	7	30	8	C		RETAIN
160	Sweetgum *Liquidambar styraciflua*	Non-Protected	6	30	10	C		RETAIN

APPENDIX C - SUMMARY OF FIELD INSPECTION

KEY	12" or Greater	8" or greater	Remove

Rating Code: A = Excellent, B = Good, C = Fair, D = Poor, E = Nearly Dead, F = Dead

Tree #	Species	Status	DBH (")	Height (')	Spread (')	Summary of Condition	REMOVE	RETAIN
161	Canary Island Pine *Pinus canariensis*	Non-Protected Significant	13	40	20	C		RETAIN
162	Sweetgum *Liquidambar styraciflua*	Non-Protected	6	30	15	C		RETAIN
163	Paperbark *Melaleuca quinquinervia*	Non-Protected Significant	7, 4, 4	30	10	C		RETAIN
164	London Plane *Platanus x hispanica*	Non-Protected Significant	9	30	25	C		RETAIN
165	Canary Island Pine *Pinus canariensis*	Non-Protected Significant	16	45	15	C-D		RETAIN
166	London Plane *Platanus x hispanica*	Non-Protected Significant	12	35	30	C		RETAIN
167	Canary Island Pine *Pinus canariensis*	Non-Protected Significant	9	40	8	C-D		RETAIN
168	London Plane *Platanus x hispanica*	Non-Protected Significant	12	40	35	C		RETAIN
169	Camphor *Cinnamomum camphora*	Non-Protected Significant	9	20	15	C		RETAIN
170	Camphor *Cinnamomum camphora*	No Existing Tree						
171	London Plane *Platanus x hispanica*	Non-Protected	7	15	10	C-D		RETAIN
172	London Plane *Platanus x hispanica*	Non-Protected	7	15	10	C-D		RETAIN
173	London Plane *Platanus x hispanica*	Non-Protected	6	15	10	C-D		RETAIN
174	London Plane *Platanus x hispanica*	Non-Protected	5	15	10	C-D		RETAIN
175	London Plane *Platanus x hispanica*	Non-Protected	6	15	10	C-D		RETAIN
176	London Plane *Platanus x hispanica*	Non-Protected	6	15	10	C-D		RETAIN
177	London Plane *Platanus x hispanica*	Non-Protected	6	15	10	C-D		RETAIN
178	London Plane *Platanus x hispanica*	Non-Protected	7	15	10	C-D		RETAIN
179	London Plane *Platanus x hispanica*	Non-Protected	7	15	10	C-D		RETAIN
180	Sweetgum *Liquidambar styraciflua*	No Existing Tree						

APPENDIX C - SUMMARY OF FIELD INSPECTION

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Rating Code: A = Excellent, B = Good, C = Fair, D = Poor, E = Nearly Dead, F = Dead

Tree #	Species	Status	DBH (")	Height (')	Spread (')	Summary of Condition	REMOVE	RETAIN
181	Coast Redwood *Sequoia sempervirens*	Non-Protected Significant	10	35	15	D		RETAIN
182	Coast Redwood *Sequoia sempervirens*	Non-Protected Significant	10	35	15	C-D	REMOVE	
183	Coast Redwood *Sequoia sempervirens*	Non-Protected Significant	10	35	15	D	REMOVE	
184	Coast Redwood *Sequoia sempervirens*	Non-Protected Significant	11	35	15	D		RETAIN
185	Coast Redwood *Sequoia sempervirens*	Non-Protected Significant	11	35	15	D		RETAIN
186	Coast Redwood *Sequoia sempervirens*	Non-Protected Significant	11	35	15	D		RETAIN
187	Coast Redwood *Sequoia sempervirens*	Non-Protected Significant	12	35	15	D		RETAIN
188	Coast Redwood *Sequoia sempervirens*	Non-Protected Significant	12	30	15	C-D		RETAIN
189	Coast Redwood *Sequoia sempervirens*	Non-Protected Significant	12					RETAIN
190	Coast Redwood *Sequoia sempervirens*	Non-Protected Significant	12	35	15	C-D		RETAIN
191	Coast Redwood *Sequoia sempervirens*	No Existing Tree						RETAIN
192	Canary Island Pine *Pinus canariensis*	Non-Protected Significant	13	40	20	C		RETAIN
193	Canary Island Pine *Pinus canariensis*	Non-Protected Significant	13	40	20	C		RETAIN
194	Canary Island Pine *Pinus canariensis*	Non-Protected Significant	13	40	20	C		RETAIN
195	Canary Island Pine *Pinus canariensis*	Non-Protected Significant	14	40	20	C		RETAIN
196	Canary Island Pine *Pinus canariensis*	Non-Protected Significant	14	40	20	C		RETAIN
197	Canary Island Pine *Pinus canariensis*	Non-Protected Significant	14	40	20	C		RETAIN
198	Canary Island Pine *Pinus canariensis*	Non-Protected Significant	15	40	20	C		RETAIN
199	Canary Island Pine *Pinus canariensis*	Non-Protected Significant	15	40	20	C		RETAIN
200	Canary Island Pine *Pinus canariensis*	Non-Protected Significant	15	40	20	C		RETAIN

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KEY	12" or Greater	8" or greater	Remove

Rating Code: A = Excellent, B = Good, C = Fair, D = Poor, E = Nearly Dead, F = Dead

Tree #	Species	Status	DBH (")	Height (')	Spread (')	Summary of Condition	REMOVE	RETAIN
201	Sweetgum *Liquidambar styraciflua*	Non-Protected	6	15	10	C		RETAIN
202	Sweetgum *Liquidambar styraciflua*	Non-Protected	5	15	10	C		RETAIN
203	Coast Redwood *Sequoia sempervirens*	No Existing Tree						
204	Coast Redwood *Sequoia sempervirens*	No Existing Tree						
205	Coast Redwood *Sequoia sempervirens*	Non-Protected Significant	16	45	15	D		RETAIN
206	Sweetgum *Liquidambar styraciflua*	Non-Protected	6	15	15	C		RETAIN
207	Sweetgum *Liquidambar styraciflua*	Non-Protected Significant	8	25	15	C-D		RETAIN
208	Canary Island Pine *Pinus canariensis*	Non-Protected Significant	22	60	20	C		RETAIN
209	Canary Island Pine *Pinus canariensis*	Non-Protected Significant	22	60	20	C		RETAIN
210	London Plane *Platanus x hispanica*	Non-Protected	6	15	8	C-D		RETAIN
211	London Plane *Platanus x hispanica*	Non-Protected	6	15	8	C-D		RETAIN
212	London Plane *Platanus x hispanica*	Non-Protected	7	15	8	C-D		RETAIN
213	London Plane *Platanus x hispanica*	Non-Protected Significant	8	15	8	C-D		RETAIN
214	London Plane *Platanus x hispanica*	Non-Protected Significant	8	15	8	C-D		RETAIN
215	Camphor *Cinnamomum camphora*	Non-Protected	3	8	4	D		RETAIN
216	Camphor *Cinnamomum camphora*	Non-Protected	3	8	4	D		RETAIN
217	Camphor *Cinnamomum camphora*	Non-Protected	3	8	4	D		RETAIN
218	Camphor *Cinnamomum camphora*	Non-Protected	3	8	4	D		RETAIN
219	Camphor *Cinnamomum camphora*	Non-Protected	3	8	4	D		RETAIN
220	Citrus *Citrus sp.*	No Existing Tree						

APPENDIX C - SUMMARY OF FIELD INSPECTION

KEY	12" or Greater	8" or greater	Remove

Rating Code: A = Excellent, B = Good, C = Fair, D = Poor, E = Nearly Dead, F = Dead

Tree #	Species	Status	DBH (")	Height (')	Spread (')	Summary of Condition	REMOVE	RETAIN
221	Citrus *Citrus sp.*	Non-Protected Significant	18	15	15	C		RETAIN
222	Camphor *Cinnamomum camphora*	Non-Protected Significant	12	20	20	C		RETAIN
223	Camphor *Cinnamomum camphora*	Non-Protected Significant	13	20	20	C		RETAIN
224	Camphor *Cinnamomum camphora*	Non-Protected Significant	14	20	20	C		RETAIN
225	Brazilian Pepper *Schinus terebinthifolius*	Non-Protected Significant	13	20	20	C		RETAIN
226	Brazilian Pepper *Schinus terebinthifolius*	Non-Protected Significant	17	25	25	C		RETAIN
227	Brazilian Pepper *Schinus terebinthifolius*	Non-Protected Significant	18	25	25	C		RETAIN
228	Brazilian Pepper *Schinus terebinthifolius*	Non-Protected Significant	20	25	25	C		RETAIN
229	Brazilian Pepper *Schinus terebinthifolius*	Non-Protected Significant	22	25	25	C		RETAIN
230	Brazilian Pepper *Schinus terebinthifolius*	Non-Protected Significant	21	25	25	C		RETAIN
231	Paperbark *Melaleuca quinquinervia*	Non-Protected Significant	9	15	5	C-D		RETAIN
232	Paperbark *Melaleuca quinquinervia*	Non-Protected Significant	10	15	5	C-D		RETAIN
233	Paperbark *Melaleuca quinquinervia*	Non-Protected Significant	13	15	5	C-D		RETAIN
234	Paperbark *Melaleuca quinquinervia*	Non-Protected Significant	16	15	5	C-D		RETAIN
235	Canary Island Pine *Pinus canariensis*	Non-Protected Significant	13	70	15	C		RETAIN
236	Canary Island Pine *Pinus canariensis*	Non-Protected Significant	13	70	15	C		RETAIN
237	Canary Island Pine *Pinus canariensis*	Non-Protected Significant	13	70	15	C		RETAIN
238	Canary Island Pine *Pinus canariensis*	Non-Protected Significant	13	70	15	C		RETAIN
239	Canary Island Pine *Pinus canariensis*	Non-Protected Significant	13	70	15	C		RETAIN
240	Canary Island Pine *Pinus canariensis*	Non-Protected Significant	13	65	15	C		RETAIN

APPENDIX C - SUMMARY OF FIELD INSPECTION

KEY	12" or Greater	8" or greater	Remove

Rating Code: A = Excellent, B = Good, C = Fair, D = Poor, E = Nearly Dead, F = Dead

Tree #	Species	Status	DBH (")	Height (')	Spread (')	Summary of Condition	REMOVE	RETAIN
241	Canary Island Pine *Pinus canariensis*	Non-Protected Significant	17	65	15	C		RETAIN
242	Canary Island Pine *Pinus canariensis*	Non-Protected Significant	17	65	15	C		RETAIN
243	Canary Island Pine *Pinus canariensis*	Non-Protected Significant	17	65	15	C		RETAIN
244	Canary Island Pine *Pinus canariensis*	Non-Protected Significant	17	65	15	C		RETAIN
245	Canary Island Pine *Pinus canariensis*	Non-Protected Significant	17	65	15	C		RETAIN
246	Canary Island Pine *Pinus canariensis*	Non-Protected Significant	10	65	15	C		RETAIN
247	Canary Island Pine *Pinus canariensis*	Non-Protected Significant	10	65	15	C		RETAIN
248	Canary Island Pine *Pinus canariensis*	Non-Protected Significant	10	65	15	C		RETAIN
249	Canary Island Pine *Pinus canariensis*	Non-Protected Significant	10	65	15	C		RETAIN
250	Canary Island Pine *Pinus canariensis*	Non-Protected Significant	17	65	15	C		RETAIN
251	Canary Island Pine *Pinus canariensis*	Non-Protected Significant	10	65	15	C		RETAIN
252	Canary Island Pine *Pinus canariensis*	Non-Protected Significant	10	65	15	C		RETAIN
253	Canary Island Pine *Pinus canariensis*	Non-Protected Significant	10	65	15	C		RETAIN
254	Canary Island Pine *Pinus canariensis*	Non-Protected Significant	16	65	15	C		RETAIN
255	Canary Island Pine *Pinus canariensis*	Non-Protected Significant	16	65	15	C		RETAIN
256	Canary Island Pine *Pinus canariensis*	Non-Protected Significant	17	65	15	C		RETAIN
257	Canary Island Pine *Pinus canariensis*	Non-Protected Significant	18	65	15	C		RETAIN
258	Canary Island Pine *Pinus canariensis*	Non-Protected Significant	19	65	15	C		RETAIN
259	Coast Redwood *Sequoia sempervirens*	Non-Protected Significant	13	65	15	C		RETAIN

APPENDIX C - SUMMARY OF FIELD INSPECTION

KEY	12" or Greater	8" or greater	Remove

Rating Code: A = Excellent, B = Good, C = Fair, D = Poor, E = Nearly Dead, F = Dead

Tree #	Species	Status	DBH (")	Height (')	Spread (')	Summary of Condition	REMOVE	RETAIN
260	Coast Redwood *Sequoia sempervirens*	Non-Protected Significant	13	60	20	C		RETAIN
261	Coast Redwood *Sequoia sempervirens*	Non-Protected Significant	14	60	20	C		RETAIN
262	Canary Island Pine *Pinus canariensis*	Non-Protected Significant	12	65	15	C		RETAIN
263	Canary Island Pine *Pinus canariensis*	Non-Protected Significant	12	65	15	C		RETAIN
264	Canary Island Pine *Pinus canariensis*	Non-Protected Significant	12	65	15	C		RETAIN
265	Canary Island Pine *Pinus canariensis*	Non-Protected Significant	12	65	15	C		RETAIN
266	Canary Island Pine *Pinus canariensis*	Non-Protected Significant	18	80	20	C-D		RETAIN
267	Canary Island Pine *Pinus canariensis*	Non-Protected Significant	18	80	20	C-D		RETAIN
268	Canary Island Pine *Pinus canariensis*	Non-Protected Significant	20	80	20	C-D		RETAIN
269	Canary Island Pine *Pinus canariensis*	Non-Protected Significant	16	80	20	C-D		RETAIN
270	Canary Island Pine *Pinus canariensis*	Non-Protected Significant	13	60	20	C		RETAIN
271	Canary Island Pine *Pinus canariensis*	Non-Protected	4	25	8	C		RETAIN
272	Canary Island Pine *Pinus canariensis*	Non-Protected	4	25	8	C		RETAIN
273	Canary Island Pine *Pinus canariensis*	Non-Protected Significant	16	80	25	C		RETAIN
274	Canary Island Pine *Pinus canariensis*	Non-Protected Significant	16	80	25	C		RETAIN
275	Canary Island Pine *Pinus canariensis*	Non-Protected Significant	16	80	25	C		RETAIN
276	Canary Island Pine *Pinus canariensis*	Non-Protected Significant	16	80	25	C		RETAIN
277	Canary Island Pine *Pinus canariensis*	Non-Protected Significant	16	80	25	C		RETAIN
278	Canary Island Pine *Pinus canariensis*	Non-Protected Significant	16	80	25	C		RETAIN
279	Coast Redwood *Sequoia sempervirens*	Non-Protected Significant	14	60	15	D		RETAIN

APPENDIX C - SUMMARY OF FIELD INSPECTION

KEY	12" or Greater	8" or greater	Remove

Rating Code: A = Excellent, B = Good, C = Fair, D = Poor, E = Nearly Dead, F = Dead

Tree #	Species	Status	DBH (")	Height (')	Spread (')	Summary of Condition	REMOVE	RETAIN
280	Canary Island Pine *Pinus canariensis*	Non-Protected	5	15	5	C		RETAIN
281	Canary Island Pine *Pinus canariensis*	Non-Protected	5	15	5	C		RETAIN
282	Canary Island Pine *Pinus canariensis*	Non-Protected	5	15	5	C		RETAIN
283	Canary Island Pine *Pinus canariensis*	Non-Protected	5	15	5	C		RETAIN
284	Canary Island Pine *Pinus canariensis*	Non-Protected Significant	22	60	20	C		RETAIN
285	Canary Island Pine *Pinus canariensis*	Non-Protected Significant	22	60	20	C		RETAIN
286	Canary Island Pine *Pinus canariensis*	Non-Protected Significant	20	60	20	C		RETAIN
287	Canary Island Pine *Pinus canariensis*	Non-Protected	5	15	8	C		RETAIN
288	Canary Island Pine *Pinus canariensis*	Non-Protected	5	15	8	C		RETAIN
289	Canary Island Pine *Pinus canariensis*	Non-Protected Significant	17	60	20	C		RETAIN
290	Canary Island Pine *Pinus canariensis*	Non-Protected Significant	17	60	20	C		RETAIN
291	Canary Island Pine *Pinus canariensis*	Non-Protected Significant	17	60	20	C		RETAIN
292	Canary Island Pine *Pinus canariensis*	Non-Protected Significant	17	60	20	C		RETAIN
293	Canary Island Pine *Pinus canariensis*	Non-Protected Significant	17	60	20	C		RETAIN
294	Canary Island Pine *Pinus canariensis*	Non-Protected Significant	17	60	20	C		RETAIN
295	Canary Island Pine *Pinus canariensis*	Non-Protected Significant	17	60	20	C		RETAIN
296	Canary Island Pine *Pinus canariensis*	Non-Protected Significant	17	60	20	C		RETAIN
297	Canary Island Pine *Pinus canariensis*	Non-Protected Significant	17	60	20	C		RETAIN
298	Canary Island Pine *Pinus canariensis*	Non-Protected Significant	17	60	20	C		RETAIN
299	Canary Island Pine *Pinus canariensis*	Non-Protected Significant	22	60	20	C		RETAIN

APPENDIX C - SUMMARY OF FIELD INSPECTION

KEY	12" or Greater	8" or greater	Remove

Rating Code: A = Excellent, B = Good, C = Fair, D = Poor, E = Nearly Dead, F = Dead

Tree #	Species	Status	DBH (")	Height (')	Spread (')	Summary of Condition	REMOVE	RETAIN
300	Canary Island Pine *Pinus canariensis*	Non-Protected Significant	22	65	20	C		RETAIN
301	Canary Island Pine *Pinus canariensis*	Non-Protected	5	15	8	C		RETAIN
302	Canary Island Pine *Pinus canariensis*	Non-Protected	5	15	8	C		RETAIN
303	Canary Island Pine *Pinus canariensis*	Non-Protected	5	15	8	C		RETAIN
304	Coast Redwood *Sequoia sempervirens*	Non-Protected	6	15	8	C		RETAIN
305	Coast Redwood *Sequoia sempervirens*	Non-Protected Significant	8	20	8	C		RETAIN
306	Coast Redwood *Sequoia sempervirens*	Non-Protected Significant	14	22	10	D		RETAIN
307	Coast Redwood *Sequoia sempervirens*	Non-Protected Significant	20	35	20	C-D		RETAIN
308	Evergreen Ash *Fraxinus uhdei*	Non-Protected Significant	25	30	30	C-D		RETAIN
309	Evergreen Ash *Fraxinus uhdei*	Non-Protected Significant	10	30	20	C		RETAIN
310	Evergreen Ash *Fraxinus uhdei*	Non-Protected Significant	9	30	20	C		RETAIN
311	Crape Myrtle *Lagerstroemia indica*	Non-Protected	6	15	15	C		RETAIN
312	Crape Myrtle *Lagerstroemia indica*	Non-Protected	6	15	15	C		RETAIN
313	Crape Myrtle *Lagerstroemia indica*	Non-Protected	5	15	10	C		RETAIN
314	Crape Myrtle *Lagerstroemia indica*	Non-Protected	6	15	10	C		RETAIN
315	Stone Pine *Pinus pinea*	Non-Protected Significant	43	80	40	C		RETAIN
316	Evergreen Ash *Fraxinus uhdei*	Non-Protected Significant	16	35	20	C		RETAIN
317	Evergreen Ash *Fraxinus uhdei*	Non-Protected Significant	12	35	20	C		RETAIN
318	Canary Island Pine *Pinus canariensis*	Non-Protected Significant	14	50	20	C		RETAIN
319	Evergreen Ash *Fraxinus uhdei*	Non-Protected Significant	12	35	20	C		RETAIN

APPENDIX C - SUMMARY OF FIELD INSPECTION

KEY	12" or Greater	8" or greater	Remove

Rating Code: A = Excellent, B = Good, C = Fair, D = Poor, E = Nearly Dead, F = Dead

Tree #	Species	Status	DBH (")	Height (')	Spread (')	Summary of Condition	REMOVE	RETAIN
320	Evergreen Ash *Fraxinus uhdei*	Non-Protected Significant	12	30	15	C		RETAIN
321	Canary Island Pine *Pinus canariensis*	Non-Protected Significant	12	30	20	C		RETAIN
322	Canary Island Pine *Pinus canariensis*	Non-Protected Significant	21	35	20	C		RETAIN
323	Melaleuca *Melaleuca quinquenervia*	Non-Protected Significant	11	30	15	C		RETAIN
324	Melaleuca *Melaleuca quinquenervia*	Non-Protected Significant	21	30	15	C		RETAIN
325	Melaleuca *Melaleuca quinquenervia*	Non-Protected Significant	11, 8	30	15	C		RETAIN
326	Crape Myrtle *Lagerstroemia indica*	Non-Protected	5	15	12	C		RETAIN
327	Crape Myrtle *Lagerstroemia indica*	Non-Protected	5	15	12	C		RETAIN
328	Crape Myrtle *Lagerstroemia indica*	Non-Protected	5	15	12	C		RETAIN
329	Crape Myrtle *Lagerstroemia indica*	Non-Protected	5	15	12	C		RETAIN
330	Crape Myrtle *Lagerstroemia indica*	Non-Protected	5	15	12	C		RETAIN
331	Melaleuca *Melaleuca quinquenervia*	Non-Protected Significant	11	30	10	C-D	REMOVE	
332	Melaleuca *Melaleuca quinquenervia*	Non-Protected Significant	8	20	10	C-D		RETAIN
333	Melaleuca *Melaleuca quinquenervia*	Non-Protected Significant	10	25	10	C		RETAIN
334	Crape Myrtle *Lagerstroemia indica*	Non-Protected	5	10	6	C		RETAIN
335	Crape Myrtle *Lagerstroemia indica*	Non-Protected	4	10	6	C		RETAIN
336	Crape Myrtle *Lagerstroemia indica*	Non-Protected	3	10	6	C		RETAIN
337	Crape Myrtle *Lagerstroemia indica*	Non-Protected	4	10	6	C		RETAIN
338	Desert Museum Palo Verde *Parkinsonia x 'Desert Museum'*	Non-Protected Significant	15	20	20	C		RETAIN
339	Canary Island Pine *Pinus canariensis*	Non-Protected Significant	22	40	15	C		RETAIN

APPENDIX C - SUMMARY OF FIELD INSPECTION

KEY	12" or Greater	8" or greater	Remove

Rating Code: A = Excellent, B = Good, C = Fair, D = Poor, E = Nearly Dead, F = Dead

Tree #	Species	Status	DBH (")	Height (')	Spread (')	Summary of Condition	REMOVE	RETAIN
340	Canary Island Pine *Pinus canariensis*	Non-Protected Significant	25	40	15	C		RETAIN
341	Canary Island Pine *Pinus canariensis*	Non-Protected Significant	18	40	15	C		RETAIN
342	Canary Island Pine *Pinus canariensis*	Non-Protected Significant	14	40	15	C		RETAIN
343	Canary Island Pine *Pinus canariensis*	Non-Protected Significant	12	40	15	C		RETAIN
344	Canary Island Pine *Pinus canariensis*	Non-Protected Significant	10	40	15	C		RETAIN
345	Canary Island Pine *Pinus canariensis*	Non-Protected Significant	23	40	15	C		RETAIN
346	Canary Island Pine *Pinus canariensis*	Non-Protected Significant	18	40	15	C		RETAIN
347	Canary Island Pine *Pinus canariensis*	Non-Protected Significant	19	40	15	C		RETAIN
348	Canary Island Pine *Pinus canariensis*	Non-Protected Significant	19	40	15	C		RETAIN
349	Canary Island Pine *Pinus canariensis*	Non-Protected Significant	21	45	20	C		RETAIN
350	Canary Island Pine *Pinus canariensis*	Non-Protected Significant	20	45	20	C		RETAIN
351	Canary Island Pine *Pinus canariensis*	Non-Protected Significant	27	55	30	C		RETAIN
352	Coast Redwood *Sequoia sempervirens*	Non-Protected Significant	24	50	25	E		RETAIN
353	Canary Island Pine *Pinus canariensis*	Non-Protected Significant	22	65	20	C		RETAIN
354	Canary Island Pine *Pinus canariensis*	Non-Protected Significant	18	55	20	C		RETAIN
355	Canary Island Pine *Pinus canariensis*	Non-Protected Significant	18	60	20	C		RETAIN
356	Coast Redwood *Sequoia sempervirens*	Non-Protected Significant	16	50	20	D		RETAIN
357	Coast Redwood *Sequoia sempervirens*	Non-Protected Significant	11	45	15	E		RETAIN
358	Coast Redwood *Sequoia sempervirens*	Non-Protected Significant	16	45	20	D		RETAIN
359	Coast Redwood *Sequoia sempervirens*	Non-Protected Significant	23	45	20	D		RETAIN

APPENDIX C - SUMMARY OF FIELD INSPECTION

KEY	12" or Greater	8" or greater	Remove

Rating Code: A = Excellent, B = Good, C = Fair, D = Poor, E = Nearly Dead, F = Dead

Tree #	Species	Status	DBH (")	Height (')	Spread (')	Summary of Condition	REMOVE	RETAIN
360	Canary Island Pine *Pinus canariensis*	Non-Protected Significant	29	65	25	C		RETAIN
361	Canary Island Pine *Pinus canariensis*	Non-Protected Significant	29	65	25	C		RETAIN
362	Canary Island Pine *Pinus canariensis*	Non-Protected Significant	22	60	25	C		RETAIN
363	Coast Redwood *Sequoia sempervirens*	Non-Protected Significant	20	45	20	C		RETAIN
364	Coast Redwood *Sequoia sempervirens*	Non-Protected Significant	14	45	20	C		RETAIN
365	Coast Redwood *Sequoia sempervirens*	Non-Protected Significant	14	45	20	C		RETAIN
366	Coast Redwood *Sequoia sempervirens*	Non-Protected Significant	10, 10, 6	45	20	C		RETAIN
367	Coast Redwood *Sequoia sempervirens*	Non-Protected Significant	18	45	20	C		RETAIN
368	Gold Medallion *Cassia leptophylla*	Non-Protected	6	8	8	D		RETAIN
369	Gold Medallion *Cassia leptophylla*	Non-Protected	4	8	8	D		RETAIN
370	Gold Medallion *Cassia leptophylla*	Non-Protected	4	8	8	D		RETAIN
371	Gold Medallion *Cassia leptophylla*	Non-Protected	7	8	8	D		RETAIN
372	Coast Redwood *Sequoia sempervirens*	Non-Protected Significant	25	40	25	D		RETAIN
373	Coast Redwood *Sequoia sempervirens*	Non-Protected Significant	25	40	20	D		RETAIN
374	Coast Redwood *Sequoia sempervirens*	Non-Protected Significant	25	35	20	D		RETAIN
375	Crape Myrtle *Lagerstroemia indica*	Non-Protected	5	8	4	C		RETAIN
376	London Plane *Platanus x hispanica*	Non-Protected	5	15	12	C-D		RETAIN
377	London Plane *Platanus x hispanica*	Non-Protected	6	18	15	C-D		RETAIN
378	London Plane *Platanus x hispanica*	Non-Protected	5	15	10	C-D		RETAIN
379	London Plane *Platanus x hispanica*	Non-Protected	5	15	10	C-D		RETAIN

APPENDIX C - SUMMARY OF FIELD INSPECTION

KEY	12" or Greater	8" or greater	Remove

Rating Code: A = Excellent, B = Good, C = Fair, D = Poor, E = Nearly Dead, F = Dead

Tree #	Species	Status	DBH (")	Height (')	Spread (')	Summary of Condition	REMOVE	RETAIN
380	London Plane *Platanus x hispanica*	Non-Protected	6	15	10	C-D		RETAIN
381	London Plane *Platanus x hispanica*	Non-Protected	4	25	15	C-D		RETAIN
382	London Plane *Platanus x hispanica*	Non-Protected	5	15	10	C-D		RETAIN
383	London Plane *Platanus x hispanica*	Non-Protected	4	15	8	C-D		RETAIN
384	London Plane *Platanus x hispanica*	Non-Protected	6	20	12	C-D		RETAIN
385	London Plane *Platanus x hispanica*	Non-Protected	6	15	10	C-D		RETAIN
386	London Plane *Platanus x hispanica*	Non-Protected	4	15	10	C-D		RETAIN
387	London Plane *Platanus x hispanica*	Non-Protected	4	15	10	C-D		RETAIN
388	London Plane *Platanus x hispanica*	Non-Protected	4	15	10	C-D		RETAIN
389	Crape Myrtle *Lagerstroemia indica*	Non-Protected	4	10	5	C	REMOVE	
390	Crape Myrtle *Lagerstroemia indica*	Non-Protected	4	10	5	C	REMOVE	
391	Juniper *Juniperus chinensis*	Non-Protected Significant	31	30	30	C		RETAIN
392	Juniper *Juniperus chinensis*	Non-Protected Significant	23	25	25	C		RETAIN
393	Juniper *Juniperus chinensis*	Non-Protected Significant	20	25	20	C		RETAIN
394	Juniper *Juniperus chinensis*	Non-Protected Significant	24	25	30	C		RETAIN
395	Crape Myrtle *Lagerstroemia indica*	Non-Protected	3	10	5	C		RETAIN
396	Crape Myrtle *Lagerstroemia indica*	Non-Protected	3	10	5	C		RETAIN
397	Crape Myrtle *Lagerstroemia indica*	Non-Protected	6	15	15	C		RETAIN
398	Crape Myrtle *Lagerstroemia indica*	Non-Protected	5	15	15	C		RETAIN
399	Coast Redwood *Sequoia sempervirens*	Non-Protected Significant	22	50	20	D		RETAIN

APPENDIX C - SUMMARY OF FIELD INSPECTION

KEY	12" or Greater	8" or greater	Remove

Rating Code: A = Excellent, B = Good, C = Fair, D = Poor, E = Nearly Dead, F = Dead

Tree #	Species	Status	DBH (")	Height (')	Spread (')	Summary of Condition	REMOVE	RETAIN
400	Coast Redwood *Sequoia sempervirens*	Non-Protected Significant	16	40	20	D		RETAIN
401	Coast Redwood *Sequoia sempervirens*	Non-Protected Significant	20	50	20	D		RETAIN
402	Sweetgum *Liquidambar styraciflua*	Non-Protected Significant	13	50	15	C-D		RETAIN
403	Canary Island Pine *Pinus canariensis*	Non-Protected Significant	20	60	20	C		RETAIN
404	Canary Island Pine *Pinus canariensis*	Non-Protected Significant	12	60	20	C		RETAIN
405	Canary Island Pine *Pinus canariensis*	Non-Protected Significant	13	60	20	C		RETAIN
406	Canary Island Pine *Pinus canariensis*	Non-Protected Significant	13	60	20	C		RETAIN
407	Canary Island Pine *Pinus canariensis*	Non-Protected Significant	18	60	20	C		RETAIN
408	Sweetgum *Liquidambar styraciflua*	Non-Protected	7	30	12	C		RETAIN
409	Sweetgum *Liquidambar styraciflua*	Non-Protected Significant	8	45	12	C		RETAIN
410	Sweetgum *Liquidambar styraciflua*	Non-Protected Significant	13	45	25	D		RETAIN
411	Coast Redwood *Sequoia sempervirens*	Non-Protected Significant	24	60	25	C-D		RETAIN
412	Coast Redwood *Sequoia sempervirens*	Non-Protected Significant	13	45	25	C-D		RETAIN
413	Coast Redwood *Sequoia sempervirens*	Non-Protected Significant	16	45	25	C-D		RETAIN
414	Coast Redwood *Sequoia sempervirens*	Non-Protected Significant	18	45	25	C-D		RETAIN
415	Coast Redwood *Sequoia sempervirens*	Non-Protected Significant	25	50	25	C-D		RETAIN
416	Canary Island Pine *Pinus canariensis*	Non-Protected Significant	10	30	15	C-D		RETAIN
416A	Canary Island Pine *Pinus canariensis*	Non-Protected Significant	23	50	30	C		RETAIN
417	Coast Redwood *Sequoia sempervirens*	Non-Protected Significant	22	50	25	C		RETAIN
418	Canary Island Pine *Pinus canariensis*	Non-Protected Significant	12	30	12	C		RETAIN
419	Canary Island Pine *Pinus canariensis*	Non-Protected Significant	16	40	15	C		RETAIN

APPENDIX C - SUMMARY OF FIELD INSPECTION

KEY	12" or Greater	8" or greater	Remove

Rating Code: A = Excellent, B = Good, C = Fair, D = Poor, E = Nearly Dead, F = Dead

Tree #	Species	Status	DBH (")	Height (')	Spread (')	Summary of Condition	REMOVE	RETAIN
420	Canary Island Pine *Pinus canariensis*	Non-Protected Significant	20	50	20	C		RETAIN
421	Coast Redwood *Sequoia sempervirens*	Non-Protected Significant	14	35	20	C-D		RETAIN
422	Coast Redwood *Sequoia sempervirens*	Non-Protected Significant	18	45	20	C-D		RETAIN
423	Coast Redwood *Sequoia sempervirens*	Non-Protected Significant	16	45	20	C-D		RETAIN
424	Coast Redwood *Sequoia sempervirens*	Non-Protected Significant	20	45	20	C-D		RETAIN
425	Coast Redwood *Sequoia sempervirens*	Non-Protected Significant	22	50	25	C-D		RETAIN
426	Japanese Zelkova *Zelkova serrata*	Non-Protected Significant	17	35	35	C-D		RETAIN
427	Canary Island Pine *Pinus canariensis*	Non-Protected Significant	14	55	20	C		RETAIN
428	Coast Redwood *Sequoia sempervirens*	Non-Protected Significant	12	55	20	C		RETAIN
429	Coast Redwood *Sequoia sempervirens*	Non-Protected Significant	11	55	20	C		RETAIN
430	Coast Redwood *Sequoia sempervirens*	Non-Protected Significant	13	55	20	C		RETAIN
431	Canary Island Pine *Pinus canariensis*	Non-Protected Significant	14	55	20	C		RETAIN
432	Canary Island Pine *Pinus canariensis*	Non-Protected Significant	10	55	20	C		RETAIN
433	Canary Island Pine *Pinus canariensis*	Non-Protected Significant	12	55	20	C		RETAIN
434	Coast Redwood *Sequoia sempervirens*	Non-Protected Significant	23	45	25	C-D		RETAIN
435	Coast Redwood *Sequoia sempervirens*	Non-Protected Significant	17	55	25	C-D		RETAIN
436	Coast Redwood *Sequoia sempervirens*	Non-Protected Significant	14	45	20	C-D		RETAIN
437	Carob *Ceratonia siliqua*	Non-Protected Significant	35	30	30	C		RETAIN
438	Sweetgum *Liquidambar styraciflua*	Non-Protected Significant	12	35	15	C-D		RETAIN
439	Sweetgum *Liquidambar styraciflua*	Non-Protected Significant	12	40	15	C-D		RETAIN

APPENDIX C - SUMMARY OF FIELD INSPECTION

KEY	12" or Greater	8" or greater	Remove

Rating Code: A = Excellent, B = Good, C = Fair, D = Poor, E = Nearly Dead, F = Dead

Tree #	Species	Status	DBH (")	Height (')	Spread (')	Summary of Condition	REMOVE	RETAIN
440	Sweetgum *Liquidambar styraciflua*	Non-Protected Significant	19	45	15	C-D		RETAIN
441	Sweetgum *Liquidambar styraciflua*	Non-Protected Significant	10	35	10	D		RETAIN
442	Deodar Cedar *Cedrus deodara*	Non-Protected Significant	23	40	35	C-D		RETAIN
443	Crape Myrtle *Lagerstroemia indica*	Non-Protected	6	12	6	C		RETAIN
444	Southern Magnolia *Magnolia grandiflora*	Non-Protected Significant	22	40	25	C		RETAIN
445	Olive *Olea europaea*	Non-Protected Significant	20, 20, 18	35	30	C		RETAIN
446	Citrus *Citrus sp.*	Non-Protected Significant	10	10	10	C		RETAIN
447	Citrus *Citrus sp.*	Non-Protected Significant	8	8	8	C		RETAIN
448	Juniper *Juniperus chinensis*	Non-Protected Significant	30	25	30	C		RETAIN
449	Redwood *Sequoia sempervirens*	Non-Protected Significant	38	45	25	C-D		RETAIN
450	Sweetgum *Liquidambar styraciflua*	Non-Protected Significant	14	25	15	C-D		RETAIN
451	Juniper *Juniperus chinensis*	Non-Protected Significant	30	30	30	C		RETAIN
452	Desert Museum Palo Verde *Parkinsonia x 'Desert Museum'*	Non-Protected Significant	22	30	25	D	REMOVE	
453	Mexican Fan Palm *Washingtonia robusta*	Non-Protected Significant	18	55	10	C	REMOVE	
454	Mexican Fan Palm *Washingtonia robusta*	Non-Protected Significant	18	60	10	C	REMOVE	
455	Mexican Fan Palm *Washingtonia robusta*	Non-Protected Significant	18	60	10	C	REMOVE	
456	Mexican Fan Palm *Washingtonia robusta*	Non-Protected Significant	18	60	10	C	REMOVE	
457	Mexican Fan Palm *Washingtonia robusta*	Non-Protected Significant	18	55	10	C	REMOVE	
458	Carolina Cherry *Prunus caroliana*	Non-Protected	7	15	12	C-D	REMOVE	
459	Desert Museum Palo Verde *Parkinsonia x 'Desert Museum'*	Non-Protected	7	14	15	C-D		RETAIN

APPENDIX C - SUMMARY OF FIELD INSPECTION

KEY	12" or Greater	8" or greater	Remove

Rating Code: A = Excellent, B = Good, C = Fair, D = Poor, E = Nearly Dead, F = Dead

Tree #	Species	Status	DBH (")	Height (')	Spread (')	Summary of Condition	REMOVE	RETAIN
460	Crape Myrtle *Lagerstroemia indica*	Non-Protected Significant	Multi- 8" +	12	10	C	REMOVE	
461	Crape Myrtle *Lagerstroemia indica*	Non-Protected Significant	Multi- 8" +	12	8	C	REMOVE	
462	Crape Myrtle *Lagerstroemia indica*	Non-Protected Significant	Multi- 8" +	12	15	C	REMOVE	
463	Crape Myrtle *Lagerstroemia indica*	Non-Protected Significant	Multi- 8" +	15	15	C	REMOVE	
464	Crape Myrtle *Lagerstroemia indica*	Non-Protected Significant	Multi - 12" +	15	15	C	REMOVE	
465	Evergreen Ash *Fraxinus uhdei*	Non-Protected Significant	24	35	30	D	REMOVE	
466	Evergreen Ash *Fraxinus uhdei*	Non-Protected Significant	17	30	30	D	REMOVE	
467	Evergreen Ash *Fraxinus uhdei*	Non-Protected Significant	20, 22	35	35	D		RETAIN
468	Juniper *Juniperus chinensis*	Non-Protected Significant	30	30	25	C		RETAIN
469	Redwood *Sequoia sempervirens*	Non-Protected Significant	24	60	25	C-D		RETAIN
470	Redwood *Sequoia sempervirens*	Non-Protected Significant	14	55	20	C-D		RETAIN
471	Canary Island Pine *Pinus canariensis*	Non-Protected Significant	18	60	25	C		RETAIN
472	Canary Island Pine *Pinus canariensis*	Non-Protected Significant	18	60	25	C		RETAIN
473	Crape Myrtle *Lagerstroemia indica*	Non-Protected	5				REMOVE	
474	Raywood Ash *Fraxinus oxycarpa 'Raywood'*	Non-Protected Significant	18	25	25	C-D		RETAIN
475	Raywood Ash *Fraxinus oxycarpa 'Raywood'*	Non-Protected Significant	20	25	20	C-D		RETAIN
476	Raywood Ash *Fraxinus oxycarpa 'Raywood'*	Non-Protected Significant	24	25	25	D		RETAIN
477	Raywood Ash *Fraxinus oxycarpa 'Raywood'*	Non-Protected Significant	22	25	25	C-D		RETAIN
478	Raywood Ash GONE *Fraxinus oxycarpa 'Raywood'*	No Existing Tree						
479	Raywood Ash *Fraxinus oxycarpa 'Raywood'*	Non-Protected Significant	16	20	15	D		RETAIN

APPENDIX C - SUMMARY OF FIELD INSPECTION

KEY	12" or Greater	8" or greater	Remove

Rating Code: A = Excellent, B = Good, C = Fair, D = Poor, E = Nearly Dead, F = Dead

Tree #	Species	Status	DBH (")	Height (')	Spread (')	Summary of Condition	REMOVE	RETAIN
480	Raywood Ash *Fraxinus oxycarpa 'Raywood'*	Non-Protected Significant	22	25	25	C-D		RETAIN
481	Raywood Ash *Fraxinus oxycarpa 'Raywood'*	Non-Protected Significant	20	25	25	C-D		RETAIN
482	Raywood Ash *Fraxinus oxycarpa 'Raywood'*	Non-Protected Significant	20	25	25	D		RETAIN
483	Raywood Ash *Fraxinus oxycarpa 'Raywood'*	Non-Protected Significant	24	30	30	C-D		RETAIN
ST484	Pink Dawn *Chitalpa tashkentensis*	Saticoy St. Street Tree	8	20	10	C		RETAIN
ST485	Pink Dawn *Chitalpa tashkentensis*	Saticoy St. Street Tree	8	15	6	C-D		RETAIN
ST486	Pink Dawn *Chitalpa tashkentensis*	Saticoy St. Street Tree	11	20	15	C-D		RETAIN
ST487	Pink Dawn *Chitalpa tashkentensis*	Saticoy St. Street Tree	11	22	15	C		RETAIN
ST488	Pink Dawn *Chitalpa tashkentensis*	Saticoy St. Street Tree	11	20	15	C		RETAIN
ST489	Pink Dawn *Chitalpa tashkentensis*	Saticoy St. Street Tree	11	20	15	C	REMOVE	
ST490	Pink Dawn *Chitalpa tashkentensis*	Saticoy St. Street Tree	10	20	15	C		RETAIN
ST491	Pink Dawn *Chitalpa tashkentensis*	Saticoy St. Street Tree	10	20	10	C-D		RETAIN
ST492	Pink Dawn *Chitalpa tashkentensis*	Saticoy St. Street Tree	11	20	15	C-D		RETAIN
ST493	Pink Dawn *Chitalpa tashkentensis*	Saticoy St. Street Tree	5	12	10	C-D		RETAIN
ST494	Pink Dawn *Chitalpa tashkentensis*	Saticoy St. Street Tree	12	20	12	C-D		RETAIN
ST495	Pink Dawn *Chitalpa tashkentensis*	Saticoy St. Street Tree	10	18	15	C-D		RETAIN
ST496	Pink Dawn *Chitalpa tashkentensis*	Saticoy St. Street Tree	12	20	20	C-D		RETAIN

APPENDIX C - SUMMARY OF FIELD INSPECTION

Rating Code: A = Excellent, B = Good, C = Fair, D = Poor, E = Nearly Dead, F = Dead

Tree #	Species	Status	DBH (")	Height (')	Spread (')	Summary of Condition	REMOVE	RETAIN
ST497	Crape Myrtle *Lagerstroemia indica*	Saticoy St. Street Tree	6	15	12	C		RETAIN
ST498	Crape Myrtle *Lagerstroemia indica*	Saticoy St. Street Tree	7	14	12	C		RETAIN
ST499	Crape Myrtle *Lagerstroemia indica*	Saticoy St. Street Tree	12@1	15	15	C		RETAIN
ST500	Pink Dawn *Chitalpa tashkentensis*	Cohasset St. Street Tree	6	12	12	C		RETAIN
ST501	Pink Dawn *Chitalpa tashkentensis*	Cohasset St. Street Tree	6	12	12	C		RETAIN
ST502	Pink Dawn *Chitalpa tashkentensis*	Cohasset St. Street Tree	6	12	12	C		RETAIN
ST503	Pink Dawn *Chitalpa tashkentensis*	Cohasset St. Street Tree	6	12	12	C		RETAIN
ST504	Pink Dawn *Chitalpa tashkentensis*	Cohasset St. Street Tree	6	12	12	C		RETAIN
ST505	Pink Dawn *Chitalpa tashkentensis*	Cohasset St. Street Tree	6	12	12	C		RETAIN
ST506	Pink Dawn *Chitalpa tashkentensis*	Cohasset St. Street Tree	6	12	12	C		RETAIN
ST507	Pink Dawn *Chitalpa tashkentensis*	Cohasset St. Street Tree	6	12	12	C		RETAIN
ST508	Pink Dawn *Chitalpa tashkentensis*	Cohasset St. Street Tree	6	12	12	C		RETAIN
ST509	Pink Dawn *Chitalpa tashkentensis*	Cohasset St. Street Tree	6	12	12	C		RETAIN
ST510	Pink Dawn *Chitalpa tashkentensis*	Cohasset St. Street Tree	6	12	12	C		RETAIN
ST511	Pink Dawn *Chitalpa tashkentensis*	Cohasset St. Street Tree	6	12	12	C		RETAIN
ST512	Pink Dawn *Chitalpa tashkentensis*	Cohasset St. Street Tree	6	12	12	C		RETAIN
ST513	African Sumac *Rhus lancea*	Keswick Street Tree	7	18	15	C		RETAIN
ST514	African Sumac *Rhus lancea*	Keswick Street Tree	8	20	20	C		RETAIN
ST515	Bradford Pear *Pyrus calleryana*	Keswick Street Tree	12	20	20	C-D		RETAIN
ST516	Evergreen Pear *Pyrus kawakamii*	Keswick Street Tree	10	20	20	C-D		RETAIN
	TOTAL TREES are 517 - Note - Tree #416A is a missed tree on original survey and is added after tree #416							

APPENDIX D - SUMMARY OF DATA

Summary of Data

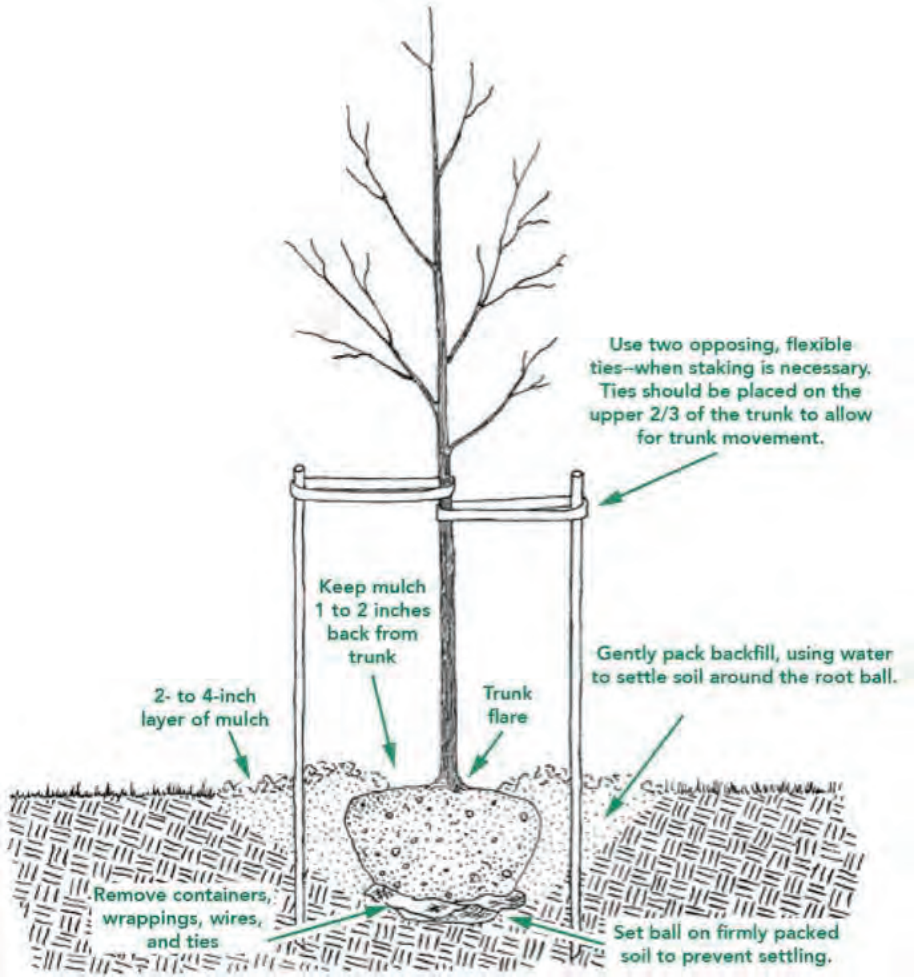
	TOTAL	TOTAL FOR REMOVAL	TOTAL TO BE RETAINED	Trees to be Planted in Replacement
Non-Protected Significant Trees 8" or Greater (Less than 12")	54	10	44	10
Non-Protected Significant Trees 12" or Greater	310	30	280	30
Non-Protected Trees LESS than 8"	108	7	101	0
Street Trees	33	1	32	2
Not existing trees - place holder # (grey circle on map)	12	0	0	0
Totals	517	48	457	42

Recommended Species and Size of Replacement Trees

Non-Protected Significant trees will be replaced at a one-to-one (1:1) ratio, to the satisfaction of the City of Los Angeles Department of City Planning.

Street trees to be replaced at a 2:1 ratio to the satisfaction of the Urban Forestry Department.

NEW TREE PLANTING



The ideal time to plant trees and shrubs is during the dormant season, in the fall after leaf drop or early spring before budbreak. Weather conditions are cool and allow plants to establish roots in the new location before spring rains and summer heat stimulate new top growth. Before you begin planting your tree, be sure you have had all underground utilities located prior to digging.

If the tree you are planting is balled or bare root, it is important to understand that its root system has been reduced by 90 to 95 percent of its original size during transplanting. As a result of the trauma caused by the digging process, trees commonly exhibit what is known as transplant shock. Containerized trees may also experience transplant shock, particularly if they have circling roots that must be cut. Transplant shock is indicated by slow growth and reduced vigor following transplanting. Proper site preparation before and during planting coupled with good follow-up care reduces the amount of time the plant experiences transplant shock and allows the tree to quickly establish in its new location. Carefully follow nine simple steps, and you can significantly reduce the stress placed on the plant at the time of planting.

NEW TREE PLANTING, continued

1. Dig a shallow, broad planting hole. Make the hole wide, as much as three times the diameter of the root ball but only as deep as the root ball. It is important to make the hole wide because the roots on the newly establishing tree must push through surrounding soil in order to establish. On most planting sites in new developments, the existing soils have been compacted and are unsuitable for healthy root growth. Breaking up the soil in a large area around the tree provides the newly emerging roots room to expand into loose soil to hasten establishment.

2. Identify the trunk flare. The trunk flare is where the roots spread at the base of the tree. This point should be partially visible after the tree has been planted (see diagram). If the trunk flare is not partially visible, you may have to remove some soil from the top of the root ball. Find it so you can determine how deep the hole needs for proper planting.

3. Remove tree container for containerized trees. Carefully cutting down the sides of the container may make this easier. Inspect the root ball for circling roots and cut or remove them. Expose the trunk flare, if necessary.

4. Place the tree at the proper height. Before placing the tree in the hole, check to see that the hole has been dug to the proper depth and no more. The majority of the roots on the newly planted tree will develop in the top 12 inches of soil. If the tree is planted too deeply, new roots will have difficulty developing because of a lack of oxygen. It is better to plant the tree a little high, 1-2 inches above the base of the trunk flare, than to plant it at or below the original growing level. This planting level will allow for some settling.

5. Straighten the tree in the hole. Before you begin backfilling, have someone view the tree from several directions to confirm that the tree is straight. Once you begin backfilling, it is difficult to reposition the tree.

6. Fill the hole gently but firmly. Fill the hole about one-third full and gently but firmly pack the soil around the base of the root ball. Be careful not to damage the trunk or roots in the process. Fill the remainder of the hole, taking care to firmly pack soil to eliminate air pockets that may cause roots to dry out. To avoid this problem, add the soil a few inches at a time and settle with water. Continue this process until the hole is filled and the tree is firmly planted. It is not recommended to apply fertilizer at time of planting.

7. Stake the tree, if necessary. If the tree is grown properly at the nursery, staking for support will not be necessary in most home landscape situations. Studies have shown that trees establish more quickly and develop stronger trunk and root systems if they are not staked at the time of planting. However, protective staking may be required on sites where lawn mower damage, vandalism, or windy conditions are concerns. If staking is necessary for support, there are three methods to choose among: staking, guying, and ball stabilizing. One of the most common methods is staking. With this method, two stakes used in conjunction with a wide, flexible tie material on the lower half of the tree will hold the tree upright, provide flexibility, and minimize injury to the trunk (see diagram). Remove support staking and ties after the first year of growth.

8. Mulch the base of the tree. Mulch is simply organic matter applied to the area at the base of the tree. It acts as a blanket to hold moisture, it moderates soil temperature extremes, and it reduces competition from grass and weeds. A 2- to 3-inch layer is ideal. More than 3 inches may cause a problem with oxygen and moisture levels. When placing mulch, be sure that the actual trunk of the tree is not covered. Doing so may cause decay of the living bark at the base of the tree. A mulch-free area, 1 to 2 inches wide at the base of the tree, is sufficient to avoid moist bark conditions and prevent decay.

TREE MAINTENANCE AND PRUNING

Some trees do not generally require pruning. The occasional removal of dead twigs or wood is typical. Occasionally a tree has a defect or structural condition that would benefit from pruning. Any pruning activity should be performed under the guidance of a certified arborist or tree expert.

Because each cut has the potential to change the growth of the tree, no branch should be removed without a reason. Common reasons for pruning are to remove dead branches, to remove crowded or rubbing limbs, and to eliminate hazards. Trees may also be pruned to increase light and air penetration to the inside of the tree's crown or to the landscape below. In most cases, mature trees are pruned as a corrective or preventive measure.

Routine thinning does not necessarily improve the health of a tree. Trees produce a dense crown of leaves to manufacture the sugar used as energy for growth and development. Removal of foliage through pruning can reduce growth and stored energy reserves. Heavy pruning can be a significant health stress for the tree.

Yet if people and trees are to coexist in an urban or suburban environment, then we sometimes have to modify the trees. City environments do not mimic natural forest conditions. Safety is a major concern. Also, we want trees to complement other landscape plantings and lawns. Proper pruning, with an understanding of tree biology, can maintain good tree health and structure while enhancing the aesthetic and economic values of our landscapes.

Pruning Techniques – From the I.S.A. Guideline

Specific types of pruning may be necessary to maintain a mature tree in a healthy, safe, and attractive condition.

Cleaning is the removal of dead, dying, diseased, crowded, weakly attached, and low- vigor branches from the crown of a tree.

Thinning is the selective removal of branches to increase light penetration and air movement through the crown. Thinning opens the foliage of a tree, reduces weight on heavy limbs, and helps retain the tree's natural shape.

Raising removes the lower branches from a tree to provide clearance for buildings, vehicles, pedestrians, and vistas.

Reduction reduces the size of a tree, often for clearance for utility lines. Reducing the height or spread of a tree is best accomplished by pruning back the leaders and branch terminals to lateral branches that are large enough to assume the terminal roles (at least one-third the diameter of the cut stem). Compared to topping, reduction helps maintain the form and structural integrity of the tree.

TREE MAINTENANCE AND PRUNING, continued

How Much Should Be Pruned?

Mature trees should require little routine pruning. A widely accepted rule of thumb is never to remove more than one-quarter of a tree's leaf-bearing crown. In a mature tree, pruning even that much could have negative effects. Removing even a single, large- diameter limb can create a wound that the tree may not be able to close. The older and larger a tree becomes, the less energy it has in reserve to close wounds and defend against decay or insect attack. Pruning of mature trees is usually limited to removal of dead or potentially hazardous limbs.

Wound Dressings

Wound dressings were once thought to accelerate wound closure, protect against insects and diseases, and reduce decay. However, research has shown that dressings do not reduce decay or speed closure and rarely prevent insect or disease infestations. Most experts recommend that wound dressings not be used.

DISEASES AND INSECTS

Continual observation and monitoring of your tree can alert you to any abnormal changes. Some indicators are: excessive leaf drop, leaf discoloration, sap oozing from the trunk and bark with unusual cracks. Should you observe any changes, you should contact a Tree specialist or Certified Arborist to review the tree and provide specific recommendations. Trees are susceptible to hundreds of pests, many of which are typical and may not cause enough harm to warrant the use of chemicals. However, diseases and insects may be indication of further stress that should be identified by a professional.

GRADE CHANGES

The growing conditions and soil level of trees are subject to detrimental stress should they be changed during the course of construction. Raising the grade at the base of a tree trunk can have long-term negative consequences. This grade level should be maintained throughout the protected zone. This will also help in maintaining the drainage in which the tree has become accustomed.

INSPECTION

The property owner should establish an inspection calendar based on the recommendation provided by the tree specialist. This calendar of inspections can be determined based on several factors: the maturity of the tree, location of tree in proximity to high-use areas vs. low-use area, history of the tree, prior failures, external factors (such as construction activity) and the perceived value of the tree to the homeowner.

Assumptions and Limiting Conditions

No warranty is made, expressed or implied, that problems or deficiencies of the trees or the property will not occur in the future, from any cause. The Consultant shall not be responsible for damages or injuries caused by any tree defects, and assumes no responsibility for the correction of defects or tree related problems.

The owner of the trees may choose to accept or disregard the recommendations of the Consultant, or seek additional advice to determine if a tree meets the owner's risk abatement standards.

The Consulting Arborist has no past, present or future interest in the removal or retaining of any tree. Opinions contained herein are the independent and objective judgments of the consultant relating to circumstances and observations made on the subject site.

The recommendations contained in this report are the opinions of the Consulting Arborist at the time of inspection. These opinions are based on the knowledge, experience, and education of the Consultant. The field inspection was a visual, grade level tree assessment.

The Consulting Arborist shall not be required to give testimony, perform site monitoring, provide further documentation, be deposed, or to attend any meeting without subsequent contractual arrangements for this additional employment, including payment of additional fees for such services as described by the Consultant.

The Consultant assumes no responsibility for verification of ownership or locations of property lines, or for results of any actions or recommendations based on inaccurate information.

This Arborist report may not be reproduced without the express permission of the Consulting Arborist and the client to whom the report was issued. Any change or alteration to this report invalidates the entire report.

Should you have any further questions regarding this property, please contact me at (310) 663-2290.

Respectfully submitted,

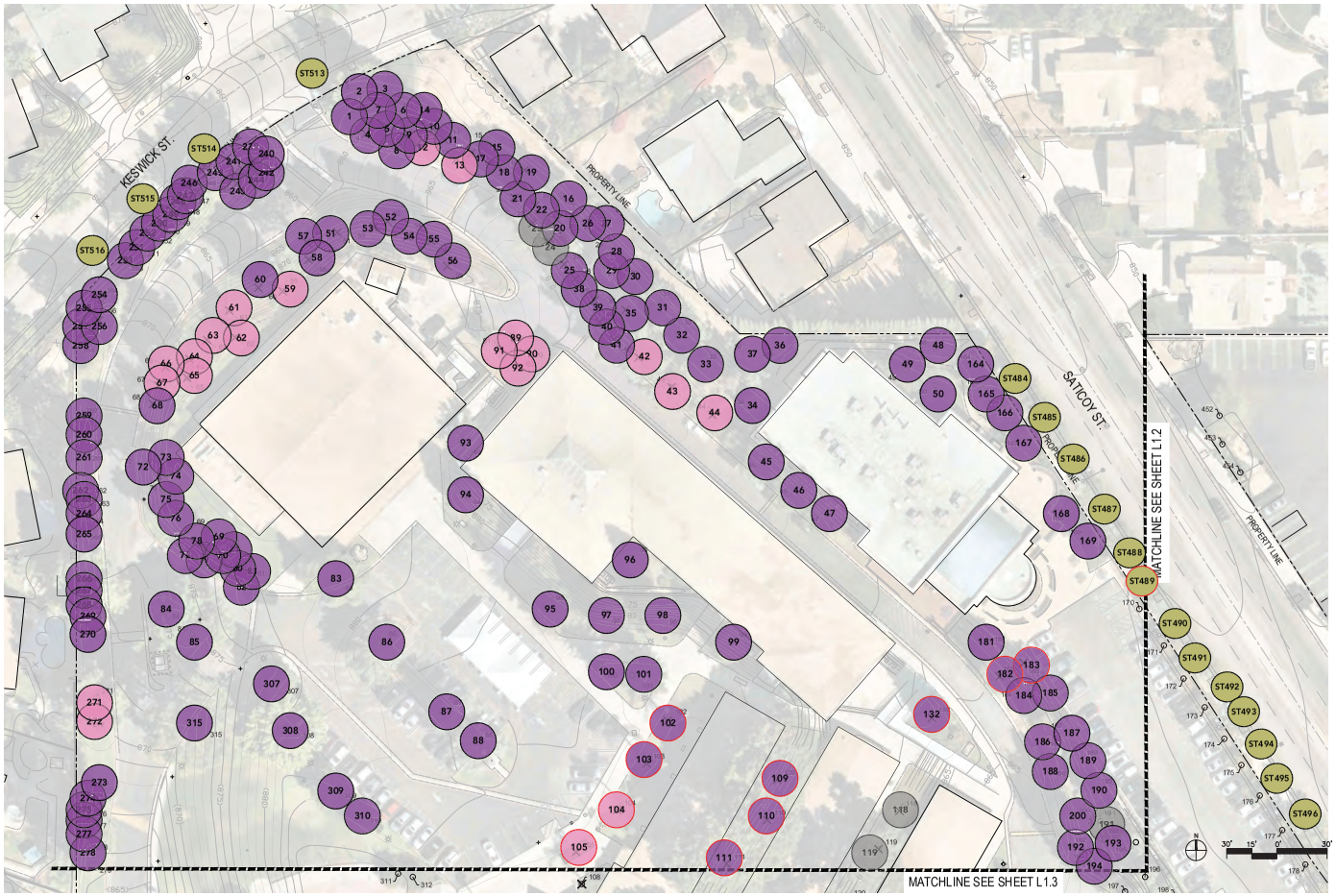




Lisa Smith

Registered Consulting Arborist #464
ISA Board Certified Master Arborist #WE3782BM
ISA Tree Risk Assessor Qualified- Instructor
American Society of Consulting Arborists, Member

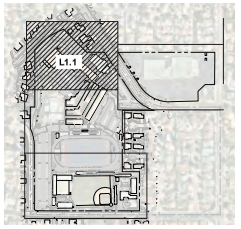
Appendix A.1: Tree Locations on Project Survey
L1.1



LEGEND

- # EXISTING TREE TO REMAIN
- # EXISTING TREE TO BE REMOVED

NOTE: SEE SHEETS L1.5 AND L1.6 FOR EXISTING TREE TABLE AND CALCULATIONS.



KEY MAP: NTS

PROJECT SUMMARY	
Site Address	7500 Chaminade Ave, West Hills, CA 91304
Location and/or Specific Plan	Chatsworth
Project Description	New Buildings and Revised Campus Plans
Number of Protected Trees on Site	0

KEY

- Non-Protected Significant Tree
- Non-Protected Tree
- No Existing Tree
- Tree For Removal
- Street Tree

HM

3561003-000

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ONTARIO, CA 91764
909 989 9979 / www.hmcarchitects.com

SPURLOCK
LANDSCAPE ARCHITECTS

Δ	DESCRIPTION	DATE

KEYNOTES

FACILITY:

7500 CHAMINADE AVE.
WEST HILLS, CA 91304

PROJECT:

CHAMINADE COLLEGE PREP HIGH SCHOOL CUP

SHEET NAME:

EXISTING TREE SURVEY

CUP SUBMITTAL

DATE: **03/11/22**

CLIENT PROJ NO:

SHEET:

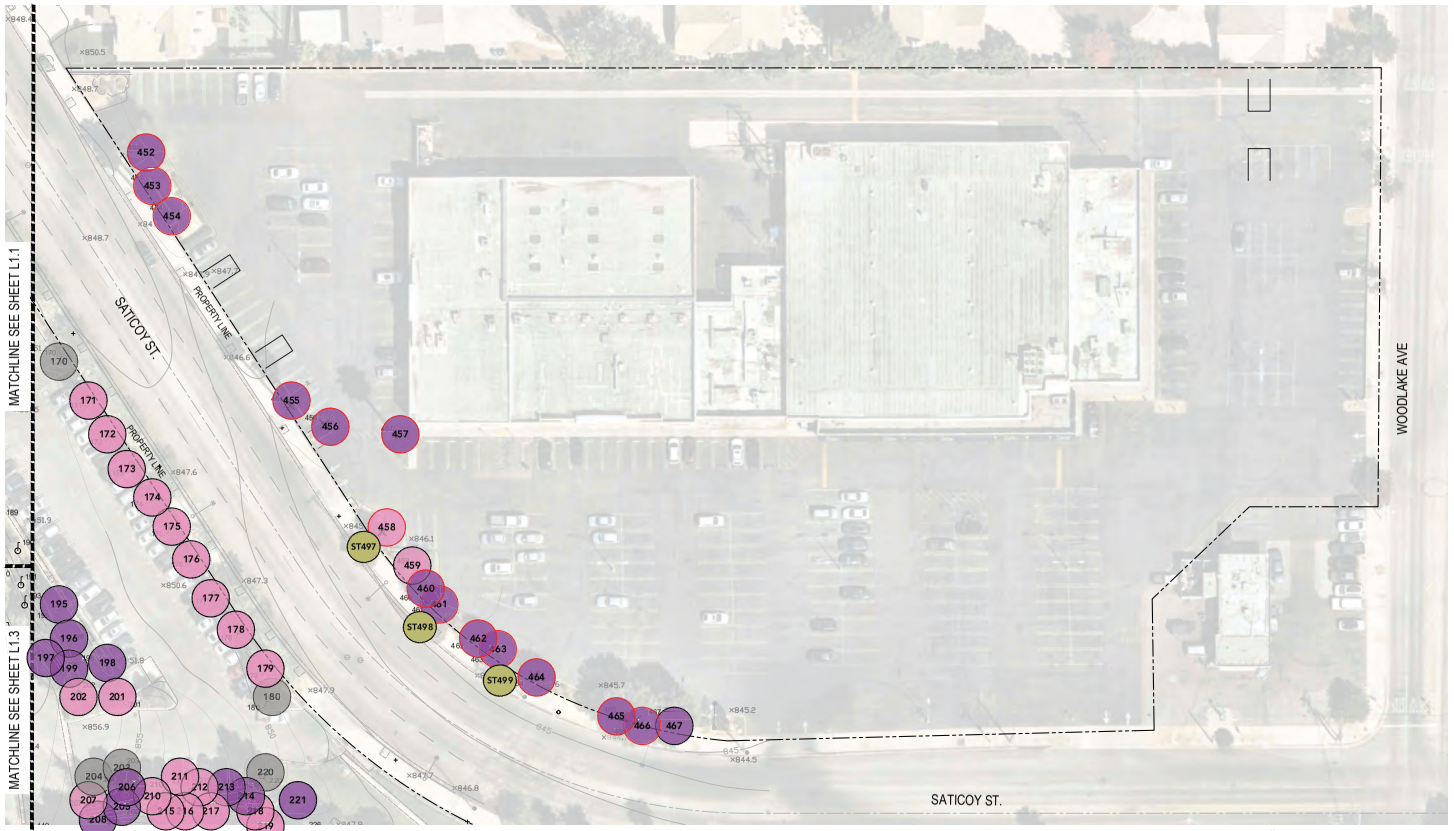
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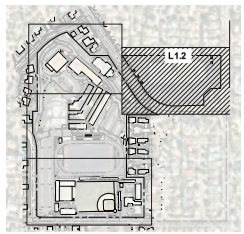
Appendix A.1: Tree Locations on Project Survey
L1.2



LEGEND

- # EXISTING TREE TO REMAIN
- # EXISTING TREE TO BE REMOVED

NOTE: SEE SHEETS L1.5 AND L1.6 FOR EXISTING TREE TABLE AND CALCULATIONS.



KEY MAP: NTS

PROJECT SUMMARY	
Site Address	7500 Chaminade Ave, West Hills, CA 91304
Location and/or Specific Plan	Chatsworth
Project Description	New Buildings and Revised Campus Plans
Number of Protected Trees on Site	0

KEY

- Non-Protected Significant Tree
- Non-Protected Tree
- No Existing Trees
- Tree For Removal
- Street Tree

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SPURLOCK LANDSCAPE ARCHITECTS

Δ	DESCRIPTION	DATE

KEYNOTES

FACILITY:
7500 CHAMINADE AVE.
WEST HILLS, CA 91304

PROJECT:
CHAMINADE COLLEGE PREP HIGH SCHOOL CUP

SHEET NAME:
EXISTING TREE SURVEY

CUP SUBMITTAL

DATE: **03/11/22**
CLIENT PROJ NO:

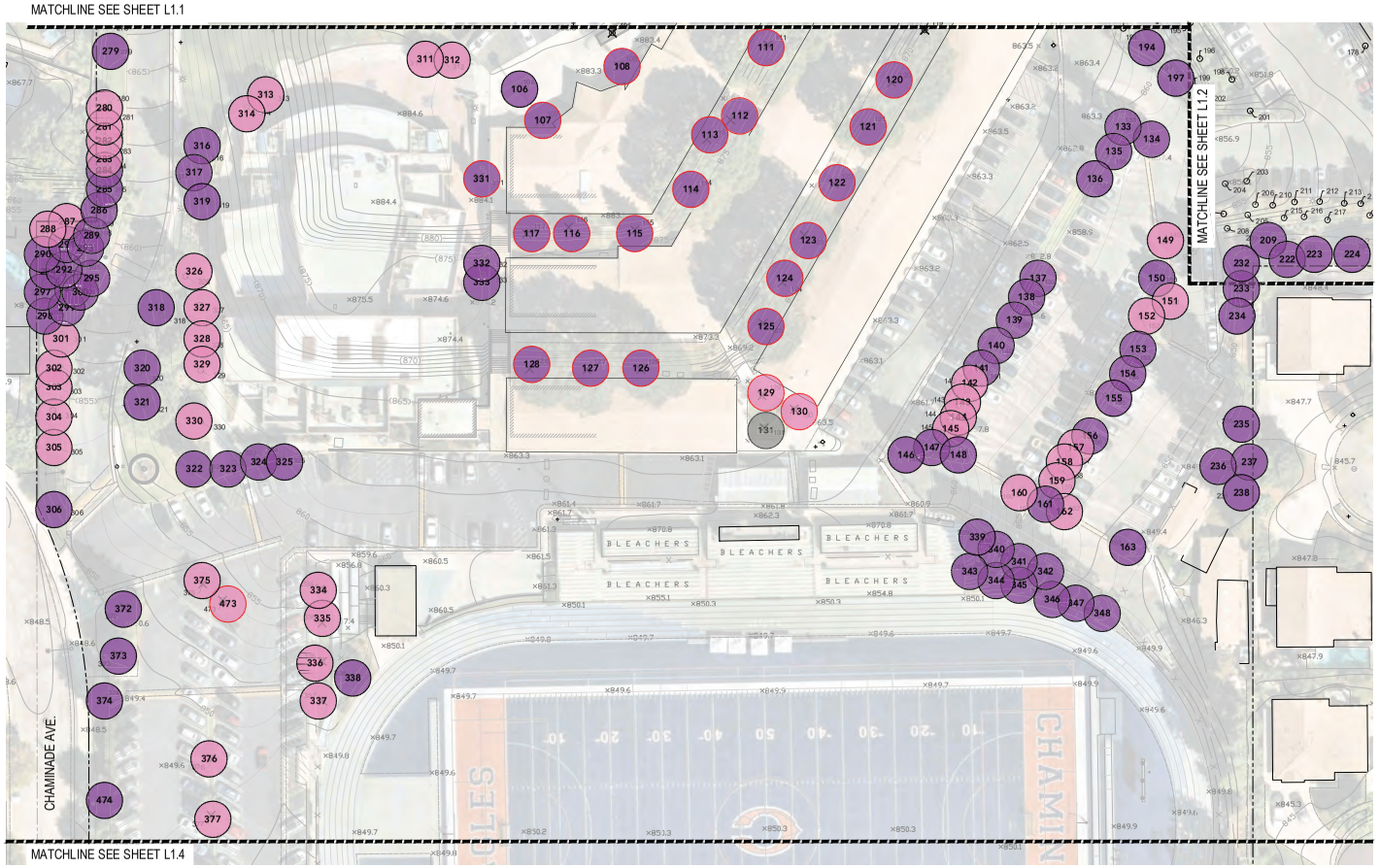
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Appendix A.1: Tree Locations on Project Survey
L1.3

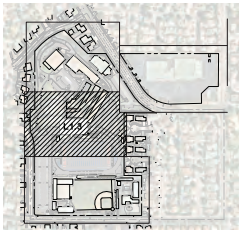


LEGEND

EXISTING TREE TO REMAIN

EXISTING TREE TO BE REMOVED

NOTE: SEE SHEETS L1.5 AND L1.6 FOR EXISTING TREE TABLE AND CALCULATIONS.



KEY MAP: NTS

PROJECT SUMMARY	
Site Address	7500 Chaminade Ave, West Hills, CA 91304
Location and/or Specific Plan	Chatsworth
Project Description	New Buildings and Revised Campus Plans
Number of Protected Trees on Site	0
Number of Recommended Removals	

KEY

- Non-Protected Significant Tree
- Non-Protected Tree
- No Existing Trees
- Tree For Removal

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SPURLOCK LANDSCAPE ARCHITECTS

Δ	DESCRIPTION	DATE

KEY NOTES

FACILITY:

7500 CHAMINADE AVE.
WEST HILLS, CA 91304

PROJECT:
CHAMINADE COLLEGE PREP HIGH SCHOOL CUP

SHEET NAME:
EXISTING TREE SURVEY

CUP SUBMITTAL

DATE: 03/11/22 | CLIENT PROJ NO:

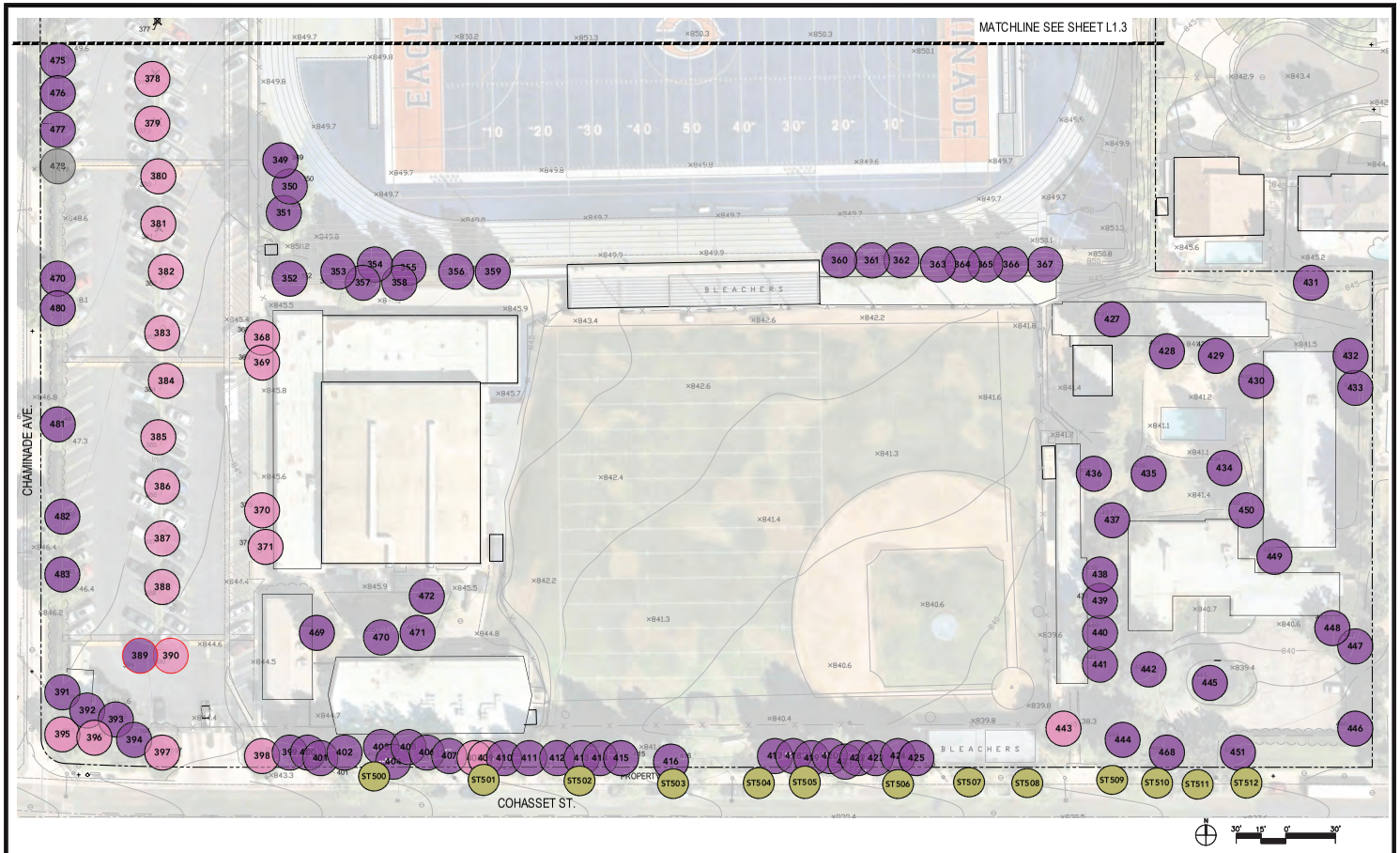
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L1.3

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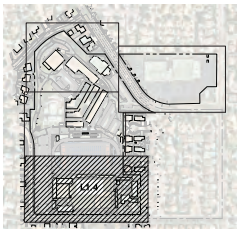
Appendix A.1: Tree Locations on Project Survey
L1.4



LEGEND

- # EXISTING TREE TO REMAIN
- # EXISTING TREE TO BE REMOVED

NOTE: SEE SHEETS L1.5 AND L1.6 FOR EXISTING TREE TABLE AND CALCULATIONS.



KEY MAP: NTS

PROJECT SUMMARY	
Site Address	7500 Chaminade Ave, West Hills, CA 91304
Location and/or Specific Plan	Chatsworth
Project Description	New Buildings and Revised Campus Plans
Number of Protected Trees on Site	0

KEY

- Non-Protected Significant Tree
- Non-Protected Tree
- No Existing Trees
- Tree For Removal
- Street Tree

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SPURLOCK
LANDSCAPE ARCHITECTS

Δ	DESCRIPTION	DATE

KEYNOTES

FACILITY:
7500 CHAMINADE AVE.
WEST HILLS, CA 91304

PROJECT:
CHAMINADE COLLEGE PREP HIGH SCHOOL CUP

SHEET NAME:
EXISTING TREE SURVEY

CUP SUBMITTAL

DATE: 03/11/22 | CLIENT PROJ NO:

SHEET:

L1.4

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2136

TECHNICAL MEMORANDUM

To: Stacie Henderson, Senior Project Manager
CAJA Environmental Services, LLC
9410 Topanga Canyon Boulevard, Suite 101
Chatsworth, CA 91311

From: Jackie Worden, Lead Biologist

Date: January 30, 20223

Re: Chaminade High School Expansion / SWCA Project No. 67816

INTRODUCTION

The proposed Chaminade High School Expansion Project (Project), located in the West Hills neighborhood of the city of Los Angeles, California, proposes to update and expand the Chaminade High School campus within existing developed areas. The Project on the Main Campus will include two new quads, a new administrative office building, updates to existing classrooms and offices, two new sports fields, and temporary portable buildings. Project development on the North Campus includes a new surface parking lot, two sports fields and a pool. A new pedestrian bridge across Saticoy Street is proposed to connect the Main Campus and the North Campus.

The Project site on the Main campus is located entirely within developed areas, including multi-story academic and administrative buildings, sports fields, and facilities. The Project site on the North Campus is currently developed with a one-story multi-tenant mini shopping center and surface parking lot, built between 1962 and 1964. The surrounding area is fully urbanized and is characterized primarily by residential properties.

Project Location

The Project site is composed of four parcels:

- Main Campus: 7500 Chaminade Avenue (assessor parcel number [APN] 2027-005-009);
- North Campus:
    - 23255 Saticoy Street, 7629 Woodlake Avenue, 7621 Woodlake Avenue (APNs 2027-005-005, 2027-005-006, and 2027-005-007).

The Project is situated in Section 35 of Township 2 North, Range 17 West on the U.S. Geological Survey (USGS) *Calabasas* 7.5 minute quadrangle.

The attached figures illustrate the regional and vicinity location and the boundaries of the Project.

PURPOSE & SCOPE

We understand the City of Los Angeles requires completion of the Biologist's Statement of Biological Resources form for this project. The completed form is attached.

The first item on the form is the date of the field survey. Based on our professional experience and knowledge of the project site and vicinity, we believe a sufficient biological review can be completed through a desktop analysis of aerial photos and published data. This recommendation is based on the following factors:

- The subject property is fully developed and lacks natural habitats.
- The site is surrounded by urban development.
- No trees would be removed.
- No protected trees are present.
    - An arborist report is under preparation by The Tree Resource (Lisa Smith, Registered Consulting Arborist #464)
- There are no water resources on the site.
- The are no records in the California Natural Diversity Database (CNDDB) of sensitive or special status species within the Calabasas United States Geological Survey (USGS) quadrangle and/or within a 0.25-mile radius of the project site.

REGULATORY SUMMARY

Nesting Birds

The federal Migratory Bird Treaty Act (MBTA) prohibits any person, unless permitted by regulations, to "…pursue, hunt, take, capture, kill, attempt to take, capture or kill, possess, offer for sale, sell, offer to purchase, purchase, deliver for shipment, ship, cause to be shipped, deliver for transportation, transport, cause to be transported, carry, or cause to be carried by any means whatsoever, receive for shipment, transportation or carriage, or export, at any time, or in any manner, any migratory bird, included in the terms of this Convention … for the protection of migratory birds ... or any part, nest, or egg of any such bird." (16 United States Code (USC) 703).

Section 3503 of the State of Calfiornia Fish and Game Code states that it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by this code or any regulation made pursuant thereto. Section 3503.5 provides protection for all birds of prey, including their eggs and nests. Take or possession of any migratory non-game bird as designated in the MBTA is prohibited by Section 3513 of the Fish and Game Code.

Protected Tree and Shrub Relocation and Preservation Ordinance

Section 46.00 of the City's Municipal Code and Ordinance Number 186,873 (City of Los Angeles 2021) define 'protected tree or shrub' to include the Southern California indigenous tree and shrub species listed below which measure four inches or more in cumulative diameter, four and one-half feet above ground level. Oak tree including valley oak (*Quercus lobata*) and California live oak (*Quercus agrifolia*), or any other tree of the oak genus indigenous to California but excluding the scrub oak (*Quercus berberidifolia*).

- Southern California black walnut (*Juglans californica*)
- Western (California) sycamore (*Platanus racemosa*)
- California bay (*Umbellularia californica*)
- Mexican elderberry (*Sambucus mexicana*) [also called blue elderberry, *Sambucus nigra* ssp. *caerulea*]
- Toyon (*Heteromeles arbutifolia*)

A permit is required from the Board of Public Works (or designee) to relocate or remove any protected tree or shrub. Mitigation requirements are replacement within the same property boundaries at a minimum ratio of 4 to 1. Protected trees shall only be mitigated with trees (not shrubs) from the above list; protected shrubs shall be mitigated only by shrubs (not trees) from this list. Replacement trees shall be at least 15-gallon, measure 1 inch or great diameter at 1 foot above the base, and be no less than 7 feet in height, measured from the base.

IMPACT ASSESSMENT

Potential adverse impacts to biological resources are limited to short-term construction impacts, such as noise, dust and increased human activity. Active nesting birds could be affected during construction. Although no trees are proposed for removal, active nests adjacent to construction could be disturbed.

The arborist report under preparation will confirm the absence of protected trees or shrubs.

RECOMMENDATIONS

Nesting Bird Protection

Potentially suitable nesting habitat is present on the Project Site in the mature trees and shrubs. If activities associated with construction, or grading are planned during the bird nesting/breeding season (generally 15 January through 31 August), it is recommended that a qualified biologist conduct surveys for active nests in accordance with the following procedures:

1. A qualified biologist shall conduct weekly nesting bird surveys within the Project Site and adjacent properties commencing no more than 3 days prior to the initiation of any ground-disturbing activities including grubbing, site clearance, movement of equipment and/or vehicles onto Project Site and/or construction work.

2. If an active nest of a protected native bird is found, the Applicant shall delay all project-related work as described in item #1 above until August 31.

3. Alternatively, the qualified biologist could continue weekly surveys to monitor nest(s) activity until the nest is vacated, juveniles have fledged, and there is no evidence of a second nesting attempt.

    a) The biologist shall establish a protective buffer zone around the nest(s) to be marked in the field with flagging, stakes and/or temporary exclusionary fencing (to be installed by the applicant at the direction of the biologist). The size of the buffer shall be determined by the biologist based on the species of nesting bird and stage of nesting (25-50 feet for songbirds; 100 feet for raptors).

    b) Construction personnel shall be instructed to avoid the buffer zone, the reasons for the buffer zone, and laws protecting active nesting.

    c) The biologist shall provide the Applicant with a technical memorandum describing the methods and results of these protective, to be submitted to the City of Los Angeles.



Figure 1. Vicinity Map.

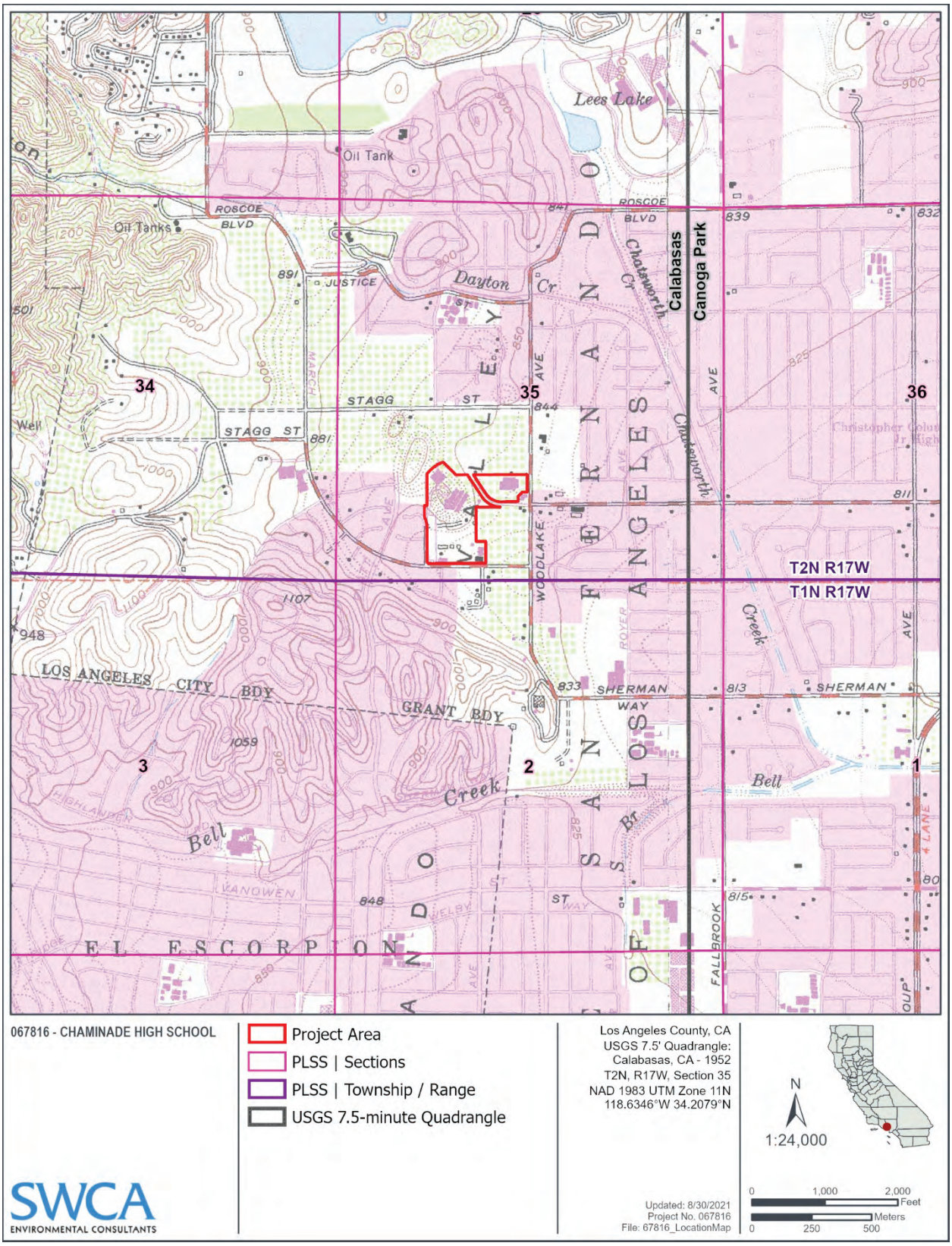


Figure 2. Topographic Location.



Figure 3. Aerial Map.



Figure 4. Project site.

PHASE I HISTORIC ASSESSMENT

Teresa Grimes | Historic Preservation
Teresa.Grimes@icloud.com
323-868-2391

Date: September 6, 2023

For: Chris Landon
Chaminade College Preparatory
7500 Chaminade Avenue
West Hills, CA 91304

Subject: Chaminade College Preparatory, High School

INTRODUCTION

This Phase I Historic Assessment was prepared in response to your request for information regarding a proposed development project (Project) in the City of Los Angeles. The Project involves updating the existing Main Campus of Chaminade College Preparatory and expanding to a new North Campus (see **Figure 1**). The Main Campus is located at 7500 Chaminade Avenue, 23241 Cohasset Street, and 23260 Saticoy Street. The North Campus is located at 23217-55 Saticoy Street and 7619-29 Woodlake Avenue. The proposed Project on both sites would involve the demolition of buildings over 45 years of age (all buildings on the North Campus and select structures on the Main Campus) and the construction of new buildings and facilities. I conducted research to determine if the Project has the potential to impact historical resources defined by the California Environmental Quality Act (CEQA). My qualifications as a historic preservation professional are included in **Appendix A.**

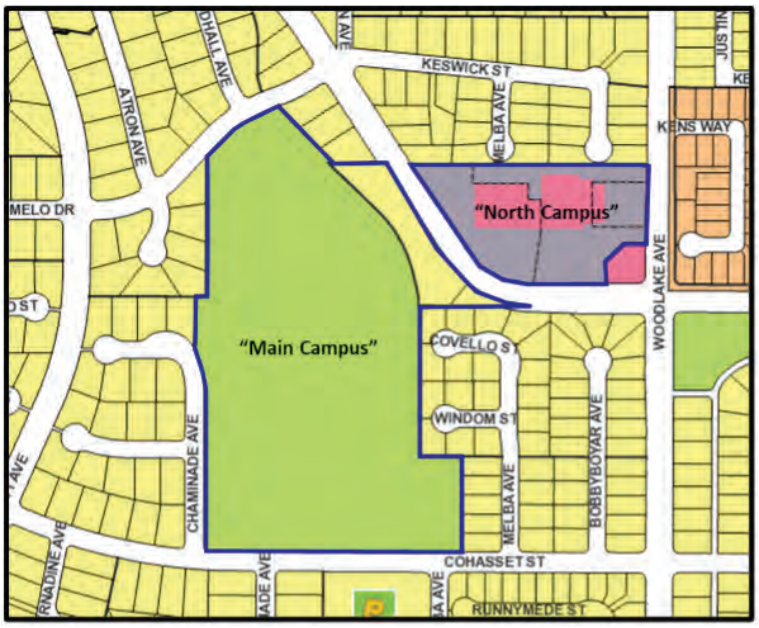


Figure 1: Project Site, Main Campus and North Campus

HISTORICAL RESOURCES UNDER CEQA

CEQA defines a historical resource as a property listed in the California Register of Historical Resources (California Register) or determined to be eligible for listing in the California Register by the State Historical Resource Commission. A property designated under a local preservation ordinance or identified as eligible in a historic resource survey is presumed to be a historical resource unless a preponderance of evidence demonstrates that the property is not architecturally, historically, or culturally significant.[1] The lead agency has the discretion to treat a property as a historical resource if it meets statutory requirements and substantial evidence supports the conclusion. Thus, there are three categories of historical resources:

- *Mandatory historical resources* are properties listed or determined to be eligible for listing in the California Register by the State Historical Resource Commission.[2] The California Register automatically includes properties listed and formally determined to be eligible for listing in the National Register of Historic Places (National Register) as well as some California State Landmarks and Points of Historical Interest.

- *Presumptive historical resources* are properties included in a local register of historical resources as defined by subdivision (k) of Section 5020.1 of the Public Resources.[3] The Los Angeles Cultural Heritage Ordinance and the Historic Preservation Overlay Zone Ordinance meet this definition. Therefore, properties designated Los Angeles Historic Cultural Monuments (HCMs) and areas designated as Historic Preservation Overlay Zones (HPOZs) are presumed to be historical resources by the City of Los Angeles. However, properties identified as significant by SurveyLA are not presumptive historical resources, as SurveyLA does not meet the criteria set forth in subdivision (g) of Section 5024.1 of the Public Resources Code. [4] Any presumptive historical resource may be subject to a finding that a preponderance of the evidence demonstrates that the property is not significant.

- *Discretionary historical resources* are properties determined to be eligible for listing in the California Register by the lead agency. The determination must be supported by evidence in light of the whole record.[5] The City of Los Angeles considers properties identified as significant by SurveyLA to be discretionary historical resources unless a Historical Resource Assessment Report demonstrates otherwise.

PREVIOUS DESIGNATIONS AND EVALUATIONS

The following sources were consulted to determine if the Project Site (Main and North Campuses) or immediate surroundings include properties currently designated under national, state, or local landmark or historic district programs or identified as significant in a historic resource survey or study. The immediate surroundings were defined as adjacent parcels. Properties may include buildings, structures, sites, objects, and districts.

1. The Built Environment Resources Directory (BERD) was reviewed to determine if any properties on the Project Site or adjacent parcels are listed or determined to be eligible for listing in the National Register, listed or determined to be eligible for listing in the California Register, a California Registered Historical Landmark, a Point of Historical Interest, or evaluated in a historic resource survey or other planning activities.

    a. This research revealed no such properties located on the Project Site or adjacent parcels.

2. The Los Angeles Historic Resources Inventory website, HistoricPlacesLA.org, was reviewed to determine if properties located on the Project Site or adjacent parcels are designated an HCM or located within a designated HPOZ.

    a. This research revealed the properties on the Project Site and adjacent parcels are not designated an HCM or located within a designated HPOZ.

3. The findings of SurveyLA, the citywide historic resource survey of Los Angeles, are also included in HistoricPlacesLA.org as well as individual survey reports for each Community Plan Area (CPA). The Project Site is located within the Canoga Park-Winnetka-Woodland Hills-West Hills CPA.

    a. This research revealed the properties on the Project Site and adjacent parcels were not identified by SurveyLA.

Therefore, the properties comprising the Project Site are not mandatory or presumptive historical resources as defined by CEQA and interpreted by the City of Los Angeles. Furthermore, there are no mandatory or presumptive historical resources immediately surrounding the Project Site. The properties that comprise the Project Site, referred to as the Main Campus and North Campus, are discussed in greater detail below.

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[1] Public Resources Code § 5024.1 and Title 14 California Code of Regulations § 4850 & § 15064.5 (a) (2).

[2] Title 14 California Code of Regulations § 15064.5 (a) (1).

[3] A local register of historical resources is defined as a list of properties officially designated or recognized as historically significant by a local government pursuant to a local ordinance or resolution.

[4] A resource identified as significant in a historical resource survey may be listed in the California Register if the survey meets all of the following criteria:

1. The survey has been or will be included in the State Historic Resources Inventory.
2. The survey and the survey documentation were prepared in accordance with office procedures and requirements.
3. The properties were evaluated and determined by the office (SHOP) to have a significance rating of Category 1 to 5 on DPR Form 523.
4. If the survey is five or more years old at the time of its nomination for inclusion in the California Register, the survey is updated to identify historical resources which have become eligible or ineligible due to changed circumstances or further documentation and those which have been demolished or altered in a manner that substantially diminishes the integrity of the resource.

[5] Title 14 California Code of Regulations § 15064.5 (a) (3) (4).

MAIN CAMPUS

Construction History - The Main Campus includes Assessor Parcel Number 2027-005-009 and 002. The Chaminade High School for Boys was founded by the Society of Mary (Marianists) in Cheviot Hills in the fall of 1952. In 1961, the Marianists relocated the school to the existing Main Campus in West Hills. An article in *The Tidings* includes an illustration suggesting that there was a master plan for the campus that included numerous buildings and structures with folded plate roofs that were never constructed (see **Figure 2**).[6] The original buildings on the Main Campus were designed by architects Barker and Ott and included an administration building, a library, a classroom building, a lab building, and a multipurpose building. The builder was Fred E. Potts.[7] The faculty residence was repurposed from an existing single-family house and the student residence was a temporary building. These buildings that once stood in the southwestern portion of the campus were demolished at an unknown date but are now occupied by new buildings discussed below.

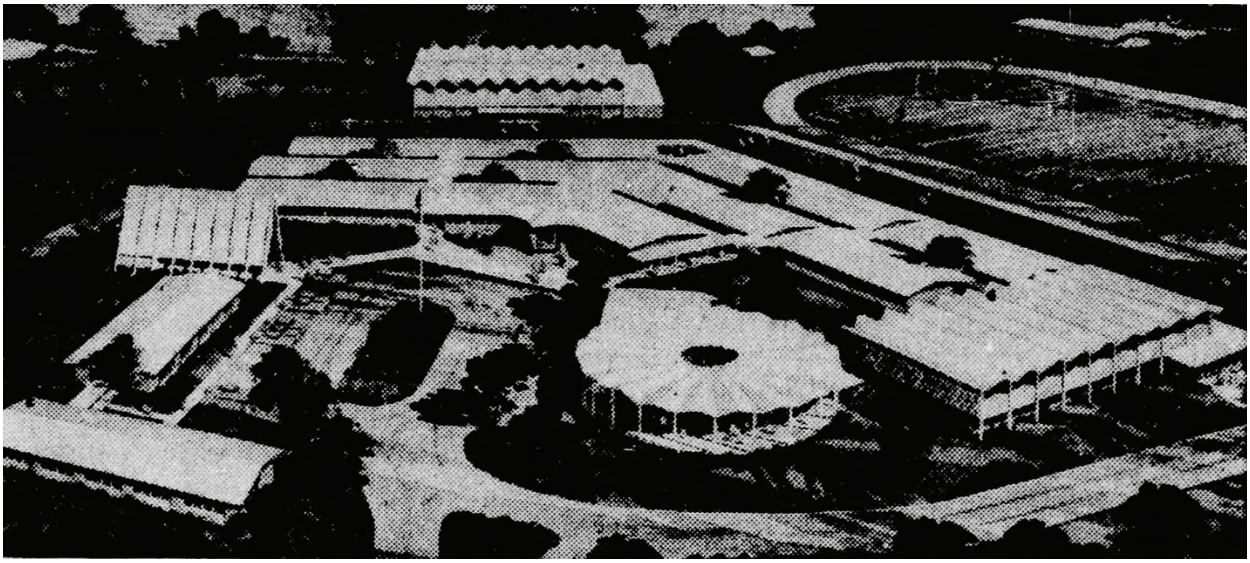


Figure 2: 1960 Campus Plan

The original buildings still standing are located in the approximate center of the Main Campus and are arranged in three rows with a northwest orientation (see current map of campus in **Appendix B**). The buildings are all one-story in height, sheathed in stucco, and covered by low-pitched gable roofs. No building permits for their construction were found at the Los Angeles Department of Building and Safety.

In 1964, the school broke ground on the construction of a cafetorium that was later named the Bob Hope Student Center.[8] It was also designed by architects Barker and Ott and the builder

[6] "New Campus Ready For Chaminade Prep," *The Tidings*, August 25, 1961.
[7] "Chaminade Groundbreaking Slated Sunday," *Van Nuys News and Valley Green Sheet*, January 20, 1961.
[8] "Ceremony Set at Chaminade for Building," *Valley News*, October 16, 1964.

was the Ray Wilson Company.[9] The building is situated in the northwestern corner of the Main Campus and is two stories in height and rectangular in plan.

Most of the buildings and structures on the Main Campus are less that 50 years of age and include: a telescope house (later converted into the Fine Arts Building) constructed in 1975;[10] a shower and locker room building constructed in 1975;[11] another classroom building constructed near the original buildings in 1978, filling a gap in the plan;[12] the Uribe Sports Center constructed in 1981;[13] bleacher seating constructed in 1988;[14] Marian Hall, a classroom building, constructed 1992;[15] Mundy's, a merchandise sales and storage building, constructed in 1997;[16] the Condon Family Center for Science and Technology constructed in 2005; and the Tutor Family Center for Performing Arts constructed in 2012.[17] See **Appendix E** for selected building permits.

Los Angeles Citywide Historic Context Statement - The significance of a property must be evaluated within its historic context(s). Historic properties may include buildings, structures, objects, sites, and districts. Historic contexts are those patterns or trends in history by which a specific property is understood. The *Los Angeles Citywide Historic Context Statement* (*LACHCS*) was used to identify the relevant contexts for judging the significance of the Main Campus. The *LACHCS* is organized into nine broad contexts that cover the period from 1850 to 1980 and are specific to Los Angeles. The most relevant context for the evaluation of the Main Campus is Public and Private Institutional Development. The property's potential to meet the eligibility standards for listing under federal, state, and local landmark and historic district programs for the associated theme and subthemes within this context is discussed below.

Parochial school campuses may be eligible as districts in the Public and Private Institutional Development Context, in the Education Theme, and in the Educational Development and Campus Planning Subthemes. A narrative for these two subthemes has not been developed yet. According to the Archdiocese of Los Angeles Administrative Handbook, the Catholic school system in Southern California was developed by Bishop Thomas J. Conaty (1847-1915); originating with 19 parochial schools and five academies in 1903 with a total enrollment of 2,895.[18] Founded in 1952, Chaminade College Preparatory does not represent an important aspect of educational development in Los Angeles because it was not among the earliest high schools established. Additionally, it is not significant for an association with West Hills. It was originally located in Cheviot Hills and only moved to West Hills for more space. Furthermore,

[9] Building Permit No. 1964LA76791 and Certificate of Occupancy November 21, 1968.
[10] Building Permit No. 1975VN20967.
[11] Building Permit Nos. VN20174 and VN25118 and Certificate of Occupancy December 5, 1975.
[12] Building Permit No. 1978LA62661.
[13] "Chaminade Prep to Mark Gym Opening," *Los Angeles Times*, April 30, 1981.
[14] Building Permit No. 1988LA97526.
[15] Building Permit No. 1992HO17862.
[16] Building Permit No. 97010-20000-01899.
[17] Building Permit No. 10010-20000-00127.
[18] "Overview," Archdiocese of Los Angeles Administrative Handbook, accessed August 2, 2023, https://handbook.la-archdiocese.org/Pages/Chapter%201.aspx.

the campus does not retain the essential physical features from the period of significance, which would be the 1960s when the school moved to West Hills. Most of the buildings and structures were constructed over the last 50 years. Thus, the campus does not convey a visual sense of an historic environment. For the reasons outlined above, the Main Campus does not meet the eligibility standards for the Educational Development Subtheme.

Likewise, the Main Campus does not meet the eligibility standards for the Campus Planning Subtheme. As previously stated, there appears to have been a master plan for the Main Campus at one time. However, after the first buildings were constructed in 1961 the master plan appears to have been abandoned. Henceforth, buildings and structures were constructed as needed and as funds were available. Therefore, the Main Campus does not possess a significant concentration of buildings and structures united historically or aesthetically by a master plan.

Additionally, the individual buildings were not designed in prominent architectural styles of the period and are not important examples of the work of master architects. Barker and Ott was a partnership between Merl Lee Barker (1888-1970) and G. Lawrence Ott (1895-1975). The partnership began in the 1930s and the Catholic church was a primary client. Other examples of the firm's work include the Mount Carmel High School (1934-35, demolished) and St. Charles Borromeo Church (1937-38); Congregational Church of the Messiah (1953); St. Bernadette Roman Catholic Church (1961), and St. John Baptist de la Salle Church (1969). Barker and Ott may have designed a few noteworthy buildings, but no information was found that they could be considered master architects, which is defined by the National Register as a figure of generally recognized greatness in the field and by the Los Angeles Cultural Heritage Ordinance as a person whose individual genius influenced his or her age.

NORTH CAMPUS

Construction History - The North Campus includes three Assessor Parcel Numbers: 2027-005-005, 006, and 007. It is occupied by the West Hills Shopping Center, which includes a main building that was constructed in stages between 1962 and 2004 and surface parking lots (see **Figure 3**). The building is one story in height and is mostly covered by a flat roof surrounded by raised parapets.

According to the Los Angeles County Office of the Assessor, the original portion of the building was constructed in 1962 on APN 2027-005-006, the approximate center of the property. It is one story in height with a square shape. No building permit for the construction was found at the Los Angeles Department of Building and Safety. As early as 1965, the building was occupied by an Alpha Beta Acme Market.[19] The following year, 1963, a 20-foot by 70-foot addition was constructed on the east side of the building.[20] The owner was Walter H. Leimert Jr., the scion of the real estate family that developed Leimert Park, among other neighborhoods.

[19] 1965 City Directory.
[20] Building Permit No. 1963VN27354 and Certificate of Occupancy July 30, 1964.



Figure 3: West Hills Shopping Center Construction Stages

The architect and engineer on the building permit is listed as none and the builder is listed as the owner. The 1965 aerial photograph (see **Appendix C**) indicates that another addition was constructed on the west side of the building by this time, although the Los Angeles Department of Building and Safety has no record of the construction. However, a permit was issued in 1965 to convert the interior into a bakery. [21] In 1989 the building nearly doubled in size with the construction of a 134-foot-by 157-foot addition on the west.[22] The owner was the Walter Leimert Company, the architect was T.W. Layman, the engineer was Marv Hornstein, and the builder was the owner. In 2004, another addition was constructed.[23] This time at the rear (north) of the 1989 portion of the building. The owner was Leimert Saticoy LP, the architect was Michele Mcdonough, the engineer was Lizandro Mercado, and the builder was the owner. Other alterations to the building documented by the permit record include various tenant improvements, sign changes, and improvements to electrical and mechanical systems. See **Appendix E** for selected building permits.

Los Angeles Citywide Historic Context Statement – The most relevant context from the *LACHCS* for the evaluation of the North Campus is Commercial Development. The property's potential to meet the eligibility standards for the associated theme and subtheme within this context is discussed below.

Shopping centers may be eligible in the Commercial Development Context in the Neighborhood Commercial Development Theme and in the Post WWII Neighborhood Shopping Centers

[21] Building Permit No. 1965VN70253.
[22] Building Permit Nos. 1988VN44022, 1989VN62385, and 1989VN2146 and Certificate of Occupancy November 20, 1989.
[23] Building Permit No. 03014-10000-04774.

Subtheme. The property, however, does not meet the eligibility standards for this subtheme because it was not originally designed as a shopping center. It was designed as a market and did not evolve into a true shopping center until long after the period of significance (1936-1965) for the subtheme. The building is set back from the street and oriented toward the surface parking lot, but that is true of most commercial buildings from the period.

For most of its history, the property was owned by the Walter H. Leimert Company. While the company played a significant role in the residential development, and to a lesser extent the commercial development, of Los Angeles, the property is not significant for this association. Mere association is not in and of itself to qualify, the association must be important. The property appears to be one of many developed and owned by the company since its founding in Oakland in 1902. In 1926, Leimert moved the company to Southern California and developed Bellhurst Park in Glendale. The company is best known for the development of Leimert Park in 1928 and would go on to develop Beverlywood, Cheviot Knolls, and Rancho Malibu among other subdivisions. The company was prolific, and the building is not an important example of their work.

Additionally, the property does not meet the eligibility standards for the Markets Subtheme in the Neighborhood Commercial Development Theme. The original portion of the building was constructed as a market during the period of significance (1910-1975) for the subtheme and includes a surface parking lot, but it does not exhibit quality of design through distinctive features that would make it a good example of a type, period, or method of construction. The name of the original architect, if any, is unknown.

The Alpha Beta Acme Market may have been the original tenant; however, the building is not significant for an important association with this company. Alpha Beta Food Markets incorporated in 1929, but the first store opened in Pomona in 1917. In 1961, the company merged with American Stores, operators of Acme Markets on the East Coast, and assumed the name Alpha Beta Acme Markets.[24] As the building does not appear to have been constructed by the company, it is not an example of the store design from the 1960s. When Alpha Beta Acme closed at this location is unclear. The name does not appear at this address in available City Directories after 1965. The demise of the Alpha Beta Acme name began with the 1988 merger of American Stores with Lucky Stores. It has been occupied by West Hills Market, later called Fields Market, since the early 2000s.

The Commercial Merchants, Leaders, and Builders Theme in the Commercial Development Context pertains to people who played a significant role in the commercial history of Los Angeles. Several steps are involved in determining whether a property is significant under this theme. First, the person must be significant within the context commercial development. Second, the property must be associated with the person's productive life. Finally, the property

[24] "Alpha-Beta," Grocerteria.com, accessed August 3, 2023, https://www.groceteria.com/store/regional-chains/alphabeta/#:~:text=The%20company%20went%20public%20in,%2DLo%2C%20beginning%20in%201960.&text=In%201961%2C%20Alpha%20Beta%20merged,%E2%80%9CAlpha%20Beta%20Acme%20Markets%E2%80%9D.

must be compared with other associated properties to identify the best representation of the person's historic contributions. Walter H. Leimert Jr. served as president of the Walter H. Leimert Company from 1960 until his death in 2004.[25] Initially with his father, who died in 1970, and then on his own, Leimert developed Beverly Highlands in the Hollywood Hills, Saint Hubert Wood and Sierra Park in Orange County, and Cambria Pines near Hearst Castle. Leimert Jr. may be significant in the context of residential development but not commercial development.

CONCLUSIONS

The properties comprising the Project Site are not historical resources as defined by CEQA. None of the properties are currently designated under national, state, or local landmark or historic district programs. Additionally, none of the properties have been previously evaluated as potential historical resources, individually or collectively, in a historic resource survey including SurveyLA. Research conducted for this memorandum indicates that the properties have no potential to meet the relevant eligibility standards in the LACHCS for listing under federal, state, and local landmark or historic district programs due to a lack of significance and/or integrity. No further investigation is recommended, and the preparation of an Historical Resource Assessment Report is not warranted.

[25] "Walter Leimert Jr., 82, Southland Developer Dies," *Los Angeles Times*, January 30, 2004.

Appendix A – Qualifications

TERESA GRIMES | Historic Preservation

Teresa.Grimes@icloud.com
323-868-2391

Teresa Grimes has 30 years of experience in the field of historic preservation. She is widely recognized as an expert in the identification and evaluation of historical resources having successfully prepared dozens of landmark and historic district applications for a wide variety of property types. Teresa graduated from the University of California with a Master of Art degree in Architecture and has worked in the private, public, and non-profit sectors. Teresa has extensive experience in the preparation of environmental compliance documents in accordance with the California Environmental Quality Act including the identification of historical resources, analysis of direct, indirect, and cumulative impacts, and development of mitigation measures. Her many projects throughout Southern California include the Art Center College of Design Master Plan, Baldwin Hills Crenshaw Plaza, Cinerama Dome Entertainment Center, City of Hope Master Plan, Claremont Graduate University Master Plan, Claremont McKenna College Master Plan, John Anson Ford Theatres, Oakwood School Master Plan, Los Angeles County Museum of Art, Times Mirror Square, Sunset Las Palmas Studios, and Sunset Bronson Studios.

Educational Background

- M.A., Architecture, University of California, Los Angeles, 1992
- B.A., Political Science, University of California, Los Angeles, 1986

Qualifications

- Meets the Secretary of the Interior's Professional Qualifications Standards for history and architectural history pursuant to the Code of Federal Regulations, 36 CFR Part 61, Appendix A.

Professional Activities

- Pasadena Heritage Board Member, 2008-2012
- Highland Park Heritage Trust, Board Member, 1996-1998
- West Hollywood Cultural Heritage Advisory Board, 1990-1994

Professional Experience

- Teresa Grimes | Historic Preservation, Principal, 2020 - Present
- GPA Consulting, Principal Architectural Historian, 2009-2020
- Christopher A. Joseph & Associates, Senior Architectural Historian, 2006-2009
- Teresa Grimes | Historic Preservation, Principal, 1999-2005, 1993-1994, 1991-1992
- Historic Resources Group, Architectural Historian, 1994-1998
- Getty Conservation Institute, Research Associate, 1992-1993
- Los Angeles Conservancy, Preservation Officer, 1988-1991

Appendix B – Current Main Campus Map



Appendix C – Aerial Photograph, UCSB, November 27, 1965



Appendix D – Newspaper Articles



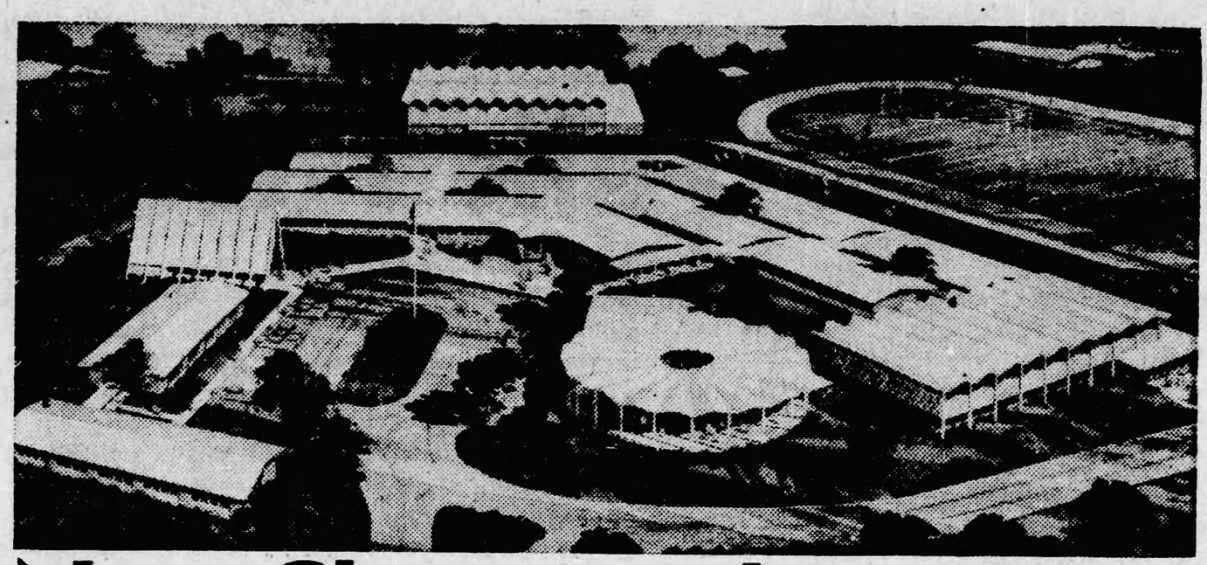
750 no matter what the buy-

Chaminade High School Site Sold

Charles Dunn Co., realtors, report the sale of Chaminade High School property at 2500 S Beverly Drive, to the Jewish Home for the Aged.

Chaminade, conducted by the Brothers of Mary, will continue to occupy the property for the remainder of the school year and next fall will open a new school on a 20-acre parcel at 23285 Cohasset St., Canoga Park. The Canoga Park property was purchased from James and Clarence Pierce, whose family has owned the property for 40 years. Coldwell, Banker & Co. represented the Jewish Home for the Aged and Pierce, Charles Dunn Co. represented Chaminade.

Los Angeles Mirror, November 25, 1960



New Chaminade to Rise

Groundbreaking ceremonies for Chaminade Preparatory, successor to Chaminade High School, now in Cheviot Hills, will take place at 2:30 p.m. this Sunday on the site, Woodlake Ave. and Cohasset St., Canoga Park.

Construction of three long buildings at center of above drawing by Barker & Ott, architects, will begin immediately. These will include classrooms, administration, library, laboratories and all-purpose room.

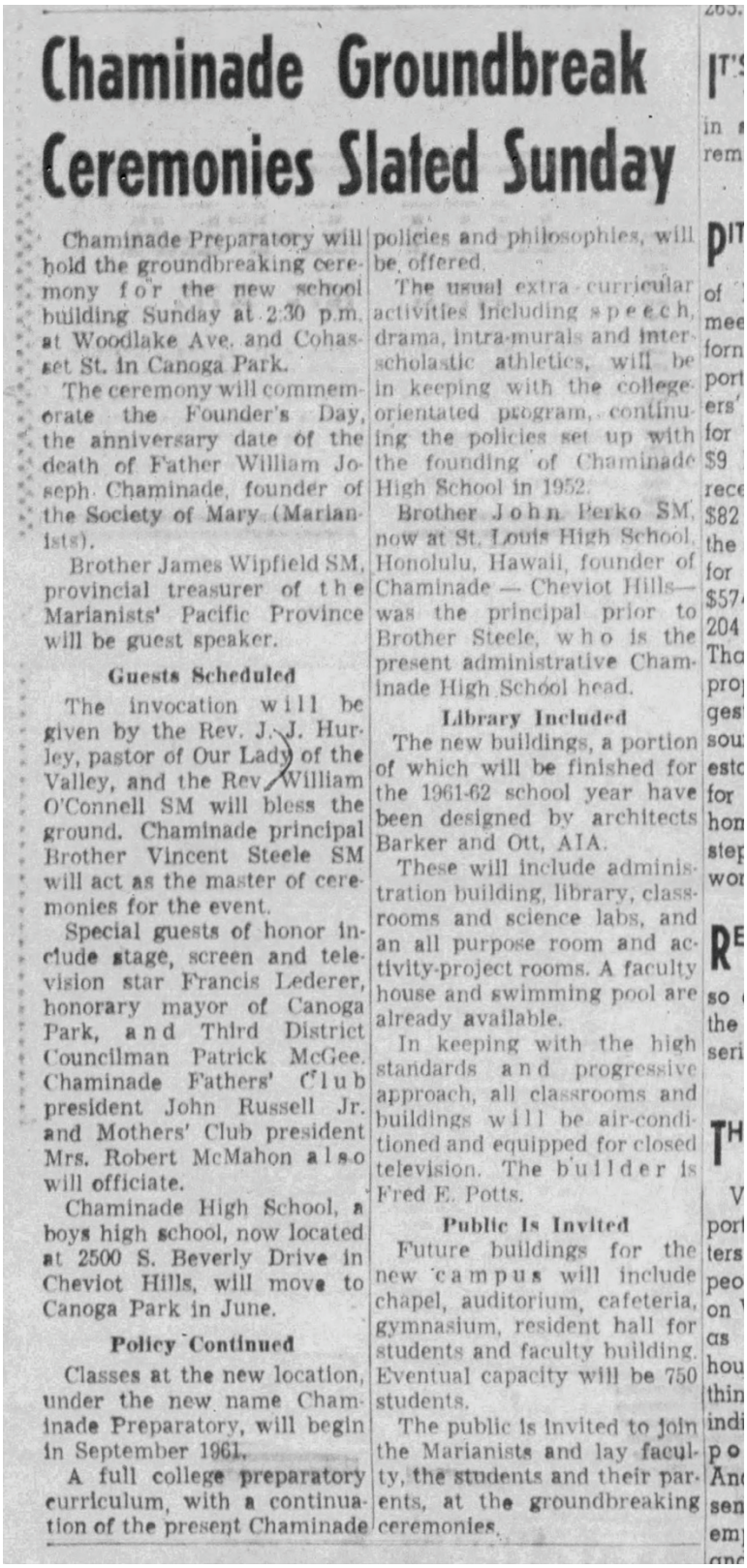
Future buildings will include, from left, resident halls, chapel, gymnasium, circular cafeteria and auditorium. Faculty house, swimming pool, right background, are already on the property.

Like present Chaminade High, founded in 1952, the new school will be conducted by the Society of Mary (Marianists). The groundbreaking will coincide with Founder's Day, anniversary of the death of Fr. William Joseph Chaminade, founder of the Marianists.

Brother James Wipfield, S.M., provincial treasurer, will be guest speaker, and Fr. William O'Connell, S.M., will bless the site. Brother Vincent Steele, S.M., Chaminade principal, will be master of ceremonies.

Classes at the new location are scheduled to begin in September 1961. Fred E. Potts will be the builder.

The Tidings, January 20, 1961



Chaminade Groundbreak Ceremonies Slated Sunday

Chaminade Preparatory will hold the groundbreaking ceremony for the new school building Sunday at 2:30 p.m. at Woodlake Ave. and Cohasset St. in Canoga Park.

The ceremony will commemorate the Founder's Day, the anniversary date of the death of Father William Joseph Chaminade, founder of the Society of Mary (Marianists).

Brother James Wipfield SM, provincial treasurer of the Marianists' Pacific Province will be guest speaker.

Guests Scheduled

The invocation will be given by the Rev. J. J. Hurley, pastor of Our Lady of the Valley, and the Rev. William O'Connell SM will bless the ground. Chaminade principal Brother Vincent Steele SM will act as the master of ceremonies for the event.

Special guests of honor include stage, screen and television star Francis Lederer, honorary mayor of Canoga Park, and Third District Councilman Patrick McGee. Chaminade Fathers' Club president John Russell Jr. and Mothers' Club president Mrs. Robert McMahon also will officiate.

Chaminade High School, a boys high school, now located at 2500 S. Beverly Drive in Cheviot Hills, will move to Canoga Park in June.

Policy Continued

Classes at the new location, under the new name Chaminade Preparatory, will begin in September 1961.

A full college preparatory curriculum, with a continuation of the present Chaminade policies and philosophies, will be offered.

The usual extra-curricular activities including speech, drama, intra-murals and interscholastic athletics, will be in keeping with the college orientated program, continuing the policies set up with the founding of Chaminade High School in 1952.

Brother John Perko SM, now at St. Louis High School, Honolulu, Hawaii, founder of Chaminade — Cheviot Hills — was the principal prior to Brother Steele, who is the present administrative Chaminade High School head.

Library Included

The new buildings, a portion of which will be finished for the 1961-62 school year have been designed by architects Barker and Ott, AIA.

These will include administration building, library, classrooms and science labs, and an all purpose room and activity-project rooms. A faculty house and swimming pool are already available.

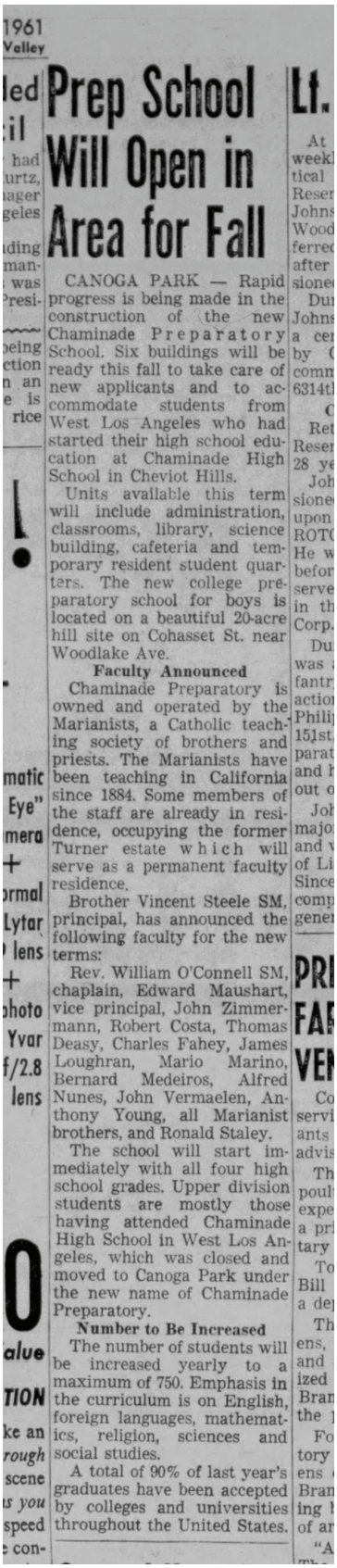
In keeping with the high standards and progressive approach, all classrooms and buildings will be air-conditioned and equipped for closed television. The builder is Fred E. Potts.

Public Is Invited

Future buildings for the new campus will include chapel, auditorium, cafeteria, gymnasium, resident hall for students and faculty building. Eventual capacity will be 750 students.

The public is invited to join the Marianists and lay faculty, the students and their parents, at the groundbreaking ceremonies.

The Van Nuys News and Valley Green Sheet, January 20, 1961



1961
Valley

Prep School Will Open in Area for Fall

CANOGA PARK — Rapid progress is being made in the construction of the new Chaminade Preparatory School. Six buildings will be ready this fall to take care of new applicants and to accommodate students from West Los Angeles who had started their high school education at Chaminade High School in Cheviot Hills.

Units available this term will include administration, classrooms, library, science building, cafeteria and temporary resident student quarters. The new college preparatory school for boys is located on a beautiful 20-acre hill site on Cohasset St. near Woodlake Ave.

Faculty Announced

Chaminade Preparatory is owned and operated by the Marianists, a Catholic teaching society of brothers and priests. The Marianists have been teaching in California since 1884. Some members of the staff are already in residence, occupying the former Turner estate which will serve as a permanent faculty residence.

Brother Vincent Steele SM, principal, has announced the following faculty for the new terms:

Rev. William O'Connell SM, chaplain, Edward Maushart, vice principal, John Zimmermann, Robert Costa, Thomas Deasy, Charles Fahey, James Loughran, Mario Marino, Bernard Medeiros, Alfred Nunes, John Vermaelen, Anthony Young, all Marianist brothers, and Ronald Staley.

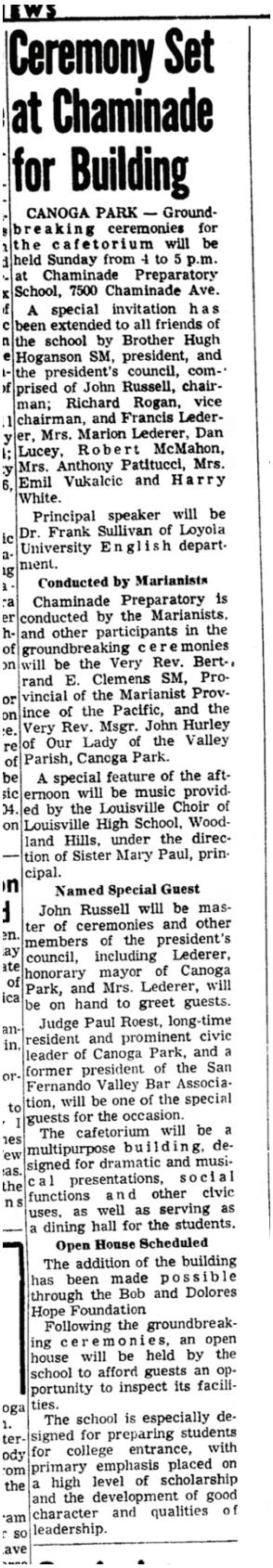
The school will start immediately with all four high school grades. Upper division students are mostly those having attended Chaminade High School in West Los Angeles, which was closed and moved to Canoga Park under the new name of Chaminade Preparatory.

Number to Be Increased

The number of students will be increased yearly to a maximum of 750. Emphasis in the curriculum is on English, foreign languages, mathematics, religion, sciences and social studies.

A total of 90% of last year's graduates have been accepted by colleges and universities throughout the United States.

The Van Nuys News and Valley Green Sheet, August 17, 1961



Ceremony Set at Chaminade for Building

CANOGA PARK — Groundbreaking ceremonies for the cafetorium will be held Sunday from 4 to 5 p.m. at Chaminade Preparatory School, 7500 Chaminade Ave.

A special invitation has been extended to all friends of the school by Brother Hugh Hoganson SM, president, and the president's council, comprised of John Russell, chairman; Richard Rogan, vice chairman, and Francis Lederer, Mrs. Marion Lederer, Dan Lucey, Robert McMahon, Mrs. Anthony Patitucci, Mrs. Emil Vukalcic and Harry White.

Principal speaker will be Dr. Frank Sullivan of Loyola University English department.

Conducted by Marianists

Chaminade Preparatory is conducted by the Marianists, and other participants in the groundbreaking ceremonies will be the Very Rev. Bertrand E. Clemens SM, Provincial of the Marianist Province of the Pacific, and the Very Rev. Msgr. John Hurley of Our Lady of the Valley Parish, Canoga Park.

A special feature of the afternoon will be music provided by the Louisville Choir of Louisville High School, Woodland Hills, under the direction of Sister Mary Paul, principal.

Named Special Guest

John Russell will be master of ceremonies and other members of the president's council, including Lederer, honorary mayor of Canoga Park, and Mrs. Lederer, will be on hand to greet guests.

Judge Paul Roest, long-time resident and prominent civic leader of Canoga Park, and a former president of the San Fernando Valley Bar Association, will be one of the special guests for the occasion.

The cafetorium will be a multipurpose building, designed for dramatic and musical presentations, social functions and other civic uses, as well as serving as a dining hall for the students.

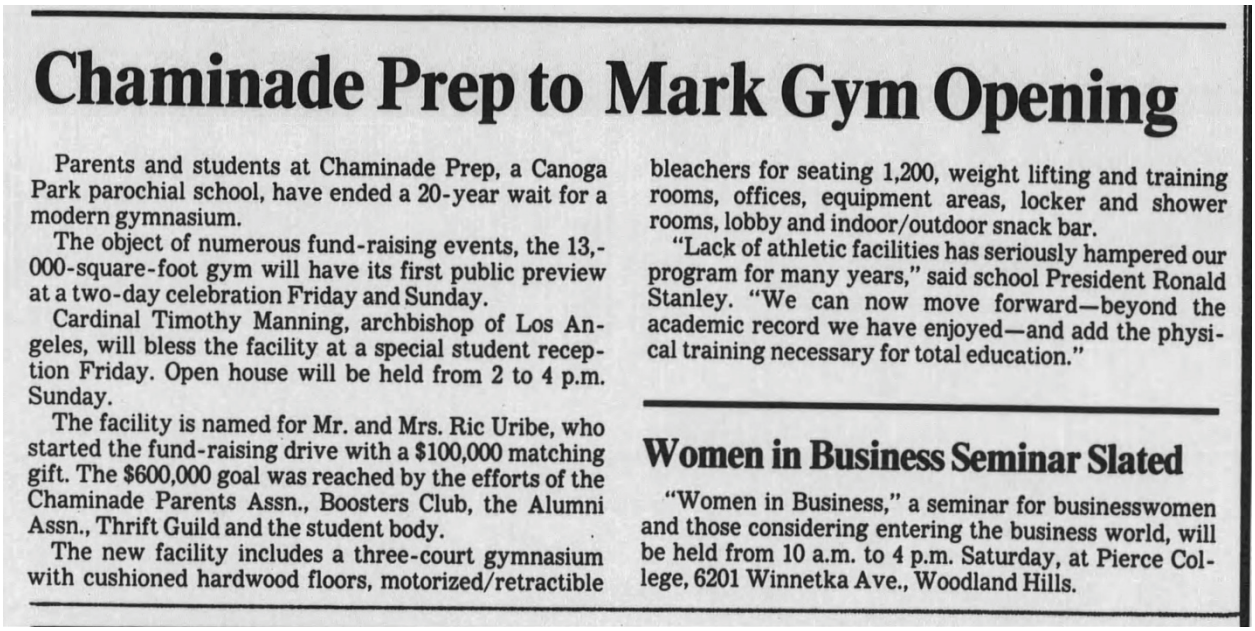
Open House Scheduled

The addition of the building has been made possible through the Bob and Dolores Hope Foundation

Following the groundbreaking ceremonies, an open house will be held by the school to afford guests an opportunity to inspect its facilities.

The school is especially designed for preparing students for college entrance, with primary emphasis placed on a high level of scholarship and the development of good character and qualities of leadership.

Valley News, October 16, 1964



Chaminade Prep to Mark Gym Opening

Parents and students at Chaminade Prep, a Canoga Park parochial school, have ended a 20-year wait for a modern gymnasium.

The object of numerous fund-raising events, the 13,-000-square-foot gym will have its first public preview at a two-day celebration Friday and Sunday.

Cardinal Timothy Manning, archbishop of Los Angeles, will bless the facility at a special student reception Friday. Open house will be held from 2 to 4 p.m. Sunday.

The facility is named for Mr. and Mrs. Ric Uribe, who started the fund-raising drive with a $100,000 matching gift. The $600,000 goal was reached by the efforts of the Chaminade Parents Assn., Boosters Club, the Alumni Assn., Thrift Guild and the student body.

The new facility includes a three-court gymnasium with cushioned hardwood floors, motorized/retractible bleachers for seating 1,200, weight lifting and training rooms, offices, equipment areas, locker and shower rooms, lobby and indoor/outdoor snack bar.

"Lack of athletic facilities has seriously hampered our program for many years," said school President Ronald Stanley. "We can now move forward—beyond the academic record we have enjoyed—and add the physical training necessary for total education."

Women in Business Seminar Slated

"Women in Business," a seminar for businesswomen and those considering entering the business world, will be held from 10 a.m. to 4 p.m. Saturday, at Pierce College, 6201 Winnetka Ave., Woodland Hills.

Los Angeles Times, April 30, 1981

Appendix E – Selected Building Permits

Appendix E – Selected Building Permits

APPLICATION TO CONSTRUCT NEW BUILDING AND FOR CERTIFICATE OF OCCUPANCY

B&S Form B-1

CITY OF LOS ANGELES — DEPT. OF BUILDING AND SAFETY

INSTRUCTIONS: 1. Applicant to Complete Numbered Items Only. 2. Plot Plan Required on Back of Original.

5-13-64

1. LEGAL DESCR.	LOT: 1	BLK.	TRACT: 26072	ADDRESS APPROVED: RJA
2. JOB ADDRESS: 7500 Chaminade Avenue				DIST. MAP: 7471
3. BETWEEN CROSS STREETS: Cohasset St. AND Term.				ZONE: A-1-1
4. PURPOSE OF BUILDING: Multi-purpose - Assembly & Dining				FIRE DIST.: 1
5. OWNER'S NAME: Chaminade Preparatory	PHONE: DI 78300			INSIDE KEY
6. OWNER'S ADDRESS: 7500 Chaminade Avenue	P. O. BOX	ZONE: Canoga Park		COR. LOT: 60/60 REV. COR.
7. CERT. ARCH.: Barker and Ott	STATE LICENSE NO.: 1647	PHONE: WE 38504		LOT SIZE: IRREG
8. LIC. ENGR.: S. B. Barnes	STATE LICENSE NO.: SE 1	PHONE: DU 22385		
9. CONTRACTOR: Ray Wilson Co.	STATE LICENSE NO.: 128800	PHONE: CH 56861		REAR ALLEY / SIDE ALLEY 1
10. CONTRACTOR'S ADDRESS: 4660 Colorado Blvd.	P. O. BOX	ZONE: 39		BLDG. LINE 1
11. SIZE OF NEW BLDG.: 100x140	STORIES: 2	HEIGHT: 2	NO. OF EXISTING BUILDINGS ON LOT AND USE: 5-shool & res.	BLDG. AREA: 14700 SQ FT
1 7500 Chaminade Avenue				DISTRICT OFFICE: VN

SEWER (Available) (Not Available) Guiza

12. MATERIAL: ☐ WOOD ☐ METAL ☐ CONC. BLOCK — EXT. WALLS: ☑ STUCCO ☐ BRICK ☑ CONCRETE
ROOF CONST.: ☑ WOOD ☑ STEEL ROOFING ☐ CONC. ☐ OTHER comp
SPRINKLERS REQ'D. SPECIFIED

13. VALUATION: TO INCLUDE ALL FIXED EQUIPMENT REQUIRED TO OPERATE AND USE PROPOSED BUILDING. $140,000.

Approval of driveway location must be obtained from the Department of Public Works before securing Building Permit.

I certify that in doing the work authorized hereby I will not employ any person in violation of the Labor Code of the State of California relating to workmen's compensation insurance, and I have read reverse side of application.

Signed John C. Alsmeier

This Form When Properly Validated is a Permit to Do the Work Described.

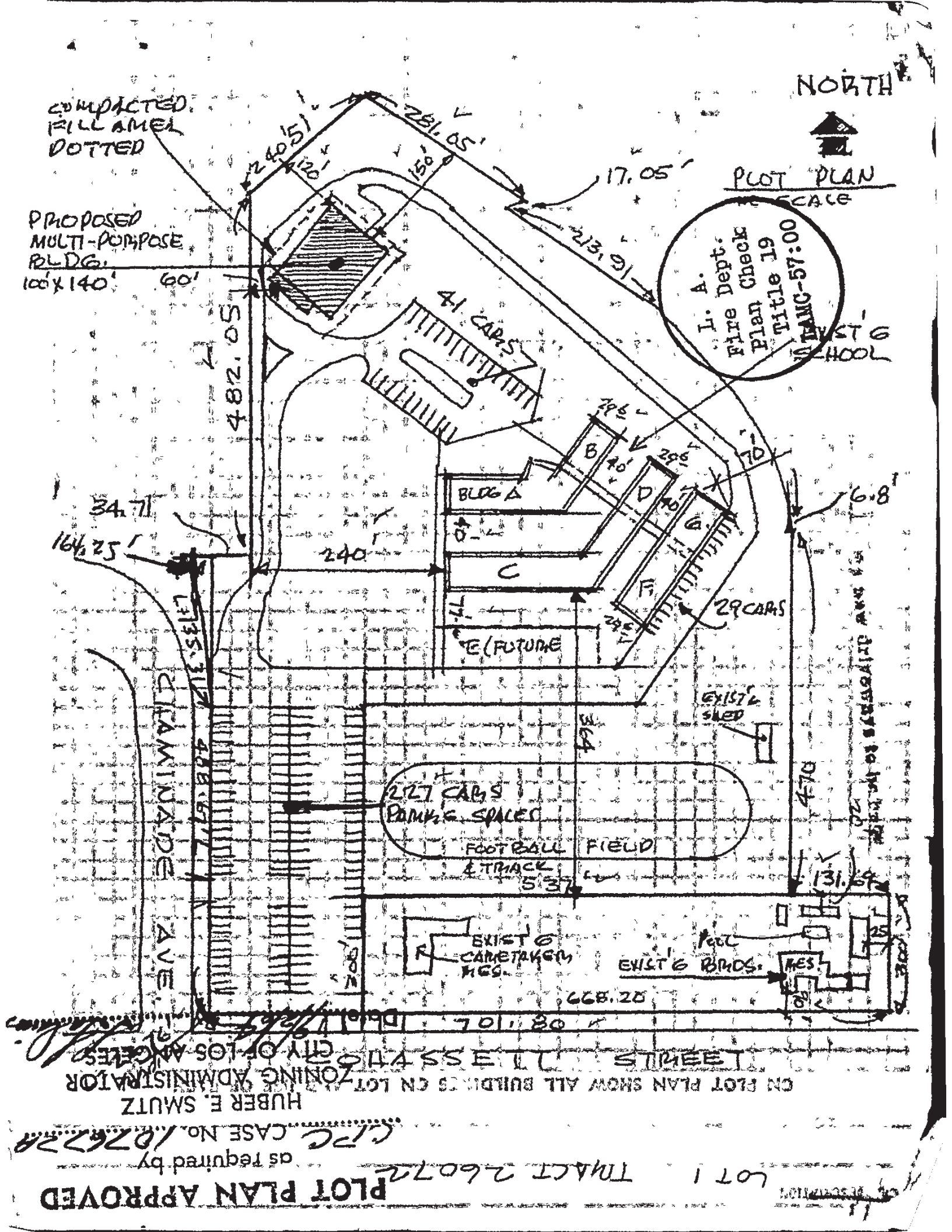
VALUATION APPROVED	Valencia
APPLICATION CHECKED	Healy
PLANS CHECKED	Valencia
CORRECTIONS VERIFIED	
PLANS APPROVED	
APPLICATION APPROVED	
INSPECTOR	
AFFIDAVITS	1
DWELL. UNITS	1
SPACES PARKING	228 Add.
GUEST ROOMS	1
FILE WITH	
CONT. INSP.	Lic. Fab. Weld.

CRITICAL SOIL

TYPE	GROUP	MAX. OCC.	P.C.	S.P.C.	G.P.I.	B.P.	O.S.	C/O
I-B	B-2	1475	194.35		15.00	299.00		

MAY-13-64 229765 • 76791 2X — 2 CK 194.35
SEP-22-64 470999 • 76791 2X — 1 CK 194.35
SEP-22-64 47100 • 76791 X — 1 CK 299.00

P.C. No. S-8219 GRADING YES CRIT. SOIL ____ CONS. ____



PLOT PLAN APPROVED

as required by

CPC CASE No. 10763-28

LOT 1 TRACT 26072

DEPT. OF BUILDING AND SAFETY

1 APPLICATION FOR INSPECTION **560006059** OF NEW BUILDING AND FOR CERTIFICATE OF OCCUPANCY

INSTRUCTIONS: 1. Applicant to Complete Numbered Items Only. 2. Plot Plan Required on Back of Original.

1. LEGAL DESCR.	LOT: por of lot 1	BLOCK:	TRACT: 25773	COUNCIL DISTRICT NO.: 3

See Attached (SHELL ONLY)

2. PURPOSE OF BUILDING: (16) Retail shopping center
3. JOB ADDRESS: 23233 Saticoy ST
4. BETWEEN CROSS STREETS: Woodlake av AND Keswick st
5. OWNER'S NAME: Walter Leimert Co PHONE: 213- 466-8593
6. OWNER'S ADDRESS: 606 N. Larchmont bl #302 CITY: L.A. ZIP: 90004
7. ENGINEER: Marv Hornstein BUS. LIC. NO. ACTIVE STATE LIC. NO. 875 PHONE: 818-708-1860
8. ARCHITECT OR DESIGNER: T.W. Layman BUS. LIC. NO. ACTIVE STATE LIC. NO. C-8720 PHONE: 818-709-[illegible] 1296
9. ARCHITECT OR ENGINEER'S ADDRESS: 19725 Sherman Way #300 CITY: Canoga Park ZIP: 91306
10. CONTRACTOR: N.C Owner BUS. LIC. NO. ACTIVE STATE LIC. NO. PHONE:
11. SIZE OF NEW BLDG. WIDTH 134' LENGTH 157'-10 STORIES 1 HEIGHT 20+ NO. OF EXISTING BUILDINGS ON LOT AND USE: 1- Retail
12. MATERIAL OF CONSTRUCTION: Plate WALLS conc.blk/stud ROOF comp FLOOR conc STREET GUIDE
13. JOB ADDRESS: 23233 Saticoy ST 23233-55
14. VALUATION TO INCLUDE ALL FIXED EQUIPMENT REQUIRED TO OPERATE AND USE PROPOSED BUILDING: ~~$ 615,000.00~~ 658,000.

PURPOSE OF BUILDING: Retail Stores				STORIES: 1	HEIGHT: 21'
TYPE: V-N	GROUP OCC.: B2	FLOOR AREA: B573 ft²	PLANS CHECKED: Nick Trotta		
DWELL. UNITS: —	MAX. OCC.: 49 any 1 Tenant- 452	TOTAL	APPLICATION APPROVED:		
GUEST ROOMS: —	PARKING REQ'D: 27/90	PARKING PROVIDED: STD. 255 COMP	INSPECTION ACTIVITY: CONST. 1		CONST.

P.C. 1518.26	E.P.I. 42.00	CONST. Lic Fab.	
S.P.C. 181.01	P.M. 39.98	Trusses, Shop + Field Welding	
B.P. 1999.14	E.I. 98.70	Claims for refund of fees paid on permits must be filed: 1. Within one year from date of payment of fee; or 2. Within one year from date of expiration of extension for building or grading permits granted by the Dept. of B. & S. SECTIONS 22.12 & 22.13 LAMC.	
I.F. -	O.S.S. 31.21		
mSD 3393.25	S.O.S.S. 75.33	SPRINKLERS	
DIST. OFFICE 04529	C/O		
P.C. NO.	E.M. 1447.60	ENERGY Eav.	

Unless a shorter period of time has been established by an official action, plan check approval expires one year after the fee is paid and this permit expires two years after the fee is paid or 180 days after the fee is paid if construction is not commenced.

CASHIER'S USE ONLY

C 31.01 USE
04813 [illegible] 03/17/88 185.47 CSTF
101.01 C-PC
1999.14 02-B
39.98 PLAN
98.70 ELEC
75.33 SMS
1447.60 FIRE
3393.25 SC-C
44022 0001
S2245 2 07/05/88 7235.01-CHIO

VN 44022

DIST. MAP	186-093
CENSUS TRACT	1344.01
ZONE	C-1VR-1
FIRE DIST.	II
LOT TYPE	INT.
LOT SIZE	irreg
ALLEY	
BLDG. LINE	
AFFIDAVITS	CPC 9934 CPC# 123,529 ZA 87-0653 5' ONLY (W)
P.C. NO.	YES 395
DISTRICT OFFICE	VN
SEISMIC STUDY ZONE	/
GRADING	Yes
FLOOD	/
IMPT. DED.	Yes
CONS.	/
ZONED BY	[illegible]/LIU
FILE WITH	
TYPIST	SM
INSPECTOR	

B4SB-1 (RL3/87)

DECLARATIONS AND CERTIFICATIONS

Notarized 6-7-88 by the Edward M. Lee

LICENSED CONTRACTORS DECLARATION

15. I hereby affirm that I am licensed under the provisions of Chapter 9 (commencing with Section 7000) of Division 3 of the Business and Professions Code, and my license is in full force and effect.

Date _____ Lic. Class _____ Lic. No. _____ Contractor's Signature _____

Contractor's Mailing Address _____

OWNER-BUILDER DECLARATION

16. I hereby affirm that I am exempt from the Contractor's License Law for the following reason (Sec. 7031.5, Business and Professions Code: Any city or county which requires a permit to construct, alter, improve, demolish, or repair any structure, prior to its issuance, also requires the applicant for such permit to file a signed statement that he is licensed pursuant to the provisions of the Contractor's License Law (Chapter 9 (commencing with Section 7000) of Division 3 of the Business and Professions Code) or that he is exempt therefrom and the basis for the alleged exemption. Any violation of Section 7031.5 by any applicant for a permit subjects the applicant to a civil penalty of not more than five hundred dollars ($500).):

☐ I, as owner of the property, or my employees with wages as their sole compensation, will do the work, and the structure is not intended or offered for sale (Sec. 7044, Business and Professions Code: The Contractor's License Law does not apply to an owner of property who builds or improves thereon, and who does such work himself or through his own employees, provided that such improvements are not intended or offered for sale. If, however, the building or improvement is sold within one year of completion, the owner-builder will have the burden of proving that he did not build or improve for the purpose of sale.).

☐ I, as owner of the property, am exclusively contracting with licensed contractors to construct the project (Sec. 7044, Business and Professions Code: The Contractor's License Law does not apply to an owner of property who builds or improves thereon, and who contracts for such projects with a contractor(s) licensed pursuant to the Contractor's License Law.).

☐ I am exempt under Sec. _____ B. & P.C. for the following reason: _____

Date 6/7/88 Owner's Signature _____

WORKERS' COMPENSATION DECLARATION

17. I hereby affirm that I have a certificate of consent to self-insure, or a certificate of Workers' Compensation Insurance, or a certified copy thereof (Sec. 3800, Lab. C.).

Insurance Company _____ Policy No. _____

☐ Certified copy is hereby furnished.

☐ Certified copy will be filed with the Los Angeles City Dept. of Building and Safety.

Date 6/7/88 Applicant's Signature _____

Applicant's Mailing Address 606 N LARCHMONT BL #302 L.A. CA. 90004

CERTIFICATE OF EXEMPTION FROM WORKERS' COMPENSATION INSURANCE

18. I certify that in the performance of the work for which this permit is issued, I shall not employ any person in any manner so as to become subject to the Workers' Compensation Laws of California.

Date 6/7/88 Applicant's Signature _____

NOTE TO APPLICANT: If after making this Certificate of Exemption, you should become subject to the Workers' Compensation provisions of the Labor Code you must forthwith comply with such provisions or this permit shall be deemed revoked.

CONSTRUCTION LENDING AGENCY

19. I hereby affirm that there is a construction lending agency for the performance of the work for which this permit is issued (Sec. 3691, Civ. C.).

Lender's Name _____

Lender's Address _____

20. I certify that I have read this application and state that the above information is correct. I agree to comply with all city and county ordinances and state laws relating to building construction, and hereby authorize representatives of this city to enter upon the above-mentioned property for inspection purposes.

I realize that the issuance of a permit based upon the information contained in this application for inspection, that it does not approve or authorize the work specified herein, that it does not authorize or permit any violation or failure to comply with any applicable law, that neither the city of Los Angeles nor any board, department, officer or employee thereof makes any warranty or shall be responsible for the performance or results of any work described herein or for the condition of the property or soil upon which such work is performed. (See Sec. 91.0107.1 LAMC)

Signed _____ Owner 6/7/88

(Owner or agent having property owner's consent) Position Date

CAT. 1 9 5 0 0 5 0 0 - 3 7 0

Bureau of Engineering	23233-35 Saticoy St	ADDRESS APPROVED	MCK 5 24 88
		DRIVEWAY	EXIST. 6-21-88
		HIGHWAY DEDICATION	REQUIRED / X COMPLETED 6-21-88
		FLOOD CLEARANCE	
SEWERS		X SEWERS AVAILABLE	BA 5-24-88
		NOT AVAILABLE	
		X SFC PAID	BA 5-24-88
		SFC DUE	
	SFC NOT APPLICABLE		
Grading	PRIVATE SEWAGE SYSTEM APPROVED		
Conservation	APPROVED FOR ISSUE ☐ NO FILE ☐ FILE CLOSED ☐		
Fire	APPROVED (TITLE 19) (L.A.M.C.-5700)		
Housing 6-609	HOUSING AUTHORITY APPROVAL		
Planning 68c	APPROVED UNDER CASE = WS 88-0188V		
Transportation	APPROVED FOR As per existing conditions		
Construction Tax	RECEIPT NO.	DWELLING UNITS	

School Den = 0.25 x 13573 = 3393.25

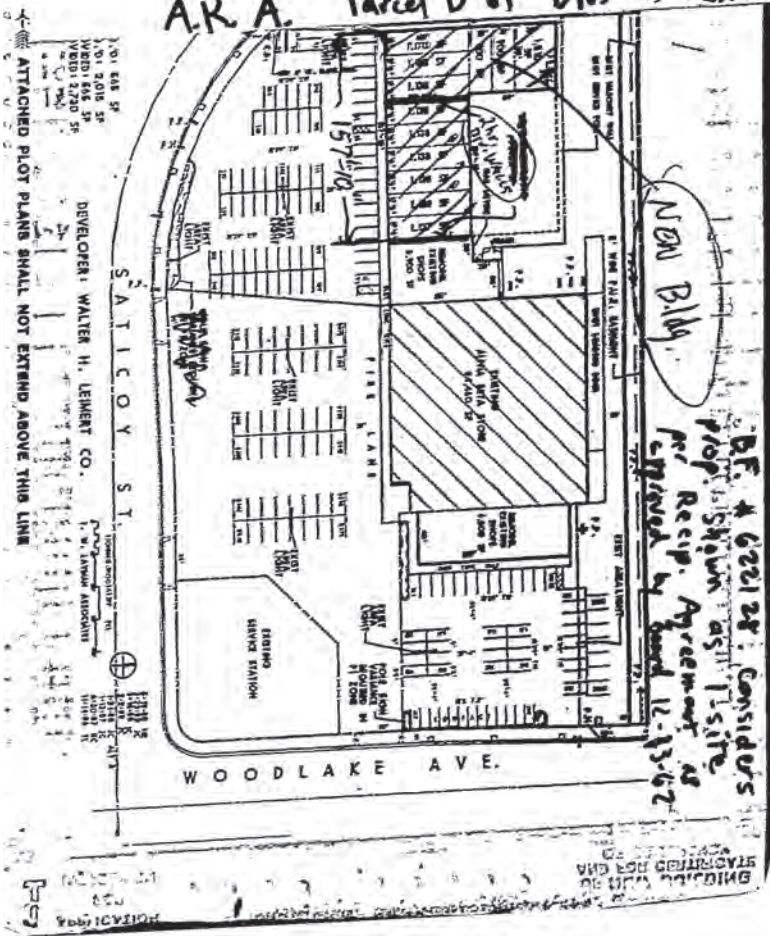
Legal Description

Lot 1 of Tract 25773, in the City of Los Angeles, in the County of Los Angeles, State of California, as per Map recorded in Book 668, Page 50 of Maps, in the Office of the County Recorder of said county.

Excepting therefrom that certain area beginning at the northeasterly corner of said Lot 1; thence south 19.42 feet; thence south 1 degrees 54 minutes 33 seconds west 150.08 feet; thence south 73.56 feet to the true point of beginning for this excepting; thence west 70.00 feet; thence south 45 degrees 00 minutes west 77.78 feet; thence south 71.44 feet to the northerly line of Saticoy Street, 73 feet wide; thence east along said northerly line of Saticoy Street and north along the westerly line of Woodlake Avenue, 73 feet wide, to the true point of beginning.

Also excepting therefrom that certain area beginning at the northeast corner of said lot in said tract; thence along the northerly boundary of said lot and tract west 544.00 feet; thence south 60.00 feet; thence east 172.00 feet; thence south 50.00 feet; thence east 40.00 feet; thence south 99.00 feet; thence south 7 degrees 41 minutes 49 seconds west 166.98 feet to a point in the northerly line of Saticoy Street; thence along said northerly street line north 88 degrees 04 minutes 57 seconds east 150.00 feet; thence continuing along said northerly street line, north 89 degrees 59 minutes 30 seconds east 74.37 feet; thence north 71.44 feet; thence north 45 degrees 00 minutes 00 seconds east 77.78 feet; thence east 70.00 feet to a point in the westerly line of Woodlake Avenue; thence along said westerly street line, north 50.00 feet; thence west 167.00 feet; thence north 140.00 feet; thence east 170.88 feet to a point in said westerly line of Woodlake Avenue; thence along said westerly street line, north 1 degrees 54 minutes 33 seconds east 33.60 feet; thence north 19.42 feet to the true point of beginning.

A.K.A. Parcel B of Div. of Land Map. No. 492



CITY OF LOS ANGELES DEPT. OF BUILDING AND SAFETY

1 APPLICATION FOR INSPECTION 63-9 7 0U3 5 1 1 0 1 4 1 2 7

OF NEW BUILDING AND FOR CERTIFICATE OF OCCUPANCY

INSTRUCTIONS: 1. Applicant to Complete Numbered Items Only. 2. Plot Plan Required on Back of Original.

1. LEGAL DESCR. LOT	Fr. 1	BLOCK -	TRACT 26072	COUNTY REF. NO. Mp. 676 76-177	DIST. MAP 186-093
					CENSUS TRACT 1344.22
2. PURPOSE OF BUILDING	(3) Classrooms				ZONE A1-1
3. JOB ADDRESS	7500 Chaminade Ave.				FIRE DIST. -- COUN. DIST 3
4. BETWEEN CROSS STREETS	Cohasset AND Corbin				LOT TYPE Cor. Thru
5. OWNER'S NAME	Chaminade College Preparatory PHONE 818-347-8300				LOT SIZE Irreg.
6. OWNER'S ADDRESS	7500 Chaminade Ave. CITY West Hills ZIP 91304				ALLEY --
7. ENGINEER	Wheeler & Gray BUS. LIC. NO. L120930-190 ACTIVE STATE LIC. NO. 256-2101 PHONE				BLDG. LINE
8. ARCHITECT OR DESIGNER	RGAM Architects BUS. LIC. NO. 014520-40 ACTIVE STATE LIC. NO. 140-1822-0 PHONE 766-2525				AFFIDAVITS CFG 2000
9. ARCHITECT OR ENGINEER'S ADDRESS	901 Corporate Ctr. Dr. CITY Monterey Park ZIP 91754				CPC85-333
10. CONTRACTOR	NS BUS. LIC. NO. ACTIVE STATE LIC. NO. PHONE				CUZ
11. SIZE OF NEW BLDG. WIDTH 84 LENGTH 256	STORIES 2	HEIGHT 36	NO. OF EXISTING BUILDINGS ON LOT AND USE		O.B.14551
12. MATERIAL OF CONSTRUCTION →	EXT. WALLS Masonry	ROOF Wood	FLOOR Wd/Conc.		CPC10767
13. JOB ADDRESS	7500 Chaminade Ave.			STREET GUIDE	O.B.12395
14. VALUATION TO INCLUDE ALL FIXED EQUIPMENT REQUIRED TO OPERATE AND USE PROPOSED BUILDING	~~$ 2,700,000.~~ P.C. 3000 000				*Over
					DIST. OFF. VN P.C. REQ'D no(a)
					GRADING yes SEISMIC
					HWY. DED. yes FLOOD
PURPOSE OF BUILDING	Classrooms			STORIES 2 HEIGHT 36	FILE WITH
TYPE CONS. VN	GROUP OCC. E-1	FLOOR AREA 30524	PLANS CHECKED [illegible]		ZONED BY Yang
DWELL UNITS —	MAX. OCC. 300	TOTAL 300	APPLICATION APPROVED [illegible] 03/16		TYPIST v.j.
GUEST ROOMS —	PARKING REQ'D. 61	PARKING PROVIDED STD. 37 COMP. 24	INSPECTION ACTIVITY CS GEN MAJ.S. EQ.		INSPECTOR

B & S 1 (R.9/88)

P.C. 6251.67	P.I. 42.00	CONT. INSP.	
S.P.D. 1448	37.87	18.87	
B.D. 9058	88.81	630	
I.F. —	O.S.S. 125.87		
S.D. 8241	40.12	32	
ISSUING OFFICE VN	C/O	SPRINKLERS yes	
P.C. NO. AA9533	F.H. —	ENERGY yes	DAS yes

Claims for refund of fees paid on permits must be filed: 1. Within one year from date of payment of fee; or 2. Within one year from date of expiration of extension for building or grading permits granted by the Dept. of B. & S. SECTIONS 22.12 & 22.13 LAMC.

Unless a shorter period of time has been established by an official action, plan check approval expires one year after the fee is paid and this permit expires two years after the fee is paid or 180 days after the fee is paid if construction is not commenced.

*Applicant Refuses to Pay

CASHIER'S USE ONLY

03/26/90 08:42:35AM LA06 T-8088 C 06
GRAD PRE-INSPE 42.00
BUILD PLAN CHE .6,251.67
ONE STOP 125.87
TOTAL 6,419.54
CHECK 6,419.54

07/01/92 03:44:35PM H001 T-4858 C 26
BLDG PLAN CHEC 1,448.37
BLDG PERMIT CO 9,058.88
INVOICE # 0083616 BB
PLAN MAINTENAN 181.18
EI COMMERCIAL 630.00
SCHOOL DEV COM 8,241.48
SYS DEV 679.11
ONE STOP 226.37
TOTAL 20,465.39
CHECK 20,465.39

92HO 17862

DECLARATIONS AND CERTIFICATIONS

LICENSED CONTRACTORS DECLARATION

15. I hereby affirm that I am licensed under the provisions of Chapter 9 (commencing with Section 7000) of Division 3 of the Business and Professions Code, and my license is in full force and effect.

Date _____ Lic. Class _____ Lic. No. _____ Contractor's Signature _____

Contractor's Mailing Address _____

OWNER-BUILDER DECLARATION

16. I hereby affirm that I am exempt from the Contractor's License Law for the following reason (Sec. 7031.5, Business and Professions Code: Any city or county which requires a permit to construct, alter, improve, demolish, or repair any structure, prior to its issuance, also requires the applicant for such permit to file a signed statement that he is licensed pursuant to the provisions of the Contractor's License Law (Chapter 9 (commencing with Section 7000) of Division 3 of the Business and Professions Code) or that he is exempt therefrom and the basis for the alleged exemption. Any violation of Section 7031.5 by any applicant for a permit subjects the applicant to a civil penalty of not more than five hundred dollars ($500).):

☐ I, as owner of the property, or my employees with wages as their sole compensation, will do the work, and the structure is not intended or offered for sale (Sec. 7044, Business and Professions Code: The Contractor's License Law does not apply to an owner of property who builds or improves thereon, and who does such work himself or through his own employees, provided that such improvements are not intended or offered for sale. If, however, the building or improvement is sold within one year of completion, the owner-builder will have the burden of proving that he did not build or improve for the purpose of sale.).

X I, as owner of the property, am exclusively contracting with licensed contractors to construct the project (Sec. 7044, Business and Professions Code: The Contractor's License Law does not apply to an owner of property who builds or improves thereon, and who contracts for such projects with a contractor(s) licensed pursuant to the Contractor's License Law.).

☐ I am exempt under Sec. _____ B. & P. C. for this reason _____

Date 6-16-92 Owner's Signature James A. DeLong

WORKERS' COMPENSATION DECLARATION

17. I hereby affirm that I have a certificate of consent to self-insure, or a certificate of Worker's Compensation Insurance, or a certified copy thereof (Sec. 3800, Lab. C.).

Policy No. _____ Insurance Company _____

☐ Certified copy is hereby furnished.

☐ Certified copy is filed with the Los Angeles City Dept. of Bldg. & Safety.

Date _____ Applicant's Signature _____

Applicant's Mailing Address _____

CERTIFICATE OF EXEMPTION FROM WORKERS' COMPENSATION INSURANCE

18. I certify that in the performance of the work for which this permit is issued, I shall not employ any person in any manner so as to become subject to the Workers' Compensation Laws of California.

Date 6-16-92 Applicant's Signature James A. DeLong

NOTICE TO APPLICANT: If, after making this Certificate of Exemption, you should become subject to the Workers' Compensation provisions of the Labor Code, you must forthwith comply with such provisions or this permit shall be deemed revoked.

CONSTRUCTION LENDING AGENCY

19. I hereby affirm that there is a construction lending agency for the performance of the work for which this permit is issued (Sec. 3097, Civ. C.).

Lender's Name _____

Lender's Address _____

20. I certify that I have read this application and state that the above information is correct. I agree to comply with all city and county ordinances and state laws relating to building construction, and hereby authorize representatives of this city to enter upon the above-mentioned property for inspection purposes.

I realize that this permit is an application for inspection, that it does not approve or authorize the work specified herein, that it does not authorize or permit any violation or failure to comply with any applicable law, that neither the city of Los Angeles nor any board, department, officer or employee thereof make any warranty or shall be responsible for the performance or results of any work described herein or the condition of the property or soil upon which such work is performed. (See Sec. 91.0202 LAMC)

Signed James A. DeLong 6-16-92 President

(Owner or agent having property owner's consent) Position Date

* ACCESS RAMPS SHOULD BE CONSTRUCTED PRIOR TO ISSUANCE OF C of O
(SEE HANSB CARD FOR LOCATION)

Bureau of Engineering	ADDRESS APPROVED		Bullard 3-26-90
ACCESS RAMPS TO BE DETERMINED SM. * 5 ACCESS RAMPS ARE REQUIRED	DRIVEWAY W = 24		SM 6/2/92
	HIGHWAY	X REQUIRED	SM 11/13/91
	DEDICATION	~~COMPLETED~~	SM 11/13/91
	FLOOD CLEARANCE		
SEWERS RES. NO. 825-B Valley Dist. CERT. NO. No increase in students	SEWERS AVAILABLE		D. Hu 5-8-91
	NOT AVAILABLE	X	Scott 3-26-90
	SFC PAID		
X SFC NOT APPLICABLE D.Hu	SFC DUE		
Grading	PRIVATE SEWAGE SYSTEM APPROVED		
Comm. Safety	APPROVED FOR ISSUE ☐ NO FILE ☐ FILE CLOSED ☐		
Fire	APPROVED (TITLE 19) (L.A.M.C.-5700)		
Housing	HOUSING AUTHORITY APPROVAL		
Planning *PF	APPROVED UNDER CASE # [illegible]		
Transportation	APPROVED FOR EXISTING & PKING & DWYS ONLY		9/26/91
Construction Tax	RECEIPT NO.	DWELLING UNITS	

NOTICES POSTED FOR "G PERMIT" AA9281

LEGAL DESCRIPTION

*PER APPROVED PLANS ONLY ORIGINAL GRANTED DLOG.

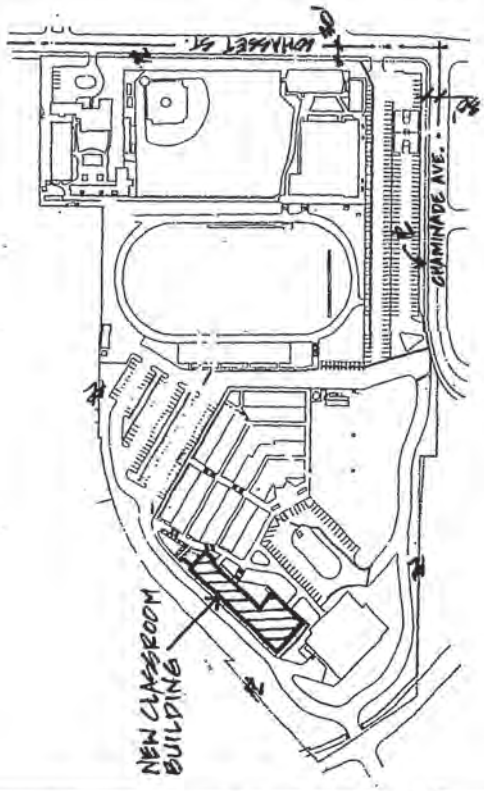
* CPC 85-333 CUZ

D.A.D. - O.K. - 9/19/91 ED HENSLEY, Chief Clerk

BUREAU OF ENGINEERING (CURB RAMPS):

ON PLOT PLAN SHOW ALL BUILDINGS ON LOT AND USE OF EACH

SD = 0.27 x 30524 = 8241.48



ATTACHED PLOT PLANS SHALL NOT EXTEND ABOVE THIS LINE

7500 N Chaminade Ave

Permit #: **00010 - 10000 - 01989**
Plan Check #: CC11682FO Reference #:
Event Code:

Bldg---New
Commercial
Back Room Plan Check

City of Los Angeles - Department of Building and Safety
APPLICATION FOR BUILDING PERMIT
AND CERTIFICATE OF OCCUPANCY

Status: Ready to Issue
Status Date: 08/10/00
Printed on: 08/10/00 11:53:33

1. TRACT	BLOCK	LOT(s)	ARB	MAP REF #	PARCEL ID # (PIN)	2. BOOK/PAGE/PARCEL
TR 26072		LT 1		M B 676-76/77	186B093 52	2027 - 005 - 009

3. PARCEL INFORMATION

BAS Branch Office - VN
Council District - 3
Cmpt. Fill Grd. - CFG 1500
Cmpt. Fill Grd. - CFG 2000
Community Plan Area - Canoga Park-West Hills-Winnet
Census Tract - 1344.220
District Map - 186B093
Easement - VAR & 2' FUT ST
Easement - VAR FUT ST
Energy Zone - 9
Fire District - FBZ
Hillside Grading Area - YES
ZONE(S): A1-1 /

4. DOCUMENTS

ZI - ZI 1802
ZA - 15692
YC - 10726 (YV)
CPC - 10767
CPC - 22365 (CU)
CPC - 7564
CPC - 8109
CPC - 85-333 (CUZ)(CU)
AFF - OB 12395
AFF - OB 14551

5. CHECKLIST ITEMS

Fabricator Reqd - Structural Steel
Special Inspect - Anchor Bolts
Special Inspect - Structural Observation

6. PROPERTY OWNER, TENANT, APPLICANT INFORMATION

Owner(s)
Chaminade Preparatory 10210 Oakdale Ave CHATSWORTH CA 91311

Tenant

Applicant (Relationship: Agent for Owner)
Angela Stoehner - (818) 222-2288

7. EXISTING USE

PROPOSED USE
23 Miscellaneous Bldg/Structure

8. DESCRIPTION OF WORK
CONSTRUCT NEW MEN'S and WOMEN'S BATHROOM ON EXISTING SCHOOL CAMPUS

9. # Bldgs on Site & Use:

For information and/or inspection requests originating within LA County, call toll-free (888)-LA4BUILD; outside LA County, call (213)-977-6941.

10. APPLICATION PROCESSING INFORMATION

BLDG. PC By: Eric Cabrera
OK for Cashier: Eric Cabrera
Signature: Eric Cabrera
DAS PC By: Oscar Diaz
Coord. OK: OKD
Date: 8/10/00

For Cashier's Use Only W/O #: 01001989

11. PROJECT VALUATION & FEE INFORMATION Final Fee Period

Permit Valuation: $80,000
PC Valuation:

FINAL TOTAL Bldg---New	1,198.05	Supp. Planning Surcharge	26.38
Permit Fee Subtotal Bldg---New	777.88	School District Commercial Area	199.02
Energy Surcharge		Permit Issuing Fee	0.00
Handicapped Access			
Off-hour Plan Check	28.58		
Supp. Plan Check	57.15		
Plan Maintenance	15.56		
Fire Hydrant Refuse-To-Pay			
E.Q. Instrumentation	16.80		
Supp. O.S. Surcharge	17.92		
Supp. Sys. Surcharge	53.76		
Planning Surcharge Misc Fee	5.00		

Sewer Cap ID:

FIRE HYDRANT FEE NOTICE: THE CITY OF LOS ANGELES MAY AMEND THE FIRE HYDRANT FEE ORDINANCE (LAMC SECTION 91.0304 (b) 8). THE OWNER OF THE PROJECT DESIGNATED IN THIS PERMIT SHALL BE OBLIGATED TO PAY TO THE DEPARTMENT A FIRE HYDRANT FEE IN THE AMOUNT TO BE CALCULATED PURSUANT TO ANY AMENDMENT TO THE FIRE HYDRANT FEE ORDINANCE. THIS FEE WILL BE USED TO PROVIDE ADEQUATE FIRE SAFETY FACILITIES AND SERVICES FOR NEW DEVELOPMENT. EXCEPTION: [illegible] PARAGRAPH (b)(8)(E) SHALL NOT APPLY TO ANY PERMIT FOR DEMOLITION OF A BUILDING OR STRUCTURE.

12. ATTACHMENTS
Plot Plan

LA Department of Building and Safety
LA 03 07 018107 08/10/00 02:53PM

BLDG PERMIT COMM	$777.88
PLAN APPROVAL FEE	$28.58
BLDG PLAN CHECK	$57.15
PLAN MAINTENANCE	$15.56
EI COMMERCIAL	$16.80
[illegible] STRP SURCH	$17.92
[illegible] DEV FEE	$53.76
CITY PLAN SURCH	$26.38
[illegible] CELLANEOUS	$5.00
SCHOOL D-COMM	$199.02
Total Due:	$1,198.05
Check:	$1,198.05

CCLA 02508

U 7 2 1 1 0 0 0 2 3 U

13. STRUCTURE INVENTORY

(P) Floor Area (ZC) 642 Sqft
(P) Height (ZC) 15.1 Feet
(P) Length 32.67 Feet
(P) Stories 1 Levels
(P) Width 21.33 Feet
(P) B Occupancy 642 Sqft Max Occ.
(NC) Parking Req'd #Changed Total
(P) Type V-N Construction
(P) Floor Construction - Concrete Slab on Grade
(P) Foundation - Continuous Footing
(P) Roof Construction - Wood Frame/Sheathing
(P) Wall Construction - Wood Stud

14. APPLICATION COMMENTS

3RD SET TO STILL BE SUBMITTED. SET TO GO TO GRADING FOR GPI AND POSTING. 3RD SET OF PLANS IS SUBMITTED. 6/27/00

In the event that any box (i.e. 1-16) is filled to capacity, it is possible that additional information that has been captured electronically is not printed. Nevertheless, the information printed herein exceeds that required by Section 19825 of the Health and Safety Code of the State of California.

15. Building Relocated From:

16. CONTRACTOR, ARCHITECT, & ENGINEER NAME		ADDRESS		CLASS	LICENSE#	PHONE #
(A) Shelters	Blake	4764 Park Granada Ste 101,	Calabasas, CA 913021545		C11101	
(C) Continental Construction Manageme		21730 Devonshire Street #101,	Chatsworth, CA 91311	B	608743	(818)407-0444

Unless a shorter period of time has been established by an official action, plan check approval expires one and a half years after the plan check fee has been paid. This permit expires two years after the building permit fee has been paid or 180 days after the fee has been paid and construction has not commenced or if work is suspended, discontinued or abandoned for a continuous period of 180 days (Sec. 98.0602 LAMC). Claims for refund of fees paid must be filed within one year from the date of expiration for permits granted by the Dept. of Building & Safety (Sec. 22.12 & 22.13 LAMC).

17. LICENSED CONTRACTOR'S DECLARATION

I hereby affirm under penalty of perjury that I am licensed under the provisions of Chapter 9 (commencing with Section 7000) of Division 3 of the Business and Professions Code, and my license is in full force and effect. The following applies to B contractors only: I understand the limitations of Section 7057 related to my ability to take prime contracts or subcontracts involving specialty trades. (For 1 or 2 family dwellings, use the declaration attachment if separate general, electrical, plumbing, and/or HVAC contractor's & workers' comp. declarations are desired.)

License Class B Lic. No. 608743 Print: X REED LAWRENCE Sign: X Reed Lawrence

18. WORKERS' COMPENSATION DECLARATION

I hereby affirm, under penalty of perjury, one of the following declarations.

☐ I have and will maintain a certificate of consent to self insure for workers' compensation, as provided for by Section 3700 of the Labor Code, for the performance of the work for which this permit is issued.

☒ I have and will maintain workers's compensation insurance, as required by Section 3700 of the Labor Code, for the performance of the work for which this permit is issued. My workers' compensation insurance carrier and policy number are:

Carrier: X LEGION INSURANCE Policy Number: X WC 1122681

☐ I certify that in the performance of the work for which this permit is issued, I shall not employ any person in any manner so as to become subject to the workers' compensation laws of California, and agree that if I should become subject to the workers' compensation provisions of Section 3700 of the Labor Code, I shall forthwith comply with those provisions.

Sign: X Reed Lawrence Date: X 8/10/00 ☐ Contractor ☒ Authorized Agent ☐ Owner

WARNING: FAILURE TO SECURE WORKERS' COMPENSATION COVERAGE IS UNLAWFUL, AND SHALL SUBJECT AN EMPLOYER TO CRIMINAL PENALTIES AND CIVIL FINES UP TO ONE HUNDRED THOUSAND DOLLARS ($100,000), IN ADDITION TO THE COST OF COMPENSATION, DAMAGES AS PROVIDED FOR IN SECTION 3706 OF THE LABOR CODE, INTEREST, AND ATTORNEY'S FEES

19. CONSTRUCTION LENDING AGENCY

I hereby affirm under penalty of perjury that there is a construction lending agency for the performance of the work for which this permit is issued (Sec. 3097, Civil Code).

Lender's name: _____ Lender's address: _____

20. ASBESTOS REMOVAL

Notification of asbestos removal: ☒ Is not applicable ☐ Letter was sent to the AQMD or EPA Sign: X Reed Lawrence Date: X 8/10/00

21. OWNER-BUILDER DECLARATION

I hereby affirm under penalty of perjury that I am exempt from the Contractors License Law for the following reason (Section 7031.5, Business and Professions Code: Any city or county which requires a permit to construct, alter, improve, demolish, or repair any structure, prior to its issuance, also requires the applicant for such permit to file a signed statement that he or she is licensed pursuant to the provisions of the Contractors License Law (Chapter 9 commencing with Sec. 7000 of Division 3 of the Business and Professions Code) or that he or she is exempt therefrom and the basis for the alleged exemption. Any violation of Section 7031.5 by any applicant for a permit subjects the applicant to a civil penalty of not more than five hundred dollars ($500).):

☐ I, as the owner of the property, or my employees with wages as their sole compensation, will do the work, and the structure is not intended or offered for sale (Sec. 7044, Business & Professions Code: The Contractors License Law does not apply to an owner of property who builds or improves thereon, and who does such work himself or herself or through his or her own employees, provided that such improvements are not intended or offered for sale. If, however, the building or improvement is sold within one year from completion, the owner-builder will have the burden of proving that he or she did not build or improve for the purpose of sale)

☐ I, as the owner of the property, am exclusively contracting with licensed contractors to construct the project (Sec. 7044, Business & Professions Code: The Contractors License Law does not apply to an owner of property who builds or improves thereon, and who contracts for such projects with a contractor(s) licensed pursuant to the Contractors License Law.)

☐ I am exempt under Sec. _____, Bus. & Prof. Code for the following reason: _____

Print: _____ Sign: _____ Date: / / ☐ Owner ☐ Authorized Agent

22. FINAL DECLARATION

I certify that I have read this application and state that the above information is correct. I agree to comply with all city and county ordinances and state laws relating to building construction, and hereby authorize representatives of this city to enter upon the above-mentioned property for inspection purposes. I realize that this permit is an application for inspection and that it does not approve or authorize the work specified herein. Also that it does not authorize or permit any violation or failure to comply with any applicable law. Furthermore, that neither the City of Los Angeles nor any board, department officer, or employee thereof, make any warranty, nor shall be responsible for the performance or results of any work described herein, nor the condition of the property nor the soil upon which such work is performed. I further affirm under penalty of perjury, that the proposed work will not destroy or unreasonably interfere with any access or utility easement belonging to others and located on my property, but in the event such work does destroy or unreasonably interfere with such easement, a substitute easement(s) satisfactory to the holder(s) of the easement will be provided (Sec. 91.0106.4.3.4 LAMC).

Print: X REED LAWRENCE Sign: X Reed Lawrence Date: X 8/10/00 ☐ Owner ☒ Contractor ☒ Author. Agent

J 7 2 1 - 0 0 0 2

7500 N Chaminade Ave Permit Application #: **00010 - 10000 - 01989**

Bldg---New
Commercial
Back Room Plan Check

City of Los Angeles - Department of Building and Safety

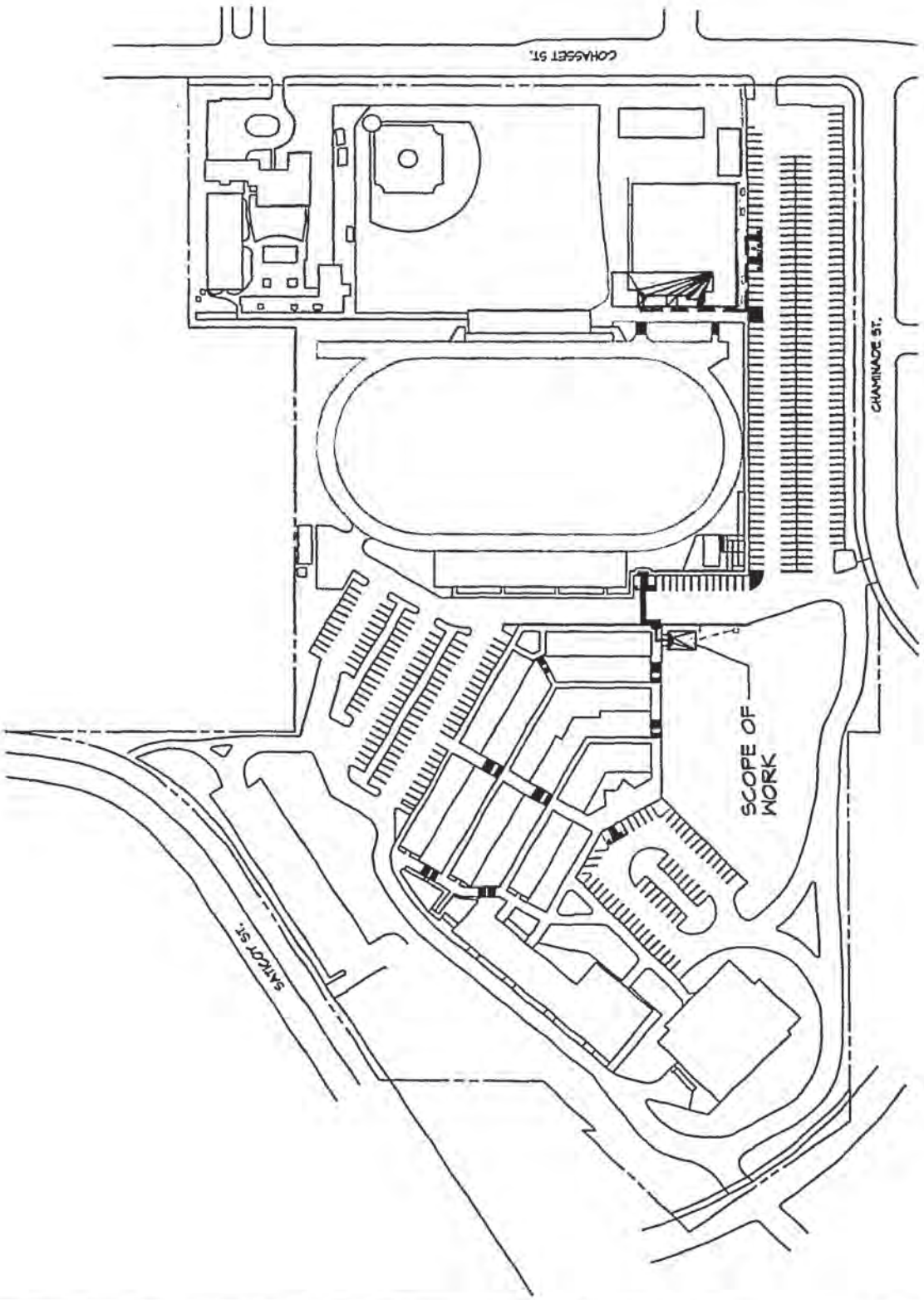
Plan Check #: CC11682FO
Initiating Office: METRO

PLOT PLAN ATTACHMENT

Printed on: 07/13/00 14:03:46

U 7 2 1 1 0 9 0 2 5 5 2

(DO NOT DRAW, WRITE, OR PASTE ATTACHMENTS OUTSIDE BORDER)



COUNCIL DISTRICT: 3

PLOT PLAN ATTACHMENT

23233 W Saticoy St

Permit #: **03014 - 10000 - 04774**
Plan Check #: B03LA1375FO Printed: 05/17/04 03:28 PM
Event Code:

Bldg-Addition
Commercial
Regular Plan Check
Plan Check Submittal

City of Los Angeles - Department of Building and Safety

APPLICATION FOR BUILDING PERMIT AND CERTIFICATE OF OCCUPANCY

Last Status: Ready to Issue
Status Date: 05/17/2004

1. TRACT	BLOCK	LOT(s)	ARB	COUNTY MAP REF #	PARCEL ID # (PIN #)	2. ASSESSOR PARCEL #
TR 25773		LT 1	2	M B 668-50	186B093 85	2027 - 005 - 005

3. PARCEL INFORMATION

Area Planning Commission - South Valley
LADBS Branch Office - VN
Council District - 3
Cmpt. Fill Grd. - CFG-1500
Certified Neighborhood Council - West Hills
Community Plan Area - Canoga Park-West Hills-Winnet
Census Tract - 1344.01
Census Tract - 1344.22
District Map - 186B093
Energy Zone - 9
Fire District - FBZ
Hillside Grading Area - YES
Earthquake-Induced Liquefaction Area - YES
Near Source Zone Distance - 12.7
Thomas Brothers Map Grid - 529-F4

ZONE(S): P-1VL/[Q]C1-1VL/

4. DOCUMENTS

ZI - ZI-1802
ORD - ORD-165479-SA1040
ORD - ORD-173518-SA1
CPC - CPC-1997-41-CPU

LA Department of Building and Safety
LA 03 28 110779 05/17/04 03:45PM

SCHOOL DEV RES -$2,487.10
SCHOOL D-COMM $2,487.10
SYMBOL CORRECTION FOR LA03-110777

Total Due: $0.00
Check: $0.00

5. CHECKLIST ITEMS

Fabricator Reqd - Prefabricated Joist
Special Inspect - Concrete>2.5ksi
Special Inspect - Masonry
Special Inspect - Structural Observation

6. PROPERTY OWNER, TENANT, APPLICANT INFORMATION

Owner(s)
Leimert Saticoy L P — 606 Larchmont Blvd STE 300 — LOS ANGELES CA 90004

Tenant

Applicant (Relationship: Architect)
Michele Mcdonough - — 2424 5th Av — LA, CA 90018 — (323) 731-8377

7. EXISTING USE / **PROPOSED USE**

(16) Retail

8. DESCRIPTION OF WORK

1-story, 7315 sqft, storage building addition to (E) retail .

9. # Bldgs on Site & Use: RETAIL

10. APPLICATION PROCESSING INFORMATION

BLDG. PC By: Timothy Fan
DAS PC By: Wai Lau
OK for Cashier: Timothy Fan
Coord. OK:
Signature:
Date: 5/17/04

For information and/or inspection requests originating within LA County,
Call toll-free (888) LA4BUILD
Outside LA County, call (213) 482-0000 (LA4BUILD = 524-2845)

For Cashier's Use Only W/O #: **31404774**

LA Department of Building and Safety
LA 03 28 110777 05/17/04 03:41PM

BUILDING PERMIT COMM	$1,341.38
PLAN MAINTENANCE	$26.83
EI COMMERCIAL	$42.00
ONE STOP SURCH	$28.20
SYSTEMS DEVT FEE	$84.61
CITY PLANNING SURCH	$41.05
MISCELLANEOUS	$5.00
SCHOOL DEV ~~RES~~ Com	$2,487.10
Total Due:	$4,056.17
Check:	$4,056.17

04LA 58439

11. PROJECT VALUATION & FEE INFORMATION Final Fee Period

Permit Valuation: $200,000
PC Valuation:

FINAL TOTAL Bldg-Addition	4,056.17	Permit Issuing Fee	0.00
Permit Fee Subtotal Bldg-Addition	1,341.38		
Energy Surcharge			
Handicapped Access			
Off-hour Plan Check			
Plan Maintenance	26.83		
Fire Hydrant Refuse-To-Pay			
E.Q. Instrumentation	42.00		
O.S. Surcharge	28.20		
Sys. Surcharge	84.61		
Planning Surcharge	41.05		
Planning Surcharge Misc Fee	5.00		
School District Commercial Area	2,487.10		

Sewer Cap ID:
Total Bond(s) Due:

12. ATTACHMENTS

Plot Plan

10207062004712?



13. STRUCTURE INVENTORY

03014 - 10000 - 04774

(C) Floor Area (ZC) 7,315 Sqft
(P) Height (ZC) 19.33 Feet
(NC) Length Feet
(P) Stories 1 Levels
(NC) Width Feet
(P) NFPA-13 Fire Sprinklers Thru-out
(P) Wood (Plywood, OSB, etc.)Shearwall
(P) Masonry Shearwall
(P) S2 Occupancy 7,315 Sqft Max Occ.
(P) Parking Req'd 29 #Changed 223 Total

(E) Provided Compact Parking 35 Stalls
(P) Provided Disabled Parking 9 Stalls
(P) Provided Standard Parking 206 Stalls
(P) Total Parking for Site 250 Site Total
(P) Type III-N Construction

14. APPLICATION COMMENTS

** Approved Seismic Gas Shut-Off Valve may be required. **

In the event that any box (i.e. 1-16) is filled to capacity, it is possible that additional information has been captured electronically and could not be printed due to space restrictions. Nevertheless, the information printed exceeds that required by Section 19825 of the Health and Safety Code of the State of California.

15. Building Relocated From:

16. CONTRACTOR, ARCHITECT, & ENGINEER NAME	ADDRESS		CLASS	LICENSE#	PHONE #
(A) Mcdonough, Michele Marie	2424 Fifth Avenue,	Los Angeles, CA 900181866		C25320	
(E) Mercado, Lizandro	30403 North Mallorca Pl.	Castaic, CA 91384		S4331	
(O) , Owner-Builder	-	,		0	

PERMIT EXPIRATION

This permit expires two years after the date of the permit issuance. This permit will also expire if no construction work is performed for a continuous period of 180 days (Sec. 98.0602 LAMC). Claims for refund of fees paid must be filed within one year from the date of expiration for permits granted by the Dept. of Building & Safety (Sec. 22.12 & 22.13 LAMC).

17. OWNER-BUILDER DECLARATION

I hereby affirm under penalty of perjury that I am exempt from the Contractors' State License Law for the following reason (Section 7031.5, Business and Professions Code: Any city or county which requires a permit to construct, alter, improve, demolish, or repair any structure, prior to its issuance, also requires the applicant for such permit to file a signed statement that he or she is licensed pursuant to the provisions of the Contractors License Law (Chapter 9 (commencing with Section 7000) of Division 3 of the Business and Professions Code) or that he or she is exempt therefrom and the basis for the alleged exemption. Any violation of Section 7031.5 by any applicant for a permit subjects the applicant to a civil penalty of not more than five hundred dollars ($500).):

(__) I, as the owner of the property, or my employees with wages as their sole compensation, will do the work, and the structure is not intended or offered for sale (Sec. 7044, Business & Professions Code: The Contractors License Law does not apply to an owner of property who builds or improves thereon, and who does such work himself or herself or through his or her own employees, provided that such improvements are not intended or offered for sale. If, however, the building or improvement is sold within one year from completion, the owner-builder will have the burden of proving that he or she did not build or improve for the purpose of sale).

OR

(X) I, as the owner of the property, am exclusively contracting with licensed contractors to construct the project (Sec. 7044, Business & Professions Code: The Contractors License Law does not apply to an owner of property who builds or improves thereon, and who contracts for such projects with a contractor(s) licensed pursuant to the Contractors License Law.)

18. WORKERS' COMPENSATION DECLARATION

I hereby affirm, under penalty of perjury, one of the following declarations:

(__) I have and will maintain a certificate of consent to self insure for workers' compensation, as provided for by Section 3700 of the Labor Code, for the performance of the work for which this permit is issued.

(__) I have and will maintain workers' compensation insurance, as required by Section 3700 of the Labor Code, for the performance of the work for which this permit is issued. My workers' compensation insurance carrier and policy number are:

Carrier:_____ Policy Number:_____

(X) I certify that in the performance of the work for which this permit is issued, I shall not employ any person in any manner so as to become subject to the workers' compensation laws of California, and agree that if I should become subject to the workers' compensation provisions of Section 3700 of the Labor Code, I shall forthwith comply with those provisions.

WARNING: FAILURE TO SECURE WORKERS' COMPENSATION COVERAGE IS UNLAWFUL, AND SHALL SUBJECT AN EMPLOYER TO CRIMINAL PENALTIES AND CIVIL FINES UP TO ONE HUNDRED THOUSAND DOLLARS ($100,000), IN ADDITION TO THE COST OF COMPENSATION, DAMAGES AS PROVIDED FOR IN SECTION 3706 OF THE LABOR CODE, INTEREST, AND ATTORNEY'S FEES.

19. ASBESTOS REMOVAL DECLARATION

I certify that notification of asbestos removal is either not applicable or was sent to the AQMD or EPA as per section 19827.5 of the Health and Safety Code.

20. FINAL DECLARATION

I certify that I have read this application **INCLUDING THE ABOVE DECLARATIONS** and state that the above information **INCLUDING THE ABOVE DECLARATIONS** is correct. I agree to comply with all city and county ordinances and state laws relating to building construction, and hereby authorize representatives of this city to enter upon the above-mentioned property for inspection purposes. I realize that this permit is an application for inspection and that it does not approve or authorize the work specified herein, and it does not authorize or permit any violation or failure to comply with any applicable law. Furthermore, neither the City of Los Angeles nor any board, department officer, or employee thereof, make any warranty, nor shall be responsible for the performance or results of any work described herein, nor the condition of the property nor the soil upon which such work is performed. I further affirm under penalty of perjury, that the proposed work will not destroy or unreasonably interfere with any access or utility easement belonging to others and located on my property, but in the event such work does destroy or unreasonably interfere with such easement, a substitute easement(s) satisfactory to the holder(s) of the easement will be provided (Sec. 91.0106.4.3.4 LAMC).

By signing below, I certify that:

(1) I accept all the declarations above namely the Owner-Builder Declaration, Workers' Compensation Declaration, Asbestos Removal Declaration and Final Declaration; and

(2) This permit is being obtained with the consent of the legal owner of the property.

Print Name: Michele Mcdonough Sign: Michele Mcdonough Date: 5/17/04 [ ] Owner [X] Authorized Agent

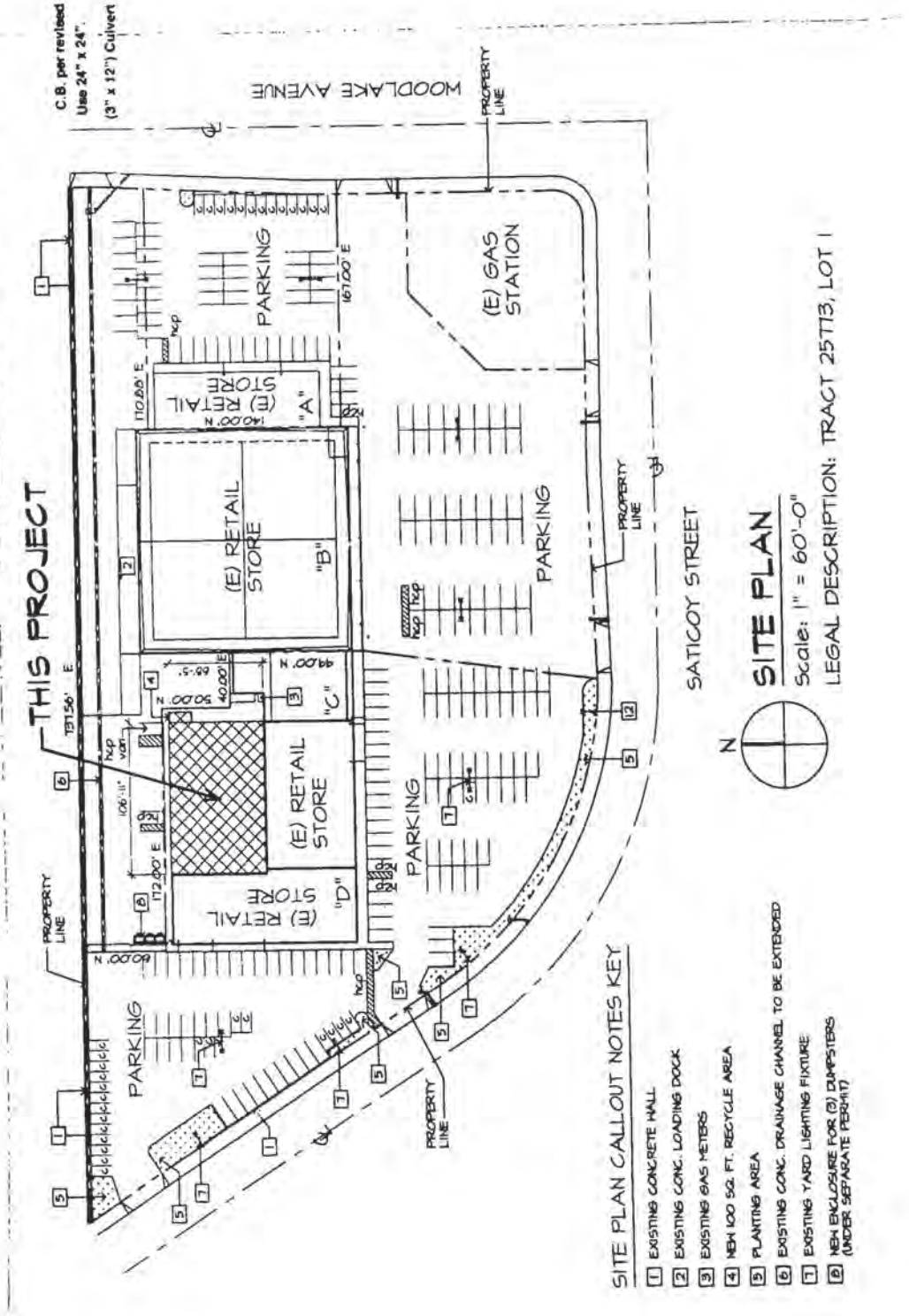
Bldg-Addition
Commercial
Plan Check Submittal

City of Los Angeles - Department of Building and Safety

PLOT PLAN ATTACHMENT

Plan Check #: B03LA1375FO
Initiating Office: METRO
Printed on: 07/01/03 09:05:34

(DO NOT DRAW, WRITE, OR PASTE ATTACHMENTS OUTSIDE BORDER)



7500 N Chaminade Ave

Permit #: **10010 - 20000 - 00127**
Plan Check #: B10VN00509 Printed: 06/30/10 02:14 PM
Event Code:

Bldg-New
Commercial
Regular Plan Check
Plan Check

City of Los Angeles - Department of Building and Safety

APPLICATION FOR BUILDING PERMIT AND CERTIFICATE OF OCCUPANCY

Last Status: Ready to Issue
Status Date: 06/30/2010

1. TRACT	BLOCK	LOT(s)	ARB	COUNTY MAP REF #	PARCEL ID # (PIN #)	2. ASSESSOR PARCEL #
TR 26072		LT 1		M B 676-76/77	186B093 52	2027 - 005 - 009

3. PARCEL INFORMATION

Area Planning Commission - South Valley
LADBS Branch Office - VN
Council District - 3
Cmpt. Fill Grd. - CFG-1500
Cmpt. Fill Grd. - CFG-2000
Certified Neighborhood Council - West Hills
Community Plan Area - Canoga Park-West Hills-Winnet
Census Tract - 1344.22
District Map - 186B093
Energy Zone - 9
Hillside Grading Area - YES
Earthquake-Induced Liquefaction Area - Yes
Near Source Zone Distance - 11.9
Thomas Brothers Map Grid - 529-F4

ZONE(S): A1-1 /

4. DOCUMENTS

ZI - ZI-1802 Hillside Grading Ordinance
ZA - ZA-15692
YC - YD-10726-YV
CPC - CPC-10767
CPC - CPC-1985-333-CUZ-CU
CPC - CPC-2000-1301-CU
CPC - CPC-2009-1477-CU-ZV-ZAA-SI
CPC - CPC-22365-CU
CPC - CPC-7564
CPC - CPC-8109
AFF - OB-12395
AFF - OB-14551

5. CHECKLIST ITEMS

Special Inspect - Concrete>2.5ksi
Special Inspect - Epoxy Bolts
Special Inspect - Field Welding
Special Inspect - Fire Proofing
Special Inspect - H/S Bolt
Special Inspect - Masonry
Special Inspect - Rebar Welding
Special Inspect - Shotcrete
Special Inspect - Structural Observation

6. PROPERTY OWNER, TENANT, APPLICANT INFORMATION

Owner(s).
Chaminade Preparatory — 10210 Oakdale Ave — CHATSWORTH CA 91311

Tenant:

Applicant: (Relationship: Architect)
J.P. Darling - — 20331 Irvine Ave Ste E6 — NEWPORT BEACH 92660 — (714) 918-8640

LA Department of Building and Safety
VN 09 38 266806 06/30/10 02:23PM

7. EXISTING USE

PROPOSED USE
(18) School Building

8. DESCRIPTION OF WORK
(N) PERFORMING ARTS BUILDING <HIGH SCHOOL>

BUILDING PERMIT COMM	$18,583.25
PLAN MAI TENANCE	$300.00
EJ COMMERCIAL	$1,050.00
ONE STOP SURCH	$398.67
SYSTEMS DEVL FEE	$1,196.00
CITY PLANNING SURCH	$1,133.00
MISCELLANEOUS	$10.00
SCHOOL D-COMM	$566.50
GREEN BUILDING FEE W/O #: 01000127	$18,892.25
BUILDING PLAN CHECK	$200.00
BUILDING PLAN CHECK	$0.00
	$0.00

P100102000000127FN

9. # Bldgs on Site & Use: 1 OF 3

10. APPLICATION PROCESSING INFORMATION

BLDG. PC By: Dean Lee
DAS PC By: Norlito Medrano
OK for Cashier: Aida Cervantes
Coord. OK:
Signature:
Date: 6/30/10

For inspection requests, call toll-free (888) LAABUILD (524-2845).
Outside LA County, call (213) 482-0000 or request inspections via www.ladbs.org. To speak to a Call Center agent, call 311 or (866) 4LACITY (452-2489). Outside LA County, call (213) 473-3231.

For Cashier's Use Only

11. PROJECT VALUATION & FEE INFORMATION Final Fee Period

Permit Valuation: $5,000,000
PC Valuation:

FINAL TOTAL Bldg-New	34,329.67	School District Commercial Area	
Permit Fee Subtotal Bldg-New	18,583.25	Green Building Fee	
Energy Surcharge		Permit Issuing Fee	
Handicapped Access			
Plan Check Subtotal Bldg-New	0.00		
Plan Maintenance	300.00		
Fire Hydrant Refuse-To-Pay			
E.Q. Instrumentation	1,050.00		
O.S. Surcharge	398.67		
Sys. Surcharge	1,196.00		
Planning Surcharge	1,133.00		
Planning Surcharge Misc Fee	10.00		
Planning Gen Plan Maint Surcharge	566.50		

Sewer Cap ID:
Total Bond(s) Due:

Total Due: $34,329.67
Check: $34,329.67

2010CM76611

CITY OF LOS ANGELES
FIRE DEPARTMENT
I, AMEND THE FIRE HYDRANT FEE ORDINANCE
ANC SECTION 57.24.(b) 3). THE OWNER OF THE
PROJECT DES... ED IN THIS PERMIT 300.00 S.
... DEPARTMENT TO BE CALCULATED
... AMOUNT TO THE FIRE
... FEE WILL BE USED
... SAFETY FACILITIES AND
... DEVELOPMENT. EXCEPTION:
THIS PARAGRAPH NUMBER 5 SHALL NOT APPLY TO
PERMIT FOR DEMOLITION OF A BUILDING OR
STRUCTURE.

12. ATTACHMENTS
Plot Plan

* P 1 0 0 1 0 2 0 0 0 0 0 0 1 2 7 F N *

13. STRUCTURE INVENTORY (Note: Numeric measurement data in the format "number / number" implies "change in numeric value / total resulting numeric value")

10010 - 20000 - 00127

(P) Basement: +1 Levels / 1 Levels
(P) Floor Area (ZC): +23175 Sqft / 23175 Sqft
(P) Height (BC): +66.51 Feet / 66.51 Feet
(P) Height (ZC): +67 Feet / 67 Feet
(P) Length: +190 Feet / 190 Feet
(P) Stories: +1 Stories / 1 Stories
(P) Width: +143.5 Feet / 143.5 Feet
(P) NFPA-13 Fire Sprinklers Thru-out
(P) Concrete Shearwall
(P) Masonry Shearwall

(P) A1 Occ. Group: +9468 Sqft / 9468 Sqft
(P) A3 Occ. Group: +3617 Sqft / 3617 Sqft
(P) B Occ. Group: +2480 Sqft / 2480 Sqft
(P) E Occ. Group: +2429 Sqft / 2429 Sqft
(P) A1 Occ. Load: +361 Max Occ. / 361 Max Occ.
(P) A3 Occ. Load: +164 Max Occ. / 164 Max Occ.
(P) E Occ. Load: +48 Max Occ. / 48 Max Occ.
(P) Parking Req'd for Site (Auto+Bicycle): +451 Stalls / 4
(P) Provided Bicycle for Site: +25 Stalls / 25 Stalls
(P) Provided Disabled for Site: +12 Stalls / 12 Stalls

(P) Provided Standard for Site: +439 Stalls / 439 Stalls
(P) Type III-A Construction
(P) Floor Construction - Concrete Deck
(P) Floor Construction - Concrete Slab on Grade
(P) Foundation - Continuous Footing
(P) Foundation - Spread (Pad) Footing
(P) Roof Construction - Wood Frame/Sheathing
(P) Wall Construction - Concrete

14. APPLICATION COMMENTS

** Approved Seismic Gas Shut-Off Valve may be required. ** ADMIN. APPROVAL GRANTED ON 05-19-2010 FOR SLIGHTLY OVER HEIGHT <NON-HABITABLE WALL.

In the event that any box (i.e. 1-16) is filled to capacity, it is possible that additional information has been captured electronically and could not be printed due to space restrictions. Nevertheless, the information printed exceeds that required by Section 19825 of the Health and Safety Code of the State of California.

15. Building Relocated From:

16. CONTRACTOR, ARCHITECT, & ENGINEER NAME	ADDRESS		CLASS	LICENSE#	PHONE #
(A) Darling, James Paul	20331 Irvine Avenue Ste E-6,	Santa Ana Heights, CA 92707		C10337	
(C) E P I Construction Inc	12345 Ventura Blvd Suite H,	Studio City, CA 91604	B	865616	(818) 760-9100
(E) Exley, Matthew Jeffrey	21084 Bake Pkwy Ste 100,	Lake Forest, CA 92630		S4748	
(E) Hill, Edward Foster	Geotech 439 Western Ave,	Glendale, CA 91201		GE2126	

PERMIT EXPIRATION/REFUNDS: This permit expires two years after the date of the permit issuance. This permit will also expire if no construction work is performed for a continuous period of 180 days (Sec. 98.0602 LAMC). Claims for refund of fees paid must be filed within one year from the date of expiration for permits granted by LADBS (Sec. 22.12 & 22.13 LAMC). The permittee may be entitled to reimbursement of permit fees if the Department fails to conduct an inspection within 60 days of receiving a request for final inspection (HS 17951).

17. LICENSED CONTRACTOR'S DECLARATION

I hereby affirm under penalty of perjury that I am licensed under the provisions of Chapter 9 (commencing with Section 7000) of Division 3 of the Business and Professions Code, and my license is in full force and effect. The following applies to B contractors only: I understand the limitations of Section 7057 of the Business and Professional Code related to my ability to take prime contracts or subcontracts involving specialty trades.

License Class: B Lic. No.: 865616 Contractor: E P I CONSTRUCTION INC

18. WORKERS' COMPENSATION DECLARATION

I hereby affirm, under penalty of perjury, one of the following declarations:

( ) I have and will maintain a certificate of consent to self insure for workers' compensation, as provided for by Section 3700 of the Labor Code, for the performance of the work for which this permit is issued.

(X) I have and will maintain workers' compensation insurance, as required by Section 3700 of the Labor Code, for the performance of the work for which this permit is issued. My workers' compensation insurance carrier and policy number are:

Carrier: Kemper Employers Ins. Co. Policy Number: BB1093191

( ) I certify that in the performance of the work for which this permit is issued, I shall not employ any person in any manner so as to become subject to the workers' compensation laws of California, and agree that if I should become subject to the workers' compensation provisions of Section 3700 of the Labor Code, I shall forthwith comply with those provisions.

WARNING: FAILURE TO SECURE WORKERS' COMPENSATION COVERAGE IS UNLAWFUL, AND SHALL SUBJECT AN EMPLOYER TO CRIMINAL PENALTIES AND CIVIL FINES UP TO ONE HUNDRED THOUSAND DOLLARS ($100,000), IN ADDITION TO THE COST OF COMPENSATION, DAMAGES AS PROVIDED FOR IN SECTION 3706 OF THE LABOR CODE, INTEREST, AND ATTORNEY'S FEES.

19. ASBESTOS REMOVAL DECLARATION / LEAD HAZARD WARNING

I certify that notification of asbestos removal is either not applicable or has been submitted to the AQMD or EPA as per section 19827.5 of the Health and Safety Code. Information is available at (909) 396-2336 and the notification form at www.aqmd.gov. Lead safe construction practices are required when doing repairs that disturb paint in pre-1978 buildings due to the presence of lead per section 6716 and 6717 of the Labor Code. Information is avaiable at Health Services for LA County at (800) 524-5323 or the State of California at (800) 597-5323 or www.dhs.ca.gov/childlead.

20. CONSTRUCTION LENDING AGENCY DECLARATION

I hereby affirm under penalty of perjury that there is a construction lending agency for the performance of the work for which this permit is issued (Sec. 3097, Civil Code).
Lender's name (if any): _____ Lender's address: _____

21. FINAL DECLARATION

I certify that I have read this application **INCLUDING THE ABOVE DECLARATIONS** and state that the above information **INCLUDING THE ABOVE DECLARATIONS** is correct. I agree to comply with all city and county ordinances and state laws relating to building construction, and hereby authorize representatives of this city to enter upon the above-mentioned property for inspection purposes. I realize that this permit is an application for inspection and that it does not approve or authorize the work specified herein, and it does not authorize or permit any violation or failure to comply with any applicable law. Furthermore, neither the City of Los Angeles nor any board, department officer, or employee thereof, make any warranty, nor shall be responsible for the performance or results of any work described herein, nor the condition of the property nor the soil upon which such work is performed. I further affirm under penalty of perjury, that the proposed work will not destroy or unreasonably interfere with any access or utility easement belonging to others and located on my property, but in the event such work does destroy or unreasonably interfere with such easement, a substitute easement(s) satisfactory to the holder(s) of the easement will be provided (Sec. 91.0106.4.3.4 LAMC).

By signing below, I certify that:

(1) I accept all the declarations above namely the Licensed Contractor's Declaration, Workers' Compensation Declaration, Asbestos Removal Declaration / Lead Hazard Warning, Construction Lending Agency Declaration and Final Declaration; and
(2) This permit is being obtained with the consent of the legal owner of the property.

Print Name: JOHN RUTTER Sign: _____ Date: 6/30/10 (X) Contractor ( ) Authorized Agent

7500 N Chaminade Ave

Permit Application #: **10010 - 20000 - 00127**

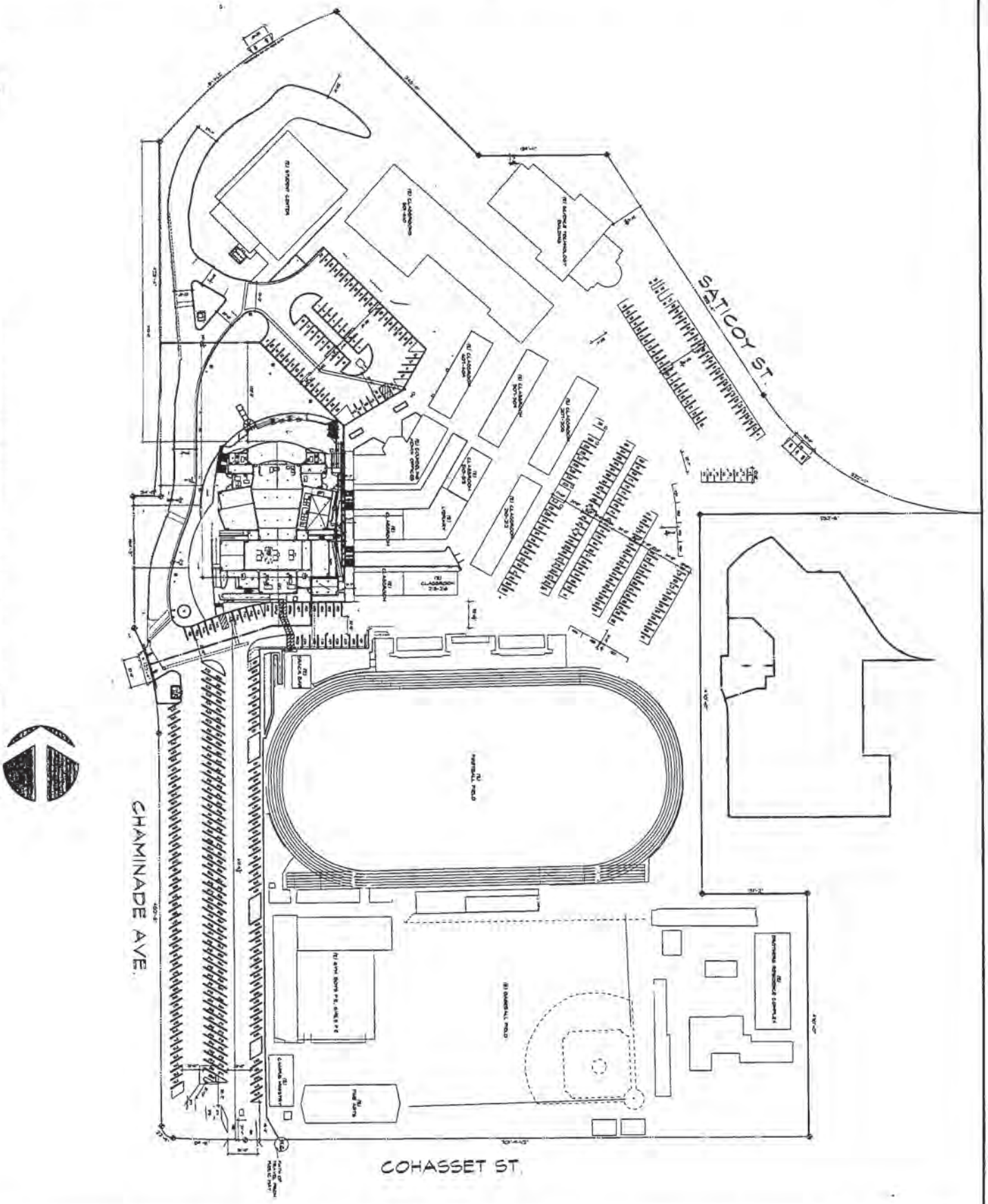
Bldg-New
Commercial
Plan Check

City of Los Angeles - Department of Building and Safety

PLOT PLAN ATTACHMENT

Plan Check #: B10VN00509
Initiating Office: VAN NUYS
Printed on: 05/26/10 10:11:45

(DO NOT DRAW, WRITE, OR PASTE ATTACHMENTS OUTSIDE BORDER)



COUNCIL DISTRICT: 3 INSPECTION DISTRICT: BIMSVN1 PLOT PLAN ATTACHMENT

7500 N Chaminade Ave

Permit #: **97010 - 20000 - 01899**
Plan Check #: S5492XO Reference #:
Event Code:

Bldg---New
Commercial
Back Room Plan Check

City of Los Angeles - Department of Building and Safety
APPLICATION FOR BUILDING PERMIT
AND CERTIFICATE OF OCCUPANCY

Status: Ready to Issue
Status Date: 07/22/97
Printed on: 07/22/97 15:58:11

1. TRACT	BLOCK	LOT(s)	ARB	MAP REF #	PARCEL ID # (PIN)	2. BOOK/PAGE/PARCEL
TR 26072		LT 1		M B 676-76/77	186B093 52	2027 - 005 - 009

3. PARCEL INFORMATION

BAS Branch Office - VN
Council District - 3
Cmpt. Fill Grd. - CFG 1500 /2000
Census Tract - 1344.220
Easement - VAR FUT ST; VAR, 5' & 8' PUE
Energy Zone - 9
Fire District - FBZ
Hillside Grading Area - Y
Highway Dedication - COLL
Lot Size - IRR
Lot Type - Corner
Thomas Brothers Map Grid - 529
ZONE: A1-1 /

4. DOCUMENTS

YC - 10726 (YV)
CPC - 10767
OB - 12395
OB - 14551
ZA - 15692
ZI - 1802
CPC - 2236 (CU)
CPC - 7564

5. CHECKLIST ITEMS

Fabricator Reqd - Shop Welds
Fabricator Reqd - Structural Steel
Special Inspect - Masonry
Special Inspect - Structural Observation

6. PROPERTY OWNER, TENANT, APPLICANT INFORMATION

Owner(s)
Chaminade Preparatory — 10210 Oakdale Ave — CHATSWORTH CA 91311

Tenant

Applicant (Relationship Architect)
Kelsey Liber - Liber Studio. — 2020 Santa Monica Bl 460 — SANTA MONICA, CA 90404 — (310) 828-4322

7. EXISTING USE

PROPOSED USE
16 Retail
23 Storage Building

8. DESCRIPTION OF WORK
NEW MERCHANDISE SALES & STORAGE BLDG.

9. # Bldgs on Site & Use: VARIOUS, SCHOOL

10. APPLICATION PROCESSING INFORMATION

Bldg. PC OK By: Neville Pereira
OK for Cashier: Neville Pereira
Signature: Pereira

DAS PC By: Michael Ayers
Coord. OK: SA
Date: 7-22-97

11. PROJECT VALUATION & FEE INFORMATION Final Fee Period

Permit Valuation: $105,000
PC Valuation:

FINAL TOTAL Bldg---New	1,711.86	School District Commercial Area	625.50
Permit Fee Subtotal Bldg---New	934.06		
Energy Surcharge			
Handicapped Access			
Supp. Plan Check	0.00		
Plan Maintenance	18.68		
Fire Hydrant Refuse-To-Pay			
E.Q. Instrumentation	22.05		
Supp. O.S. Surcharge	19.50		
Supp. Sys. Surcharge	58.49		
Planning Surcharge Misc Fee	5.00		
Supp. Planning Surcharge	28.58		

Sewer Cap ID:
Bond Payment Amt:

12. ATTACHMENTS
Plot Plan
Overflow Page Attached

For Cashier's Use Only W/O #: 71001899

07/22/97 04:20:05PM VN03 T-1692 C 15
BLDG PERMIT CO 934.06
INVOICE # 0000000 PP
PLAN MAINTENAN 18.68
EI COMMERCIAL 22.05
SYS DEV 58.49
ONE STOP 19.50
MISCELLANEOUS 5.00
CITY PLAN SURC 28.58
SCHOOL DEV COM 625.50
TOTAL 1,711.86
CHECK 1,711.86

97VN 21309

0 5 3 5 2 7 0 3 3 2

13. STRUCTURE INVENTORY

(P) Floor Area (ZC) 1,749 Sqft
(P) Height (BC) 25.25 Feet
(P) Height (ZC) 25.25 Feet
(P) Length 38.67 Feet
(P) Stories 2 Levels
(P) Width 44 Feet
(P) Masonry Shearwall
(P) M Occupancy 697 Sqft Max Occ.
(P) U1 Occupancy 1,052 Sqft Max Occ.
(P) Type III-N Construction
(P) Floor Construction - Concrete Slab on Grade
(P) Foundation - Continuous Footing
(P) Roof Construction - Wood Frame/Sheathing
(P) Floor Construction - Concrete Deck
(P) Wall Construction - Masonry

14. APPLICATION COMMENTS

15. Building Relocated From:

16. CONTRACTOR, ARCHITECT, & ENGINEER NAME		ADDRESS		CLASS	LICENSE#	PHONE #
(A) Liber	Kelsey	1313 Ashland Avenue,	Santa Monica, CA 90405		C14252	310-828-4322
(E) Leifield	Susan	28 Privateer Street #4,	Marina Del Rey, CA 90292		C55050	310-827-6872

Unless a shorter period of time has been established by an official action, plan check approval expires one and a half years after the plan check fee has been paid. This permit expires two years after the building permit fee has been paid or 180 days after the fee has been paid and construction has not commenced or if work is suspended, discontinued or abandoned for a continuous period of 180 days (Sec. 98.0602 LAMC). Claims for refund of fees paid must be filed within one year from the date of expiration for permits granted by the Dept. of Building & Safety (Sec. 22.12 & 22.13 LAMC).

0 6 3 2 1 0 3 3 3

17. LICENSED CONTRACTOR'S DECLARATION

I hereby affirm under penalty of perjury that I am licensed under the provisions of Chapter 9 (commencing with Section 7000) of Division 3 of the Business and Professions Code, and my license is in full force and effect. (For 1 or 2 family dwellings, use the declaration attachment if separate general, electrical, plumbing, and/or HVAC contractor's & workers' comp. declarations are desired.)

License Class: _____ Lic. No: _____ Print: _____ Sign: _____

18. WORKERS' COMPENSATION DECLARATION

I hereby affirm, under penalty of perjury, one of the following declarations:

☐ I have and will maintain a certificate of consent to self insure for workers' compensation, as provided for by Section 3700 of the Labor Code, for the performance of the work for which this permit is issued.

☐ I have and will maintain workers's compensation insurance, as required by Section 3700 of the Labor Code, for the performance of the work for which this permit is issued. My workers' compensation insurance carrier and policy number are:

Carrier: _____ Policy Number: _____

X I certify that in the performance of the work for which this permit is issued, I shall not employ any person in any manner so as to become subject to the workers' compensation laws of California, and agree that if I should become subject to the workers' compensation provisions of Section 3700 of the Labor Code, I shall forthwith comply with those provisions.

Sign: _____ Date: 7,22,97 ☐ Contractor ☒ Authorized Agent ☐ Owner

WARNING FAILURE TO SECURE WORKERS' COMPENSATION COVERAGE IS UNLAWFUL, AND SHALL SUBJECT AN EMPLOYER TO CRIMINAL PENALTIES AND CIVIL FINES UP TO ONE HUNDRED THOUSAND DOLLARS ($100,000), IN ADDITION TO THE COST OF COMPENSATION, DAMAGES AS PROVIDED FOR IN SECTION 3706 OF THE LABOR CODE, INTEREST, AND ATTORNEY'S FEES

19. CONSTRUCTION LENDING AGENCY

I hereby affirm under penalty of perjury that there is a construction lending agency for the performance of the work for which this permit is issued (Sec. 3097, Civil Code).

Lender's name: _____ Lender's address: _____

20. ASBESTOS REMOVAL

Notification of asbestos removal: ☐ Is not applicable ☐ Letter was sent to the AQMD or EPA Sign: _____ Date: ___/___/___

21. OWNER-BUILDER DECLARATION

I hereby affirm under penalty of perjury that I am exempt from the Contractors License Law for the following reason (Section 7031.5, Business and Professions Code: Any city or county which requires a permit to construct, alter, improve, demolish, or repair any structure, prior to its issuance, also requires the applicant for such permit to file a signed statement that he or she is licensed pursuant to the provisions of the Contractors License Law (Chapter 9 commencing with Sec. 7000 of Division 3 of the Business and Professions Code) or that he or she is exempt therefrom and the basis for the alleged exemption. Any violation of Section 7031.5 by any applicant for a permit subjects the applicant to a civil penalty of not more than five hundred dollars ($500).):

X I, as the owner of the property, or my employees with wages as their sole compensation, will do the work, and the structure is not intended or offered for sale (Sec. 7044, Business & Professions Code: The Contractors License Law does not apply to an owner of property who builds or improves thereon, and who does such work himself or herself or through his or her own employees, provided that such improvements are not intended or offered for sale. If, however, the building or improvement is sold within one year from completion, the owner-builder will have the burden of proving that he or she did not build or improve for the purpose of sale)

☐ I, as the owner of the property, am exclusively contracting with licensed contractors to construct the project (Sec. 7044, Business & Professions Code: The Contractors License Law does not apply to an owner of property who builds or improves thereon, and who contracts for such projects with a contractor(s) licensed pursuant to the Contractors License Law.)

☐ I am exempt under Sec. _____ Bus. & Prof. Code for the following reason: _____

X Print: RICHARD S. LEACH Sign: _____ Date: 7,22,97 ☐ Owner ☒ Authorized Agent

22. FINAL DECLARATION

I certify that I have read this application and state that the above information is correct. I agree to comply with all city and county ordinances and state laws relating to building construction, and hereby authorize representatives of this city to enter upon the above-mentioned property for inspection purposes. I realize that this permit is an application for inspection and that it does not approve or authorize the work specified herein. Also that it does not authorize or permit any violation or failure to comply with any applicable law. Furthermore, that neither the City of Los Angeles nor any board, department officer, or employee thereof, make any warranty, nor shall be responsible for the performance or results of any work described herein, nor the condition of the property nor the soil upon which such work is performed. I further affirm under penalty of perjury, that the proposed work will not destroy or unreasonably interfere with any access or utility easement belonging to others and located on my property, but in the event such work does destroy or unreasonably interfere with such easement, a substitute easement(s) satisfactory to the holder(s) of the easement will be provided (Sec. 91.0106.4.3.4 LAMC).

X Print: RICHARD S. LEACH Sign: _____ Date: 7,22,97 ☐ Owner ☐ Contractor ☒ Author. Agent

7500 N. CHAMINADE AVE.

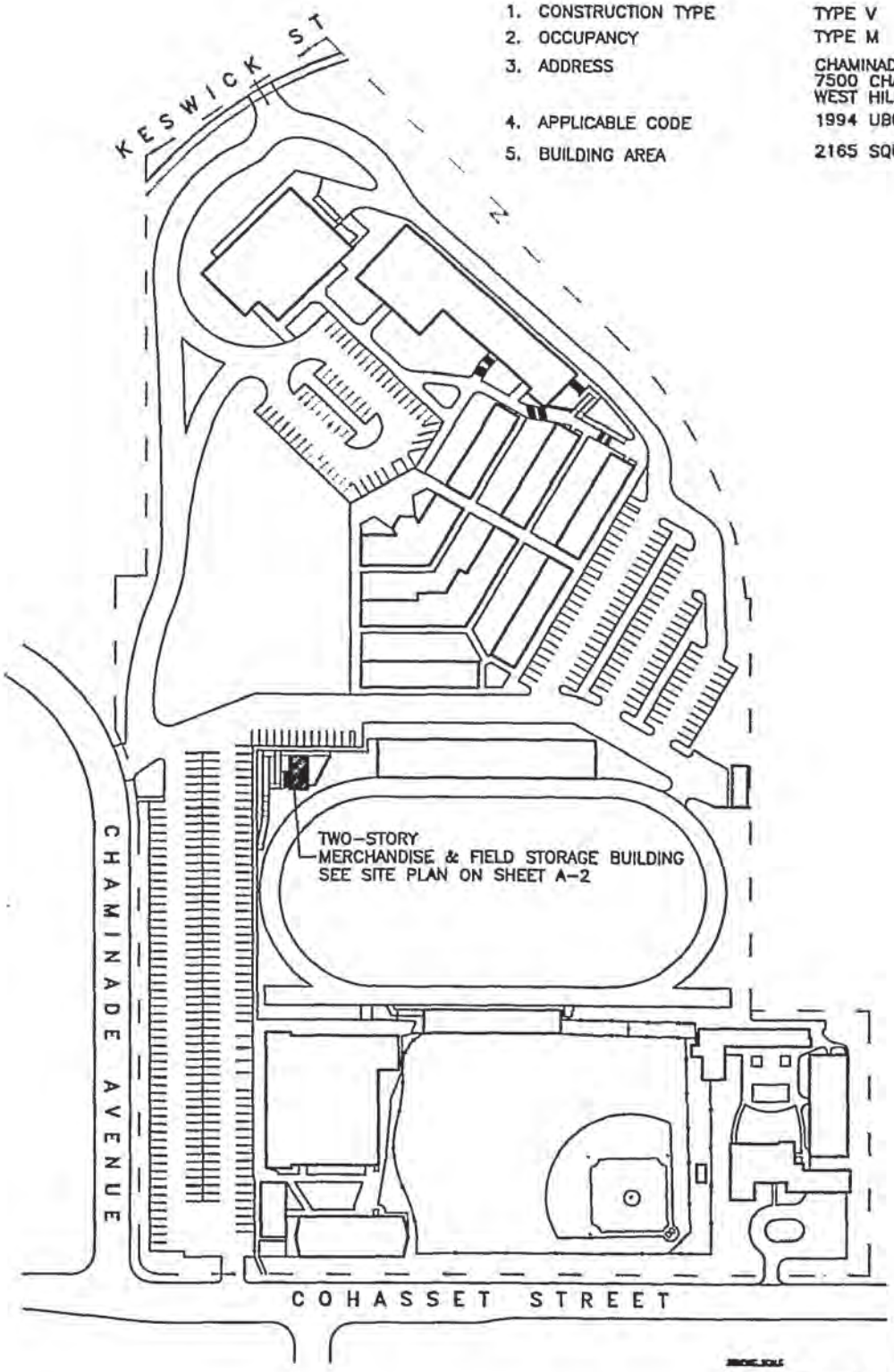
97010-20000-1899

VICINITY MAP

0632222n0336

RETAIL WITH STORAGE

1.	CONSTRUCTION TYPE	TYPE V
2.	OCCUPANCY	TYPE M
3.	ADDRESS	CHAMINADE COLLEGE PREPARATORY 7500 CHAMINADE AVENUE WEST HILLS, CALIFORNIA
4.	APPLICABLE CODE	1994 UBC
5.	BUILDING AREA	2165 SQUARE FEET



1 APPLICATION FOR INSPECTION OF NEW BUILDING AND FOR CERTIFICATE OF OCCUPANCY

CITY OF LOS ANGELES — DEPT. OF BUILDING AND SAFETY

7500 C-2

INSTRUCTIONS: 1. Applicant to Complete Numbered Items Only. 2. Plot Plan Required on Back of Original.

CENSUS TRACT

1. LEGAL DESCR. — LOT: 1 — BLK. — TRACT: 26072
2. PURPOSE OF BUILDING: (1) Dormitory & ~~Recreation Facility~~
3. JOB ADDRESS: 7500 Chaminade Avenue CP
4. BETWEEN CROSS STREETS: Cohasset AND
5. OWNER'S NAME: Chaminade Prep. School — PHONE: 347-4822
6. OWNER'S ADDRESS: 7500 Chaminade Avenue, Canoga Park — P. O. BOX — ZONE
7. ARCHITECT OR DESIGNER: Robert C. Brown Arch. — STATE LICENSE NO.: C-4392 — PHONE: 8489217
8. ENGINEER: ~~None~~ SocoLoskie — STATE LICENSE NO.: C 12251 — PHONE: 873-3635
9. CONTRACTOR: Ray Wilson Contractor — STATE LICENSE NO.: 128800 — PHONE: 245-9161
10. SIZE OF NEW BLDG.: 106 x 37 — STORIES: 2 — HEIGHT: 24' — NO. OF EXISTING BUILDINGS ON LOT AND USE: (16) Classroom etc.
11. MATERIAL OF CONSTRUCTION — EXT. WALLS: conc. blk wood & plaster — ROOF: compo — FLOOR: Wood, conc.
12. JOB ADDRESS: 7500 Chaminade Avenue — 95000.00 B.H.
13. VALUATION: TO INCLUDE ALL FIXED EQUIPMENT REQUIRED TO OPERATE AND USE PROPOSED BUILDING. $ ~~6[illegible]~~ 00

DISTRICT OFFICE: VN
GRADING: yes
CRIT. SOIL: yes
HIGHWAY DED.: yes
FLOOD:
CONS.: /
ZONED BY: Coutchie
FILE WITH:
INSPECTOR: /

DIST. MAP: 7471
ZONE: A-1-1
FIRE DIST.: /
INSIDE (COR. LOT)
KEY REV. COR.
LOT SIZE: Irreg. acreage
REAR ALLEY
SIDE ALLEY: /
BLDG. LINE: /
AFFIDAVITS: ZA 15692; OS 12395; 2000 fill

1

PURPOSE OF BUILDING				VALUATION APPROVED
TYPE: V	GROUP: ~~F~~ D-3	STORIES: 2		PLANS CHECKED: Sackheim
BLDG. AREA: 3900 D'	MAX. OCC: 80	TOTAL: 80		PLANS APPROVED: Hanlon
DWELL. UNITS	GUEST ROOMS	SPACES PARKING: REQ'D	PROVIDED	APPLICATION APPROVED: Hanlon
SPRINKLERS REQ'D SPECIFIED	CONT. INSP. 4/c. FAB GLUE-LAM. COL'S.			

P.C. No. 6560

P.C.	S.P.C.	G.P.I.	B.P.	I.F.	O.S.	C/O	TYPIST
121.94	32.76	5.00	238.00				

USE ONLY

JUN 22-65	39480	Ck VN •	K — 2	121.94
SEP 10-65	43982	Ck VN • 85418	K — 2	32.76
SEP 10-65	43983	Ck VN • 85418	K — 1	238.00
SEP 10-65	43984	Ck VN • 85418	K 11 —	5.00

STATEMENT OF RESPONSIBILITY

I certify that in doing the work authorized hereby I will not employ any person in violation of the Labor Code of the State of California relating to workmen's compensation insurance.

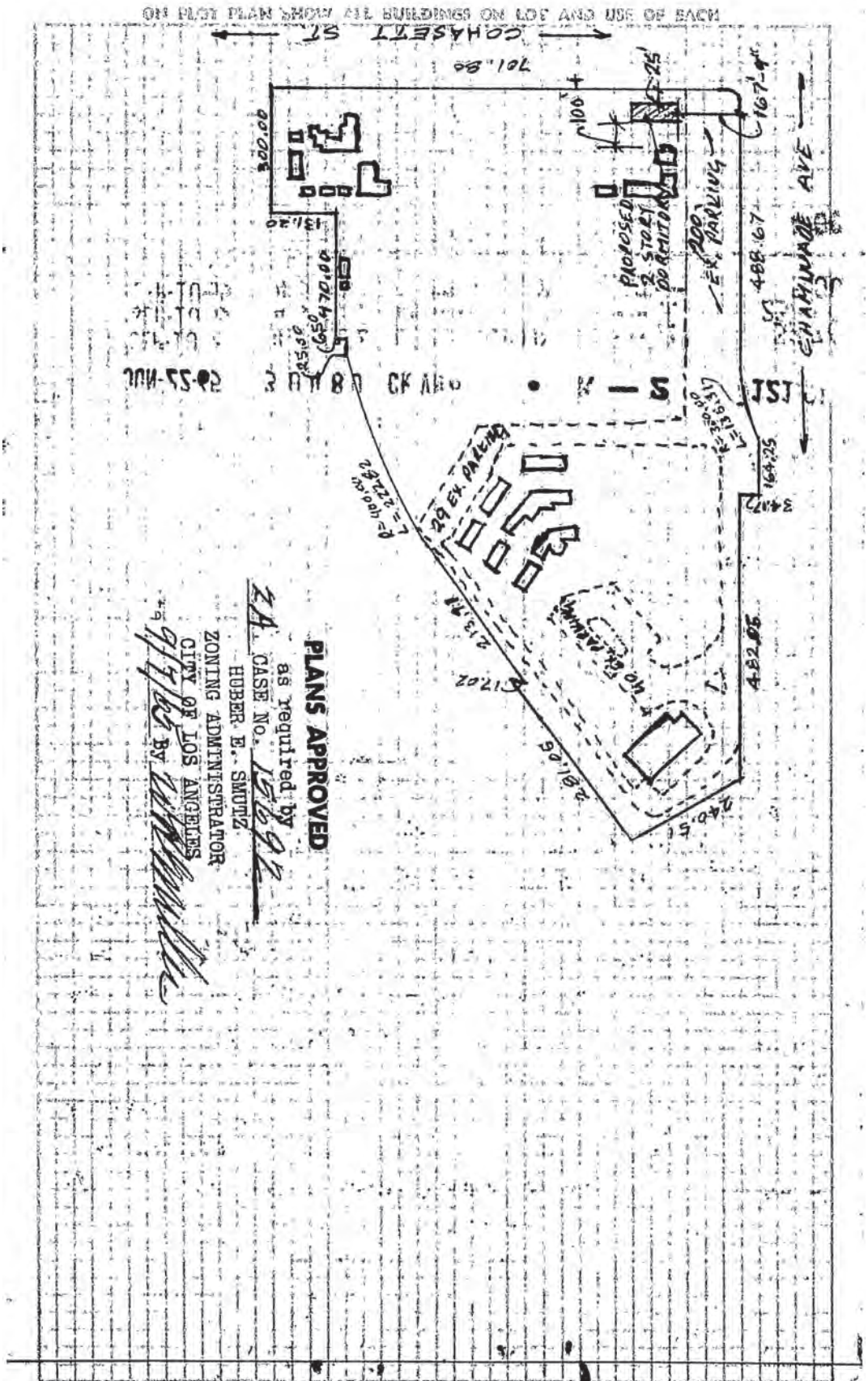
"This permit is an application for inspection, the issuance of which is not an approval or an authorization of the work specified herein. This permit does not authorize or permit, nor shall it be construed as authorizing or permitting the violation or failure to comply with any applicable law. Neither the City of Los Angeles, nor any board, department, officer or employee thereof make any warranty or shall be responsible for the performance or results of any work described herein, or the condition of the property or soil upon which such work is performed." (See Sec. 91.0202 L.A.M.C.)

Signed Robert C. Brown (Owner or Agent)

		Name	Date
Bureau of Engineering	ADDRESS APPROVED		
	SEWERS AVAILABLE / NOT AVAILABLE		
	DRIVEWAY APPROVED		
	HIGHWAY DEDICATION REQUIRED / COMPLETED		
	FLOOD CLEARANCE APPROVED		
Conservation	APPROVED FOR ISSUE FILE #		
Plumbing	~~PLUMBING~~ / ~~SEWER~~ APPROVED	Joseph Kohn	6-24-65
Planning	APPROVED UNDER CASE #		
Fire	APPROVED (TITLE 19) (L.A.M.C.-5700)	Herbert L Tourtellott	9/8/65
Traffic	APPROVED FOR		

LEGAL DESCRIPTION

Requires city planning approval Coutchie



3 APPLICATION TO ALTER - REPAIR - DEMOLISH AND FOR CERTIFICATE OF OCCUPANCY

W

B&S Form 8-3 AC-1

CITY OF LOS ANGELES DEPT. OF BUILDING AND SAFETY

INSTRUCTIONS: 1. Applicant to Complete Numbered Items Only 2. Plot Plan Required on Back of Original.

CENSUS TRACT

1. LEGAL DESCR. LOT: 1 BLK: TRACT: 26072
2. PRESENT USE OF BUILDING: Assembly & dining (8) Multi-purpose NEW USE OF BUILDING: (8) Same
3. JOB ADDRESS: 7500 Chaminade Ave. CP
4. BETWEEN CROSS STREETS: Cohasset St. AND Term.
5. OWNER'S NAME: Chaminade Preparatory School PHONE: DI 78300
6. OWNER'S ADDRESS: 7500 Chaminade Ave. P.O. BOX ZIP: Canoga Park, Calif.
7. ARCHITECT OR DESIGNER: Barker & ott STATE LICENSE NO. 1647 PHONE: WE 38504
8. ENGINEER: S. B. Barnes STATE LICENSE NO. SE 1 PHONE: DU 22385
9. CONTRACTOR: Ray Wilson Co. STATE LICENSE NO. 128800 PHONE: 645-6861
10. SIZE OF EXISTING BLDG.: 100'x140' STORIES: 1 HEIGHT: 2 NO. OF EXISTING BUILDINGS ON LOT AND USE: 5 School & Res.
11. MATERIAL OF CONSTRUCTION: EXT. WALLS: existing ROOF: / FLOOR: /

3 12. JOB ADDRESS: 7500 Chaminade Ave.

13. VALUATION: TO INCLUDE ALL FIXED EQUIPMENT REQUIRED TO OPERATE AND USE PROPOSED BUILDING. $ 300.00

14. NEW WORK: (Describe) Interior only, enclose emergency generator & storage

NEW USE OF BUILDING | SIZE OF ADDITION: n/c | STORIES: / | HEIGHT: /

TYPE: III B | GROUP: B-2/G-2 | SPRINKLERS REQ'D SPECIFIED: / | VALUATION APPROVED: Harder

BLDG. AREA: n/c | MAX. OCC.: / | TOTAL: / | PLANS CHECKED: [signature]

DWELL. UNITS: / | GUEST ROOMS: / | SPACES PARKING REQ'D: n/c PROVIDED: | PLANS APPROVED:

P.C. No.: | CONT. INSP.: | APPLICATION APPROVED: [signature]

P.C. 163 | S.P.C. | G.P.I. | B.P. 2.50 | I.F. / | O.S. | C/O | TYPIST rs

CASHIER'S USE ONLY

JAN--4-66 00372 Ca VN•91465 N=2 1.63
JAN--4-66 00373 Ca VN•91465 N=1 2.50

CENSUS TRACT: DIST. MAP: 7471 | ZONE: A-1-1 | FIRE DIST.: / | INSIDE / (COR. LOT) KEY 60/ 60 REV. COR. | LOT SIZE: Irrg Acreage | REAR ALLEY | SIDE ALLEY / | BLDG. LINE | AFFIDAVITS: ZA 15692 2000 Fill OS Bldg. | DISTRICT OFFICE: VN | GRADING: yes | CRIT. SOIL / | HIGHWAY DED. / | FLOOD / | CONS. / | ZONED BY: McClive | FILE WITH | INSPECTOR

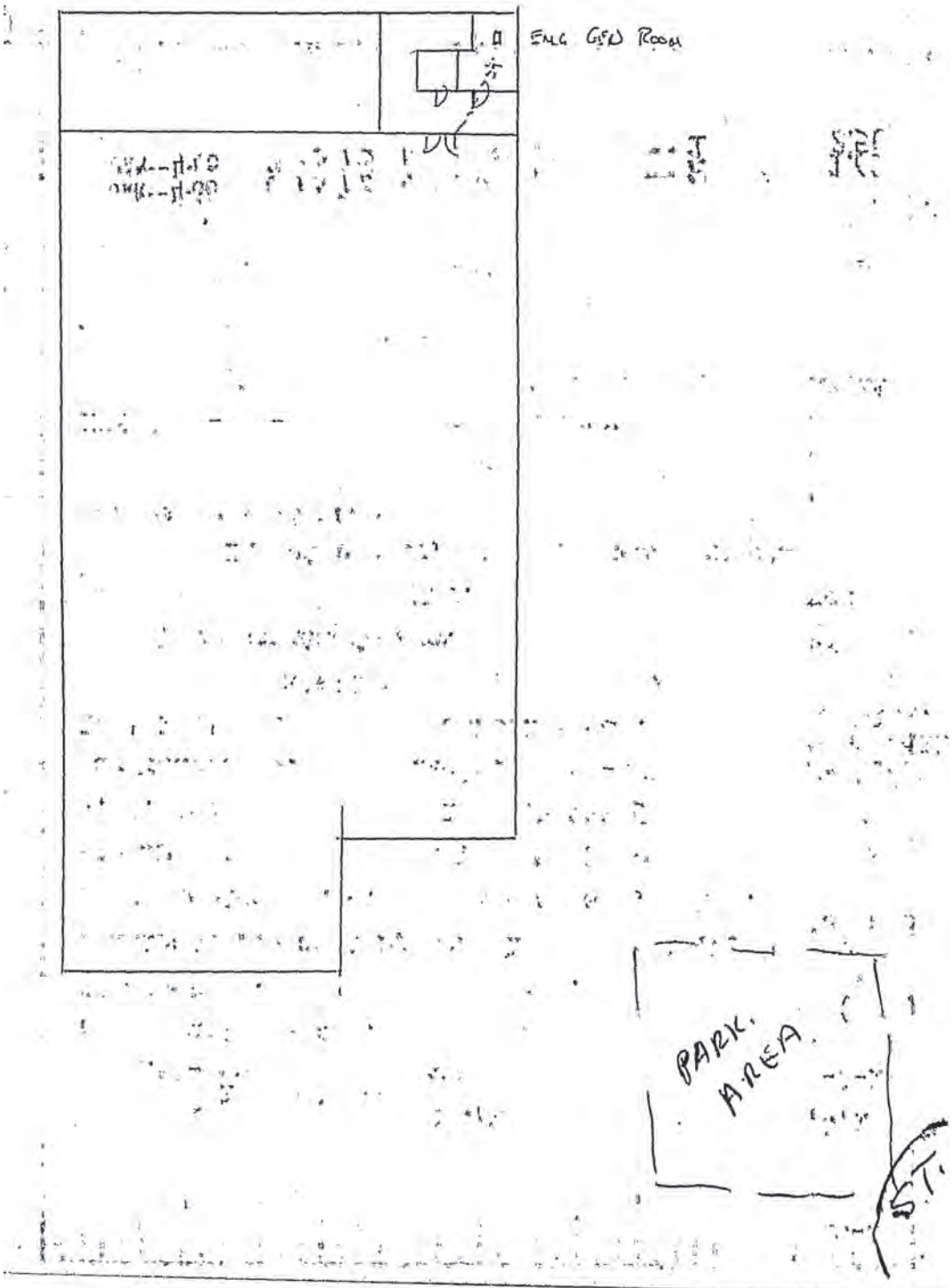
STATEMENT OF RESPONSIBILITY

I certify that in doing the work authorized hereby I will not employ any person in violation of the Labor Code of the State of California relating to workmen's compensation insurance.

"This permit is an application for inspection, the issuance of which is not an approval or an authorization of the work specified herein. This permit does not authorize or permit, nor shall it be construed as authorizing or permitting the violation or failure to comply with any applicable law. Neither the City of Los Angeles, nor any board, department, officer or employee thereof make any warranty or shall be responsible for the performance or results of any work described herein, or the condition of the property or soil upon which such work is performed." (See Sec. 91.0202 L.A.M.C.)

Signed Ray Wilson Co. Per Bryant (Owner or Agent)

		Name	Date
Bureau of Engineering	ADDRESS APPROVED		
	SEWERS AVAILABLE / NOT AVAILABLE		
	DRIVEWAY APPROVED		
	HIGHWAY DEDICATION REQUIRED / COMPLETED		
	FLOOD CLEARANCE APPROVED		
Conservation	APPROVED FOR ISSUE FILE #		
Plumbing	PRIVATE SEWAGE DISPOSAL SYSTEM APPROVED		
Planning	APPROVED UNDER CASE #		
Fire	APPROVED (TITLE 19) (L.A.M.C.-5700)		
Traffic	APPROVED FOR		


ENLG GFD ROOM
PARK. AREA
ST.

3 CITY OF LOS ANGELES

APPLICATION TO ALTER-REPAIR-DEMOLISH AND FOR CERTIFICATE OF OCCUPANCY

RA-1 W — DEPT OF BUILDING AND SAFETY — 845 43-R248

INSTRUCTIONS: 1. Applicant to Complete Numbered Items Only. 2. Plot Plan Required on Back of Original.

1. LEGAL DESCR. LOT: 1	BLK.	TRACT: 26072		CENSUS TRACT: 1344
2. PRESENT USE OF BUILDING: 01 Dwell. & storage		NEW USE OF BUILDING: 01 Same & Rec. room		DIST. MAP: 747 1
3. JOB ADDRESS: 7500 Chaminade Ave. CP				ZONE: A1-1
4. BETWEEN CROSS STREETS: Cohasset AND DE				FIRE DIST.: /
5. OWNER'S NAME: Chaminade Prep		PHONE		LOT (TYPE): Cor.
6. OWNER'S ADDRESS: 7500 Chaminade Ave.		CITY: ~~CANOGA~~ 91304	ZIP	LOT SIZE: Acreage
7. ARCHITECT OR DESIGNER		STATE LICENSE No.	PHONE	
8. ENGINEER		STATE LICENSE No.	PHONE	ALLEY: /
9. CONTRACTOR: Owner		STATE LICENSE No.	PHONE	BLDG. LINE: /
10. LENDER		BRANCH OFFICE	PHONE	AFFIDAVITS: ZA 15692 OB 12395 Fill File YC 10726

11. SIZE OF EXISTING BLDG.: 40x106	STORIES: 1	HEIGHT: 11'6"	NO. OF EXISTING BUILDINGS ON LOT AND USE	
12. MATERIAL OF CONSTRUCTION OF EXISTING BLDG ⇒	EXT. WALLS: Wood	ROOF: alum.	FLOOR: ac	

3

13. JOB ADDRESS: 7500 Chaminade Ave. CP — DISTRICT OFFICE: VN

14. VALUATION TO INCLUDE ALL FIXED EQUIPMENT REQUIRED TO OPERATE AND USE PROPOSED BUILDING: $ 1400. — GRADING: Yes

15. NEW WORK: (Describe) Add screened rec. room (S-1 ~~R-3~~ occ.) — CRIT. SOIL: /

HIGHWAY DED.: /

NEW USE OF BUILDING: Same		SIZE OF ADDITION: 20x37	STORIES	HEIGHT
TYPE: V	GROUP: S-1-G/ R-1/~~R-3~~	SPRINKLERS REQ'D SPECIFIED	VALUATION APPROVED	
BLDG. AREA	MAX. OCC.: 49@S-1	TOTAL: 1-fam.	PLANS CHECKED: FNC 7	ZONED BY: [illegible] OVER
DWELL. UNITS	GUEST ROOMS	PARKING REQ'D / PROVIDED SPACES	PLANS APPROVED	FILE WITH
P.C. No.	CONT. INSP.		APPLICATION APPROVED	INSPECTOR: B

P.C.	S.P.C.	G.P.I.	B.P.	I.F.	O.S.	C/O	TYPIST
494	—	—	60	—	—	—	st

PLAN CHECK EXPIRES SIX MONTHS AFTER FEE IS PAID. PERMIT EXPIRES ONE YEAR AFTER FEE IS PAID OR SIX MONTHS AFTER FEE IS PAID IF CONSTRUCTION IS NOT COMMENCED.

CASHIER'S USE ONLY

AUG--8-68 41505 Ck VN•33745 M — 6 4.94
AUG--8-68 41506 Ck VN•33745 M — 2 7.60

STATEMENT OF RESPONSIBILITY

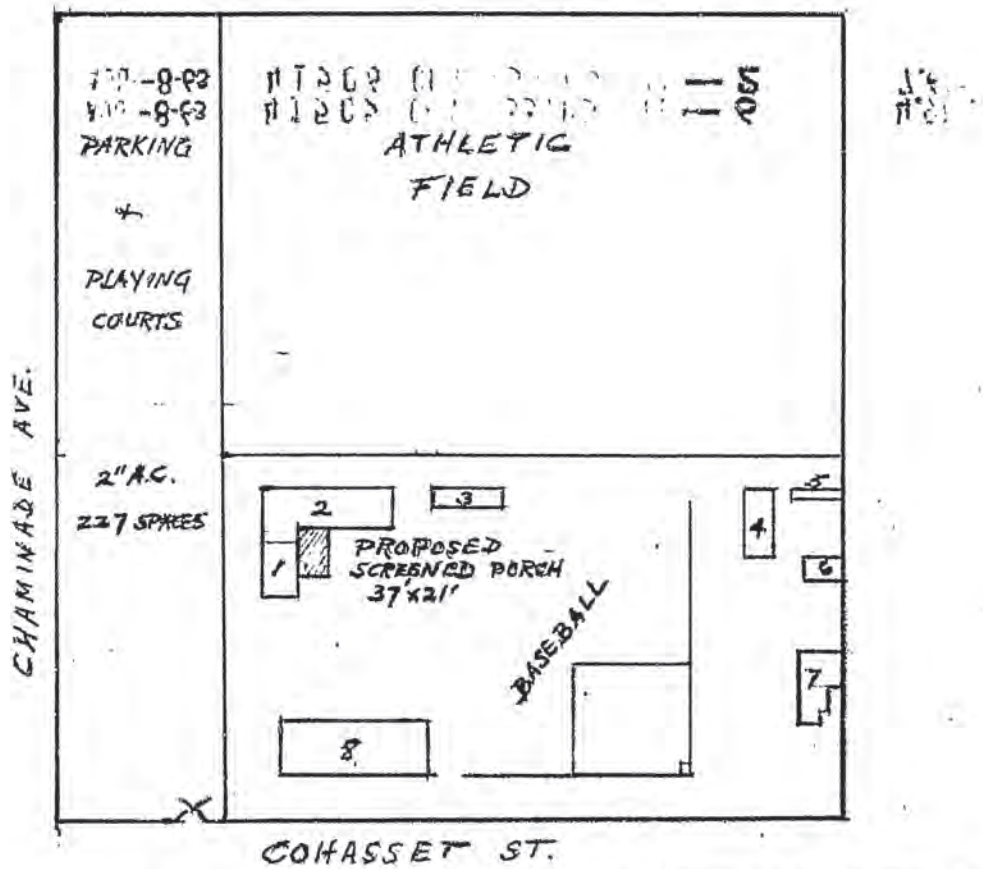
I certify that in doing the work authorized hereby I will not employ any person in violation of the Labor Code of the State of California relating to workmen's compensation insurance.

"This permit is an application for inspection, the issuance of which is not an approval or an authorization of the work specified herein. This permit does not authorize or permit, nor shall it be construed as authorizing or permitting the violation or failure to comply with any applicable law. Neither the City of Los Angeles, nor any board, department, officer or employee thereof make any warranty or shall be responsible for the performance or results of any work described herein, or the condition of the property or soil upon which such work is performed." (See Sec. 91.0202 L.A.M.C.)

Signed: James D. Kipfield (Owner or Agent)

		Name	Date
Bureau of Engineering	ADDRESS APPROVED		
	SEWERS AVAILABLE / NOT AVAILABLE		
	DRIVEWAY APPROVED		
	HIGHWAY DEDICATION REQUIRED / COMPLETED		
	FLOOD CLEARANCE APPROVED		
Conservation	APPROVED FOR ISSUE FILE #		
Plumbing	PRIVATE SEWAGE DISPOSAL SYSTEM APPROVED		
Planning	APPROVED UNDER CASE # 15694	W K Miller	8/9/68
Fire	APPROVED (TITLE 19) (L.A.M.C.-5700)		
Traffic	APPROVED FOR		

~~Secure Planning approval for BA Card~~
Sat over



1. RECREATION COTTAGE
2. ATHLETIC STORAGE
3. STORAGE
4. GUEST HOUSE + CHAPEL
5. BATH HOUSE + LAUNDRY
6. POOL
7. RESIDENCE
8. STUDENT DORMITORY

THIS PERMIT IS FOR (Mark one)
☒ NEW BLDG./ STRUCTURE ☐ ADD, ALTER, REPAIR EXISTING BUILDING
☐ RELOCATE EXIST. BLDG. ☐ DEMOLITION OF ENTIRE BUILDING

CITY OF LOS ANGELES - DEPARTMENT OF BUILDING AND SAFETY
APPLICATION FOR BUILDING PERMIT AND CERTIFICATE OF OCCUPANCY

INCIDENT CODE

▼ REF. NO.

A

PROJECT ADDRESS	SUITE/UNIT NO.	CROSS STREETS
7500 CHAMINADE AV		COHASSET

TRACT(S) and COUNTY REF NO (For alpha tracts) e.g. J.G. McDonald Tract (MR 70-20)	BLOCK	LOT(S) and ARB(S) e.g. 15, 16 (Arb 3), 17, 18	DIST MAP
26072		1	186B093
			ASSESSOR'S ID

LOT TYPE	LOT SIZE	ZONE	BUILDING LINE	ALLEY	CENSUS TRACT	ADDR. APP'D	DATE
COR	IRR	A1-1			1344.22	✓	

AFFIDAVITS, EASEMENTS AND RESTRICTIONS: CFG 2000 PSI, CFG 1500 PSI, ZA 15692, YC 10726, OB 1295, OB 14551, CPC 10767, CPC 85-333 CUZ, ZI 1802 CQ

COUNCIL DIST.	FIRE DISTRICT	FLOOD ZONE
03	FBZ	
GRADING	HIGHWAY DED.	SEISMIC STUDY
YES		

B

PROPERTY OWNER	PHONE	APPLICANT	PHONE
CHAMINADE COLLEGE PREP.	818 347-8303	RICK LEACH	818 347-8303
ADDRESS	SUITE/UNIT NO	ADDRESS	SUITE/UNIT NO.
7500 CHAMINADE AV		7500 CHAMINADE AV.	
CITY/STATE/ZIP		CITY/STATE/ZIP	
WEST HILLS, CA 91304		WEST HILLS CA 91304	

ARCHITECT NAME / ADDRESS	LIC CLASS ACTIVE STATE LIC. NO	CITY BUS. LIC NO.	PHONE NO.
KELSEY LIBER/2020 SANTA MONICA BL,	SM 90404/C14252		(310)452-5951
ENGINEER			
LES SCHULZ/7462 FIGUEROA ST N, LA	SE2570		(213)256-2101
CONTRACTOR			
N/S			

PROPOSED USE OF BUILDING: (22) STORAGE/ ~~BLEACHERS~~ Bldg.

EXISTING USE OF BUILDING (Leave blank for new buildings): ( )

DESCRIPTION OF WORK
☐ DAMAGE REPAIR <10% ☐ PATCH PLASTER/ DRYWALL ☐ INT. NON-STRUCTURAL REMODEL ☐ DOOR/WINDOW CHANGEOUT ☐ RE-STUCCO/SIDING ☐ RE-ROOF

OTHER: (Describe)
CONSTRUCT MASONRY STORAGE BUILDING

C

COMPLETE THIS SECTION ONLY FOR ONE AND TWO FAMILY DWELLINGS INVOLVING MECHANICAL WORK IN CONJUCTION WITH THE WORK DESCRIBED IN SEC. "B" ABOVE. A SEPARATE PERMIT SHALL BE OBTAINED FROM MECHANICAL BUREAU FOR ANY WORK WHICH DOES NOT MEET ANY OF THE FOLLOWING CONDITIONS
☐ ELECTRICAL WORK FOR PANEL SIZE <400 AMPS AND TOTAL FLOOR AREA <15,000 S.F. ☐ PLUMBING (NOT INCLUDING FIRE SPRINKLERS) ☐ HVAC WORK FOR HEAT/VENT SIZE < 350,000 BTU AND A.C. SIZE < 25 TONS

DESCRIPTION OF MECHANICAL WORK (Check applicable boxes above)

ELECT. CONTR. NAME / ADDRESS	LIC CLASS ACTIVE STATE LIC. NO	CITY BUS. LIC NO.	PHONE NO
PLUMB. CONTR.			
HVAC CONTR			

SERVICES
THIS PERMIT FOR DEMOLITION OF A BUILDING O
ANY PERMIT FOR DEMOLITION OF A BUILDING O
STRUCTURE. R.T.P.

D

NO. OF EXISTING BLDGS. ON LOT AND USE			
NOMEROOS			
LENGTH: 152'	WIDTH: 26'-8"	HEIGHT (BUILDING): 11	FLOOR AREA (BUILDING): 4054 ☆
STORIES: 1	GROUP OCCUPANCY: B2/A4	OCCUPANTS PER GROUP	MAX. OCCUPANCY
DWELLING UNITS	GUEST ROOMS	CONSTR. TYPE: I	LIC. FABRICATOR REQ'D FOR: SPANCRETE
REQ'D PARKING: 18/469	PARKING PROVIDED: STD 467 COMP. O.A. 8	HEIGHT (ZONING): 11	FLOOR AREA (ZONING): 4054 ☆
LOCATION OF REQ'D FIRE SPRINKLERS		TYPE OF INSPECTION: CS EQ FS ~~ME~~ GEN	DISTRICT INSP. OFFICE: LA (VN) WLA SP

LATERAL/FDN SYSTEMS: ☐ SHEARWALL ☐ EBF/CBF ☐ SMRSF/OMRSF ☐ OTHER ____ ☐ CONTINUOUS/SPREAD ☐ PILE/CAISSON ☐ MAT/BASE ISOLATION ☐ OTHER ____

SPECIAL INSPECTIONS: ☒ CONC > 2000 PSI ☐ FIELD WELDING ☐ GUNITE/SHOTCRETE ☐ GRADE BEAMS/CAISSONS ☒ MASONRY ☐ REBAR WELDS ☐ GRADING ☐ OTHER ____

E

P.C. NO.			VALUATION (including all fixed operating equipment) $ ~~94,000~~ 100,000
S1874			
PLAN CHECK	SUPP PLAN CHECK	E.Q. INSTR	SUPPLEMENT TO PERMIT NO.
586.53		21.00	
HILLSIDE POSTING	BLDG. PERMIT	PLAN MAINT.	PLAN CHECKED BY / DATE
40.00	663.75	13.28	6/30/95
PRE-INSPECTION	ELEC. PRMT (28%)	FIRE HYDRANT	D.V. PLAN CHECKED BY / DATE
65.00		*	7/6/95
INVESTIGATION FEE	PLUMB. PRMT (28%)	ARTS DEV. FEE	ZONING VERIFIED BY / DATE
			ZMAP/SA/gs/5 5-22-95 7-6-95
RELOCATION FEE	HVAC PRMT (13%)	SCHOOL DIST. FEE	APPLICATION APPROVED BY
		1135.12	PRINT BOB QUAN BSID 05092
		SCH. DIST. FL. AREA	
		4054	SIGN Bob Quan DATE 7/6/95

☐ ENERGY ☒ D.A. SURCH. ☐ SURCHARGES ☐ SEWER CAP REQ'D

PLOT PLAN ATTACHED ☒ YES ☐ NO

OTHER ATTACHMENTS (Descr.) ☐ YES

Unless a shorter period of time has been established by an official action, plan check approval expires one and a half years after the fee has been paid. This permit expires two years after the fee has been paid or 180 days after the fee has been paid and construction has not commenced; or if work is suspended, discontinued or abandoned for a continuous period of 180 days (Sec. 98.0603 L.A.M.C.). Claims for refund of fees paid on permits must be filed within one year from the date of expiration for building permits granted by the Department of Building and Safety (Sec. 22.12 & 22.13 L.A.M.C.).

B & S 06-B-B Rev. 2/95

* REFUSE TO PAY

FOR CASHIER'S USE ONLY

06/07/95 01:52:35PM VN03 T-2758 C 16

BLDG PLAN CHEC	586.53
GRADING PRE IN	105.00
ONE STOP	13.83
SYS DEV	41.49
MISCELLANEOUS	5.00
CITY PLAN SURC	20.75
TOTAL	772.60
CHECK	772.60

07/06/95 02:38:20PM LA04 T-3368 C 29

BLDG PERMIT CO	663.75
INVOICE # 0005092 BB	
PLAN MAINTENAN	13.28
EI COMMERCIAL	21.00
SYS DEV	41.88
ONE STOP	13.96
MISCELLANEOUS	5.00
CITY PLAN SURC	20.31
SCHOOL DEV COM	1,135.12
CARRY	1,914.30
TO TRAN 3369	

95LA 37974 C.O.

95LA 37974

7500 CHAMINADE AV

1200 CHEMINADE VA

202

BUREAU OF ENGINEERING	SEWERS ☐ AVAILABLE R# 5-22-95 ☐ NOT AVAILABLE SEWER RESERVATION NO. / SEWER CERTIFICATE NO.	PLANNING WORKSHEET NO. APPROVED UNDER CASE NO. 7-5-95 NOSCAPE/XERISCAPE APPROVED PLANS ONLY *PER APPROVED CPC 85-333 GPA/VIL
CURB RAMP / DRIVEWAY	SEWER FACILITIES CHARGE ☐ NOT APPLICABLE R# 5-22-95 ☐ DUE ☐ PAID	SITE PLAN REVIEW
FLOOD / INDUSTRIAL WASTE		FIRE DEPT ☐ APPROVED TITLE 19 (L.A.M.C. Sec. 700 ☐ HYDRANT UNIT ☐ OTHER
HIGHWAY DEDICATION ☐ REQUIRED ☐ COMPLETED	GRADING DIVISION ☒ HILLSIDE NOTICE MAILED JUN 08 1995 Bwest ☒ HILLSIDE NOTICE POSTED 6-13-95 Glauel	DEPT. OF TRANSPORTATION ☐ DRIVEWAY LOCATION ☐ ORD NO.
EXCAVATION ADJACENT TO PUBLIC WAY		
CONSTR. TAX RECEIPT NO. / DWELLING UNITS	☐ PRIVATE SEWAGE SYSTEM OK	CAL OSHA
HOUSING AUTHORITY	CRA APPROVED RE-DEV. PROJECT	AQMD-AB3205
CULTURAL AFFAIRS	C.E.Q.A.	DEPT. WATER & POWER
COMPLETE FOR RELOCATION PERMITS ONLY OLD ADDRESS ☐ FROM OUTSIDE CITY OF L.A.		CASH/SURETY BOND NO. / MILES MOVED

5370080345 1

1 LICENSED CONTRACTOR AND WORKERS' COMPENSATION DECLARATION

GENERAL CONTRACTOR

I hereby affirm under penalty of perjury, that I am the general contractor named on the reverse side of this permit and I am licensed under the provisions of Chapter 9 commencing with Section 7000 of Division 3 of the Business and Professions Code and my license is in full force and effect. I am responsible for the following permits:

☐ Building ☐ Electrical ☐ Plumbing ☐ HVAC

I hereby affirm under penalty of perjury, one of the following declarations:

☐ I have and will maintain a certificate of consent to self-insure for workers' compensation as provided for by Sec. 3700 of the Labor Code for the performance of the work for which this permit is issued.

☐ I have and will maintain workers' compensation insurance as required by Sec. 3700 of the Labor Code for the performance of the work for which this permit is issued. My workers' compensation insurance carrier and policy number are:

Carrier _____ Policy No. _____

☐ I certify that in the performance of the work for which this permit is issued, I shall not employ any person in any manner so as to become subject to the workers' compensation laws of California, and agree that if I should become subject to the provisions of Sec. 3700 of the Labor Code, I shall forthwith comply with those provisions.

Sign _____ Date _____

ELECTRICAL CONTRACTOR

I hereby affirm under penalty of perjury that I am the electrical contractor named on the reverse side of this permit and I am licensed under the provisions of Chapter 9 commencing with Section 7000 of Division 3 of the Business and Professions Code and my license is in full force and effect. I am responsible only for the electrical permit.

I hereby affirm, under penalty of perjury, one of the following declarations:

☐ I have and will maintain a certificate of consent to self-insure for workers' compensation as provided for by Sec. 3700 of the Labor Code, for the performance of the work for which this permit is issued.

☐ I have and will maintain workers' compensation insurance as required by Sec. 3700 of the Labor Code for the performance of the work for which this permit is issued. My workers' compensation insurance carrier and policy number are:

Carrier _____ Policy No. _____

☐ I certify that in the performance of the work for which this permit is issued, I shall not employ any person in any manner so as to become subject to the workers' compensation laws of California, and agree that if I should become subject to the provisions of Sec. 3700 of the Labor Code, I shall forthwith comply with those provisions.

Sign _____ Date _____

PLUMBING CONTRACTOR

I hereby affirm, under penalty of perjury that I am the plumbing contractor named on the reverse side of this permit and I am licensed under the provisions of Chapter 9, commencing with Section 7000 of Division 3 of the Business and Professions Code, and my license is in full force and effect. I am responsible only for the plumbing permit.

I hereby affirm under penalty of perjury one of the following declarations:

☐ I have and will maintain a certificate of consent to self-insure for workers' compensation as provided for by Sec. 3700 of the Labor Code, for the performance of the work for which this permit is issued.

☐ I have and will maintain workers' compensation insurance, as required by Sec. 3700 of the Labor Code, for the performance of the work for which this permit is issued. My workers' compensation insurance carrier and policy number are:

Carrier _____ Policy No. _____

☐ I certify that in the performance of the work for which this permit is issued, I shall not employ any person in any manner so as to become subject to the workers' compensation laws of California, and agree that if I should become subject to the provisions of Sec. 3700 of the Labor Code, I shall forthwith comply with those provisions.

Sign _____ Date _____

HVAC CONTRACTOR

I hereby affirm under penalty of perjury that I am the HVAC contractor named on the reverse side of this permit and I am licensed under the provisions of Chapter 9 commencing with Section 7000 of Division 3 of the Business and Professions Code and my license is in full force and effect. I am responsible only for the HVAC permit.

I hereby affirm, under penalty of perjury, one of the following declarations:

☐ I have and will maintain a certificate of consent to self-insure for workers' compensation as provided for by Sec. 3700 of the Labor Code, for the performance of the work for which this permit is issued.

☐ I have and will maintain workers' compensation insurance, as required by Sec. 3700 of the Labor Code, for the performance of the work for which this permit is issued. My workers' compensation insurance carrier and policy number are:

Carrier _____ Policy No. _____

☐ I certify that in the performance of the work for which this permit is issued, I shall not employ any person in any manner so as to become subject to the workers' compensation laws of California, and agree that if I should become subject to the provisions of Sec. 3700 of the Labor Code, I shall forthwith comply with those provisions.

Sign _____ Date _____

WARNING: FAILURE TO SECURE WORKERS' COMPENSATION COVERAGE IS UNLAWFUL AND SHALL BE SUBJECT TO CRIMINAL PENALTIES AND CIVIL FINES UP TO ONE HUNDRED THOUSAND DOLLARS ($100,000), IN ADDITION TO THE COST OF THE COMPENSATION DAMAGES AS PROVIDED FOR IN SEC. 3706 OF THE LABOR CODE, INTEREST, AND ATTORNEY'S FEES.

2 CONSTRUCTION LENDING AGENCY

I hereby affirm, under penalty of perjury that there is a construction lending agency for the performance of the work for which this permit is issued (Sec. 3097 Civil Code).

Lender's name _____ Lender's Address _____

3 ASBESTOS REMOVAL

☐ I declare that notification of Asbestos Removal is not applicable ☐ I declare that a notification letter has been sent to the AQMD or EPA Sign _____ Date _____

4 OWNER-BUILDER DECLARATION

I hereby affirm, under penalty of perjury that I am exempt from the Contractors License Law for the following reason (Sec. 7031.5, Business & Professions Code: Any city or county which requires a permit to construct, alter, improve, demolish, or repair any structure, prior to its issuance, also requires the applicant for such permit to file a signed statement that he or she is licensed pursuant to the provisions of the Contractors License Law (Chap. 9 commencing with Sec. 7000 of Div. 3 of the Business & Professions Code) or that he or she is exempt therefrom and the basis for the alleged exemption. Any violation of Sec. 7031.5 by any applicant for a permit, subjects the applicant to a civil penalty of not more than five hundred dollars ($500):

☐ I, as the owner of the property, or my employees with wages as their sole compensation, will do the work, and the structure is not intended or offered for sale (Sec. 7044, Business & Professions Code: The Contractors License Law does not apply to the owner of property who builds or improves thereon, and who does such work himself or herself or through his or her own employees, provided that such improvements are not intended or offered for sale. If, however, the building or improvement is sold within one year of completion, the owner-builder will have the burden of proving that he or she did not intend to improve for the purpose of sale.)

☒ I, as owner of the property, am exclusively contracting with licensed contractors to construct the project (Sec. 7044, Business & Professions Code: The Contractors License Law does not apply to an owner of property who builds or improves thereon, and who contracts for such projects with a contractor(s) licensed pursuant to the Contractors License Law.)

☐ I am exempt under Sec. _____ Bus. & Prof. Code for the following reason _____

Print RICHARD S. LEACH Sign _____ Date 7/6/95 ☒ OWNER ☐ AUTHORIZED AGENT

5 FINAL DECLARATION

I certify that I have read this application and state that the above information is correct. I agree to comply with all city and county ordinances and state laws relating to building construction, and hereby authorize representatives of this city to enter upon the above-mentioned property for inspection purposes. I realize that this permit is an application for inspection and that it does not approve or authorize the work specified herein. Also, that it does not authorize or permit any violation or failure to comply with any applicable law. Furthermore, that neither the City of Los Angeles nor any board, department officer, or employee thereof, make any warranty, nor shall be responsible for the performance or results of any work described herein, nor the condition of the property nor the soil upon which such work is performed.

Print RICHARD S. LEACH Sign _____ Date 7/6/95 ☒ OWNER ☐ AUTHORIZED AGENT ☐ CONTRACTOR

THIS PERMIT IS FOR (Mark one)
☒ NEW BLDG./ STRUCTURE ☐ ADD, ALTER, REPAIR EXISTING BUILDING
☐ RELOCATE EXIST. BLDG. ☐ DEMOLITION OF ENTIRE BUILDING

CITY OF LOS ANGELES - DEPARTMENT OF BUILDING AND SAFETY
BUILDING PERMIT PLOT PLAN
PLEASE DRAW AND LABEL CLEARLY IN INK

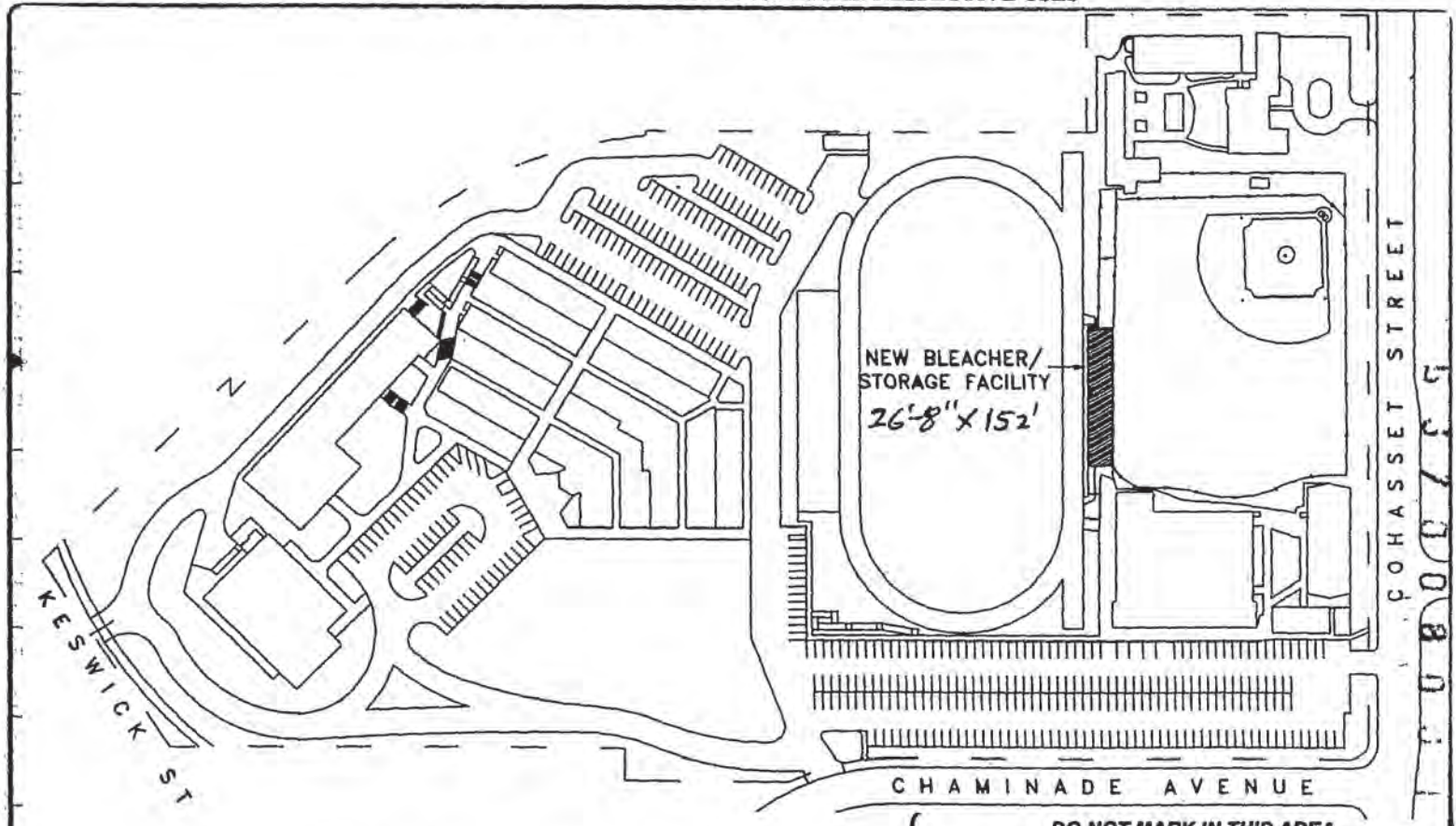
INCIDENT CODE

REF. NO.:

PROJECT ADDRESS	SUITE/UNIT NO.	CROSS STREETS
7500 CHAMINADE AV		

TRACT(S) and COUNTY REF. NO. (For alpha tracts) e.g. J.G. McDonald Tract (MR 70-20)	BLOCK	LOT(S) and ARB(S) e.g. 15, 16 (Arb 3), 17, 18	DIST. MAP / ASSESSOR'S ID
26072		1	186B093

SHOW ALL BUILDINGS ON LOT AND LABEL RESPECTIVE USES



DO NOT MARK IN THIS AREA

EASEMENT MAINTENANCE CERTIFICATION

UNDER PENALTY OF PERJURY I HEREBY CERTIFY THAT THE PROPOSED WORK WILL NOT DEPRIVE ANY UTILITY COMPANY OF ITS RIGHT TO MAINTAIN ITS FACILITIES WITHIN ANY EASEMENT FOR PUBLIC UTILITY PURPOSES OR ANY PRIVATE EASEMENT FOR ACCESS OR UTILITY PURPOSES OF ANY PERSON OTHER THAN THE OWNER OF THE PROPERTY OVER WHICH EASEMENT IS GRANTED, EXCEPT AS SHOWN ON THE PLOT PLAN AND/OR DESCRIBED IN THE ATTACHED LETTER DATED [illegible] AND FILED IN CASE NO. [illegible] IN THE FOLDER(S) OF THE EASEMENT WILL BE RELOCATED.

SIGNED _____ DATE 7/6/95
(Owner or Agent for Owner)

7500 CHAMINADE AV

1 CITY OF LOS ANGELES

APPLICATION FOR INSPECTION OF NEW BUILDING AND FOR CERTIFICATE OF OCCUPANCY

DEPT. OF BUILDING AND SAFETY

INSTRUCTIONS: 1. Applicant to Complete Numbered Items Only. 2. Plot Plan Required on Back of Original.

1. LEGAL DESCR.	LOT #1	BLK.	TRACT 26072	DIST. MAP 186 093
				CENSUS TR. 1344.02
2. PURPOSE OF BUILDING (18) Shower & Locker room				ZONE A 1-1
3. JOB ADDRESS 7500 Chaminade Ave.			CP	FIRE DIST. FBZ
4. BETWEEN CROSS STREETS D/E	AND Chasset St			LOT (TYPE) Rev. Cor
5. OWNER'S NAME Chaminade Prep		PHONE 347-8300		LOT SIZE Irreg
6. OWNER'S ADDRESS Same		CITY	ZIP	Acreage
7. ENGINEER Richard C.C.Lee		STATE LICENSE No S.E 1371	PHONE 345-5116	ALLEY //
8. ARCHITECT OR DESIGNER		STATE LICENSE No	PHONE	BLDG. LINE /
9. CONTRACTOR Owner		STATE LICENSE No.	PHONE	AFFIDAVITS 2000 #F111
10. BRANCH LENDER		ADDRESS	CITY	OB12395 CPC10767 ZA 75692 YC10726

11. SIZE OF NEW BLDG. WIDTH 40 LENGTH 100	STORIES 1	HEIGHT 12	NO. OF EXISTING BUILDINGS ON LOT AND USE 16/Class, Dorm; Dwell:	
12. MATERIAL OF CONSTRUCTION →	EXT. WALLS conc	ROOF comp	FLOOR Auditorium conc	Var. Pue @ Wly P/L

1 13. JOB ADDRESS 7500 Chaminade Ave.

14. VALUATION TO INCLUDE ALL FIXED EQUIPMENT REQUIRED TO OPERATE AND USE PROPOSED BUILDING $ 100,000

DIST. OFFICE VN B49

CRIT. SOIL Yes

GRADING Yes

HIGHWAY DED. /

FLOOD /

PURPOSE OF BUILDING Shower & Locker Room				STORIES 1	HEIGHT 12
TYPE III-B	GROUP OCC. S-1		PLANS CHECKED		CONS.
BLDG. AREA 3820	MAX. OCC. 96	TOTAL	PLANS APPROVED		ZONE BY
DWELL. UNITS 0	GUEST ROOMS	PARKING REQ'D N.C	PROVIDED	APPLICANT'S AUTHORITY	FILE WITH
SPRINKLERS REQ'D SPECIFIED	CONT. INSP.		INSPECTION ACTIVITY: COMB	GEN	MAJ. S. CONS
					INSPECTOR

P.C.	S.P.C.	B.P.	I.F.	G.P.I.	C/O	P.M.	TYPIST
301.32		354.50		25.00	7.09		

P.C. No. M9862

PLAN CHECK EXPIRES SIX MONTHS AFTER FEE IS PAID PERMIT EXPIRES ONE YEAR AFTER FEE IS PAID OR SIX MONTHS AFTER FEE IS PAID IF CONSTRUCTION IS NOT COMMENCED.

CASHIER'S USE ONLY

JAN-24-75 26761 Ck VN • • F = 6 301.32
JAN-24-75 26762 Ck VN • • F = 1 7.09
FEB-21-75 30262 Ck VN • 20174 F = 1 354.50

STATEMENT OF RESPONSIBILITY

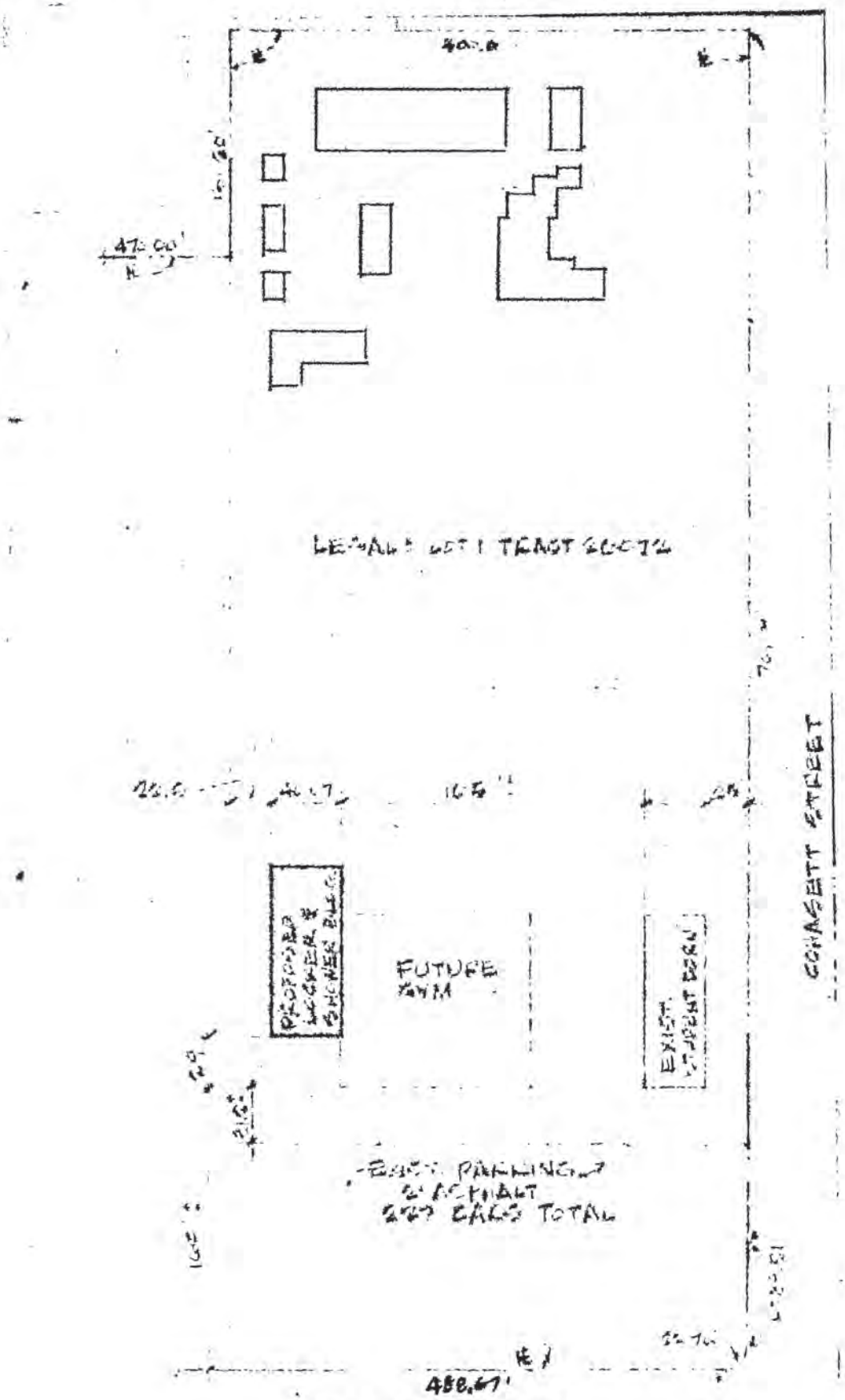
I certify that in doing the work authorized hereby I will not employ any person in violation of the Labor Code of the State of California relating to workmen's compensation insurance.

"This permit is an application for inspection, the issuance of which is not an approval or an authorization of the work specified herein. This permit does not authorize or permit, nor shall it be construed as authorizing or permitting the violation or failure to comply with any applicable law. Neither the City of Los Angeles, nor any board, department, officer or employee thereof make any warranty or shall be responsible for the performance or results of any work described herein, or the condition of the property or soil upon which such work is performed." (See Sec. 91.0202 L.A.M.C.)

Signed Lawrence McDonough (Owner or Agent) Signature/Date 2-14-75

Bureau of Engineering	ADDRESS APPROVED		
	SEWERS	NO SEWER/PLUMBING REQ'D	
		SFC NOT APPLICABLE	REB 1-28-75
		SFC PAID	
		SFC DUE	
	DRIVEWAY Existing		JR Corman 1-28-75
	HIGHWAY DEDICATION	REQUIRED	
		COMPLETED	
	FLOOD CLEARANCE		
Conservation	APPROVED FOR ISSUE ☐	NO FILE ☐	
Fire	APPROVED (TITLE 19) (L.A.M.C.-5700)		
Plumbing	~~PRIVATE SEWAGE SYSTEM APPROVED~~		Walter Knapp 2-21-75 In Lieu 2-14-75
Planning	APPROVED UNDER CASE # CPC10767 (C.U.)		Richard Lee
Traffic	APPROVED FOR		

Secure City Plan App'l of plans & application
Return to Zoning



BUILDING — BAS B-1—(Rev. 5-74)

CITY OF LOS ANGELES — AND FOR CERTIFICATE OF OCCUPANCY — DEPT. OF BUILDING AND SAFETY

INSTRUCTIONS: 1. Applicant to Complete Numbered Items Only. 2. Plot Plan Required on Back of Original.

1. LEGAL DESCR.	LOT: Frac.lot 1	BLK.	TRACT: 26072	DIST. MAP: 186 093
				CENSUS TR.: 1344.02
2. PURPOSE OF BUILDING: (23) Housing for Astronomical Telescope				ZONE: A 1-1
3. JOB ADDRESS: 7500 Chaminade Ave.			CP	FIRE DIST.: FBZ
4. BETWEEN CROSS STREETS: Cohasset St.	AND: D/E			LOT (TYPE): Conner
5. OWNER'S NAME: Chaminade Preparatory		PHONE: 347-8300		LOT SIZE: Irr
6. OWNER'S ADDRESS: Same		CITY	ZIP	
7. ENGINEER: Richard G. Troy	STATE LICENSE No.: S1004	PHONE: 553-0555		ALLEY: /
8. ARCHITECT OR DESIGNER	STATE LICENSE No.	PHONE		BLDG. LINE: /
9. CONTRACTOR: Owner	STATE LICENSE No.	PHONE		AFFIDAVITS: CPC 10767
10. BRANCH LENDER	ADDRESS	CITY		OB 12395 ZA 15692 YC10727
11. SIZE OF NEW BLDG. WIDTH 14 LENGTH 14 dia	STORIES	HEIGHT: 11'	NO. OF EXISTING BUILDINGS ON LOT AND USE: 9)School	
12. MATERIAL OF CONSTRUCTION →	EXT. WALLS: wood	ROOF: wood	FLOOR: concrete	2000#F111
1 13. JOB ADDRESS: 7500 Chaminade Ave.				DIST. OFFICE: VN B 49
14. VALUATION TO INCLUDE ALL FIXED EQUIPMENT REQUIRED TO OPERATE AND USE PROPOSED BUILDING: $ 1000				CRIT. SOIL: Yes
				GRADING: Yes
				HIGHWAY DED.: /

PURPOSE OF BUILDING: Telescope Housing			STORIES: 1	HEIGHT: 11'	FLOOD: /
TYPE: Misc. Structure	GROUP OCC.		PLANS CHECKED		CONS.: /
BLDG. AREA	MAX. OCC.	TOTAL	PLANS APPROVED		ZONED BY: Spier
DWELL. UNITS: 0	GUEST ROOMS	PARKING REQ'D: NC / PROVIDED	APPLICATION APPROVED		FILE WITH: L
SPRINKLERS REQ'D SPECIFIED	CONT. INSP.		INSPECTION ACTIVITY: COMB / (GEN) / MAJ. S. / CONS		INSPECTOR

P.C.	S.P.C.	B.P.	I.F.	G.P.I.	O.S.	C/O	P.M.	TYPIST
9.77		11.50		No FRB				

P.C. No.

PLAN CHECK EXPIRES SIX MONTHS AFTER FEE IS PAID. PERMIT EXPIRES ONE YEAR AFTER FEE IS PAID OR SIX MONTHS AFTER FEE IS PAID IF CONSTRUCTION IS NOT COMMENCED.

CASHIER'S USE ONLY

MAR-19-75 33618 Ck VN 20967 C = 6 9.77
MAR-19-75 33628 Ck VN 20967 C = 1 11.50

STATEMENT OF RESPONSIBILITY

I certify that in doing the work authorized hereby I will not employ any person in violation of the Labor Code of the State of California relating to workmen's compensation insurance.

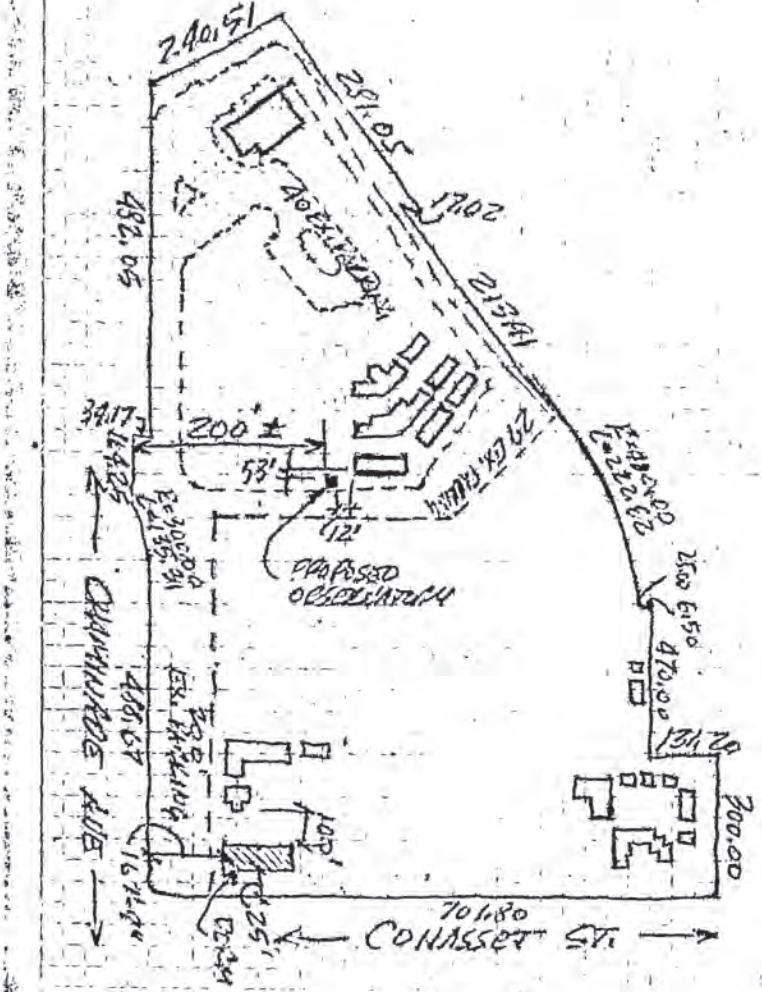
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Signed: Richard G. Troy (Owner or Agent) — Signature/Date

Bureau of Engineering	ADDRESS APPROVED		
	SEWERS	NO SEWER / PLUMBING REQ'D.	No Connection to sewer Therefore exempt
		SFC NOT APPLICABLE	
		SFC PAID	
		SFC DUE	
	DRIVEWAY		
	HIGHWAY DEDICATION	REQUIRED	
		COMPLETED	
	FLOOD CLEARANCE		
Conservation	APPROVED FOR ISSUE ☐	NO FILE ☐	
Fire	APPROVED (TITLE 19) (L.A.M.C.-5700)		
Plumbing	PRIVATE SEWAGE SYSTEM APPROVED		
Planning	APPROVED UNDER CASE # ZA 15692		3-18-75
Traffic	APPROVED FOR		

LEGAL DESCRIPTION

ON PLOT PLAN SHOW ALL BUILDINGS ON LOT AND USE OF EACH



3 CITY OF LOS ANGELES

APPLICATION TO ADD-ALTER-REPAIR-DEMOLISH AND FOR CERTIFICATE OF OCCUPANCY

DEPT. OF BUILDING AND SAFETY

LAS D-5—63.74

INSTRUCTIONS: Applicant to Complete Numbered Items Only.

1. LEGAL DESCR.	LOT: #1	BLK:	TRACT: 26072	DIST. MAP: 186-093
				CENSUS TR.: 1344.02
2. PRESENT USE OF BUILDING: (18) Shower & Locker Room	NEW USE OF BUILDING: Same			ZONE: A-1-1
3. JOB ADDRESS: 7500 Chaminade Ave.			CP	FIRE DIST.: FBZ
4. BETWEEN CROSS STREETS: Cohasset St.	AND: D.E.			LOT (TYPE): Rev.Cor.
5. OWNER'S NAME: Chaminade Prep		PHONE: 347-8300		LOT SIZE: Irreg. Acreage
6. OWNER'S ADDRESS: Same as #3	CITY: Canoga Park	ZIP		
7. ENGINEER: R RICHARD CC LOS	ACTIVE STATE LICENSE No.: SE 1371	PHONE: 345-5116		ALLEY: /
8. ARCHITECT OR DESIGNER	ACTIVE STATE LICENSE No.	PHONE		BLDG. LINE: /
9. CONTRACTOR: Owner	ACTIVE STATE LICENSE No.	PHONE		AFFIDAVITS: 2000# Fill OB-12395 CBC-10767 ZA-15692 YC-10726 Var.PUE @ Wly P/L
10. BRANCH LENDER	ADDRESS	CITY		

11. SIZE OF EXISTING BLDG. WIDTH 40 LENGTH 100	STORIES 1	HEIGHT 12	NO. OF EXISTING BUILDINGS ON LOT AND USE (16) Class, dor. dwl. aud.		
12. CONST. MATERIAL OF EXISTING BLDG. →	EXT. WALLS conc Block	ROOF comp	FLOOR conc		
13. JOB ADDRESS: 7500 Chaminade Ave.				DIST. OFFICE: VN B-49	
14. VALUATION TO INCLUDE ALL FIXED EQUIPMENT REQUIRED TO OPERATE AND USE PROPOSED BUILDING: $ 101.00 P.C. ON $10,000				CRIT. SOIL: Yes	
15. NEW WORK: (Describe) To revise the roof framing system to a panelized system.				GRADING: Yes	
				HIGHWAY DED.: /	

NEW USE OF BUILDING: Shower & Locker Room	SIZE OF ADDITION		STORIES	HEIGHT	FLOOR: /
TYPE: III-B	GROUP OCC.: S-1	PLANS CHECKED			CONS.: /
BLDG. AREA: n/c	MAX. OCC.: A50 TOTAL	PLANS APPROVED			ZONED BY: Hull
DWELL. UNITS: 0	GUEST ROOMS	PARKING REQ'D: n/c PROVIDED	APPLICATION APPROVED		FILE WITH: VN/20174/1K
SPRINKLERS REQ'D SPECIFIED	CONT. INSP.: LIC FAB ON GLUE LAM BEAM	INSPECTION ACTIVITY: COMB	GEN.	MAJ. S.	CONS	INSPECTOR: /

P.C. 48.02	S.P.C.	B.P. 6.30	I.F. K	G.P.I.	P.M. 5.00	C/O	PM	TYPIST: jo
P.C. No.	PLAN CHECK EXPIRES SIX MONTHS AFTER FEE IS PAID. PERMIT EXPIRES ONE YEAR AFTER FEE IS PAID OR SIX MONTHS AFTER FEE IS PAID IF CONSTRUCTION IS NOT COMMENCED.							

CASHIER'S USE ONLY

JUN-27-78 5 0 1 3 Ck VN-25118 F = 6 48.0
JUN-27-78 5 0 1 4 Ck VN-25118 F = 1 11.3

STATEMENT OF RESPONSIBILITY

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Signed _____ (Owner or Agent) Signature/Date

Bureau of Engineering	ADDRESS APPROVED			
	SEWERS	SEWERS AVAILABLE		
		NOT AVAILABLE		
		SFC PAID	NO SEWER/PLUMBING REQ'D.	
		SFC DUE	SFC NOT APPLICABLE	
	DRIVEWAY			
	HIGHWAY DEDICATION	REQUIRED		
		COMPLETED		
	FLOOD CLEARANCE			
Conservation	APPROVED FOR ISSUE ☐	NO FILE ☐		
Fire	APPROVED (TITLE 19) (L.A.M.C.-5700)			
Plumbing	PRIVATE SEWAGE SYSTEM APPROVED			
Planning	APPROVED UNDER CASE #			
Traffic	APPROVED FOR			

1 APPLICATION FOR INSPECTION OF NEW BUILDING AND FOR CERTIFICATE OF OCCUPANCY — B&S E-1 — R8.77

CITY OF LOS ANGELES — DEPT. OF BUILDING AND SAFETY

INSTRUCTIONS: 1. Applicant to Complete Numbered Items Only. 2. Plot Plan Required on Back of Original.

1. LEGAL DESCR	LOT: Frac. 1	BLK: /	TRACT: 26072	DIST. MAP: 186 093; CENSUS TRACT: 1344.02; ZONE: *A1-1; FIRE DIST.: FBZ
2. PURPOSE OF BUILDING	(18) School			
3. JOB ADDRESS	7500 Chaminade Ave.			
4. BETWEEN CROSS STREETS	Term AND ~~Chm~~ Cohasset			LOT (TYPE): cor.thru
5. OWNER'S NAME	Chaminade Preparatory	PHONE: 347-8300		LOT SIZE: irreg.
6. OWNER'S ADDRESS	7500 Chaminade Ave.	CITY: Canoga Park	ZIP: 91304	
7. ENGINEER	Harold Cass	BUS. LIC. NO.: SE984	ACTIVE STATE LIC. NO.: 483-2165 PHONE	ALLEY: /
8. ARCHITECT OR DESIGNER	Barker & Ott	BUS. LIC. NO.:	ACTIVE STATE LIC. NO.: C-1411 PHONE: (714)645-3090	BLDG. LINE: /
9. CONTRACTOR	~~owner~~ To be selected	BUS. LIC. NO.:	ACTIVE STATE LIC. NO.: PHONE	AFFIDAVITS: GPC10767 - ZA15692 - YC10726 comp fill 2000psf - OB12393
10. BRANCH LENDER	none	ADDRESS	CITY	

11. SIZE OF NEW BLDG. WIDTH 29'6" LENGTH 129'6"	STORIES: 1	HEIGHT: 15	NO. OF EXISTING BUILDINGS ON LOT AND USE: 7-school		SEISMIC STUDY ZONE: Front P.L. see map
12. MATERIAL OF CONSTRUCTION →	EXT. WALLS: masonry	ROOF: comp&gravel	FLOOR: concPUBLIC		DIST. OFFICE: VN
13. JOB ADDRESS: 7500 Chaminade Ave.					CRIT. SOIL: yes
14. VALUATION TO INCLUDE ALL FIXED EQUIPMENT REQUIRED TO OPERATE AND USE PROPOSED BUILDING	$ ~~120,000~~ 150,000				GRADING: YES
					HIGHWAY DED.

PURPOSE OF BUILDING: (18) School				STORIES: 1	HEIGHT:				FLOOD: /
TYPE: V	GROUP OCC.: S-1	BLDG. AREA: 3610	PLANS CHECKED: Gerald K Takeshi						CONS.: /
DWELL. UNITS: —	MAX. OCC.: TOTAL 143		PLANS APPROVED:						ZONED BY: RW1
GUEST ROOMS: —	PARKING REQ'D. ~~1/40~~ STD. 0	PARKING PROVIDED: 0	APPLICATION APPROVED:						FILE WITH: BAVARE
SPRINKLERS REQ'D: YES SPECIFIED: Classrooms	CONT. INSP.: Lic Fab - Glu-Lam Welds		INSPECTION ACTIVITY: COMB GEN MAJ. S. CONS						INSPECTOR:
P.C. 422.45	S.P.C. 63.75	B.P. 572.00	T.I. —	P.M. 11.44	I.F.	G.P.I.	C/O	O.S.	
P.C. NO. X1685	WORKER'S COMPENSATION INSURANCE CERTIFICATE: ON FILE / EXEMPT								TYPIST: KCB

PERMIT EXPIRES TWO YEARS AFTER FEE IS PAID OR 180 DAYS AFTER FEE IS PAID IF CONSTRUCTION IS NOT COMMENCED.

CASHIER'S USE ONLY

MAR-10-78 45093 W-60K 422.45

MAP [redacted] 63.75

MAP [redacted] 583.44

•62661 V — 6 [redacted]

•62661 JV [redacted]

LIMIT OF PERMIT

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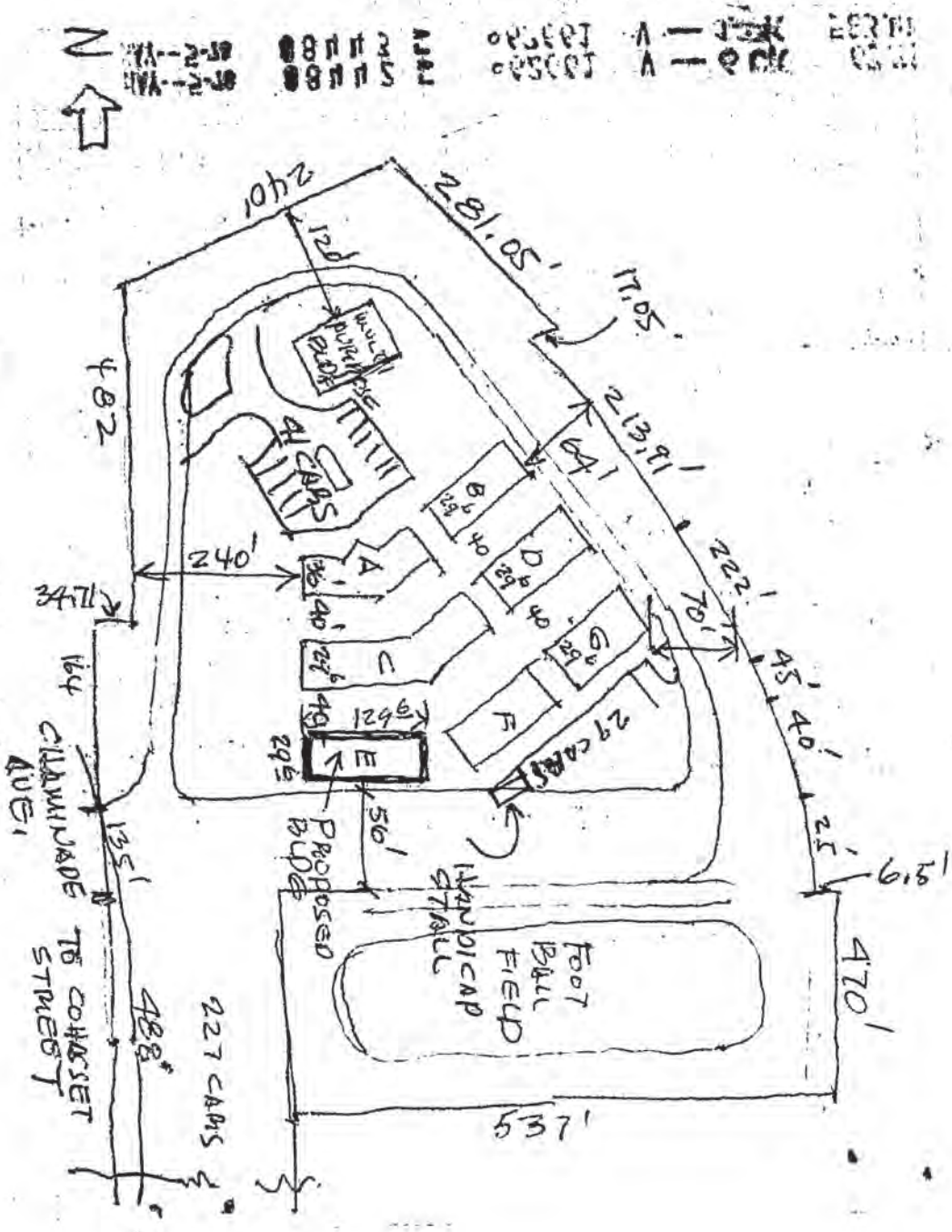
Signed John C. Abemeier C-141 — Signature/Date

(Owner or Agent having Property Owner's Consent)
ALSO, sign statement on reverse side, if applicable.

Bureau of Engineering	ADDRESS APPROVED			Christian 3-10-78
	DRIVEWAY			
	HIGHWAY DEDICATION	REQUIRED		
		COMPLETED		
	FLOOD CLEARANCE			
	SEWERS ~~SFC to be det. after occ. is known~~ Revised 4/4/78	✓ SEWERS AVAILABLE		Lauer 5/5/78
		X NOT AVAILABLE	~~Lauer~~	~~3-10-78~~
		SFC PAID	C-78T0274	
		SFC NOT APPLICABLE	SFC DUE ~~2252.20~~	~~4-26-78~~
Conservation	APPROVED FOR ISSUE ☐ NO FILE ☐ FILE CLOSED ☐			
Fire	APPROVED (TITLE 19) (L.A.M.C.-5700)			
Housing	HOUSING AUTHORITY APPROVAL			
Planning	APPROVED UNDER CASE # CPC 10767 (OII.)			4-26-78
Traffic	APPROVED FOR			
Construction Tax	RECEIPT NO.	DWELLING UNITS		

Parking stalls - see permit LA 85327 - April 6-61

John C. Absmeier ARCHITECT 4-26-78
JOHN C. ABSMEIER



3 APPLICATION FOR INSPECTION — TO ADD-ALTER-REPAIR-DEMOLISH
CITY OF LOS ANGELES — AND FOR CERTIFICATE OF OCCUPANCY — DEPT. OF BUILDING AND SAFETY
R&S R-3 (R7.77)

INSTRUCTIONS: Applicant to Complete Numbered Items Only.

1. LEGAL DESCR.	LOT: 1	BLK:	TRACT: 26072 W	DIST. MAP: 186 093
				CENSUS TRACT: 1344.02
2. PRESENT USE OF BUILDING (1B): School		NEW USE OF BUILDING (1B): Same		ZONE: A1-1
3. JOB ADDRESS: 7500 ~~EXK~~ Chaminade Ave		Canoga Park		FIRE DIST.: FBZ
4. BETWEEN CROSS STREETS: Cohasset St	AND: Cul De Sac			LOT (TYPE): THRU CORN ~~INT~~
5. OWNER'S NAME: Chaminade Prepartotory	PHONE: ~~347~~ 8300 347-8300			LOT SIZE: irreg
6. OWNER'S ADDRESS: Same	CITY	ZIP: 91304		
7. ENGINEER: Barker & Ott	BUS. LIC. NO.	ACTIVE STATE LIC. NO.: C 1411	PHONE: 645-~~8~~ 3090	ALLEY: /
8. ARCHITECT OR DESIGNER: Robert Coulson	BUS. LIC. NO.	ACTIVE STATE LIC. NO.: SE 1730	PHONE: 522 2836	BLDG. LINE: /
9. CONTRACTOR: Miller & Sons, INc	BUS. LIC. NO.: 316909	ACTIVE STATE LIC. NO.: 989 4740	PHONE	AFFIDAVITS: / Fill 2000# OB12395 ZA 15692 Yd 10826
10. BRANCH LENDER: NONE	ADDRESS	CITY		

11. SIZE OF EXISTING BLDG. WIDTH: IRREG LENGTH	STORIES: 1	HEIGHT: 12	NO. OF EXISTING BUILDINGS ON LOT AND USE: 8) School		SEISMIC STUDY ZONE: /
12. CONST. MATERIAL OF EXISTING BLDG.	EXT. WALLS: compo/gravel		ROOF: conc	FLOOR	

3

13. JOB ADDRESS: 7500 Chaminade Ave — DIST. OFFICE: VNB49

14. VALUATION TO INCLUDE ALL FIXED EQUIPMENT REQUIRED TO OPERATE AND USE PROPOSED BUILDING: $10,000 ADD 12'x188'9" ~~INDUSTRIAL~~ BTWN BLDGS A, C & B — CRIT. SOIL: Yes

15. NEW WORK: (Describe) addition consist of frame & stucco arcade supported on steel columns — GRADING: Yes — HIGHWAY DED.: Yes

NEW USE OF BUILDING: School	SIZE OF ADDITION: ~~188~~ 189"x12		STORIES: 1	HEIGHT: 9	FLOOD: /
TYPE: V	GROUP OCC.: S-1	BLDG. AREA: 2300SF TOTAL	PLANS CHECKED		CONS.: /
DWELL. UNITS: X 0	MAX OCC.: N/C		PLANS APPROVED		ZONED BY:
GUEST ROOMS: X 0	PARKING REQ'D: N/C	PARKING PROVIDED STD. N/C COMP. N/C	APPLICATION APPROVED		FILE WITH
SPRINKLERS REQ'D SPECIFIED: N/C	CONT. INSP.: X		INSPECTION ACTIVITY: COMB / GEN / MAJ. S. / CONS		INSPECTOR

P.C.: 56.95	S.P.C.: X	B.P.: 67.00	T.I.: X	P.M.: 5.00	I.F.: X	G.P.I.: 30.00	C/O: X	O.S.: X
P.C. NO.: 0374	WORKER'S COMPENSATION INSURANCE CERTIFICATE ON FILE: ~~RKH~~	EXEMPT	EMPLOY. NO HOR C					TYPIST

PERMIT EXPIRES TWO YEARS AFTER FEE IS PAID OR 180 DAYS AFTER FEE IS PAID IF CONSTRUCTION IS NOT COMMENCED.

CASHIER'S USE ONLY

~~OCT~~-17-78	10963 Ck VN•	• G — 6	56.95
~~OCT~~-17-78	10964 Ck VN•	• G — 9	30.00
NOV--9-78	25529 Ck VN•85836	E — 1	72.00

LIMIT OF PERMIT

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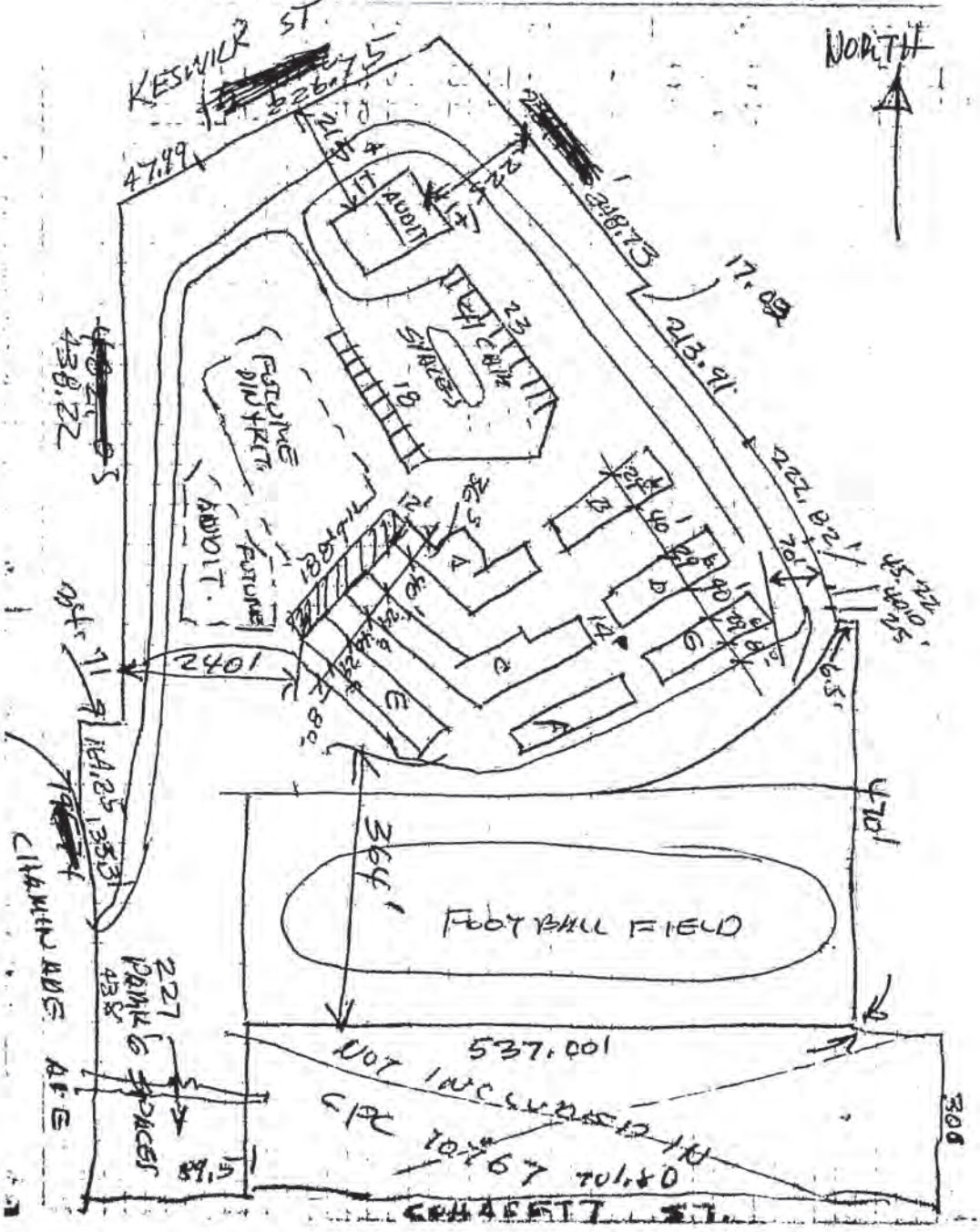
Signed: John C. Abramian
(Owner or Agent having Property Owner's Consent)
ALSO, sign statement on reverse side, if applicable.

Bureau of Engineering			Signature/Date
	ADDRESS APPROVED		
	DRIVEWAY	Existing	
	HIGHWAY DEDICATION	REQUIRED	
	Dorsant Apply	COMPLETED	F Keenan 10-18-78
	FLOOD CLEARANCE		F Keenan 10-18-78
SEWERS		SEWERS AVAILABLE	
		NOT AVAILABLE	
		SFC PAID	
	SFC NOT APPLICABLE	SFC DUE	
Conservation	APPROVED FOR ISSUE ☐ NO FILE ☐ FILE CLOSED ☐		
Fire	APPROVED (TITLE 19) (L.A.M.C.-S700)		
Housing	HOUSING AUTHORITY APPROVAL		
Planning	APPROVED UNDER CASE # ZA-15692		11/9/78
Traffic	APPROVED FOR		
Construction Tax	RECEIPT NO.	DWELLING UNITS	

City Planning approval required, school in A1 Zone
SEE 2328/ COHASSET ST FOR OTHER PERMITS.

WORKERS COMPENSATION CERTIFICATION

ON PLOT PLAN SHOW ALL BUILDINGS ON LOT AND USE OF EACH



CITY OF LOS ANGELES — DEPT. OF BUILDING AND SAFETY

1 APPLICATION FOR INSPECTION : VN 88 030 0394 **OF NEW BUILDING AND FOR CERTIFICATE OF OCCUPANCY**

INSTRUCTIONS: 1. Applicant to Complete Numbered Items Only. 2. Plot Plan Required on Back of Original.

1. LEGAL DESCR.	LOT: Fr.1	BLOCK: ~~Page~~ Lot 1	TRACT: (M 676-76/77) 26072	COUNCIL DISTRICT NO.: 3	DOC. NO.: 186093
					CENSUS TRACT: 1344.02
2. PURPOSE OF BUILDING	Bleacher Seating				ZONE: A1-1
3. JOB ADDRESS	7500 ~~Chaminade~~ Ave				FIRE DIST.: FBZ
4. BETWEEN CROSS STREETS	~~Cohasset St~~	West Hills Keswick St		PHONE	LOT TYPE: Cor/Thru
5. OWNER'S NAME	Chaminade School		818/347-8300	ZIP	LOT SIZE: IRreg
6. OWNER'S ADDRESS	7500 Chaminade AVe	West Hills		91304	ALLEY: ----
7. ENGINEER	BUS. LIC. NO.	ACTIVE STATE LIC. NO.	PHONE		BLDG. LINE: ----
	JR DeHart	24649	714/885-3806		
8. ARCHITECT OR DESIGNER	BUS. LIC. NO.	ACTIVE STATE LIC. NO.	PHONE		AFFIDAVITS: CEg 2000
9. ARCHITECT OR ENGINEER'S ADDRESS	~~General Seating~~	CITY	~~714/884-9447~~ ZIP		OB14551
	606 East Mill St	San Bernadino		92412	CPC 10767
10. CONTRACTOR	To Be Selected	BUS. LIC. NO.	ACTIVE STATE LIC. NO.	PHONE	OB12392
	~~Bleacher Seating Co~~		~~714/884-9447~~		OVER

11. SIZE OF NEW BLDG. WIDTH 42 LENGTH 237	STORIES	HEIGHT 16'	NO. OF EXISTING BUILDINGS ON LOT AND USE 16 School		P.C. REQ'D: No (A)
12. MATERIAL OF CONSTRUCTION → EXT. WALLS conc		ROOF NA	FLOOR conc	STREET GUIDE	DISTRICT OFFICE: VN
13. JOB ADDRESS 7500 Chaminade Ave					SEISMIC STUDY ZONE: ----
14. VALUATION TO INCLUDE ALL FIXED EQUIPMENT REQUIRED TO OPERATE AND USE PROPOSED BUILDING	$ 234,000.00				GRADING: yes / FLOOD: ---- / ~~EQ. DED.~~: yes / CONS.: ----

PURPOSE OF BUILDING	Bleacher Seating			STORIES / HEIGHT	ZONED BY: A Wang
TYPE: M1	GROUP OCC. A-4	FLOOR AREA	TOTAL	PLANS CHECKED	FILE WITH
DWELL UNITS —	MAX. OCC. 1894 SEATS			APPLICATION APPROVED	TYPIST: SM
GUEST ROOMS —	PARKING REQ'D. 379	PARKING PROVIDED STD 404 COMP. 30		INSPECTION ACTIVITY: COMB. 61 / MAJ. S. / CONS.	INSPECTOR

P.C. 737-72	B.P.C. 42.00	CONT. INSP. CONC		
S.P.C. —	P.W. 17.36			
ZP. 867.90	ST. 35.10	Claims for refund of fees paid on permits must be filed: 1. Within one year from date of payment of fee; or 2. Within one year from date of expiration of extension for building or grading permits granted by the Dept. of B. & S. SECTIONS 22.12 & 22.13 LAMC.		
I.F.	G.S.S. 15.59			
D.S. N/A	S.D.S.S. 28.70			
DIST. OFF. VN	C.O.	SPRINKLERS		
P.C. NO. 710124	F.M. 514.80	ENERGY NO / DAS		

Unless a shorter period of time has been established by an official action, plan check approval expires one year after the fee is paid and this permit expires two years after the fee is paid or 180 days after the fee is paid if construction is not commenced.

CASHIER'S USE ONLY — B.&S.B-1 (R.3/87)

C	737.72	B-PC
C	42.00	BPC
C	75.59	DSS
02702	R 1 730787	
C	867.90	BP-R
C	17.36	PLAN
C	35.10	ST-C
C	28.70	DSS
C	614.80	FIRE
	975.26	DOT
K9902	1 05/02/88	1463.86 CHTD

9754

DECLARATIONS AND CERTIFICATIONS

LICENSED CONTRACTORS DECLARATION

15. I hereby affirm that I am licensed under the provisions of Chapter 9 (commencing with Section 7000) of Division 3 of the Business and Professions Code, and my license is in full force and effect.

Date _____ Lic. Class _____ Lic. No. _____ Contractor's Signature _____

Contractor's Mailing Address _____

OWNER-BUILDER DECLARATION

16. I hereby affirm that I am exempt from the Contractor's License Law for the following reason (Sec. 7031.5, Business and Professions Code: Any city or county which requires a permit to construct, alter, improve, demolish, or repair any structure, prior to its issuance, also requires the applicant for such permit to file a signed statement that he is licensed pursuant to the provisions of the Contractor's License Law (Chapter 9 (commencing with Section 7000) of Division 3 of the Business and Professions Code) or that he is exempt therefrom and the basis for the alleged exemption. Any violation of Section 7031.5 by any applicant for a permit subjects the applicant to a civil penalty of not more than five hundred dollars ($500):

☐ I, as owner of the property, or my employees with wages as their sole compensation, will do the work, and the structure is not intended or offered for sale (Sec. 7044, Business and Professions Code: The Contractor's License Law does not apply to an owner of property who builds or improves thereon, and who does such work himself or through his own employees, provided that such improvements are not intended or offered for sale. If, however, the building or improvement is sold within one year of completion, the owner-builder will have the burden of proving that he did not build or improve for the purpose of sale.).

☒ I, as owner of the property, am exclusively contracting with licensed contractors to construct the project (Sec. 7044, Business and Professions Code: The Contractor's License Law does not apply to an owner of property who builds or improves thereon, and who contracts for such projects with a contractor(s) licensed pursuant to the Contractor's License Law.).

☐ I am exempt under Sec. _____ B. & P. C. for this reason _____

Date 5-4-88 Owner's Signature James A. DeHart

WORKERS' COMPENSATION DECLARATION

17. I hereby affirm that I have a certificate of consent to self-insure, or a certificate of Workers' Compensation Insurance, or a certified copy thereof (Sec. 3800, Lab. C.).

Policy No. _____ Insurance Company _____

☐ Certified copy is hereby furnished.

☐ Certified copy is filed with the Los Angeles City Dept. of Bldg. & Safety.

Date _____ Applicant's Signature _____

Applicant's Mailing Address _____

CERTIFICATE OF EXEMPTION FROM WORKERS' COMPENSATION INSURANCE

18. I certify that in the performance of the work for which this permit is issued, I shall not employ any person in any manner so as to become subject to the Workers' Compensation Laws of California.

Date 5-4-88 Applicant's Signature James A. DeHart

NOTICE TO APPLICANT: If, after making this Certificate of Exemption, you should become subject to the Workers' Compensation provisions of the Labor Code, you must forthwith comply with such provisions or this permit shall be deemed revoked.

CONSTRUCTION LENDING AGENCY

19. I hereby affirm that there is a construction lending agency for the performance of the work for which this permit is issued (Sec. 3097, Civ. C.).

Lender's Name _____

Lender's Address _____

20. I certify that I have read this application and state that the above information is correct. I agree to comply with all city and county ordinances and state laws relating to building construction, and hereby authorize representatives of this city to enter upon the above-mentioned property for inspection purposes.

I realize that this permit is an application for inspection, that it does not approve or authorize the work specified herein, that it does not authorize or permit any violation or failure to comply with any applicable law, that neither the city of Los Angeles nor any board, department, officer or employee thereof make any warranty or shall be responsible for the performance or results of any work described herein or the condition of the property or soil upon which such work is performed. (See Sec. 91.0202 LAMC)

Signed James A. DeHart (Owner or agent having property owner's consent) Position President Date 5-4-88

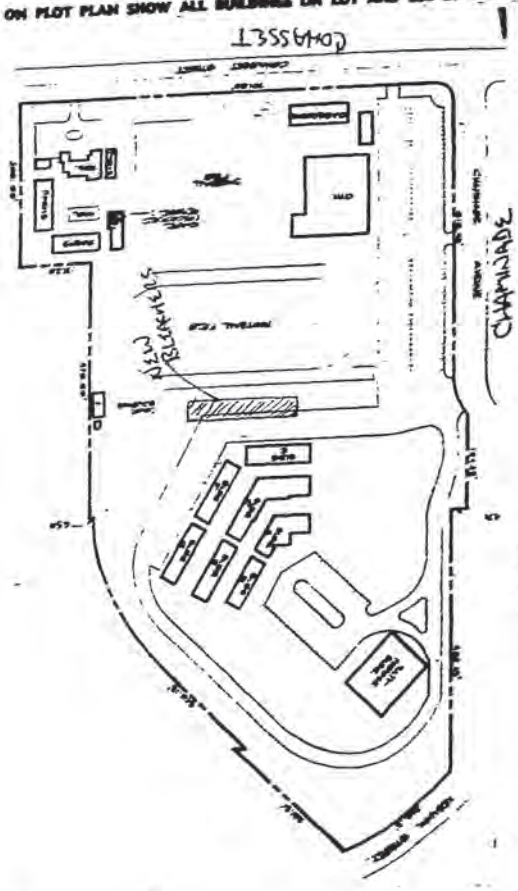
Bureau of Engineering	ADDRESS APPROVED	DM	4/13/88
	DRIVEWAY		
	HIGHWAY	REQUIRED	
	DEDICATION	COMPLETED	
	FLOOD CLEARANCE		
SEWERS	SEWERS AVAILABLE		4/13/88
	NOT AVAILABLE		
	SFC PAID		
	SFC DUE		
	SFC NOT APPLICABLE		
Grading	PRIVATE SEWAGE SYSTEM APPROVED		
Conservation	APPROVED FOR ISSUE ☐ NO FILE ☐ FILE CLOSED ☐		
Fire	APPROVED (TITLE 19) (L.A.M.C.-5700)		4-4-88
Housing	HOUSING AUTHORITY APPROVAL		
Planning	APPROVED UNDER CASE # CPC 85-335 Cond. OK		4/4/88
Transportation ★	APPROVED FOR REDUCING 2 DRIVES TO ONE ON CHAMISADE		CM 3-23-88
Construction Tax	RECEIPT NO.	DWELLING UNITS	

★ WIDEN C-HASSET DWY.

BWS 87-1088

LEGAL DESCRIPTION T.C. 10276, ZA 15692

ON PLOT PLAN SHOW ALL BUILDINGS ON LOT AND USE OF EACH



ATTACHED PLOT PLANS SHALL NOT EXTEND ABOVE THIS LINE

CITY OF LOS ANGELES DEPT. OF BUILDING AND SAFETY

1 APPLICATION FOR INSPECTION 63-9 7 0U3 5 1 1 0 1 4 1 2 7

OF NEW BUILDING AND FOR CERTIFICATE OF OCCUPANCY

INSTRUCTIONS: 1. Applicant to Complete Numbered Items Only. 2. Plot Plan Required on Back of Original.

1. LEGAL DESCR. LOT	Fr. 1	BLOCK -	TRACT 26072	COUNTY REF. NO. Mp. 676 76-177	DIST. MAP 186-093
					CENSUS TRACT 1344.22
2. PURPOSE OF BUILDING	(3) Classrooms				ZONE A1-1
3. JOB ADDRESS	7500 Chaminade Ave.				FIRE DIST. -- COUN. DIST 3
4. BETWEEN CROSS STREETS	Cohasset AND Corbin				LOT TYPE Cor. Thru
5. OWNER'S NAME	Chaminade College Preparatory PHONE 818-347-8300				LOT SIZE Irreg.
6. OWNER'S ADDRESS	7500 Chaminade Ave. CITY West Hills ZIP 91304				ALLEY --
7. ENGINEER	Wheeler & Gray BUS. LIC. NO. L120930-190 ACTIVE STATE LIC. NO. 256-2101 PHONE				BLDG. LINE
8. ARCHITECT OR DESIGNER	RGAM Architects BUS. LIC. NO. 014520-40 ACTIVE STATE LIC. NO. 140-1822-0 PHONE 766-2525				AFFIDAVITS CFG 2000
9. ARCHITECT OR ENGINEER'S ADDRESS	901 Corporate Ctr. Dr. CITY Monterey Park ZIP 91754				CPC85-333
10. CONTRACTOR	NS BUS. LIC. NO. ACTIVE STATE LIC. NO. PHONE				CUZ
11. SIZE OF NEW BLDG. WIDTH 84 LENGTH 256	STORIES 2	HEIGHT 36	NO. OF EXISTING BUILDINGS ON LOT AND USE		O.B.14551
12. MATERIAL OF CONSTRUCTION →	EXT. WALLS Masonry	ROOF Wood	FLOOR Wd/Conc.		CPC10767
13. JOB ADDRESS	7500 Chaminade Ave.			STREET GUIDE	O.B.12395
14. VALUATION TO INCLUDE ALL FIXED EQUIPMENT REQUIRED TO OPERATE AND USE PROPOSED BUILDING	~~$ 2,700,000.~~ P.C. 3000 000				*Over
					DIST. OFF. VN P.C. REQ'D no(a)
					GRADING yes SEISMIC
					HWY. DED. yes FLOOD
PURPOSE OF BUILDING	Classrooms			STORIES 2 HEIGHT 36	FILE WITH
TYPE CONS. VN	GROUP OCC. E-1	FLOOR AREA 30524	PLANS CHECKED [illegible]		ZONED BY Yang
DWELL UNITS —	MAX. OCC. 300	TOTAL 300	APPLICATION APPROVED [illegible] 03/16		TYPIST v.j.
GUEST ROOMS —	PARKING REQ'D. 61	PARKING PROVIDED STD. 37 COMP. 24	INSPECTION ACTIVITY CS GEN MAJ.S. EQ.		INSPECTOR

B & S 1 (R.9/88)

P.C. 6251.67	P.I. 42.00	CONT. INSP.	
S.P.D. 1448	37.87	18.87	
B.D. 9058	88.81	630	
I.F. —	O.S.S. 125.87		
S.D. 8241	40.12	32	
ISSUING OFFICE VN	C/O	SPRINKLERS yes	
P.C. NO. AA9533	F.H. —	ENERGY yes	DAS yes

Claims for refund of fees paid on permits must be filed: 1. Within one year from date of payment of fee; or 2. Within one year from date of expiration of extension for building or grading permits granted by the Dept. of B. & S. SECTIONS 22.12 & 22.13 LAMC.

Unless a shorter period of time has been established by an official action, plan check approval expires one year after the fee is paid and this permit expires two years after the fee is paid or 180 days after the fee is paid if construction is not commenced.

*Applicant Refuses to Pay

CASHIER'S USE ONLY

03/26/90 08:42:35AM LA06 T-8088 C 06
GRAD PRE-INSPE 42.00
BUILD PLAN CHE .6,251.67
ONE STOP 125.87
TOTAL 6,419.54
CHECK 6,419.54

07/01/92 03:44:35PM H001 T-4858 C 26
BLDG PLAN CHEC 1,448.37
BLDG PERMIT CO 9,058.88
INVOICE # 0083616 BB
PLAN MAINTENAN 181.18
EI COMMERCIAL 630.00
SCHOOL DEV COM 8,241.48
SYS DEV 679.11
ONE STOP 226.37
TOTAL 20,465.39
CHECK 20,465.39

92HO 17862

DECLARATIONS AND CERTIFICATIONS

LICENSED CONTRACTORS DECLARATION

15. I hereby affirm that I am licensed under the provisions of Chapter 9 (commencing with Section 7000) of Division 3 of the Business and Professions Code, and my license is in full force and effect.

Date _____ Lic. Class _____ Lic. No. _____ Contractor's Signature _____

Contractor's Mailing Address _____

OWNER-BUILDER DECLARATION

16. I hereby affirm that I am exempt from the Contractor's License Law for the following reason (Sec. 7031.5, Business and Professions Code: Any city or county which requires a permit to construct, alter, improve, demolish, or repair any structure, prior to its issuance, also requires the applicant for such permit to file a signed statement that he is licensed pursuant to the provisions of the Contractor's License Law (Chapter 9 (commencing with Section 7000) of Division 3 of the Business and Professions Code) or that he is exempt therefrom and the basis for the alleged exemption. Any violation of Section 7031.5 by any applicant for a permit subjects the applicant to a civil penalty of not more than five hundred dollars ($500).):

☐ I, as owner of the property, or my employees with wages as their sole compensation, will do the work, and the structure is not intended or offered for sale (Sec. 7044, Business and Professions Code: The Contractor's License Law does not apply to an owner of property who builds or improves thereon, and who does such work himself or through his own employees, provided that such improvements are not intended or offered for sale. If, however, the building or improvement is sold within one year of completion, the owner-builder will have the burden of proving that he did not build or improve for the purpose of sale.).

X I, as owner of the property, am exclusively contracting with licensed contractors to construct the project (Sec. 7044, Business and Professions Code: The Contractor's License Law does not apply to an owner of property who builds or improves thereon, and who contracts for such projects with a contractor(s) licensed pursuant to the Contractor's License Law.).

☐ I am exempt under Sec. _____ B. & P. C. for this reason _____

Date 6-16-92 Owner's Signature James A. DeLong

WORKERS' COMPENSATION DECLARATION

17. I hereby affirm that I have a certificate of consent to self-insure, or a certificate of Worker's Compensation Insurance, or a certified copy thereof (Sec. 3800, Lab. C.).

Policy No. _____ Insurance Company _____

☐ Certified copy is hereby furnished.

☐ Certified copy is filed with the Los Angeles City Dept. of Bldg. & Safety.

Date _____ Applicant's Signature _____

Applicant's Mailing Address _____

CERTIFICATE OF EXEMPTION FROM WORKERS' COMPENSATION INSURANCE

18. I certify that in the performance of the work for which this permit is issued, I shall not employ any person in any manner so as to become subject to the Workers' Compensation Laws of California.

Date 6-16-92 Applicant's Signature James A. DeLong

NOTICE TO APPLICANT: If, after making this Certificate of Exemption, you should become subject to the Workers' Compensation provisions of the Labor Code, you must forthwith comply with such provisions or this permit shall be deemed revoked.

CONSTRUCTION LENDING AGENCY

19. I hereby affirm that there is a construction lending agency for the performance of the work for which this permit is issued (Sec. 3097, Civ. C.).

Lender's Name _____

Lender's Address _____

20. I certify that I have read this application and state that the above information is correct. I agree to comply with all city and county ordinances and state laws relating to building construction, and hereby authorize representatives of this city to enter upon the above-mentioned property for inspection purposes.

I realize that this permit is an application for inspection, that it does not approve or authorize the work specified herein, that it does not authorize or permit any violation or failure to comply with any applicable law, that neither the city of Los Angeles nor any board, department, officer or employee thereof make any warranty or shall be responsible for the performance or results of any work described herein or the condition of the property or soil upon which such work is performed. (See Sec. 91.0202 LAMC)

Signed James A. DeLong 6-16-92 President

(Owner or agent having property owner's consent) Position Date

* ACCESS RAMPS SHOULD BE CONSTRUCTED PRIOR TO ISSUANCE OF C of O
(SEE HANSB CARD FOR LOCATION)

Bureau of Engineering	ADDRESS APPROVED		Bullard 3-26-90
ACCESS RAMPS TO BE DETERMINED SM. * 5 ACCESS RAMPS ARE REQUIRED	DRIVEWAY W = 24		SM 6/2/92
	HIGHWAY	X REQUIRED	SM 11/13/91
	DEDICATION	~~COMPLETED~~	SM 11/13/91
	FLOOD CLEARANCE		
SEWERS RES. NO. 825-B Valley Dist. CERT. NO. No increase in students	SEWERS AVAILABLE		D. Hu 5-8-91
	NOT AVAILABLE	X	Scott 3-26-90
	SFC PAID		
X SFC NOT APPLICABLE D.Hu	SFC DUE		
Grading	PRIVATE SEWAGE SYSTEM APPROVED		
Comm. Safety	APPROVED FOR ISSUE ☐ NO FILE ☐ FILE CLOSED ☐		
Fire	APPROVED (TITLE 19) (L.A.M.C.-5700)		
Housing	HOUSING AUTHORITY APPROVAL		
Planning *PF	APPROVED UNDER CASE # [illegible]		
Transportation	APPROVED FOR EXISTING & PKING & DWYS ONLY		9/26/91
Construction Tax	RECEIPT NO.	DWELLING UNITS	

NOTICES POSTED FOR "G PERMIT" AA9281

LEGAL DESCRIPTION

*PER APPROVED PLANS ONLY ORIGINAL GRANTED DLOG.

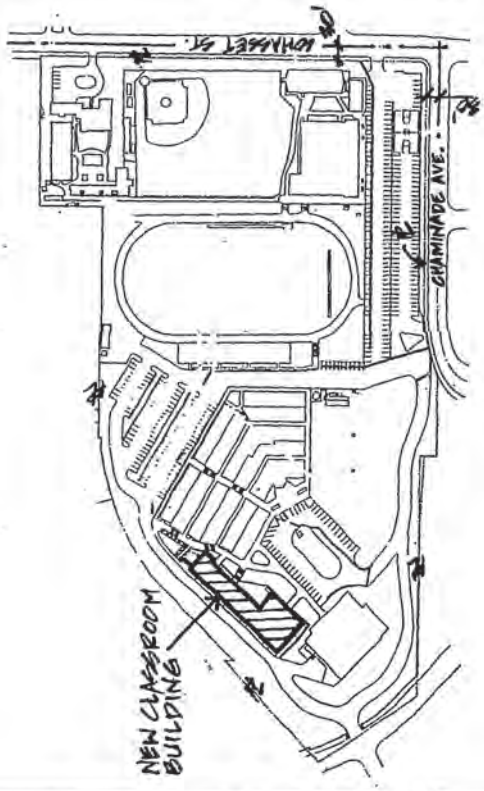
* CPC 85-333 CUZ

D.A.D. - O.K. - 9/19/91 ED HENSLEY, Chief Clerk

BUREAU OF ENGINEERING (CURB RAMPS):

ON PLOT PLAN SHOW ALL BUILDINGS ON LOT AND USE OF EACH

SD = 0.27 x 30524 = 8241.48



ATTACHED PLOT PLANS SHALL NOT EXTEND ABOVE THIS LINE

23260 W Saticoy St

Permit #: **03010 - 10000 - 02557**
Plan Check #: B03LA1509FO Printed: 02/10/04 02:42 PM
Event Code:

Bldg-New
Commercial
Regular Plan Check
Plan Check Submittal

City of Los Angeles - Department of Building and Safety

APPLICATION FOR BUILDING PERMIT AND CERTIFICATE OF OCCUPANCY

Last Status: Ready to Issue
Status Date: 02/10/2004

1. TRACT	BLOCK	LOT(s)	ARB	COUNTY MAP REF #	PARCEL ID # (PIN #)	2. ASSESSOR PARCEL #
TR 26072		LT 1		M B 676-76/77	186B093 52	2027 - 005 - 009
TR 2500		19		M B 28-9/10	186B093 84	2027 - 005 - 002
TR 2500		35		M B 28-9/10	186B093 128	2027 - 005 - 002

3. PARCEL INFORMATION

Area Planning Commission - South Valley
LADBS Branch Office - VN
Council District - 3
Certified Neighborhood Council - West Hills
Community Plan Area - Canoga Park-West Hills-Winnet
Census Tract - 1344.22
District Map - 186B093
Energy Zone - 9
Fire District - FBZ
Hillside Grading Area - YES
Earthquake-Induced Liquefaction Area - YES
Lot Size - IRR
Lot Type - Interior
Near Source Zone Distance - 12.8
Thomas Brothers Map Grid - 529-F4

ZONE(S): RS-1 /

4. DOCUMENTS

ZI - ZI-1022
ZI - ZI-1802
ORD - ORD-165195
CPC - CPC-2000-1301-CU
AFF - AFF 03-2687795(LOT TIE)
AFF - AFF 03-2864432(MASTER COVE
AFF - AFF-35387

5. CHECKLIST ITEMS

Storm Water - NOI/SWPPP-1 to < 5 acres
Fabricator Reqd - Glued-Laminated Timber
Fabricator Reqd - Shop Welds
Fabricator Reqd - Structural Steel
Special Inspect - Anchor Bolts
Special Inspect - Concrete>2.5ksi
Special Inspect - Masonry
Special Inspect - Structural Observation

6. PROPERTY OWNER, TENANT, APPLICANT INFORMATION

Owner(s):
Chaminade Preparatory — 10210 Oakdale Ave — CHATSWORTH CA 91311
Chaminade College Preparatory — 10210 Oakdale Ave — CHATSWORTH CA 91311
Tenant:
Applicant: (Relationship: Architect)
J P Darling - — 20331 Irvine Ave — SANTA ANA HEIGHTS, CA 92707 — (714) 918-8640

7. EXISTING USE

PROPOSED USE
(18) School - elementary or high

8. DESCRIPTION OF WORK
New2-story type III-1HR high school Science and Technology building. Sprinklers thru-out.

9. # Bldgs on Site & Use:

10. APPLICATION PROCESSING INFORMATION

BLDG. PC By: Philip Yin
DAS PC By: Wai Lau
OK for Cashier: Philip Yin
Coord. OK:
Signature:
Date: 2/13/04

For information and/or inspection requests originating within LA County,
Call toll-free (888) LA4BUILD
Outside LA County, call (213) 482-0000. (LA4BUILD = 524-2845)

For Cashier's Use Only — W/O # 31002557
Department of Building and Safety
LA 05 08 104600 02/13/04 12:55PM

11. PROJECT VALUATION & FEE INFORMATION Final Fee Period

Permit Valuation: $4,189,224
PC Valuation:

FINAL TOTAL Bldg-New	34,647.67	School District Commercial Area	8,185.84
Permit Fee Subtotal Bldg-New	15,755.34	Permit Issuing Fee	0.00
Energy Surcharge			
Handicapped Access			
Plan Check Subtotal Bldg-New	4,615.78		
Off-hour Plan Check	2,307.89		
Plan Maintenance	300.00		
Fire Hydrant Refuse-To-Pay			
E.Q. Instrumentation	879.74		
O.S. Surcharge	477.18		
Sys. Surcharge	1,431.53		
Planning Surcharge	689.37		
Planning Surcharge Misc Fee	5.00		

115

Sewer Cap ID:
Total Bond(s) Due:

BUILDING PERMIT COMM	$15,755.34
BUILDING PLAN CHECK	$4,615.78
PLAN APPROVAL FEE	$2,307.89
PLAN MAINTENANCE	$300.00
EI COMMERCIAL	$879.74
ONE STOP SURCH	$477.18
SYSTEMS DEVT FEE	$1,431.53
CITY PLANNING SURCH	$689.37
MISCELLANEOUS	$5.00
SCHOOL D-COMM	$8,185.84
Total Due:	$34,647.67
Check:	$26,461.83
Check:	$8,185.84

04LA 54297

12. ATTACHMENTS
Plot Plan

* P 0 3 0 1 0 1 0 0 0 0 2 5 5 7 F N *

0105192003045758

13. STRUCTURE INVENTORY 03010 - 10000 - 02557

(P) Floor Area (ZC) 24,076 Sqft
(P) Height (ZC) 32 Feet
(P) Length 185.33 Feet
(P) Stories 2 Levels
(P) Width 94.67 Feet
(P) NFPA-13 Fire Sprinklers Thru-out
(P) Masonry Shearwall
(P) A3 Occupancy 2,654 Sqft 199 Max Occ.
(P) E1 Occupancy 21,422 Sqft 316 Max Occ.
(P) Parking Req'd 55 #Changed 55 Total
(P) Provided Disabled Parking 3 Stalls
(P) Provided Standard Parking 54 Stalls
(P) Total Parking for Site 57 Site Total
(P) Type III-1HR Construction
(P) Floor Construction - Concrete Slab on Grade
(P) Foundation - Continuous Footing
(P) Foundation - Spread (Pad) Footing
(P) Roof Construction - Wood Frame/Sheathing
(P) Wall Construction - Masonry
(P) Wall Construction - Metal Stud

14. APPLICATION COMMENTS

** Approved Seismic Gas Shut-Off Valve may be required. ** Sprinklers are used in lieu of 1-hr construction.

In the event that any box (i.e. 1-16) is filled to capacity, it is possible that additional information has been captured electronically and could not be printed due to space restrictions. Nevertheless, the information printed exceeds that required by Section 19825 of the Health and Safety Code of the State of California.

15. Building Relocated From:

16. CONTRACTOR, ARCHITECT, & ENGINEER NAME	ADDRESS		CLASS	LICENSE#	PHONE #
(A) Darling, James Paul	20331 Irvine Avenue Ste E-6,	Santa Ana Heights, CA 92707		C10337	714-918-8640
(C) Epi Enterprises Inc	7655 Haskell Ave,	Van Nuys, CA 91406	B	260286	818-908-0348
(E) Correia, William John	16912 Bolsa Chica Ste 101,	Huntington Beach, CA 92649		S2132	714-840-5582

PERMIT EXPIRATION

This permit expires two years after the date of the permit issuance. This permit will also expire if no construction work is performed for a continuous period of 180 days (Sec. 98.0602 LAMC). Claims for refund of fees paid must be filed within one year from the date of expiration for permits granted by the Dept. of Building & Safety (Sec. 22.12 & 22.13 LAMC).

17. LICENSED CONTRACTOR'S DECLARATION

I hereby affirm under penalty of perjury that I am licensed under the provisions of Chapter 9 (commencing with Section 7000) of Division 3 of the Business and Professions Code, and my license is in full force and effect. If doing work on a residential property, I certify that I hold a valid certification as a Home Improvement contractor per Business and Professions Code, Section 7150.2c. The following applies to B contractors only: I understand the limitations of Section 7057 of the Business and Professional Code related to my ability to take prime contracts or subcontracts involving specialty trades.

License Class:_____ Lic. No.:_____ Contractor:_____

18. WORKERS' COMPENSATION DECLARATION

I hereby affirm, under penalty of perjury, one of the following declarations:

(_) I have and will maintain a certificate of consent to self insure for workers' compensation, as provided for by Section 3700 of the Labor Code, for the performance of the work for which this permit is issued.

(X) I have and will maintain workers' compensation insurance, as required by Section 3700 of the Labor Code, for the performance of the work for which this permit is issued. My workers' compensation insurance carrier and policy number are:

Carrier:_____ Policy Number:_____

(_) I certify that in the performance of the work for which this permit is issued, I shall not employ any person in any manner so as to become subject to the workers' compensation laws of California, and agree that if I should become subject to the workers' compensation provisions of Section 3700 of the Labor Code, I shall forthwith comply with those provisions.

WARNING: FAILURE TO SECURE WORKERS' COMPENSATION COVERAGE IS UNLAWFUL, AND SHALL SUBJECT AN EMPLOYER TO CRIMINAL PENALTIES AND CIVIL FINES UP TO ONE HUNDRED THOUSAND DOLLARS ($100,000), IN ADDITION TO THE COST OF COMPENSATION, DAMAGES AS PROVIDED FOR IN SECTION 3706 OF THE LABOR CODE, INTEREST, AND ATTORNEY'S FEES.

19. ASBESTOS REMOVAL DECLARATION

I certify that notification of asbestos removal is either not applicable or was sent to the AQMD or EPA as per section 19827.5 of the Health and Safety Code.

20. CONSTRUCTION LENDING AGENCY DECLARATION

I hereby affirm under penalty of perjury that there is a construction lending agency for the performance of the work for which this permit is issued (Sec. 3097, Civil Code).

Lender's name (if any):_____ Lender's address:_____

21. FINAL DECLARATION

I certify that I have read this application **INCLUDING THE ABOVE DECLARATIONS** and state that the above information **INCLUDING THE ABOVE DECLARATIONS** is correct. I agree to comply with all city and county ordinances and state laws relating to building construction, and hereby authorize representatives of this city to enter upon the above-mentioned property for inspection purposes. I realize that this permit is an application for inspection and that it does not approve or authorize the work specified herein, and it does not authorize or permit any violation or failure to comply with any applicable law. Furthermore, neither the City of Los Angeles nor any board, department officer, or employee thereof, make any warranty, nor shall be responsible for the performance or results of any work described herein, nor the condition of the property nor the soil upon which such work is performed. I further affirm under penalty of perjury, that the proposed work will not destroy or unreasonably interfere with any access or utility easement belonging to others and located on my property, but in the event such work does destroy or unreasonably interfere with such easement, a substitute easement(s) satisfactory to the holder(s) of the easement will be provided (Sec. 91.0106.4.3.4 LAMC).

By signing below, I certify that:

(1) I accept all the declarations above namely the Licensed Contractor's Declaration, Workers' Compensation Declaration, Asbestos Removal Declaration, Construction Lending Agency Declaration and Final Declaration; and
(2) This permit is being obtained with the consent of the legal owner of the property.

Print Name: I DAVID EBERLE Sign: X [signature] BENTAS Date: 1-10-04 ☐ Contractor ☒ Authorized Agent

23260 W Saticoy St Permit Application #: **03010 - 10000 - 02557**

Bldg-New
Commercial
Plan Check Submittal

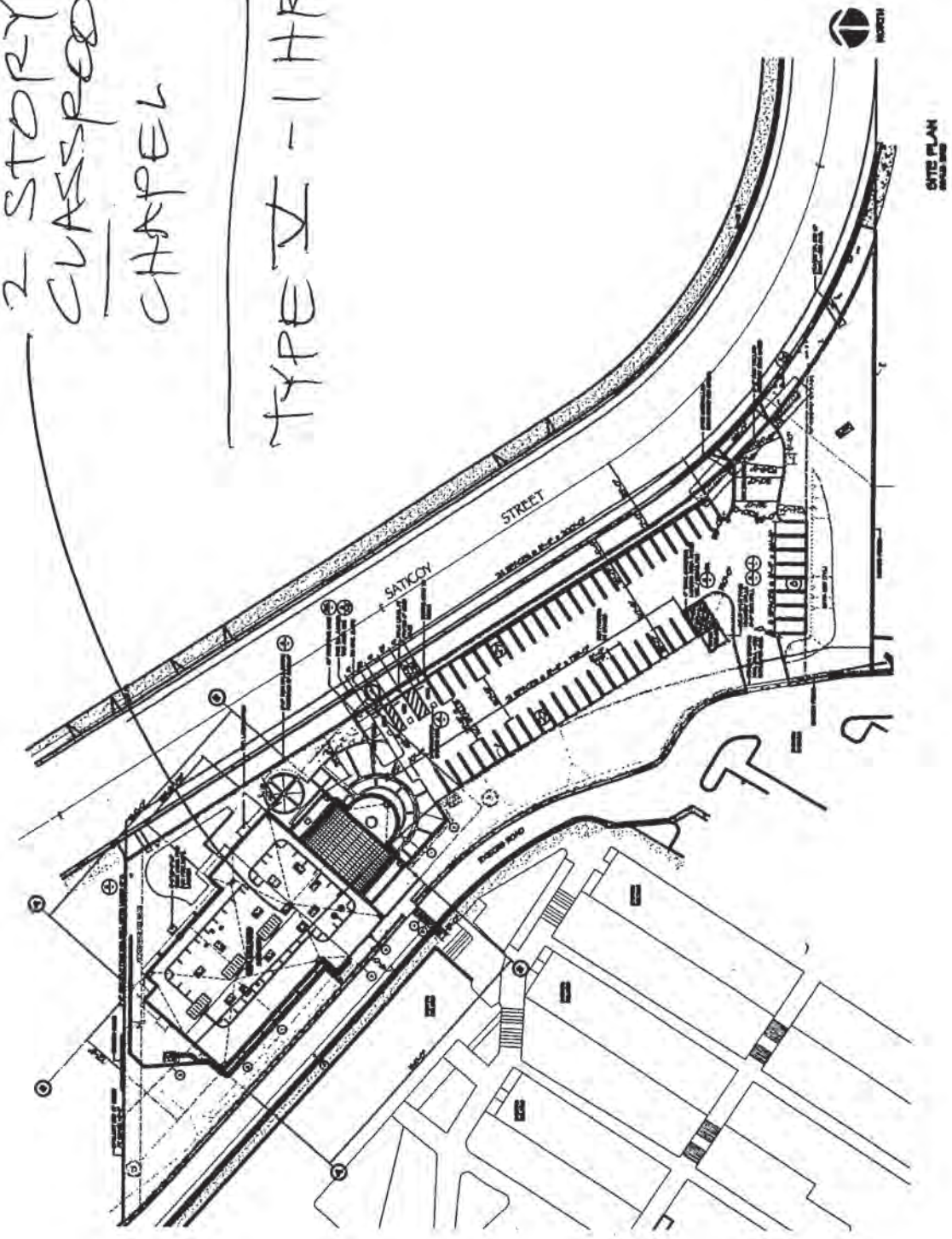
City of Los Angeles - Department of Building and Safety

Plan Check #: B03LA1509FO
Initiating Office: METRO
Printed on: 07/14/03 10:04:42

PLOT PLAN ATTACHMENT

2 STORY CLASSROOM CHAPEL

TYPE V - 1 HR.



(DO NOT DRAW, WRITE, OR PASTE ATTACHMENTS OUTSIDE BORDER)

10105192004575 8

COUNCIL DISTRICT: 3

PLOT PLAN ATTACHMENT

7500 N Chaminade Ave

Permit #: **03020 - 20000 - 00117**
Plan Check #: B03VN0058FO Printed: 02/20/03 04:14 PM
Event Code:

Nonbldg-Addition
Commercial
Regular Plan Check
Plan Check Submittal

City of Los Angeles - Department of Building and Safety

APPLICATION FOR BUILDING PERMIT AND CERTIFICATE OF OCCUPANCY

Last Status: Ready to Issue
Status Date: 02/20/2003

1. TRACT	BLOCK	LOT(s)	ARB	COUNTY MAP REF #	PARCEL ID # (PIN #)	2. ASSESSOR PARCEL #
TR 26072		LT 1		M B 676-76/77	186B093 52	2027 - 005 - 009

3. PARCEL INFORMATION

BAS Branch Office - VN
Council District - 3
Cmpt. Fill Grd. - CFG-1500
Cmpt. Fill Grd. - CFG-2000
Community Plan Area - Canoga Park-West Hills-Winnet
Census Tract - 1344.220
District Map - 186B093
Energy Zone - 9
Fire District - FBZ
Hillside Grading Area - YES
Earthquake-Induced Liquefaction Area - YES
Near Source Zone Distance - 12.9
Thomas Brothers Map Grid - 529-F4

ZONE(S): A1-1 /

4. DOCUMENTS

ZI - ZI-1802
ZA - ZA-15692
YC - YD-10726-YV
CPC - CPC-10767
CPC - CPC-1985-333-CUZ-CU
CPC - CPC-2000-1301-CU
CPC - CPC-22365-CU
CPC - CPC-7564
CPC - CPC-8109
AFF - OB-12395
AFF - OB-14551

5. CHECKLIST ITEMS

Special Inspect - Masonry

6. PROPERTY OWNER, TENANT, APPLICANT INFORMATION

Owner(s)
Chaminade Preparatory — 10210 Oakdale Ave — CHATSWORTH CA 91311

Tenant

Applicant (Relationship Owner)
- Chaminade Prep School — 7500 Chaminade Ave — WEST HILLS CA 91311 — (818) 347-8303

7. EXISTING USE / **PROPOSED USE**

(23) Miscellaneous Bldg/Structu

8. DESCRIPTION OF WORK

Add 66'-11"x33'-7" irregular-shaped deck addition to an existing viewing deck accessory to a private school per engineered plans.

9. # Bldgs on Site & Use: SCHOOL

10. APPLICATION PROCESSING INFORMATION

BLDG. PC By: Eddie Yamamoto
DAS PC By: Aldous Chic
OK for Cashier: Eddie Yamamoto
Coord. OK:
Signature: Eddie Yamamoto
Date: 2/20/03 . 2/21/03 EY

For information and/or inspection requests originating within LA County,
Call toll-free (888) LA4BUILD
Outside LA County, call (213)-977-6941. (LA4BUILD = 524-2845)

For Cashier's Use Only W/O #: **32000117**

11. PROJECT VALUATION & FEE INFORMATION Final Fee Period

Permit Valuation: $31,300 PC Valuation:

FINAL TOTAL Nonbldg-Addition	413.91
Permit Fee Subtotal Nonbldg-Additi	362.00
Plan Check Subtotal Nonbldg-Addit	0.00
Off-hour Plan Check	0.00
Fire Hydrant Refuse-To-Pay	0.00
E.Q. Instrumentation	6.57
O.S. Surcharge	7.37
Sys. Surcharge	22.11
Planning Surcharge	10.86
Planning Surcharge Misc Fee	5.00
Permit Issuing Fee	0.00

Sewer Cap ID: Total Bond(s) Due:

12. ATTACHMENTS

Plot Plan

LA Department of Building and Safety
VN 07 16 076363 02/21/03 07:55AM

BUILDING PERMIT COMM	$362.00
EI COMMERCIAL	$6.57
ONE STOP SURCH	$7.37
SYSTEMS DEVT FEE	$22.11
CITY PLANNING SURCH	$10.86
MISCELLANEOUS	$5.00
Subtotal:	$413.91
Carry FROM Trans 076362	$642.14
Total Due:	$1,056.05
Credit Card:	$1,056.05

03VN 24964

P030202000000117FN

13. STRUCTURE INVENTORY

03020 - 20000 - 00117

14. APPLICATION COMMENTS

In the event that any box (i.e. 1-16) is filled to capacity, it is possible that additional information has been captured electronically and could not be printed due to space restrictions. Nevertheless, the information printed exceeds that required by Section 19825 of the Health and Safety Code of the State of California.

15. Building Relocated From:

16. CONTRACTOR, ARCHITECT, & ENGINEER NAME	ADDRESS		CLASS	LICENSE#	PHONE #
(A) Pittman, Mark Richard	1040 Flynn Road Suite B,	Camarillo, CA 93012		C19156	388-2724
(C) Southern California Builders	741 Lakefield Road Suite E,	Westlake Village, CA 91361	B	404716	805-497-4497
(E) Vinci, James Richard	45 Dobkin Place,	Simi Valley, CA 93065		S4411	

PERMIT EXPIRATION

This permit expires two years after the date of the permit issuance. This permit will also expire if no construction work is performed for a continuous period of 180 days (Sec. 98.0602 LAMC). Claims for refund of fees paid must be filed within one year from the date of expiration for permits granted by the Dept. of Building & Safety (Sec. 22.12 & 22.13 LAMC).

17. LICENSED CONTRACTOR'S DECLARATION

I hereby affirm under penalty of perjury that I am licensed under the provisions of Chapter 9 (commencing with Section 7000) of Division 3 of the Business and Professions Code, and my license is in full force and effect. If doing work on a residential property, I certify that I hold a valid certification as a Home Improvement contractor per Business and Professions Code, Section 7150.2c. The following applies to B contractors only: I understand the limitations of Section 7057 of the Business and Professional Code related to my ability to take prime contracts or subcontracts involving specialty trades.

License Class: B Lic. No.: 404716 Contractor: SOUTHERN CALIFORNIA BUILDERS

18. WORKERS' COMPENSATION DECLARATION

I hereby affirm, under penalty of perjury, one of the following declarations:

(__) I have and will maintain a certificate of consent to self insure for workers' compensation, as provided for by Section 3700 of the Labor Code, for the performance of the work for which this permit is issued.

(__) I have and will maintain workers' compensation insurance, as required by Section 3700 of the Labor Code, for the performance of the work for which this permit is issued. My workers' compensation insurance carrier and policy number are:

Carrier: STATE FUND Policy Number: 1122035-02

(__) I certify that in the performance of the work for which this permit is issued, I shall not employ any person in any manner so as to become subject to the workers' compensation laws of California, and agree that if I should become subject to the workers' compensation provisions of Section 3700 of the Labor Code, I shall forthwith comply with those provisions.

WARNING: FAILURE TO SECURE WORKERS' COMPENSATION COVERAGE IS UNLAWFUL, AND SHALL SUBJECT AN EMPLOYER TO CRIMINAL PENALTIES AND CIVIL FINES UP TO ONE HUNDRED THOUSAND DOLLARS ($100,000), IN ADDITION TO THE COST OF COMPENSATION, DAMAGES AS PROVIDED FOR IN SECTION 3706 OF THE LABOR CODE, INTEREST, AND ATTORNEY'S FEES.

19. ASBESTOS REMOVAL DECLARATION

I certify that notification of asbestos removal is either not applicable or was sent to the AQMD or EPA as per section 19827.5 of the Health and Safety Code.

20. CONSTRUCTION LENDING AGENCY DECLARATION

I hereby affirm under penalty of perjury that there is a construction lending agency for the performance of the work for which this permit is issued (Sec. 3097, Civil Code).

Lender's name (if any): _____ Lender's address: _____

21. FINAL DECLARATION

I certify that I have read this application **INCLUDING THE ABOVE DECLARATIONS** and state that the above information **INCLUDING THE ABOVE DECLARATIONS** is correct. I agree to comply with all city and county ordinances and state laws relating to building construction, and hereby authorize representatives of this city to enter upon the above-mentioned property for inspection purposes. I realize that this permit is an application for inspection and that it does not approve or authorize the work specified herein, and it does not authorize or permit any violation or failure to comply with any applicable law. Furthermore, neither the City of Los Angeles nor any board, department officer, or employee thereof, make any warranty, nor shall be responsible for the performance or results of any work described herein, nor the condition of the property nor the soil upon which such work is performed. I further affirm under penalty of perjury, that the proposed work will not destroy or unreasonably interfere with any access or utility easement belonging to others and located on my property, but in the event such work does destroy or unreasonably interfere with such easement, a substitute easement(s) satisfactory to the holder(s) of the easement will be provided (Sec. 91.0106.4.3.4 LAMC).

By signing below, I certify that:

(1) I accept all the declarations above namely the Licensed Contractor's Declaration, Workers' Compensation Declaration, Asbestos Removal Declaration, Construction Lending Agency Declaration and Final Declaration; and

(2) This permit is being obtained with the consent of the legal owner of the property.

Print Name: MARK PITTMAN Sign: _____ Date: 2/20/03 ☑ Contractor ☐ Authorized Agent

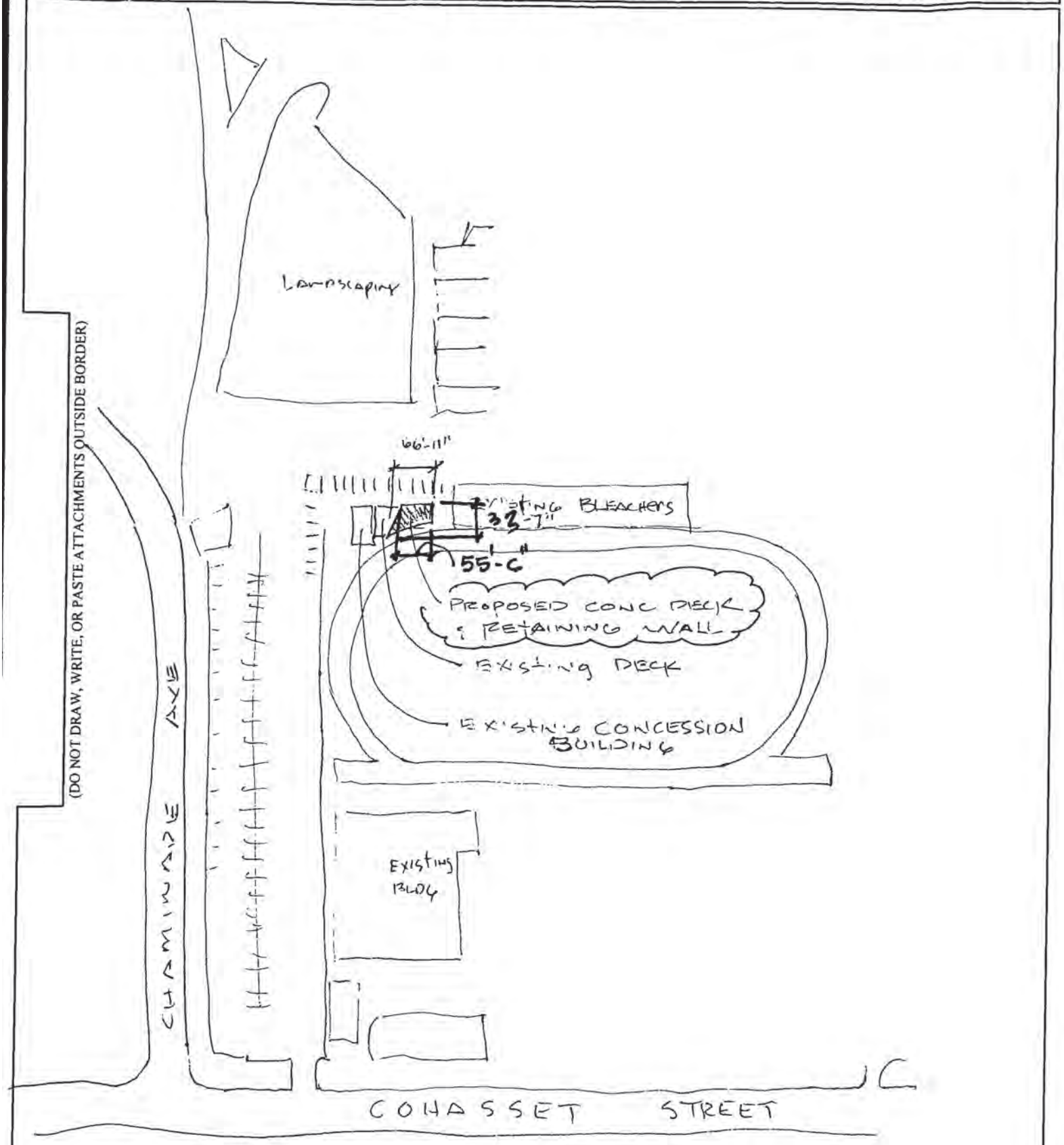
7500 N Chaminade Ave Permit Application #: **03020 - 20000 - 00117**

Nonbldg-New
Commercial
Plan Check Submittal

City of Los Angeles - Department of Building and Safety

Plan Check #: B03VN0058FO
Initiating Office: VAN NUYS
Printed on: 01/22/03 17:35:56

PLOT PLAN ATTACHMENT



COUNCIL DISTRICT: 3

7500 N Chaminade Ave

Permit #: **08010 - 20000 - 00758**
Plan Check #: B08VN03481 Printed: 10/10/08 11:30 AM
Event Code:

Bldg-New
Commercial
Regular Plan Check
Plan Check

City of Los Angeles - Department of Building and Safety

APPLICATION FOR BUILDING PERMIT AND CERTIFICATE OF OCCUPANCY

Last Status: Ready to Issue
Status Date: 10/10/2008

1. TRACT	BLOCK	LOT(s)	ARB	COUNTY MAP REF #	PARCEL ID # (PIN #)	2. ASSESSOR PARCEL #
TR 26072		LT 1		M B 676-76/77	186B093 52	2027 - 005 - 009

3. PARCEL INFORMATION

Area Planning Commission - South Valley
LADBS Branch Office - VN
Council District - 3
Cmpt. Fill Grd. - CFG-1500
Cmpt. Fill Grd. - CFG-2000
Certified Neighborhood Council - West Hills
Community Plan Area - Canoga Park-West Hills-Winnet
Census Tract - 1344.22
District Map - 186B093
Energy Zone - 9
Hillside Grading Area - YES
Earthquake-Induced Liquefaction Area - Yes
Near Source Zone Distance - 42474.2
Thomas Brothers Map Grid - 529-F4

ZONE(S): A1-1 /

4. DOCUMENTS

ZI - ZI-1802 Hillside Grading Ordinance
ZA - ZA-15692
YC - YD-10726-YV
CPC - CPC-10767
CPC - CPC-1985-333-CUZ-CU
CPC - CPC-2000-1301-CU
CPC - CPC-22365-CU
CPC - CPC-7564
CPC - CPC-8109
AFF - OB-12395
AFF - OB-14551

5. CHECKLIST ITEMS

6. PROPERTY OWNER, TENANT, APPLICANT INFORMATION

Owner(s):
Chaminade Preparatory — 10210 Oakdale Ave — CHATSWORTH CA 91311

Tenant:

Applicant: (Relationship: Architect)
David Raider - — 24311 Clipstone — WOODLAND HILLS, CA 91367 — (818) 346-3433

7. EXISTING USE

PROPOSED USE
(13) Office

8. DESCRIPTION OF WORK
NEW40'10"X16'0" OFFICE BLDG ACCESSORY TO PRIVATE SCHOOL.

LA Department of Building and Safety
VN 09 41 228417 10/10/08 11:49AM

9. # Bldgs on Site & Use: 1 OF 2

10. APPLICATION PROCESSING INFORMATION

BLDG. PC By: Faruk Sezer
DAS PC By: Norlito Medrano
OK for Cashier: Jose Mendoza
Coord. OK:
Signature:
Date: 10/10/08

11. PROJECT VALUATION & FEE INFORMATION Final Fee Period

Permit Valuation: $70,000
PC Valuation:

FINAL TOTAL Bldg-New	1,153.95	Permit Issuing Fee	0.00
Permit Fee Subtotal Bldg-New	710.50		
Energy Surcharge			
Handicapped Access			
Plan Check Subtotal Bldg-New	0.00		
Plan Maintenance	14.21		
Fire Hydrant Refuse-To-Pay			
E.Q. Instrumentation	14.70		
O.S. Surcharge	14.79		
Sys. Surcharge	44.36		
Planning Surcharge	43.48		
Planning Surcharge Misc Fee	5.00		
School District Commercial Area	306.91		

Sewer Cap ID:
Total Bond(s) Due:

12. ATTACHMENTS
Plot Plan

For inspection scheduling call (888) LANBUILD (524-2845).
Outside LA County, call (818) 374-4900. Request Inspections via
www.ladbs.org, LA Call Center agent, call 311 or
(866) 4LACITY. Outside LA County, call (213) 473-3231.

BUILDING PERMIT	$710.50
LA MAINTENANCE	$14.21
SCHOOL COMMERCIAL	$14.70
ONE STOP SURCH	$14.79
SYSTEMS DEVT FEE	$44.36
CITY PLANNING SURCH	$43.48
MISCELLANEOUS	$5.00
SCHOOL D-COMM	$306.91
BUILDING PLAN CHECK	$0.00
BUILDING PLAN CHECK	$0.00

For Cashier's Use Only W/O #: 8100075

P08010200000758FN

Subtotal:	$1,153.95
Carry Over FROM Tran# 228416	$1,441.40
Total Due:	$2,595.35
Carry Over TO Tran# 228418:	$2,595.35

2008VN47141

* P 0 8 0 1 0 2 0 0 0 0 0 0 7 5 8 F N *

T2 20080870 20080515 20080701

13. STRUCTURE INVENTORY (Note: Numeric measurement data in the format "number / number" implies "change in numeric value / total resulting numeric value")

08010 - 20000 - 00758

(P) Floor Area (ZC): +653 Sqft / 653 Sqft
(P) Height (ZC): +12.68 Feet / 12.68 Feet
(P) Length: +40.83 Feet / 40.83 Feet
(P) Stories: +1 Stories / 1 Stories
(P) Width: +16 Feet / 16 Feet
(P) Wood (Plywood, OSB, etc.)Shearwall
(P) B Occ. Group: +653 Sqft / 653 Sqft
(P) B Occ. Load: +7 Max Occ. / 7 Max Occ.
(P) Parking Req'd for Bldg (Auto+Bicycle): 0 Stalls / 0 S
(P) Type V-B Construction

14. APPLICATION COMMENTS

** Approved Seismic Gas Shut-Off Valve may be required. **

In the event that any box (i.e. 1-16) is filled to capacity, it is possible that additional information has been captured electronically and could not be printed due to space restrictions. Nevertheless, the information printed exceeds that required by Section 19825 of the Health and Safety Code of the State of California.

15. Building Relocated From:

16. CONTRACTOR, ARCHITECT, & ENGINEER NAME	ADDRESS		CLASS	LICENSE#	PHONE #
(A) Raider, David H	24311 Clipstone Street,	Woodland Hills, CA 91367		C6106	818-346-3433
(C) Valley Commercial Contractors L P	1508 Eureka Road Ste 145,	Roseville, CA 95661	B	739378	
(E) Hill, Edward Foster	Geotech 439 Western Ave,	Glendale, CA 91201		GE2126	818 2409600

PERMIT EXPIRATION/REFUNDS: This permit expires two years after the date of the permit issuance. This permit will also expire if no construction work is performed for a continuous period of 180 days (Sec. 98.0602 LAMC). Claims for refund of fees paid must be filed within one year from the date of expiration for permits granted by LADBS (Sec. 22.12 & 22.13 LAMC). The permittee may be entitled to reimbursement of permit fees if the Department fails to conduct an inspection within 60 days of receiving a request for final inspection (HS 17951).

17. LICENSED CONTRACTOR'S DECLARATION

I hereby affirm under penalty of perjury that I am licensed under the provisions of Chapter 9 (commencing with Section 7000) of Division 3 of the Business and Professions Code, and my license is in full force and effect. The following applies to B contractors only: I understand the limitations of Section 7057 of the Business and Professional Code related to my ability to take prime contracts or subcontracts involving specialty trades.

License Class: B Lic. No.: 739378 Contractor: VALLEY COMMERCIAL CONTRACTORS L P

18. WORKERS' COMPENSATION DECLARATION

I hereby affirm, under penalty of perjury, one of the following declarations:

(__) I have and will maintain a certificate of consent to self insure for workers' compensation, as provided for by Section 3700 of the Labor Code, for the performance of the work for which this permit is issued.

(X) I have and will maintain workers' compensation insurance, as required by Section 3700 of the Labor Code, for the performance of the work for which this permit is issued. My workers' compensation insurance carrier and policy number are:

Carrier: State Comp. Ins. Fund Policy Number: 044-0025874

(__) I certify that in the performance of the work for which this permit is issued, I shall not employ any person in any manner so as to become subject to the workers' compensation laws of California, and agree that if I should become subject to the workers' compensation provisions of Section 3700 of the Labor Code, I shall forthwith comply with those provisions.

WARNING: FAILURE TO SECURE WORKERS' COMPENSATION COVERAGE IS UNLAWFUL, AND SHALL SUBJECT AN EMPLOYER TO CRIMINAL PENALTIES AND CIVIL FINES UP TO ONE HUNDRED THOUSAND DOLLARS ($100,000), IN ADDITION TO THE COST OF COMPENSATION, DAMAGES AS PROVIDED FOR IN SECTION 3706 OF THE LABOR CODE, INTEREST, AND ATTORNEY'S FEES.

19. ASBESTOS REMOVAL DECLARATION / LEAD HAZARD WARNING

I certify that notification of asbestos removal is either not applicable or has been submitted to the AQMD or EPA as per section 19827.5 of the Health and Safety Code. Information is available at (909) 396-2336 and the notification form at www.aqmd.gov Lead safe construction practices are required when doing repairs that disturb paint in pre-1978 buildings due to the presence of lead per section 6716 and 6717 of the Labor Code. Information is avaiable at Health Services for LA County at (800) 524-5323 or the State of California at (800) 597-5323 or www.dhs.ca.gov/childlead

20. CONSTRUCTION LENDING AGENCY DECLARATION

I hereby affirm under penalty of perjury that there is a construction lending agency for the performance of the work for which this permit is issued (Sec. 3097, Civil Code).
Lender's name (if any): Lender's address:

21. FINAL DECLARATION

I certify that I have read this application **INCLUDING THE ABOVE DECLARATIONS** and state that the above information **INCLUDING THE ABOVE DECLARATIONS** is correct. I agree to comply with all city and county ordinances and state laws relating to building construction, and hereby authorize representatives of this city to enter upon the above-mentioned property for inspection purposes. I realize that this permit is an application for inspection and that it does not approve or authorize the work specified herein, and it does not authorize or permit any violation or failure to comply with any applicable law. Furthermore, neither the City of Los Angeles nor any board, department officer, or employee thereof, make any warranty, nor shall be responsible for the performance or results of any work described herein, nor the condition of the property nor the soil upon which such work is performed. I further affirm under penalty of perjury, that the proposed work will not destroy or unreasonably interfere with any access or utility easement belonging to others and located on my property, but in the event such work does destroy or unreasonably interfere with such easement, a substitute easement(s) satisfactory to the holder(s) of the easement will be provided (Sec. 91.0106.4.3.4 LAMC).

By signing below, I certify that:

(1) I accept all the declarations above namely the Licensed Contractor's Declaration, Workers' Compensation Declaration, Asbestos Removal Declaration / Lead Hazard Warning, Construction Lending Agency Declaration and Final Declaration; and
(2) This permit is being obtained with the consent of the legal owner of the property.

Print Name: Rich Walters Sign: Date: 10/10/08 [X] Contractor [ ] Authorized Agent

7500 N Chaminade Ave | Permit Application #: **08010 - 20000 - 00758**

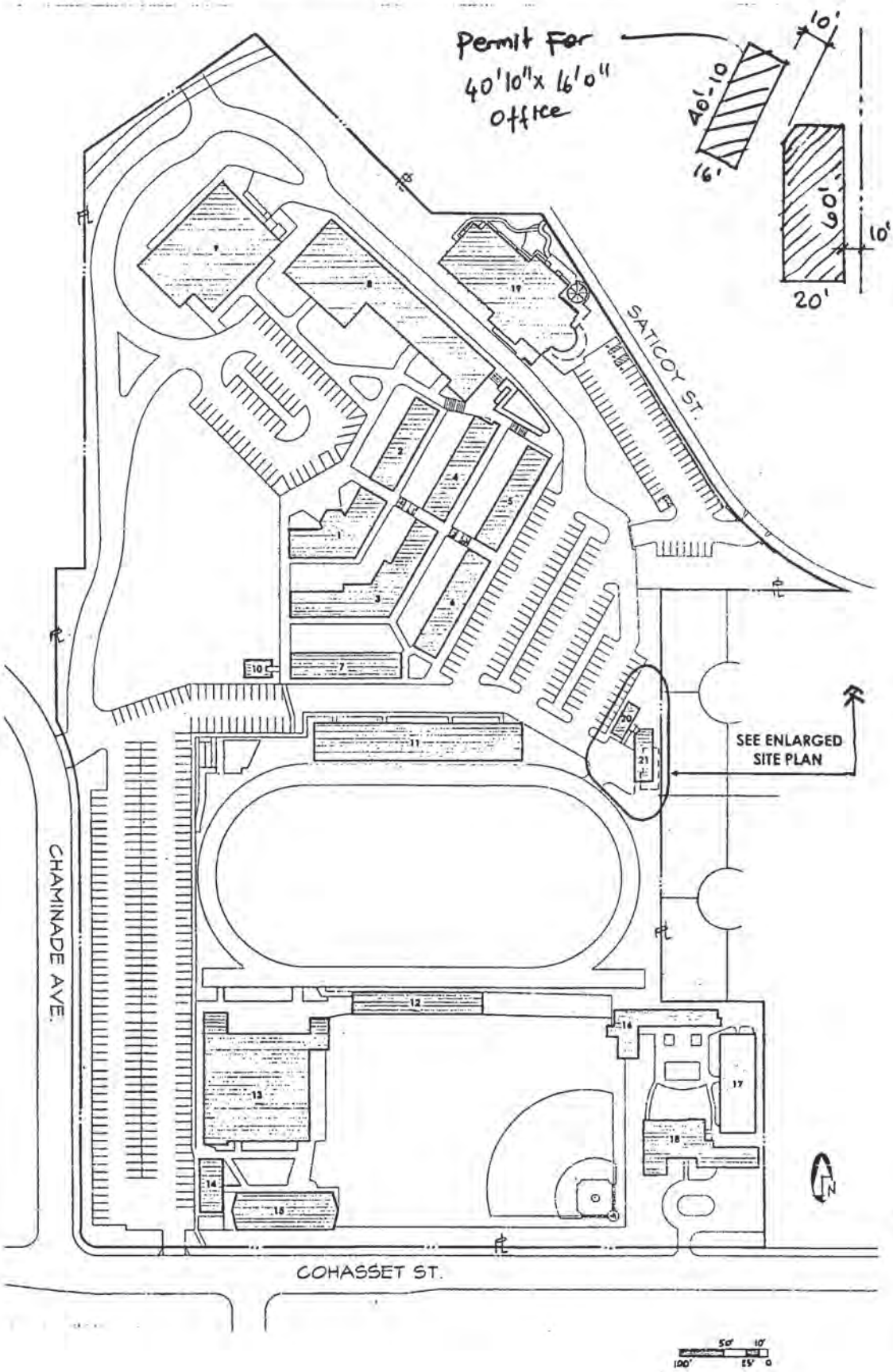
Bldg-New
Commercial
Plan Check

City of Los Angeles - Department of Building and Safety

PLOT PLAN ATTACHMENT

Plan Check #: B08VN03481
Initiating Office: VAN NUYS
Printed on: 05/06/08 11:18:03

(DO NOT DRAW, WRITE, OR PASTE ATTACHMENTS OUTSIDE BORDER)



10-03-08
RTI

7500 N Chaminade Ave

Permit #: **09020 - 10000 - 03008**
Plan Check #: B09LA12443 Printed: 07/09/10 09:57 AM
Event Code:

Nonbldg-New
Commercial
Regular Plan Check
Plan Check

City of Los Angeles - Department of Building and Safety

APPLICATION FOR BUILDING PERMIT AND CERTIFICATE OF OCCUPANCY

Last Status: Ready to Issue
Status Date: 07/09/2010

1. TRACT	BLOCK	LOT(s)	ARB	COUNTY MAP REF #	PARCEL ID # (PIN #)	2. ASSESSOR PARCEL #
TR 26072		LT 1		M B 676-76/77	186B093 52	2027 - 005 - 009

3. PARCEL INFORMATION

Area Planning Commission - South Valley
LADBS Branch Office - VN
Council District - 3
Cmpt. Fill Grd. - CFG-1500
Cmpt. Fill Grd. - CFG-2000
Certified Neighborhood Council - West Hills
Community Plan Area - Canoga Park-West Hills-Winnet
Census Tract - 1344.22
District Map - 186B093
Energy Zone - 9
Hillside Grading Area - YES
Earthquake-Induced Liquefaction Area - Yes
Lot Size - IRR
Lot Type - Corner, THROUGH
Near Source Zone Distance - 11.9

ZONE(S): A1-1 /

4. DOCUMENTS

ZI - ZI-1802 Hillside Grading Ordinance
ZA - ZA-15692
YC - YD-10726-YV
CPC - CPC-10767
CPC - CPC-1985-333-CUZ-CU
CPC - CPC-2000-1301-CU
CPC - CPC-2009-1477-CU-ZV-ZAA-SI
CPC - CPC-22365-CU
CPC - CPC-7564
CPC - CPC-8109
AFF - OB-12395
AFF - OB-14551

5. CHECKLIST ITEMS

Special Inspect - Concrete>2.5ksi
Special Inspect - Field Welding
Special Inspect - Shotcrete
Special Inspect - Structural Observation
Fabricator Reqd - Structural Steel

6. PROPERTY OWNER, TENANT, APPLICANT INFORMATION

Owner(s):
Chaminade Preparatory — 10210 Oakdale Ave — CHATSWORTH CA 91311

Tenant:

Applicant: (Relationship: Architect)
- Jp Darling & Assoc. — 20331 Irvine Ave. Ste. E-6 — NEWPORT BEACH, CA 92660 — (714) 918-8640

7. EXISTING USE

PROPOSED USE
(23) Retaining Wall

8. DESCRIPTION OF WORK
RETAINING WALL ON PERMANENT SOLDIER PILE/SHOTCRETE. **SITE /RETAINING WALL GRADING WORKS ARE UNDER PERMIT NO. 10030-20K-00222.

9. # Bldgs on Site & Use: PRIVATE SCHOOL

10. APPLICATION PROCESSING INFORMATION

BLDG. PC By: Kesete Haregot
OK for Cashier: Kesete Haregot
DAS PC By:
Coord. OK:
Signature:
Date:

For inspection requests, call toll-free **(888) LA4BUILD** (524-2845). Outside LA County, call (213) 482-0000 or request Inspections via **www.ladbs.org**. To speak to a Call Center agent, dial 311 or (866) 4LACITY (452-2489). Outside LA County, call (213) 473-3231.

For Cashier's Use Only W/O #: **92003008**

BUILDING PERMIT
PLAN MAINTENANCE
EZ COMMERCIAL
ONE STOP SURCH
SYSTEMS DEPT FEE
CITY PLANNING SURCH
MISCELLANEOUS
PLANNING GEN PLAN MAINT
GREEN BUILDING FEE
BUILDING PLAN CHEC
BUILDING PERM CHEC

P090C01000003008FN

Total Due
Credit Card
Cash

11. PROJECT VALUATION & FEE INFORMATION Final Fee Period

Permit Valuation: $86,000
PC Valuation:

FINAL TOTAL Nonbldg-New	830.70
Permit Fee Subtotal Nonbldg-New	668.00
Plan Check Subtotal Nonbldg-New	0.00
Plan Maintenance	13.36
Fire Hydrant Refuse-To-Pay	
E.Q. Instrumentation	18.06
O.S. Surcharge	13.99
Sys. Surcharge	41.97
Planning Surcharge	40.88
Planning Surcharge Misc Fee	10.00
Planning Gen Plan Maint Surcharge	20.44
Green Building Fee	4.00
Permit Issuing Fee	0.00

Sewer Cap ID:
Total Bond(s) Due:

12. ATTACHMENTS
Plot Plan

P09020100000030008FN

13. STRUCTURE INVENTORY (Note: Numeric measurement data in the format "number / number" implies "change in numeric value / total resulting numeric value") **09020 - 10000 - 03008**

14. APPLICATION COMMENTS

In the event that any box (i.e. 1-16) is filled to capacity, it is possible that additional information has been captured electronically and could not be printed due to space restrictions. Nevertheless, the information printed exceeds that required by Section 19825 of the Health and Safety Code of the State of California.

15. Building Relocated From:

16. CONTRACTOR, ARCHITECT, & ENGINEER NAME	ADDRESS		CLASS	LICENSE#	PHONE #
(C) E P I Construction Inc	12345 Ventura Blvd Suite H,	Studio City, CA 91604	B	865616	
(E) Hill, Edward Foster	Geotech 439 Western Ave,	Glendale, CA 91201		GE2126	
(E) Young, Don Yuk-Man	367 North Grand Ave,	Monrovia, CA 91016		C35713	(626) 351-3367
(G) Schroeter, Charles Elling	752 East Meadow Lane,	Big Bear City, CA 92314		EG2126	

PERMIT EXPIRATION/REFUNDS: This permit expires two years after the date of the permit issuance. This permit will also expire if no construction work is performed for a continuous period of 180 days (Sec. 98.0602 LAMC). Claims for refund of fees paid must be filed within one year from the date of expiration for permits granted by LADBS (Sec. 22.12 & 22.13 LAMC). The permittee may be entitled to reimbursement of permit fees if the Department fails to conduct an inspection within 60 days of receiving a request for final inspection (HS 17951).

17. LICENSED CONTRACTOR'S DECLARATION

I hereby affirm under penalty of perjury that I am licensed under the provisions of Chapter 9 (commencing with Section 7000) of Division 3 of the Business and Professions Code, and my license is in full force and effect. The following applies to B contractors only: I understand the limitations of Section 7057 of the Business and Professional Code related to my ability to take prime contracts or subcontracts involving specialty trades.

License Class: **B** Lic. No.: **865616** Contractor: **E P I CONSTRUCTION INC**

18. WORKERS' COMPENSATION DECLARATION

I hereby affirm, under penalty of perjury, one of the following declarations:

( ) I have and will maintain a certificate of consent to self insure for workers' compensation, as provided for by Section 3700 of the Labor Code, for the performance of the work for which this permit is issued.

( ) I have and will maintain workers' compensation insurance, as required by Section 3700 of the Labor Code, for the performance of the work for which this permit is issued. My workers' compensation insurance carrier and policy number are:

Carrier: **Kemper Employers Ins. Co.** Policy Number: **BB1093191**

(✓) I certify that in the performance of the work for which this permit is issued, I shall not employ any person in any manner so as to become subject to the workers' compensation laws of California, and agree that if I should become subject to the workers' compensation provisions of Section 3700 of the Labor Code, I shall forthwith comply with those provisions.

WARNING: FAILURE TO SECURE WORKERS' COMPENSATION COVERAGE IS UNLAWFUL, AND SHALL SUBJECT AN EMPLOYER TO CRIMINAL PENALTIES AND CIVIL FINES UP TO ONE HUNDRED THOUSAND DOLLARS ($100,000), IN ADDITION TO THE COST OF COMPENSATION, DAMAGES AS PROVIDED FOR IN SECTION 3706 OF THE LABOR CODE, INTEREST, AND ATTORNEY'S FEES.

19. ASBESTOS REMOVAL DECLARATION / LEAD HAZARD WARNING

I certify that notification of asbestos removal is either not applicable or has been submitted to the AQMD or EPA as per section 19827.5 of the Health and Safety Code. Information is available at (909) 396-2336 and the notification form at www.aqmd.gov. Lead safe construction practices are required when doing repairs that disturb paint in pre-1978 buildings due to the presence of lead per section 6716 and 6717 of the Labor Code. Information is avaiable at Health Services for LA County at (800) 524-5323 or the State of California at (800) 597-5323 or www.dhs.ca.gov/childlead.

20. CONSTRUCTION LENDING AGENCY DECLARATION

I hereby affirm under penalty of perjury that there is a construction lending agency for the performance of the work for which this permit is issued (Sec. 3097, Civil Code).
Lender's name (if any): _____ Lender's address: _____

21. FINAL DECLARATION

I certify that I have read this application **INCLUDING THE ABOVE DECLARATIONS** and state that the above information **INCLUDING THE ABOVE DECLARATIONS** is correct. I agree to comply with all city and county ordinances and state laws relating to building construction, and hereby authorize representatives of this city to enter upon the above-mentioned property for inspection purposes. I realize that this permit is an application for inspection and that it does not approve or authorize the work specified herein, and it does not authorize or permit any violation or failure to comply with any applicable law. Furthermore, neither the City of Los Angeles nor any board, department officer, or employee thereof, make any warranty, nor shall be responsible for the performance or results of any work described herein, nor the condition of the property nor the soil upon which such work is performed. I further affirm under penalty of perjury, that the proposed work will not destroy or unreasonably interfere with any access or utility easement belonging to others and located on my property, but in the event such work does destroy or unreasonably interfere with such easement, a substitute easement(s) satisfactory to the holder(s) of the easement will be provided (Sec. 91.0106.4.3.4 LAMC).

By signing below, I certify that:

(1) I accept all the declarations above namely the Licensed Contractor's Declaration, Workers' Compensation Declaration, Asbestos Removal Declaration / Lead Hazard Warning, Construction Lending Agency Declaration and Final Declaration; and
(2) This permit is being obtained with the consent of the legal owner of the property.

Print Name: S. ERIC MARCUS Sign: _____ Date: 7-9-10 ☐ Contractor ☑ Authorized Agent

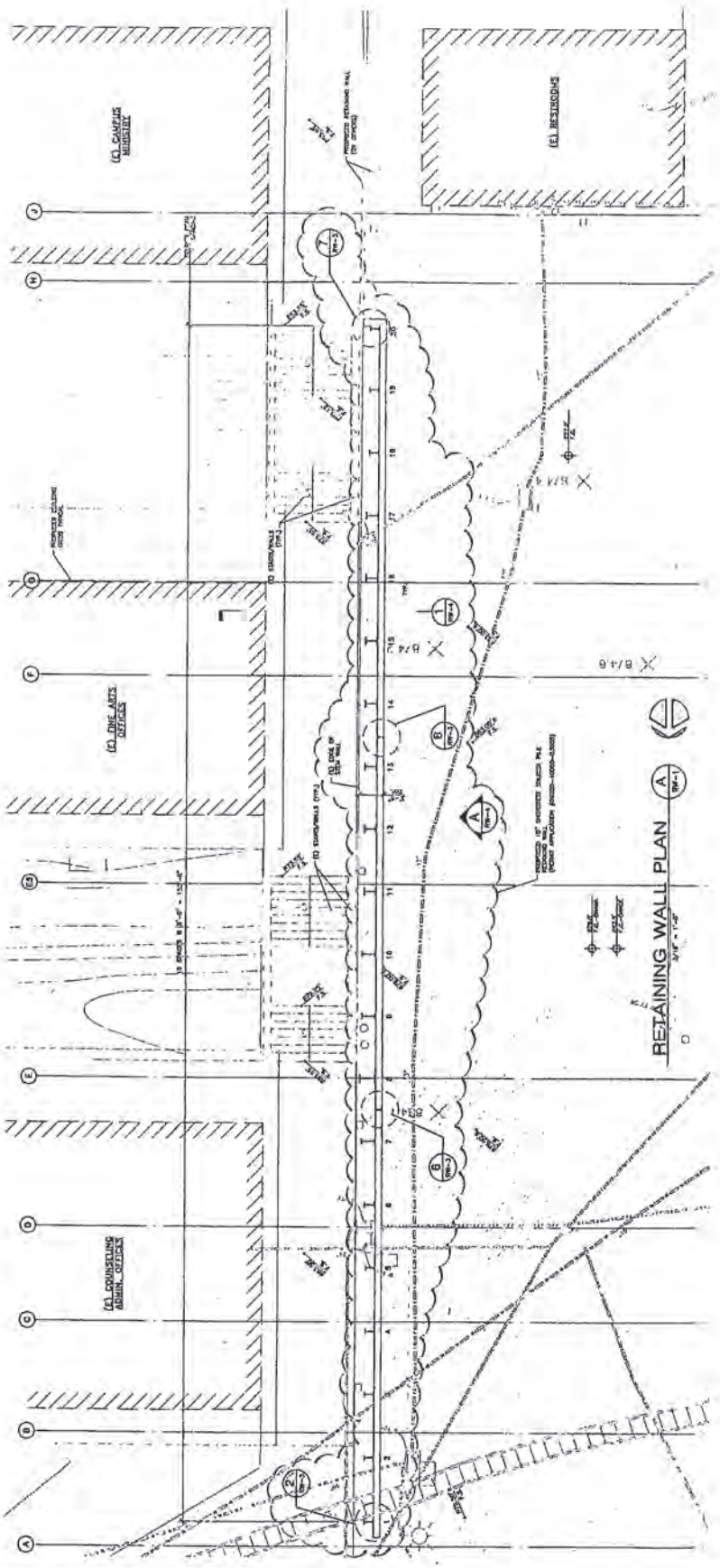
Nonbldg-New
Commercial
Plan Check

City of Los Angeles - Department of Building and Safety

PLOT PLAN ATTACHMENT

Plan Check #: B09LA12443
Initiating Office: METRO
Printed on: 02/02/10 13:33:06

(DO NOT DRAW, WRITE, OR PASTE ATTACHMENTS OUTSIDE BORDER)



7500 N Chaminade Ave

Permit #: **12010 - 10000 - 02147**
Plan Check #: B12LA11319 Printed: 12/17/13 10:48 AM
Event Code:

Bldg-New
Commercial
Regular Plan Check
Plan Check

City of Los Angeles - Department of Building and Safety

APPLICATION FOR BUILDING PERMIT AND CERTIFICATE OF OCCUPANCY

Issued on: 12/17/2013
Last Status: Issued
Status Date: 12/17/2013

1. TRACT	BLOCK	LOT(s)	ARB	COUNTY MAP REF #	PARCEL ID # (PIN #)	2. ASSESSOR PARCEL #
TR 26072		LT 1		M B 676-76/77	186B093 52	2027 - 005 - 009

3. PARCEL INFORMATION

Area Planning Commission - South Valley
LADBS Branch Office - VN
Council District - 12
Cmpt. Fill Grd. - CFG-1500
Cmpt. Fill Grd. - CFG-2000
Certified Neighborhood Council - West Hills
Community Plan Area - Canoga Park-West Hills-Winnetka-Wood
Census Tract - 1344.22
District Map - 186B093
Energy Zone - 9
Hillside Grading Area - YES
Earthquake-Induced Liquefaction Area - Yes
Near Source Zone Distance - 11.9
School Within 500 Foot Radius - YES
Thomas Brothers Map Grid - 529-F4

ZONES(S): A1-1

4. DOCUMENTS

ZA - ZA-15692
YC - YD-10726-YV
CPC - CPC-10767
CPC - CPC-1985-333-CUZ-CU
CPC - CPC-2000-1301-CU
CPC - CPC-2009-1477-CU-ZV-ZAA-SPR
CPC - CPC-22365-CU
CPC - CPC-7564
CPC - CPC-8109
AFF - OB-12395
AFF - OB-14551

5. CHECKLIST ITEMS

Std. Work Descr - Seismic Gas Shut Off Valve

6. PROPERTY OWNER, TENANT, APPLICANT INFORMATION

Owner(s):
CHAMINADE PREPARATORY
10210 OAKDALE AVE, CHATSWORTH CA 91311 --
Tenant:

Applicant: (Relationship: Agent for Owner)
CHRISTOPHER MURRAY -
21550 OXNARD ST #780, WOODLAND HILLS, CA 91367 -- (818) 599-5469

For Cashier's Use Only

W/O #: 21002147

7. EXISTING USE

PROPOSED USE
(18) School Building

8. DESCRIPTION OF WORK

ONE 24' X 40' COMMERCIAL COACH (PORTABLE CLASSROOMS) State approval # for the building: SER# 131269 S.12646 State approval # for the tie down system: ETS 106-C

9. # Bldgs on Site & Use: 1 OF 2 (TOTAL VALUATION $67,000)

10. APPLICATION PROCESSING INFORMATION

BLDG. PC By: Larry Lee
DAS PC By: Shine Lin
OK for Cashier: Sharon Khaw
Coord. OK:
Signature: Sharon Khaw
Date: 12/17/2013

11. PROJECT VALUATION Final Fee Period

Permit Valuation: $33,360
PC Valuation: $0
Sewer Cap ID:
Total Bond(s) Due:

12. ATTACHMENTS

Plot Plan PK

For inspection requests, call toll-free **(888) LA4BUILD (524-2845)**. Outside LA County, call (213) 482-0000 or request inspections via **www.ladbs.org**. To speak to a Call Center agent, call **311**. Outside LA County, call (213) 473-3231.

* P 1 2 0 1 0 1 0 0 0 0 0 2 1 4 7 F N *

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LA 0005 104027101 12/17/2013 10:48:07 AM
BUILDING PERMIT COMM                $458.15
BUILDING PLAN CHECK                   $0.00
PLAN MAINTENANCE                     $10.00
EI COMMERCIAL                         $7.01
ONE STOP SURCH                       $10.04
SYSTEMS DEVT FEE                     $30.13
CITY PLANNING SURCH                  $29.71
MISCELLANEOUS                        $10.00
PLANNING GEN PLAN MAINT SURCH        $24.76
SCHOOL DEV COMM                     $489.60
CA BLDG STD COMMISSION SURCHARGE      $2.00
BUILDING PLAN CHECK                  $27.00

                    Sub Total:    $1,098.40
Permit #: 120101000002147
Receipt #: 0104237383
Building Card #: 2013LA25883
```

13. STRUCTURE INVENTORY (Note: Numeric measurement data in the format "number / number" implies "change in numeric value / total resulting numeric value")

12010 - 10000 - 02147

(P) Floor Area (ZC): +960 Sqft / 960 Sqft
(P) Height (ZC): +15 Feet / 15 Feet
(P) Length: +40 Feet / 40 Feet
(P) Stories: +1 Stories / 1 Stories
(P) Width: +24 Feet / 24 Feet
(P) E Occ. Group: +960 Sqft / 960 Sqft
(P) E Occ. Load: +48 Max Occ. / 48 Max Occ.
(P) Parking Req'd for Bldg (Auto+Bicycle): 0 Stalls / 0 Stal
(P) Parking Req'd for Site (Auto+Bicycle): 0 Stalls / 451 St
(P) Provided Bicycle for Site: 0 Stalls / 25 Stalls
(P) Provided Disabled for Site: 0 Stalls / 12 Stalls
(P) Provided Standard for Site: 0 Stalls / 439 Stalls
(P) Type V-B Construction

14. APPLICATION COMMENTS:
** Approved Seismic Gas Shut-Off Valve may be required. ** Per permit 10010-20000-00127, the required parking space for the property is 451 spaces, 12 ADA stalls and 439 standard parking stalls are provided. This is an high school, adding an classroom will not require additional parking spaces

In the event that any box (i.e. 1-16) is filled to capacity, it is possible that additional information has been captured electronically and could not be printed due to space restrictions. Nevertheless the information printed exceeds that required by section 19825 of the Health and Safety Code of the State of California

15. BUILDING RELOCATED FROM:

16. CONTRACTOR, ARCHITECT & ENGINEER NAME	ADDRESS		CLASS	LICENSE #	PHONE #
(C) LOFTIN CONSTRUCTION INC	9626 AQUEDUCT STREET,	NORTH HILLS, CA 91343	B	885375	
(E) DAY, KEVIN CLIFFORD	12808 SOUTH 600 EAST,	DRAPER, UT 84020		C47204	
(E) SIMPSON, JAMES THOMAS	4091 RIVERSIDE DR 114,	CHINO, CA 91710		S3602	

PERMIT EXPIRATION/REFUNDS: This permit expires two years after the date of the permit issuance. This permit will also expire if no construction work is performed for a continuous period of 180 days (Sec. 98.0602 LAMC). Claims for refund of fees paid must be filed within one year from the date of expiration for permits granted by LADBS (Sec. 22.12 & 22.13 LAMC). The permittee may be entitled to reimbursement of permit fees if the Department fails to conduct an inspection within 60 days of receiving a request for final inspection (HS 17951)

17. LICENSED CONTRACTOR'S DECLARATION

I hereby affirm under penalty of perjury that I am licensed under the provisions of Chapter 9 (commencing with Section 7000) of Division 3 of the Business and Professions Code, and my license is in full force and effect. The following applies to B contractors only: I understand the limitations of Section 7057 of the Business and Professional Code related to my ability to take prime contracts or subcontracts involving specialty trades.

License Class: B License No.: 885375 Contractor: LOFTIN CONSTRUCTION INC

18. WORKERS' COMPENSATION DECLARATION

I hereby affirm, under penalty of perjury, one of the following declarations:

( ) I have and will maintain a certificate of consent to self insure for workers' compensation, as provided for by Section 3700 of the Labor Code, for the performance of the work for which this permit is issued.

(X) I have and will maintain workers' compensation insurance, as required by Section 3700 of the Labor Code, for the performance of the work for which this permit is issued. My workers' compensation insurance carrier and policy number are:

Carrier: TBD Policy Number: AWL0025801

( ) I certify that in the performance of the work for which this permit is issued, I shall not employ any person in any manner so as to become subject to the workers' compensation laws of California, and agree that if I should become subject to the workers' compensation provisions of Section 3700 of the Labor Code, I shall forthwith comply with those provisions.

WARNING: FAILURE TO SECURE WORKERS' COMPENSATION COVERAGE IS UNLAWFUL, AND SHALL SUBJECT AN EMPLOYER TO CRIMINAL PENALTIES AND CIVIL FINES UP TO ONE HUNDRED THOUSAND DOLLARS ($100,000), IN ADDITION TO THE COST OF COMPENSATION, DAMAGES AS PROVIDED FOR IN SECTION 3706 OF THE LABOR CODE, INTEREST, AND ATTORNEY'S FEES.

19. ASBESTOS REMOVAL DECLARATION / LEAD HAZARD WARNING

I certify that notification of asbestos removal is either not applicable or has been submitted to the AQMD or EPA as per section 19827.5 of the Health and Safety Code. Information is available at (909) 396-2336 and the notification form at www.aqmd.gov. Lead safe construction practices are required when doing repairs that disturb paint in pre-1978 buildings due to the presence of lead per section 6716 and 6717 of the Labor Code. Information is available at Health Services for LA County at (800) 524-5323 or the State of California at (800) 597-5323 or www.dhs.ca.gov/childlead

20. CONSTRUCTION LENDING AGENCY DECLARATION

I hereby affirm under penalty of perjury that there is a construction lending agency for the performance of the work for which this permit is issued (Sec. 3097, Civil Code).

Lender's Name (If Any): Lender's Address:

21. FINAL DECLARATION

I certify that I have read this application **INCLUDING THE ABOVE DECLARATIONS** and state that the above information **INCLUDING THE ABOVE DECLARATIONS** is correct. I agree to comply with all city and county ordinances and state laws relating to building construction, and hereby authorize representatives of this city to enter upon the above-mentioned property for inspection purposes. I realize that this permit is an application for inspection and that it does not approve or authorize the work specified herein, and it does not authorize or permit any violation or failure to comply with any applicable law. Furthermore, neither the City of Los Angeles nor any board, department officer, or employee thereof, make any warranty, nor shall be responsible for the performance or results of any work described herein, nor the condition of the property nor the soil upon which such work is performed. I further affirm under penalty of perjury, that the proposed work will not destroy or unreasonably interfere with any access or utility easement belonging to others and located on my property, but in the event such work does destroy or unreasonably interfere with such easement, a substitute easement(s) satisfactory to the holder(s) of the easement will be provided (Sec. 91.0106.4.3.4 LAMC).

By signing below, I certify that:

(1) I accept all the declarations above namely the Licensed Contractor's Declaration, Workers' Compensation Declaration, Asbestos Removal Declaration / Lead Hazard Warning, Construction Lending Agency Declaration, and Final Declaration; and

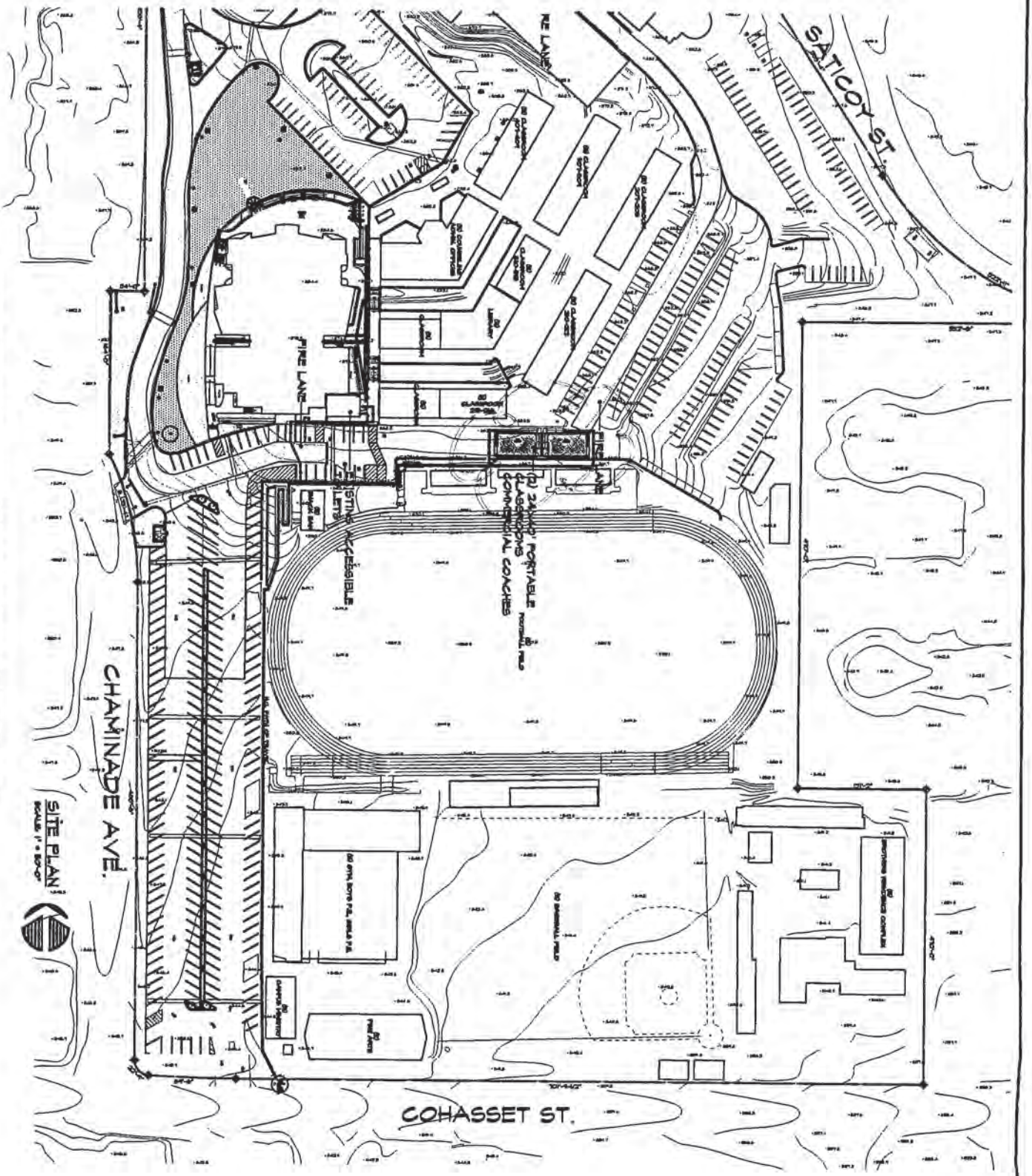
(2) This permit is being obtained with the consent of the legal owner of the property.

Print Name: BRIAN LOFTIN Sign: Date: 12/17/2013 [X] Contractor [ ] Authorized Agent

7500 N Chaminade Ave Permit Application # : **12010 - 10000 - 02147**

Bldg-New Commercial Plan Check	City of Los Angeles - Department of Building and Safety **PLOT PLAN ATTACHMENT**	Plan Check #: B12LA11319 Initiating Office: METRO Printed on: 11/02/12 07:05:05

(DO NOT DRAW, WRITE, OR PASTE ATTACHMENTS OUTSIDE BORDER)



COUNCIL DISTRICT: 3 INSPECTION DISTRICT: BIMSVN1 PLOT PLAN ATTACHMENT

7500 N Chaminade Ave

Permit #: **97010 - 20000 - 01899**
Plan Check #: S5492XO Reference #:
Event Code:

Bldg---New
Commercial
Back Room Plan Check

City of Los Angeles - Department of Building and Safety
APPLICATION FOR BUILDING PERMIT
AND CERTIFICATE OF OCCUPANCY

Status: Ready to Issue
Status Date: 07/22/97
Printed on: 07/22/97 15:58:11

1. TRACT	BLOCK	LOT(s)	ARB	MAP REF #	PARCEL ID # (PIN)	2. BOOK/PAGE/PARCEL
TR 26072		LT 1		M B 676-76/77	186B093 52	2027 - 005 - 009

3. PARCEL INFORMATION

BAS Branch Office - VN
Council District - 3
Cmpt. Fill Grd. - CFG 1500 /2000
Census Tract - 1344.220
Easement - VAR FUT ST; VAR, 5' & 8' PUE
Energy Zone - 9
Fire District - FBZ
Hillside Grading Area - Y
Highway Dedication - COLL
Lot Size - IRR
Lot Type - Corner
Thomas Brothers Map Grid - 529
ZONE: A1-1 /

4. DOCUMENTS

YC - 10726 (YV)
CPC - 10767
OB - 12395
OB - 14551
ZA - 15692
ZI - 1802
CPC - 2236 (CU)
CPC - 7564

5. CHECKLIST ITEMS

Fabricator Reqd - Shop Welds
Fabricator Reqd - Structural Steel
Special Inspect - Masonry
Special Inspect - Structural Observation

6. PROPERTY OWNER, TENANT, APPLICANT INFORMATION

Owner(s)
Chaminade Preparatory — 10210 Oakdale Ave — CHATSWORTH CA 91311

Tenant

Applicant (Relationship Architect)
Kelsey Liber - Liber Studio. — 2020 Santa Monica Bl 460 — SANTA MONICA, CA 90404 — (310) 828-4322

7. EXISTING USE

PROPOSED USE
16 Retail
23 Storage Building

8. DESCRIPTION OF WORK
NEW MERCHANDISE SALES & STORAGE BLDG.

9. # Bldgs on Site & Use: VARIOUS, SCHOOL

10. APPLICATION PROCESSING INFORMATION

Bldg. PC OK By: Neville Pereira
OK for Cashier: Neville Pereira
Signature: Pereira

DAS PC By: Michael Ayers
Coord. OK: SA
Date: 7-22-97

11. PROJECT VALUATION & FEE INFORMATION Final Fee Period

Permit Valuation: $105,000
PC Valuation:

FINAL TOTAL Bldg---New	1,711.86	School District Commercial Area	625.50
Permit Fee Subtotal Bldg---New	934.06		
Energy Surcharge			
Handicapped Access			
Supp. Plan Check	0.00		
Plan Maintenance	18.68		
Fire Hydrant Refuse-To-Pay			
E.Q. Instrumentation	22.05		
Supp. O.S. Surcharge	19.50		
Supp. Sys. Surcharge	58.49		
Planning Surcharge Misc Fee	5.00		
Supp. Planning Surcharge	28.58		

Sewer Cap ID:
Bond Payment Amt:

12. ATTACHMENTS
Plot Plan
Overflow Page Attached

For Cashier's Use Only W/O #: 71001899

07/22/97 04:20:05PM VN03 T-1692 C 15
BLDG PERMIT CO 934.06
INVOICE # 0000000 PP
PLAN MAINTENAN 18.68
EI COMMERCIAL 22.05
SYS DEV 58.49
ONE STOP 19.50
MISCELLANEOUS 5.00
CITY PLAN SURC 28.58
SCHOOL DEV COM 625.50
TOTAL 1,711.86
CHECK 1,711.86

97VN 21309

0 5 3 5 2 7 0 3 3 2

13. STRUCTURE INVENTORY

(P) Floor Area (ZC) 1,749 Sqft
(P) Height (BC) 25.25 Feet
(P) Height (ZC) 25.25 Feet
(P) Length 38.67 Feet
(P) Stories 2 Levels
(P) Width 44 Feet
(P) Masonry Shearwall
(P) M Occupancy 697 Sqft Max Occ.
(P) U1 Occupancy 1,052 Sqft Max Occ.
(P) Type III-N Construction
(P) Floor Construction - Concrete Slab on Grade
(P) Foundation - Continuous Footing
(P) Roof Construction - Wood Frame/Sheathing
(P) Floor Construction - Concrete Deck
(P) Wall Construction - Masonry

14. APPLICATION COMMENTS

15. Building Relocated From:

16. CONTRACTOR, ARCHITECT, & ENGINEER NAME		ADDRESS		CLASS	LICENSE#	PHONE #
(A) Liber	Kelsey	1313 Ashland Avenue,	Santa Monica, CA 90405		C14252	310-828-4322
(E) Leifield	Susan	28 Privateer Street #4,	Marina Del Rey, CA 90292		C55050	310-827-6872

Unless a shorter period of time has been established by an official action, plan check approval expires one and a half years after the plan check fee has been paid. This permit expires two years after the building permit fee has been paid or 180 days after the fee has been paid and construction has not commenced or if work is suspended, discontinued or abandoned for a continuous period of 180 days (Sec. 98.0602 LAMC). Claims for refund of fees paid must be filed within one year from the date of expiration for permits granted by the Dept. of Building & Safety (Sec. 22.12 & 22.13 LAMC).

0 6 3 2 1 0 3 3 3

17. LICENSED CONTRACTOR'S DECLARATION

I hereby affirm under penalty of perjury that I am licensed under the provisions of Chapter 9 (commencing with Section 7000) of Division 3 of the Business and Professions Code, and my license is in full force and effect. (For 1 or 2 family dwellings, use the declaration attachment if separate general, electrical, plumbing, and/or HVAC contractor's & workers' comp. declarations are desired.)

License Class: _____ Lic. No: _____ Print: _____ Sign: _____

18. WORKERS' COMPENSATION DECLARATION

I hereby affirm, under penalty of perjury, one of the following declarations:

☐ I have and will maintain a certificate of consent to self insure for workers' compensation, as provided for by Section 3700 of the Labor Code, for the performance of the work for which this permit is issued.

☐ I have and will maintain workers's compensation insurance, as required by Section 3700 of the Labor Code, for the performance of the work for which this permit is issued. My workers' compensation insurance carrier and policy number are:

Carrier: _____ Policy Number: _____

X I certify that in the performance of the work for which this permit is issued, I shall not employ any person in any manner so as to become subject to the workers' compensation laws of California, and agree that if I should become subject to the workers' compensation provisions of Section 3700 of the Labor Code, I shall forthwith comply with those provisions.

Sign: _____ Date: 7,22,97 ☐ Contractor ☒ Authorized Agent ☐ Owner

WARNING FAILURE TO SECURE WORKERS' COMPENSATION COVERAGE IS UNLAWFUL, AND SHALL SUBJECT AN EMPLOYER TO CRIMINAL PENALTIES AND CIVIL FINES UP TO ONE HUNDRED THOUSAND DOLLARS ($100,000), IN ADDITION TO THE COST OF COMPENSATION, DAMAGES AS PROVIDED FOR IN SECTION 3706 OF THE LABOR CODE, INTEREST, AND ATTORNEY'S FEES

19. CONSTRUCTION LENDING AGENCY

I hereby affirm under penalty of perjury that there is a construction lending agency for the performance of the work for which this permit is issued (Sec. 3097, Civil Code).

Lender's name: _____ Lender's address: _____

20. ASBESTOS REMOVAL

Notification of asbestos removal: ☐ Is not applicable ☐ Letter was sent to the AQMD or EPA Sign: _____ Date: ___/___/___

21. OWNER-BUILDER DECLARATION

I hereby affirm under penalty of perjury that I am exempt from the Contractors License Law for the following reason (Section 7031.5, Business and Professions Code: Any city or county which requires a permit to construct, alter, improve, demolish, or repair any structure, prior to its issuance, also requires the applicant for such permit to file a signed statement that he or she is licensed pursuant to the provisions of the Contractors License Law (Chapter 9 commencing with Sec. 7000 of Division 3 of the Business and Professions Code) or that he or she is exempt therefrom and the basis for the alleged exemption. Any violation of Section 7031.5 by any applicant for a permit subjects the applicant to a civil penalty of not more than five hundred dollars ($500).):

X I, as the owner of the property, or my employees with wages as their sole compensation, will do the work, and the structure is not intended or offered for sale (Sec. 7044, Business & Professions Code: The Contractors License Law does not apply to an owner of property who builds or improves thereon, and who does such work himself or herself or through his or her own employees, provided that such improvements are not intended or offered for sale. If, however, the building or improvement is sold within one year from completion, the owner-builder will have the burden of proving that he or she did not build or improve for the purpose of sale)

☐ I, as the owner of the property, am exclusively contracting with licensed contractors to construct the project (Sec. 7044, Business & Professions Code: The Contractors License Law does not apply to an owner of property who builds or improves thereon, and who contracts for such projects with a contractor(s) licensed pursuant to the Contractors License Law.)

☐ I am exempt under Sec. _____ Bus. & Prof. Code for the following reason: _____

X Print: RICHARD S. LEACH Sign: _____ Date: 7,22,97 ☐ Owner ☒ Authorized Agent

22. FINAL DECLARATION

I certify that I have read this application and state that the above information is correct. I agree to comply with all city and county ordinances and state laws relating to building construction, and hereby authorize representatives of this city to enter upon the above-mentioned property for inspection purposes. I realize that this permit is an application for inspection and that it does not approve or authorize the work specified herein. Also that it does not authorize or permit any violation or failure to comply with any applicable law. Furthermore, that neither the City of Los Angeles nor any board, department officer, or employee thereof, make any warranty, nor shall be responsible for the performance or results of any work described herein, nor the condition of the property nor the soil upon which such work is performed. I further affirm under penalty of perjury, that the proposed work will not destroy or unreasonably interfere with any access or utility easement belonging to others and located on my property, but in the event such work does destroy or unreasonably interfere with such easement, a substitute easement(s) satisfactory to the holder(s) of the easement will be provided (Sec. 91.0106.4.3.4 LAMC).

X Print: RICHARD S. LEACH Sign: _____ Date: 7,22,97 ☐ Owner ☐ Contractor ☒ Author. Agent

7500 N. CHAMINADE AVE.

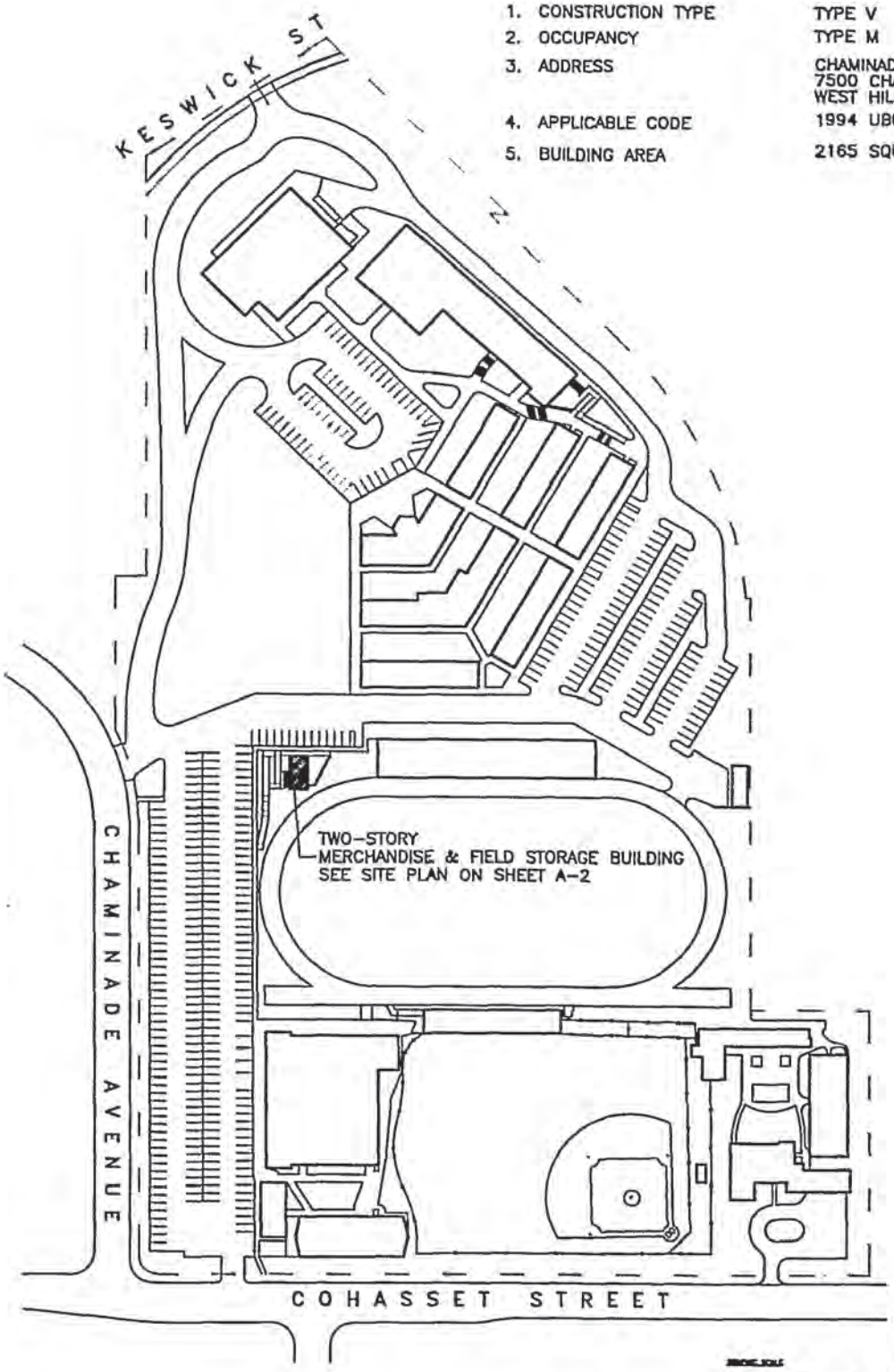
97010-20000-1899

VICINITY MAP

0632222n0336

RETAIL WITH STORAGE

1.	CONSTRUCTION TYPE	TYPE V
2.	OCCUPANCY	TYPE M
3.	ADDRESS	CHAMINADE COLLEGE PREPARATORY 7500 CHAMINADE AVENUE WEST HILLS, CALIFORNIA
4.	APPLICABLE CODE	1994 UBC
5.	BUILDING AREA	2165 SQUARE FEET



APPLICATION TO CONSTRUCT NEW BUILDING AND FOR CERTIFICATE OF OCCUPANCY

B&S Form B-1

CITY OF LOS ANGELES — DEPT. OF BUILDING AND SAFETY

INSTRUCTIONS: 1. Applicant to Complete Numbered Items Only. 2. Plot Plan Required on Back of Original.

5-13-64

1. LEGAL DESCR.	LOT: 1	BLK.	TRACT: 26072	ADDRESS APPROVED: RJA
2. JOB ADDRESS: 7500 Chaminade Avenue				DIST. MAP: 7471
3. BETWEEN CROSS STREETS: Cohasset St. AND Term.				ZONE: A-1-1
4. PURPOSE OF BUILDING: Multi-purpose - Assembly & Dining				FIRE DIST.: 1
5. OWNER'S NAME: Chaminade Preparatory	PHONE: DI 78300			INSIDE KEY
6. OWNER'S ADDRESS: 7500 Chaminade Avenue	P. O. BOX	ZONE: Canoga Park		COR. LOT: 60/60 REV. COR.
7. CERT. ARCH.: Barker and Ott	STATE LICENSE NO.: 1647	PHONE: WE 38504		LOT SIZE: IRREG
8. LIC. ENGR.: S. B. Barnes	STATE LICENSE NO.: SE 1	PHONE: DU 22385		
9. CONTRACTOR: Ray Wilson Co.	STATE LICENSE NO.: 128800	PHONE: CH 56861		REAR ALLEY / SIDE ALLEY 1
10. CONTRACTOR'S ADDRESS: 4660 Colorado Blvd.	P. O. BOX	ZONE: 39		BLDG. LINE 1
11. SIZE OF NEW BLDG.: 100x140	STORIES: 2	HEIGHT: 2	NO. OF EXISTING BUILDINGS ON LOT AND USE: 5-shool & res.	BLDG. AREA: 14700 SQ FT
1 7500 Chaminade Avenue				DISTRICT OFFICE: VN

SEWER (Available) (Not Available) Guiza

12. MATERIAL: ☐ WOOD ☐ METAL ☐ CONC. BLOCK — EXT. WALLS: ☑ STUCCO ☐ BRICK ☑ CONCRETE
ROOF CONST.: ☑ WOOD ☑ STEEL ROOFING ☐ CONC. ☐ OTHER comp
SPRINKLERS REQ'D. SPECIFIED

13. VALUATION: TO INCLUDE ALL FIXED EQUIPMENT REQUIRED TO OPERATE AND USE PROPOSED BUILDING. $140,000.

Approval of driveway location must be obtained from the Department of Public Works before securing Building Permit.

I certify that in doing the work authorized hereby I will not employ any person in violation of the Labor Code of the State of California relating to workmen's compensation insurance, and I have read reverse side of application.

Signed John C. Alsmeier

This Form When Properly Validated is a Permit to Do the Work Described.

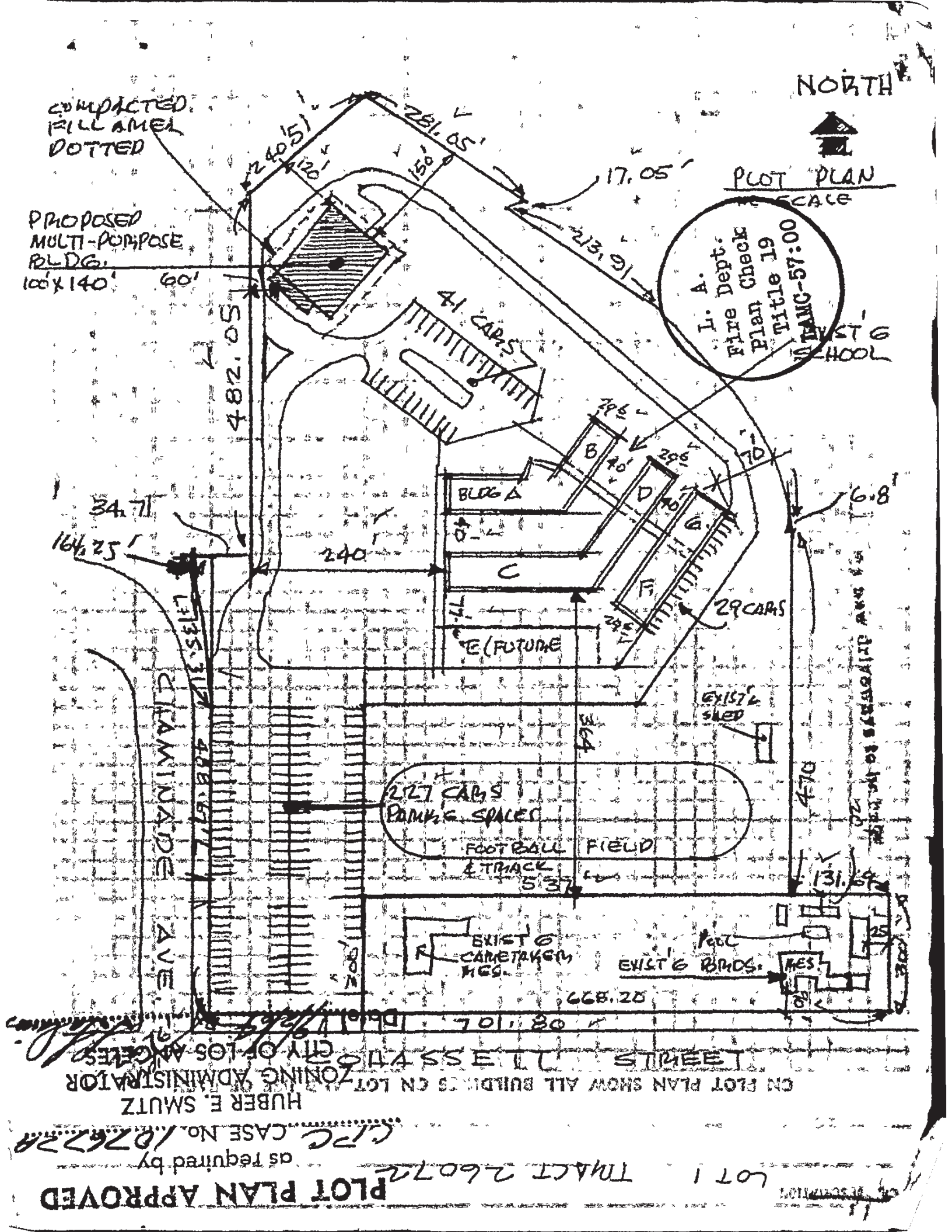
VALUATION APPROVED	Valencia
APPLICATION CHECKED	Healy
PLANS CHECKED	Valencia
CORRECTIONS VERIFIED	
PLANS APPROVED	
APPLICATION APPROVED	
INSPECTOR	
AFFIDAVITS	1
DWELL. UNITS	1
SPACES PARKING	228 Add.
GUEST ROOMS	1
FILE WITH	
CONT. INSP.	Lic. Fab. Weld.

CRITICAL SOIL

TYPE	GROUP	MAX. OCC.	P.C.	S.P.C.	G.P.I.	B.P.	O.S.	C/O
I-B	B-2	1475	194.35		15.00	299.00		

MAY-13-64 229765 • 76791 2X — 2 CK 194.35
SEP-22-64 470999 • 76791 2X — 1 CK 194.35
SEP-22-64 47100 • 76791 X — 1 CK 299.00

P.C. No. S-8219 GRADING YES CRIT. SOIL ____ CONS. ____



PLOT PLAN APPROVED

as required by

CPC CASE No. 10763-28

LOT 1 TRACT 26072

3 APPLICATION TO ALTER - REPAIR - DEMOLISH AND FOR CERTIFICATE OF OCCUPANCY

B&S Form B-3

CITY OF LOS ANGELES — DEPT. OF BUILDING AND SAFETY

INSTRUCTIONS: 1. Applicant to Complete Numbered Items Only. 2. Plot Plan Required on Back of Original.

10/24/62 sewer line Vinnie Glenn

1. LEGAL DESCR. LOT: 1	BLK.	TRACT: 25773		ADDRESS APPROVED: LD
2. BUILDING ADDRESS: 23207-09-11-15-17 & 23231-33 Saticoy St.				DIST. MAP: 7507
3. BETWEEN CROSS STREETS: Woodlake Ave. AND Stagg St.				ZONE: C-2-p-1
4. PRESENT USE OF BUILDING: retail sales	NEW USE OF BUILDING: same			FIRE DIST.: TT
5. OWNER'S NAME: Walter Leimert, Jr.		PHONE: AX 4-5141		INSIDE KEY
6. OWNER'S ADDRESS: 4306 Crenshaw	LA	P.O. 8	ZONE	COR. LOT XXX REV. COR.
7. CERT. ARCH.: Theo L Pletsch		STATE LICENSE: C-27	PHONE: 449-3460	LOT SIZE: irreg.
8. LIC. ENGR.: Walter Bedke		STATE LICENSE: SE870	PHONE: AT -4952	
9. CONTRACTOR: owner		STATE LICENSE	PHONE	REAR ALLEY / SIDE ALLEY
10. CONTRACTOR'S ADDRESS: same #6		P.O.	ZONE	BLDG. LINE

11. SIZE OF EXISTING BLDG.	STORIES	HEIGHT	NO. OF EXISTING BUILDINGS ON LOT AND USE	BLDG. AREA
155-165	1	22	1 market	25 000

DISTRICT OFFICE: VN

3 23207-09-11-15-17 & 23231-33 Saticoy St.

12. MATERIAL: EXT. WALLS: [X] WOOD [ ] METAL [ ] CONC. BLOCK [X] STUCCO [ ] BRICK [ ] CONCRETE — ROOF CONST.: [X] WOOD [X] STEEL [ ] CONC. [ ] OTHER — ROOFING: comp — SPRINKLERS REQ'D. SPECIFIED: No

CRITICAL SOIL

13. VALUATION: TO INCLUDE ALL FIXED EQUIPMENT REQUIRED TO OPERATE AND USE PROPOSED BUILDING. $ 67,000		VALUATION APPROVED: Osborn	AFFIDAVITS: CPC9934
14. SIZE OF ADDITION: 40x 120 & 50x85	STORIES: 1	HEIGHT: 14	APPLICATION CHECKED: Boehm — 5 side
15. NEW WORK: (Describe) EXT. WALLS: stucco	ROOFING: comp&gravel	PLANS CHECKED	DWELL. UNITS: X
addtns to exist bldg.		CORRECTIONS VERIFIED	SPACES PARKING: 18 incl 6 stor.
		PLANS APPROVED	GUEST ROOMS: X
		APPLICATION APPROVED	FILE WITH: X
		INSPECTOR	CONT. INSP.

I certify that in doing the work authorized hereby I will not employ any person in violation of the Labor Code of the State of California relating to workmen's compensation insurance, and I have read reverse side of Application.

Signed Theo L Pletsch

This Form When Properly Validated is a Permit to Do the Work Described.

TYPE	GROUP	MAX. OCC.	P.C.	S.P.C. & D.	G.P.I.	B.P.	I.F.	O.S.	C/O
V fire-B	G-1	28 Max 116 for 66	00	27	50	187	60	X	

CASHIER'S USE ONLY

Oct 23, 1962 66779 MI -- 2 check 66.00

LA27270

BSC-24-62	76867	B — 2 CK	27.80
BSC-24-62	76868	B — 7 CK	5.00
BSC-24-62	76869	B — 1 CK	187.60

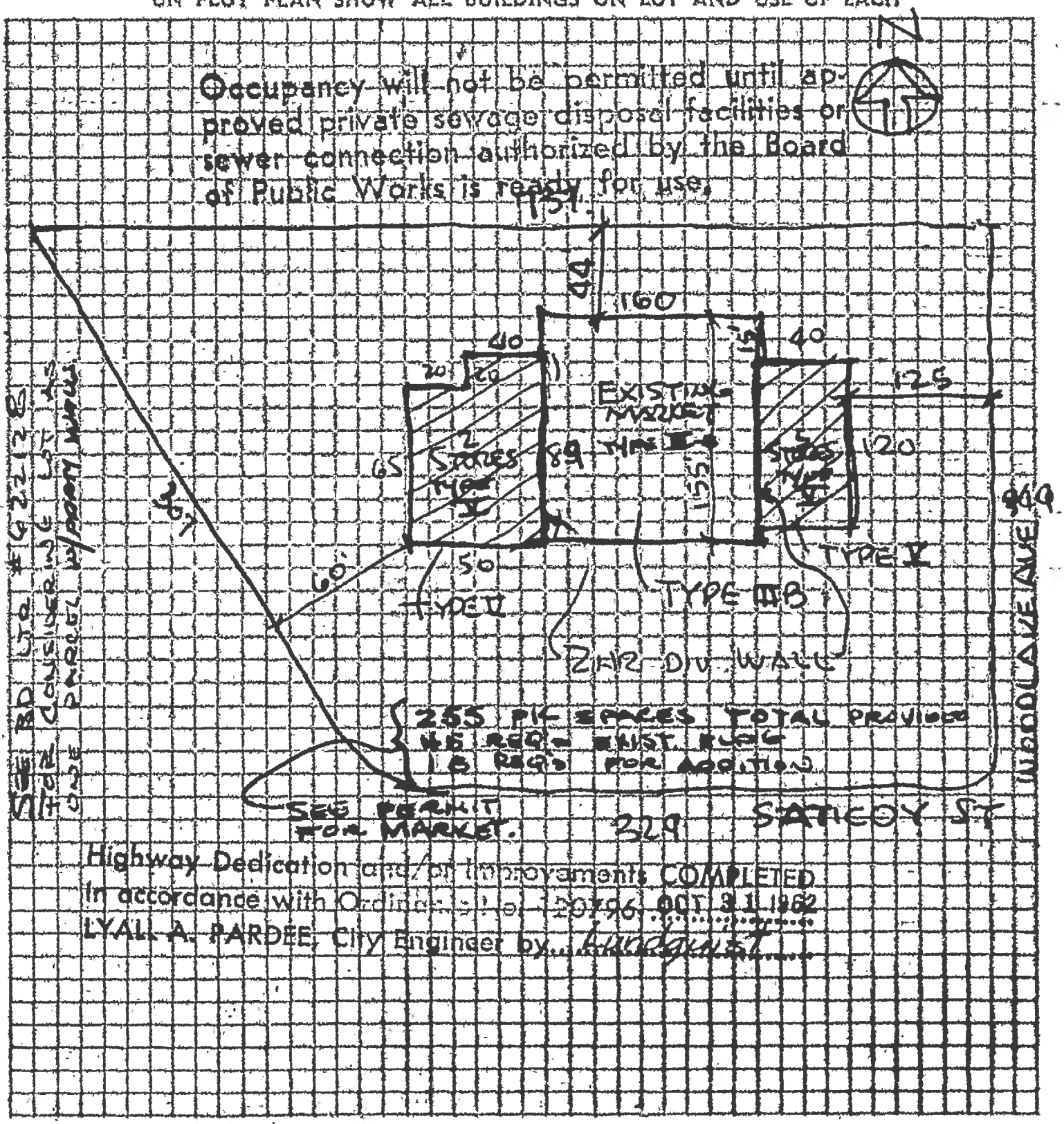
P.C. No. R4606 GRADING yes CRIT. SOIL yes CONS. X

LEGAL DESCRIPTION [redacted]

~~PORTION OF~~ LOT #1 TR. 25773

ADDITIONAL DRIVEWAY INFORMATION REQUIRED

ON PLOT PLAN SHOW ALL BUILDINGS ON LOT AND USE OF EACH



SCOPE OF PERMIT

"This permit is an application for inspection, the issuance of which is not an approval or an authorization of the work specified herein. This permit does not authorize or permit, nor shall it be construed as authorizing or permitting the violation or failure to comply with any applicable law. Neither the City of Los Angeles, nor any board, department, officer or employee thereof make any warranty or shall be responsible for the performance or results of any work described herein, or the condition of the property or soil upon which such work is performed." (See Sec. 91.0202 L.A.M.C.)

3 3023

APPLICATION TO ALTER - REPAIR - DEMOLISH AND FOR CERTIFICATE OF OCCUPANCY

B&S Form B-3a

50-5923

CITY OF LOS ANGELES — DEPT. OF BUILDING AND SAFETY

INSTRUCTIONS: 1. Applicant to Complete Numbered Items Only. 2. Plot Plan Required on Back of Original.

1. LEGAL DESCR.	LOT 1	BLK.	TRACT 25773	ADDRESS APPROVED RM
2. BUILDING ADDRESS	23233 Saticoy St.			DIST. MAP 507
3. BETWEEN CROSS STREETS	Woodlake AND Stagg St			ZONE C2-1 / P-1 REAR
4. PRESENT USE OF BUILDING	Beauty Salon	NEW USE OF BUILDING Same		FIRE DIST. 2/63
5. OWNER'S NAME	Tecnique Hair Fashions	PHONE		INSIDE KEY
6. OWNER'S ADDRESS	Same	P.O.	ZONE	COR. LOT THRU REV. COR.
7. CERT. ARCH.		STATE LICENSE	PHONE	LOT SIZE ALREADY
8. LIC. ENGR.		STATE LICENSE	PHONE	
9. CONTRACTOR	G.M.Neon Corp.	STATE LICENSE 192850	PHONE Th.29366	REAR ALLEY
10. CONTRACTOR'S ADDRESS	2228 No.Hollywood Way Burbank	P.O.	ZONE	SIDE ALLEY / BLDG. LINE —
11. SIZE OF EXISTING BLDG.	30' x 50'	STORIES 1	HEIGHT 16'	NO. OF EXISTING BUILDINGS ON LOT AND USE 1- Beauty Salon ,etc.

BLDG. AREA N.C.

DISTRICT OFFICE V.N.

3 23233 Saticoy St.

12. MATERIAL EXT. WALLS: ☒ WOOD ☐ METAL ☐ CONC. BLOCK ☒ STUCCO ☐ BRICK ☐ CONCRETE	ROOF CONST. ☐ WOOD ☐ STEEL ☐ CONC. ☐ OTHER	ROOFING	SPRINKLERS REQ'D. SPECIFIED
13. VALUATION: TO INCLUDE ALL FIXED EQUIPMENT REQUIRED TO OPERATE AND USE PROPOSED BUILDING. $ 400.00	VALUATION APPROVED		AFFIDAVITS EPC 4934
14. SIZE 1- 4' x 10' -Wall Sign. STORIES HEIGHT	APPLICATION CHECKED		
15. NEW WORK: (Describe) EXT. WALLS ROOFING	PLANS CHECKED		DWELL. UNITS
Metal & Plastic Neon Wall Sign.	CORRECTIONS VERIFIED		SPACES PARKING
	PLANS APPROVED		GUEST ROOMS
	APPLICATION APPROVED		FILE WITH
	INSPECTOR		CONT. INSP.

CRITICAL SOIL

I certify that in doing the work authorized hereby I will not employ any person in violation of the Labor Code of the State of California relating to workmen's compensation insurance, and I have read reverse side of Application.

Signed Allen Avery Agent

This Form When Properly Validated is a Permit to Do the Work Described.

TYPE	GROUP	MAX. OCC.	P.C.	S.P.C.	G.P.I.	B.P.	I.F.	O.S.	C/O
WALL		SIGN	0	—	—	3	—		

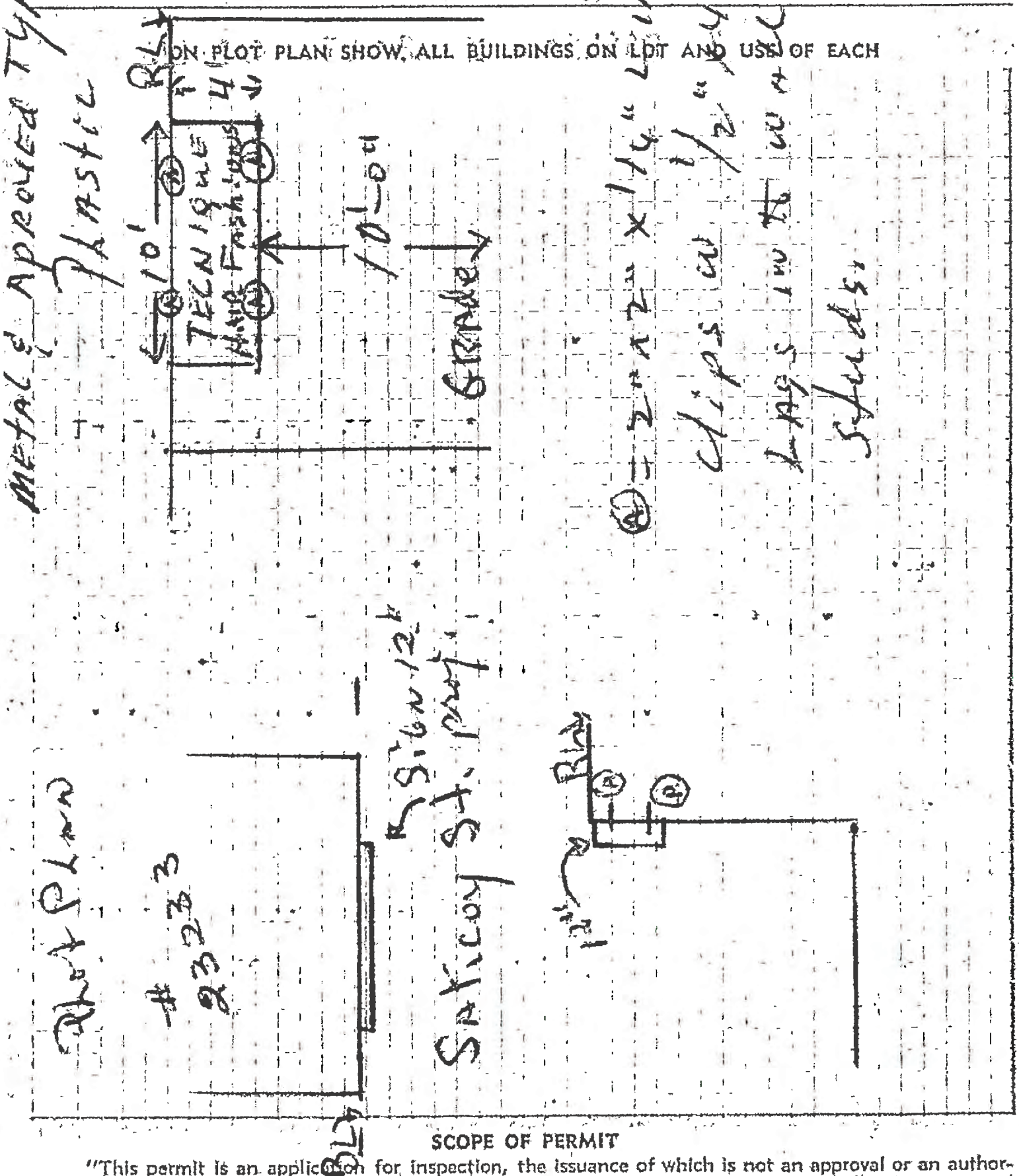
CASHIER'S USE ONLY

FRI APR-8-63 17523 E •34998 W — 1 CS 3.00

P.C. No. GRADING — CRIT. SOIL — CONS.

LEGAL DESCRIPTION

ON PLOT PLAN SHOW ALL BUILDINGS ON LOT AND USE OF EACH



SCOPE OF PERMIT

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3

APPLICATION TO ALTER - REPAIR - DEMOLISH AND FOR CERTIFICATE OF OCCUPANCY

W

B&S Form B-3

CITY OF LOS ANGELES — DEPT. OF BUILDING AND SAFETY

INSTRUCTIONS: 1. Applicant to Complete Numbered Items Only. 2. Plot Plan Required on Back of Original.

1. LEGAL DESCR.	LOT: 1	BLK.	TRACT: 25773	ADDRESS APPROVED
2. BUILDING ADDRESS: 23207-33 Saticoy St., (CP)				DIST. MAP: 1307
3. BETWEEN CROSS STREETS: Woodlake AND Ingomar				ZONE: C-2-1/P-1
4. PRESENT USE OF BUILDING: Stores&Market	NEW USE OF BUILDING: Same (33)			FIRE DIST.: #2/HIS
5. OWNER'S NAME: Walter Leimert,Jr.		PHONE -		INSIDE / KEY
6. OWNER'S ADDRESS: 444 N. Larchmont	P.O. Los Angeles	ZONE		COR. LOT / REV. COR. /
7. CERT. ARCH.: THEO L. Puetsch	STATE LICENSE: C-27	PHONE: 449-3460		LOT SIZE: Irreg
8. LIC. ENGR.	STATE LICENSE	PHONE		
9. CONTRACTOR: Owner #5	STATE LICENSE	PHONE		REAR ALLEY / SIDE ALLEY /
10. CONTRACTOR'S ADDRESS: See #6	P. O.	ZONE		BLDG. LINE /
11. SIZE OF EXISTING BLDG.	STORIES: 1	HEIGHT	NO. OF EXISTING BUILDINGS ON LOT AND USE	BLDG. AREA /

SEWER (Available) (Not Available)

3 23207-33 Saticoy St.,

DISTRICT OFFICE: VN

CRITICAL SOIL

12. MATERIAL: EXT. WALLS ☐ WOOD ☐ METAL ☐ CONC. BLOCK ☐ STUCCO ☐ BRICK ☐ CONCRETE	ROOF CONST. ☐ WOOD ☐ STEEL ☐ CONC. ☐ OTHER	ROOFING		SPRINKLERS REQ'D. SPECIFIED
13. VALUATION: TO INCLUDE ALL FIXED EQUIPMENT REQUIRED TO OPERATE AND USE PROPOSED BUILDING. $ 3,000.00			VALUATION APPROVED: Crum	AFFIDAVITS: CPC 9934
14. SIZE OF ADDITION: None	STORIES	HEIGHT	APPLICATION CHECKED	
15. NEW WORK: (Describe) Interior Partitions for T.V. Repair Shop -Type V Portion of Bldg.	EXT. WALLS	ROOFING	PLANS CHECKED	DWELL. UNITS
			CORRECTIONS VERIFIED	SPACES PARKING
			PLANS APPROVED	GUEST ROOMS
			APPLICATION APPROVED	FILE WITH
			INSPECTOR	CONT. INSP.

I certify that in doing the work authorized hereby I will not employ any person in violation of the Labor Code of the State of California relating to workmen's compensation insurance, and I have read reverse side of application.

Signed Theo. L. Puetsch

This Form When Properly Validated is a Permit to Do the Work Described.

TYPE	GROUP	MAX. OCC.	P.C.	S.P.C.	G.P.I.	B.P.	I.F.	O.S.	C/O
V/IIIB	G1/G2	N/C	9.10			14.00	/	/	/

CASHIER'S USE ONLY

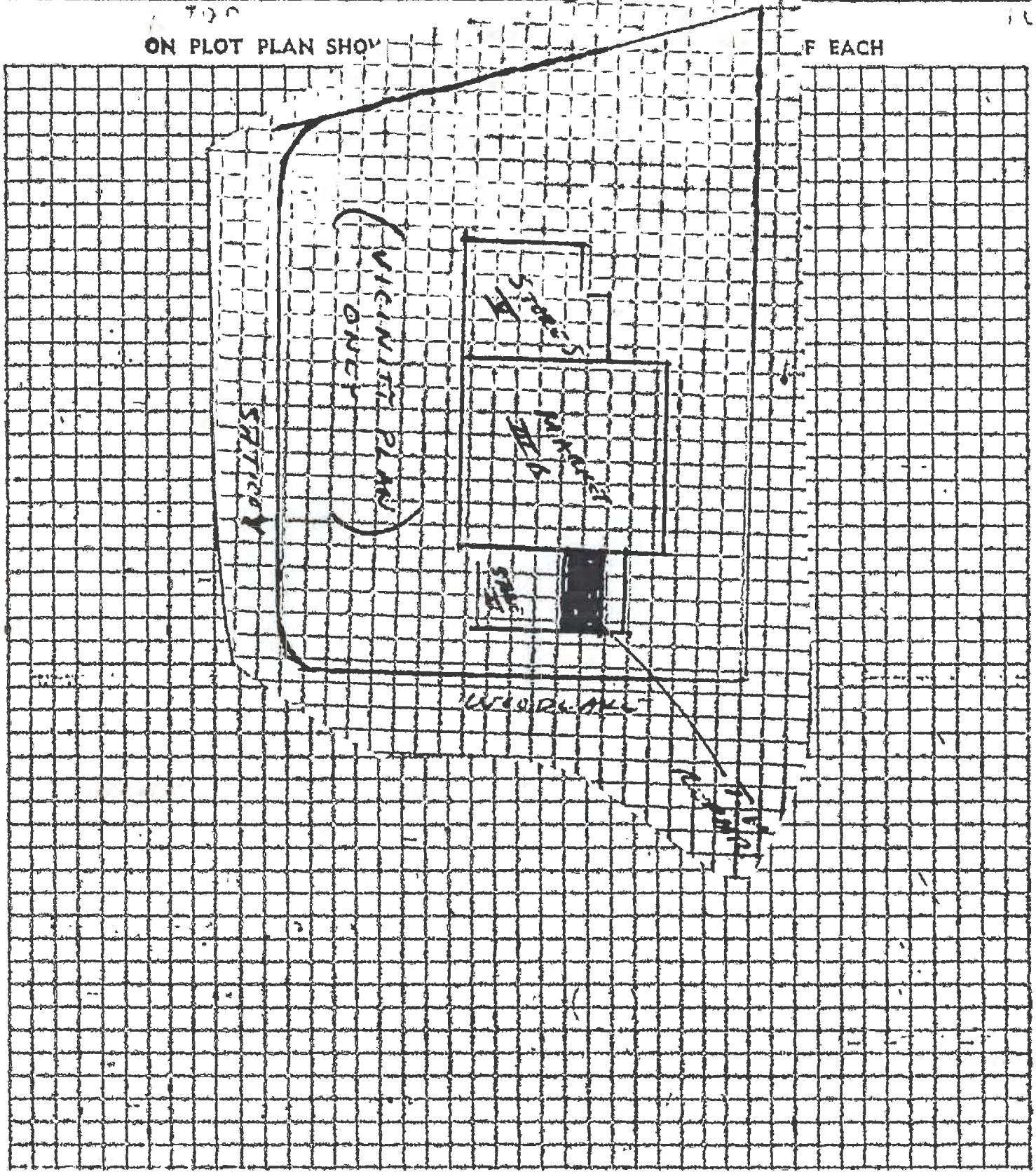
MAR-18-64 13074 Ck VN•50578 K=2 9.10

MAR-18-64 13075 Ck VN•50578 K=1 14.00

P.C. No. — GRADING — CRIT. SOIL — CONS. —

LEGAL DESCRIPTION

ON PLOT PLAN SHO[W] [O]F EACH



SCOPE OF PERMIT

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3

APPLICATION TO ALTER - REPAIR - DEMOLISH AND FOR CERTIFICATE OF OCCUPANCY

(W) B&S Form B-3

CITY OF LOS ANGELES — DEPT. OF BUILDING AND SAFETY

INSTRUCTIONS: 1. Applicant to Complete Numbered Items Only. 2. Plot Plan Required on Back of Original.

1. LEGAL DESCR.	LOT: 1	BLK.	TRACT: 25773	ADDRESS APPROVED
2. BUILDING ADDRESS: 23207-33 Saticoy St., (CP)				DIST. MAP: 7507
3. BETWEEN CROSS STREETS: Woodlake AND Ingomar				ZONE: C-2/P-1
4. PRESENT USE OF BUILDING: Store Bldg.	NEW USE OF BUILDING: Bakery (33)			FIRE DIST.: #2/HIS
5. OWNER'S NAME: Walter Leimert, Jr.	PHONE: AX. 4-5141			INSIDE / KEY
6. OWNER'S ADDRESS: 444 N. Larchmont	P.O.: L.A.	ZONE: 4		COR. LOT ( ) REV. COR.
7. CERT. ARCH.: Theo. L. Pletsch	STATE LICENSE: C-29	PHONE: 449-3460		LOT SIZE: Irreg
8. LIC. ENGR.: None	STATE LICENSE	PHONE		
9. CONTRACTOR: Owner #5	STATE LICENSE	PHONE		REAR ALLEY / SIDE ALLEY
10. CONTRACTOR'S ADDRESS: See #6	P.O.	ZONE		BLDG. LINE /
11. SIZE OF EXISTING BLDG.: 255'x165'	STORIES	HEIGHT	NO. OF EXISTING BUILDINGS ON LOT AND USE: 1-Stores	BLDG. AREA /

3 23207-33 Saticoy St.,

DISTRICT OFFICE: VN

12. MATERIAL: EXT. WALLS: ☐ WOOD ☐ METAL ☐ CONC. BLOCK ☐ STUCCO ☐ BRICK ☐ CONCRETE — ROOF CONST.: ☐ WOOD ☐ STEEL ☐ CONC. ☐ OTHER — ROOFING

SPRINKLERS REQ'D. SPECIFIED

13. VALUATION: TO INCLUDE ALL FIXED EQUIPMENT REQUIRED TO OPERATE AND USE PROPOSED BUILDING. $ 10,000.00

VALUATION APPROVED

AFFIDAVITS /

14. SIZE OF ADDITION: None — STORIES — HEIGHT

APPLICATION CHECKED HM

15. NEW WORK: (Describe) Interior alterations to make Bakery — EXT. WALLS — ROOFING

PLANS CHECKED

DWELL. UNITS N/C

CORRECTIONS VERIFIED

SPACES PARKING N/C

I certify that in doing the work authorized hereby I will not employ any person in violation of the Labor Code of the State of California relating to workmen's compensation insurance, and I have read reverse side of Application.

PLANS APPROVED

GUEST ROOMS X

Signed: Theo. Pletsch

APPLICATION APPROVED

FILE WITH X

This Form When Properly Validated is a Permit to Do the Work Described.

INSPECTION

CONT. INSP. X

SEWER (Available) (Not Available)

CRITICAL SOIL

TYPE	GROUP	MAX. OCC.	P.C.	S.P.C.	G.P.I.	B.P.	I.F.	O.S.	C/O
V/IIIB	G-2	N/C	27.30	/	/	$ 42.00	/	/ /	/ /

CASHIER'S USE ONLY

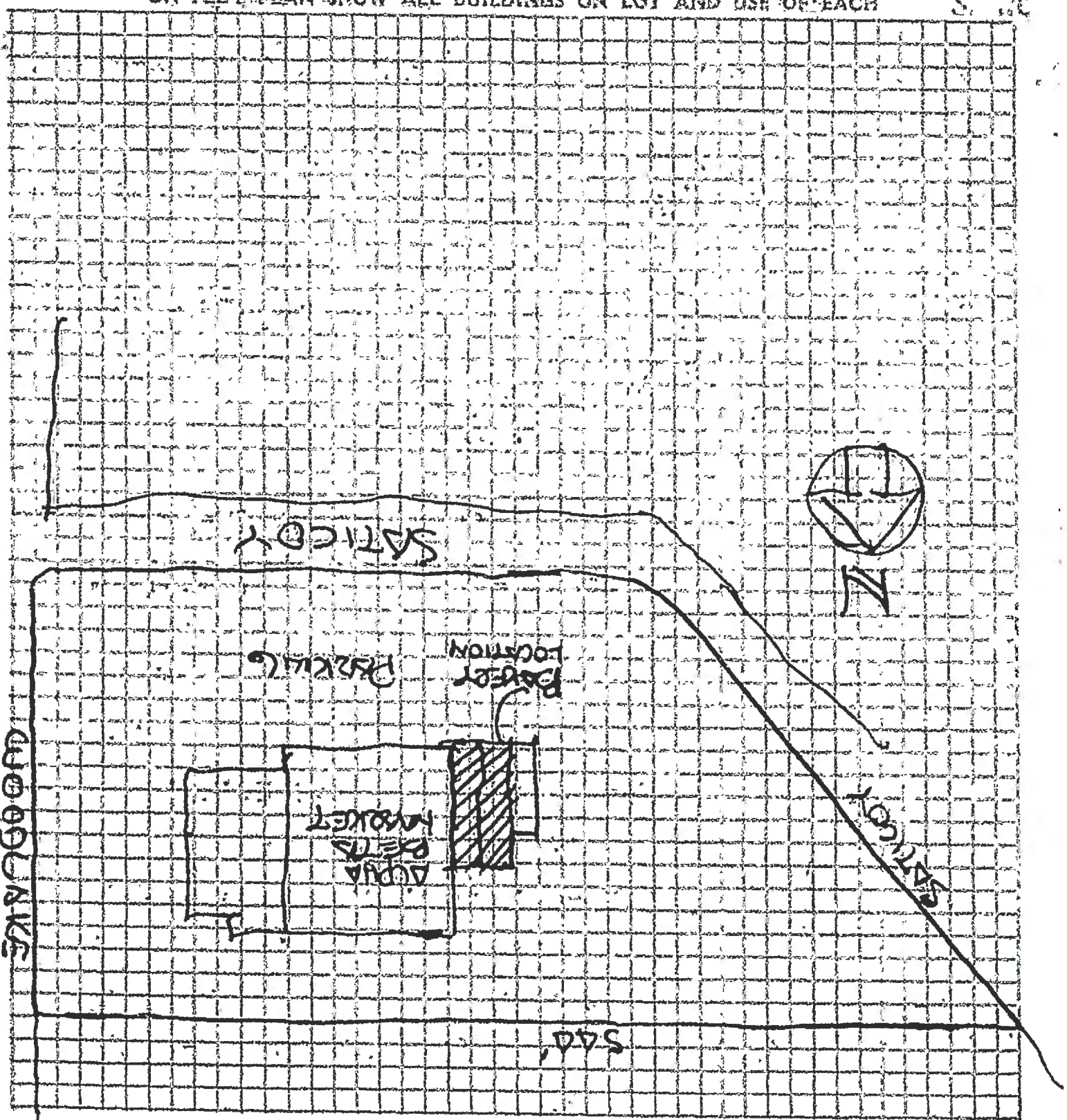
JAN-21-65 82921 Ck VN•70253 K — 27.30

JAN-21-65 82922 Ck VN•70253 K — 42.00

B/C No. GRADING CRIT. SOIL ZONE

LEGAL DESCRIPTION

ON PLOT PLAN SHOW ALL BUILDINGS ON LOT AND USE OF EACH



SCOPE OF PERMIT

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3 APPLICATION TO ALTER - REPAIR - DEMOLISH AND FOR CERTIFICATE OF OCCUPANCY

(W) B&S Form B-3

CITY OF LOS ANGELES — DEPT. OF BUILDING AND SAFETY

INSTRUCTIONS: 1. Applicant to Complete Numbered Items Only. 2. Plot Plan Required on Back of Original.

SEWER (Available) (Not Available)

1. LEGAL DESCR.	LOT 1	BLK.	TRACT 25773	ADDRESS APPROVED
2. BUILDING ADDRESS	23207-09-11-17 & 23231-33 Saticoy St.,(CP)			DIST. MAP 7507
3. BETWEEN CROSS STREETS	Woodlake AND Stagg St.,			ZONE C-2/P-1
4. PRESENT USE OF BUILDING	Store Bldg. & MARKET	NEW USE OF BUILDING	(33) Bakery SAME	FIRE DIST. #2
5. OWNER'S NAME	Walter Leimert,Jr.	PHONE	AX. 4-5141	INSIDE KEY /
6. OWNER'S ADDRESS	444 N. Larchmont	P. O. L.A.	ZONE 4	COR. LOT ( ) XXXXXX
7. CERT. ARCH.	Theo. L. Pletsch	STATE LICENSE C-27	PHONE 449-3460	LOT SIZE Irreg
8. LIC. ENGR.	None	STATE LICENSE	PHONE	
9. CONTRACTOR	Owner #5	STATE LICENSE	PHONE	REAR ALLEY / SIDE ALLEY /
10. CONTRACTOR'S ADDRESS	See #6	P. O.	ZONE	BLDG. LINE /

11. SIZE OF EXISTING BLDG.	STORIES	HEIGHT	NO. OF EXISTING BUILDINGS ON LOT AND USE	BLDG. AREA
255'x165'	1	22'	1-Stores	/

DISTRICT OFFICE VN

3 23207-09-11-17 & 23231-33 Saticoy St.

12. MATERIAL		ROOF		ROOFING	SPRINKLERS REQ'D. SPECIFIED
EXT. WALLS: ☒ STUCCO ☐ BRICK ☐ CONCRETE	☐ METAL ☐ CONC. BLOCK	CONST. ☐ CONC. ☐ OTHER	☐ WOOD ☐ STEEL		

CRITICAL SOIL

13. VALUATION: TO INCLUDE ALL FIXED EQUIPMENT REQUIRED TO OPERATE AND USE PROPOSED BUILDING.	$ 101.00	VALUATION APPROVED Harder	AFFIDAVITS ~ /
14. SIZE OF ADDITION	STORIES HEIGHT	APPLICATION CHECKED	
None			
15. NEW WORK: (Describe) EXT. WALL ~~Stucco~~ EXIST. ROOFING ~~Comp~~ EXIST.		PLANS CHECKED	DWELL. UNITS XXXX
Change #15 to Int. Alteration to Make Bakery & Renew Permit		CORRECTIONS VERIFIED	SPACES PARKING N/C
		PLANS APPROVED	GUEST ROOMS X
		APPLICATION APPROVED	FILE WITH X
		INSPECTOR	CONT. INSP. X

I certify that in doing the work authorized hereby I will not employ any person in violation of the Labor Code of the State of California relating to workmen's compensation insurance, and I have read reverse side of Application.

LA/62-27270 Signed Alfred Dunne

This Form When Properly Validated is a Permit to Do the Work Described.

TYPE	GROUP	MAX. OCC.	P.C.	S.P.C.	G.P.I.	B.P. 200	I.F.	O.S.	C/O
N-C.									

CASHIER'S USE ONLY

FEB-16-65 07158 Ca VN • 72001 L — 1 2.00

P.C. No. GRADING CRIT. SOIL CONS.

3 APPLICATION TO ALTER - REPAIR - DEMOLISH
AND FOR CERTIFICATE OF OCCUPANCY

B&S Form B-3

CITY OF LOS ANGELES — DEPT. OF BUILDING AND SAFETY

W A c-1

INSTRUCTIONS: 1. Applicant to Complete Numbered Items Only
2. Plot Plan Required on Back of Original.

1. LEGAL DESCR. LOT: 1 BLK:	TRACT: 25773		CENSUS TRACT
2. PRESENT USE OF BUILDING: 1/2 Stores & Market	NEW USE OF BUILDING: 1/2 Same		DIST. MAP: 7507
3. JOB ADDRESS: 23207-33 Saticoy St.		CP	ZONE: C-2-1 P-1
4. BETWEEN CROSS STREETS: Woodlake	AND: Saticoy		FIRE DIST.: #2
5. OWNER'S NAME: Walter Leimert, Jr.	PHONE: 466-8519		INSIDE (COR. LOT) KEY: thru REV. COR
6. OWNER'S ADDRESS: 444 North Larchmont	P.O. BOX	ZIP	LOT SIZE: Irreg. no change
7. ARCHITECT OR DESIGNER: Theo. L. Pletsch	STATE LICENSE NO.: C 27	PHONE: 449-3460	REAR ALLEY
8. ENGINEER: None	STATE LICENSE NO.	PHONE	SIDE ALLEY / BLDG LINE /
9. CONTRACTOR: owner	STATE LICENSE NO.	PHONE	AFFIDAVITS: D of L 5' PUE N. p/1

10. SIZE OF EXISTING BLDG.: 28'x155'	STORIES: 1	HEIGHT: 18	NO. OF EXISTING BUILDINGS ON LOT AND USE	
11. MATERIAL OF CONSTRUCTION	EXT. WALLS	ROOF: compo.	FLOOR: conc.	

3 12. JOB ADDRESS: 23207-33 Saticoy St. — DISTRICT OFFICE: VN

13. VALUATION: TO INCLUDE ALL FIXED EQUIPMENT REQUIRED TO OPERATE AND USE PROPOSED BUILDING. $ 3,000.00 — GRADING: yes

14. NEW WORK: (Describe) Convert empty store to hardware store (15'x84' area) — CRIT. SOIL: yes — HIGHWAY DED.: yes

NEW USE OF BUILDING: Same			SIZE OF ADDITION: none	STORIES: 1	HEIGHT: 18'	FLOOR /
TYPE: III B	GROUP: V G-2/G	SPRINKLERS REQ'D / SPECIFIED / TOTAL	VALUATION APPROVED: Taylor			CONS. /
BLDG. AREA /	MAX. OCC. /		PLANS CHECKED			ZONED BY: kabik
DWELL. UNITS /	GUEST ROOMS /	SPACES PARKING REQ'D / PROVIDED	PLANS APPROVED			FILE WITH
P.C. No. /		CONT. INSP. n/c	APPLICATION APPROVED			INSPECTOR

P.C.	S.P.C.	G.P.I.	B.P.	I.F.	O.S.	C/O	TYPIST
9.10	/	/	14.00	/	/	/	rs

CASH-IN-HOUSE ONLY

JUN-21-66 27623 Ck VN • • M — 2 9.10
JUN-21-66 27624 Ck VN • 1186 M — 1 14.00

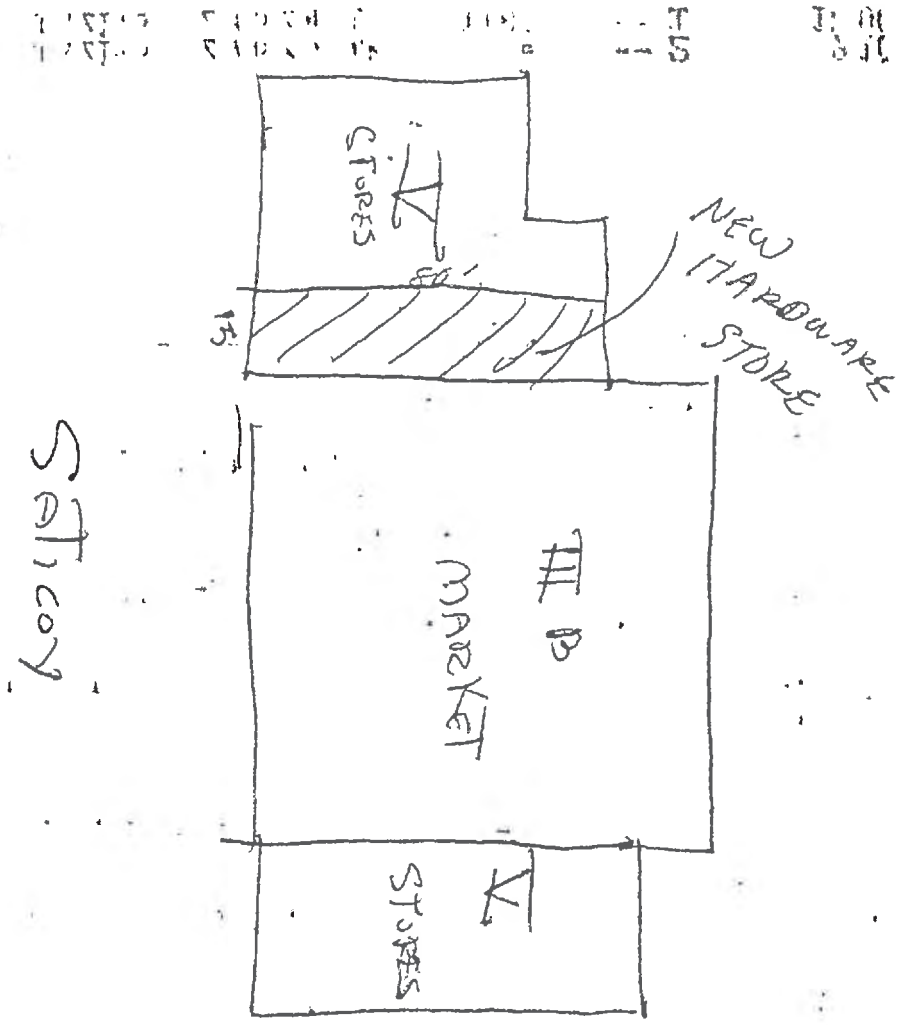
STATEMENT OF RESPONSIBILITY

I certify that in doing the work authorized hereby I will not employ any person in violation of the Labor Code of the State of California relating to workmen's compensation insurance.

"This permit is an application for inspection, the issuance of which is not an approval or an authorization of the work specified herein. This permit does not authorize or permit, nor shall it be construed as authorizing or permitting the violation or failure to comply with any applicable law. Neither the City of Los Angeles, nor any board, department, officer or employee thereof make any warranty or shall be responsible for the performance or results of any work described herein, or the condition of the property or soil upon which such work is performed." (See Sec. 91.0202 L.A.M.C.)

Signed X Theo. L. Pletsch (Owner or Agent)

		Name	Date
Bureau of Engineering	ADDRESS APPROVED		
	SEWERS AVAILABLE / NOT AVAILABLE		
	DRIVEWAY APPROVED		
	HIGHWAY DEDICATION REQUIRED / COMPLETED		
	FLOOD CLEARANCE APPROVED		
Conservation	APPROVED FOR ISSUE FILE #		
Plumbing	PRIVATE SEWAGE DISPOSAL SYSTEM APPROVED		
Planning	APPROVED UNDER CASE #		
Fire	APPROVED (TITLE 19) (L.A.M.C.-5700)		
Traffic	APPROVED FOR		



WOODLAKE

BRS B-5—R6.67

APPLICATION FOR INSPECTION OF SIGNS

CITY OF LOS ANGELES
DEPT. OF BUILDING AND SAFETY

S W S-1

INSTRUCTIONS: 1. Applicant to Complete Numbered Items Only. 2. Plot Plan Required on Back of Original.

CENSUS TRACT: 1344

1. LEGAL DESCR. — LOT: 1 — BLK. — TRACT: 25773 — DIST. MAP: 7507

2. TYPE OF SIGN OR NEW WORK: ~~Pole Sign~~ OUTDOOR ADVERTISING STRUCTURE — ZONE: C2-1/P-1

3. JOB ADDRESS: 23235 Saticoy St. CP — FIRE DIST.: #2

4. BETWEEN CROSS STREETS: Woodlake Ave. AND Ingomar St. — LOT (TYPE): Ins thru

5. OWNER'S NAME: All Const. Inv. Corp — PHONE: 345-2071 — LOT SIZE:

6. OWNER'S ADDRESS: 18455 Burbank Blvd. — P.O. BOX — ZIP: Tarzana — Irreg.over

7. ARCHITECT OR ENGINEER — STATE LICENSE NO. — PHONE — REAR ALLEY: — SIDE ALLEY: /

8. CONTRACTOR: Gimbel Signs 2171 — STATE LICENSE NO.: DI 32629 — PHONE — BLDG. LINE: /

9. SIZE OF SIGN: 6x8 — HEIGHT ABOVE GRADE: 4 FT. ROOF FT. — TOTAL COPY AREA: 48 s.f. — AFFIDAVITS: Fill see file

10. ILLUMINATION TO BE USED: SINGLE FACE ☐ DOUBLE FACE ☐ NONE ☐ DIRECT ☐ INDIRECT ☐ FLASHING ☐ OTHER

11. MATERIAL OF CONSTRUCTION — SUPPORTING FRAME: 4x6 post — FRAME OF SURFACE: wd — SURFACE OF SIGN: metal

S 12. JOB ADDRESS: 23235 Saticoy St. — DISTRICT OFFICE: VN B-9

S 13. VALUATION TO INCLUDE ALL FIXED EQUIPMENT REQUIRED TO OPERATE AND USE PROPOSED SIGN. $200 — GRADING: Yes

14. SIZE OF EXISTING BUILDING — TYPE — STORIES — EXT. WALLS — ROOF CONST. — HIGHWAY DED.: Yes

TYPE OF SIGN OR NEW WORK: ~~Pole Sign~~ OUTDOOR ADVERTISING STRUCTURE — CONS.: /

FREEWAY CLEARANCE: NOT REQUIRED ☒ REQUIRED ☐ — FREEWAY CHECKED: Myers — ZONED BY: Fike

FREEWAY CLEARANCE: FLASHING LIGHTS Yes ☐ No ☐; MOVING PARTS Yes ☐ No ☐; ANIMATIONS Yes ☐ No ☐; OTHER — Frwy route not confirmed at this date, will be subject to survey when frwy agreement is signed — VALUATION APPROVED: Kramm — FILED WITH

PLANS CHECKED — FREEWAY CLEARED

SIGN REQUIRES: TRAFFIC APPROVAL ☐ BOARD APPROVAL ☐ — PLANS APPROVED: Kramm — DATE

P.C. No. KK 1773 — CONT. INSP. — APPLICATION APROVED: Kramm — INSPECTOR: I

P.C.	S.P.C.	G.P.I.	B.P.	I.F.	O.S.	C/O	TYPIST
1.43			2.20				

Plan check expires six months after fee is paid. Permit expires one year after fee is paid or six months after fee is paid if construction is not commenced.

FEE 27-69 074 88 Ck VN•40952 M — 1 1.43
FEE 27-69 074 89 Ck VN•40952 M — 1 2.20

CASHIER'S USE ONLY

STATEMENT OF RESPONSIBILITY

I certify that in doing the work authorized hereby, I will not employ any person in violation of the Labor Code of the State of California relating to workmen's compensation insurance.

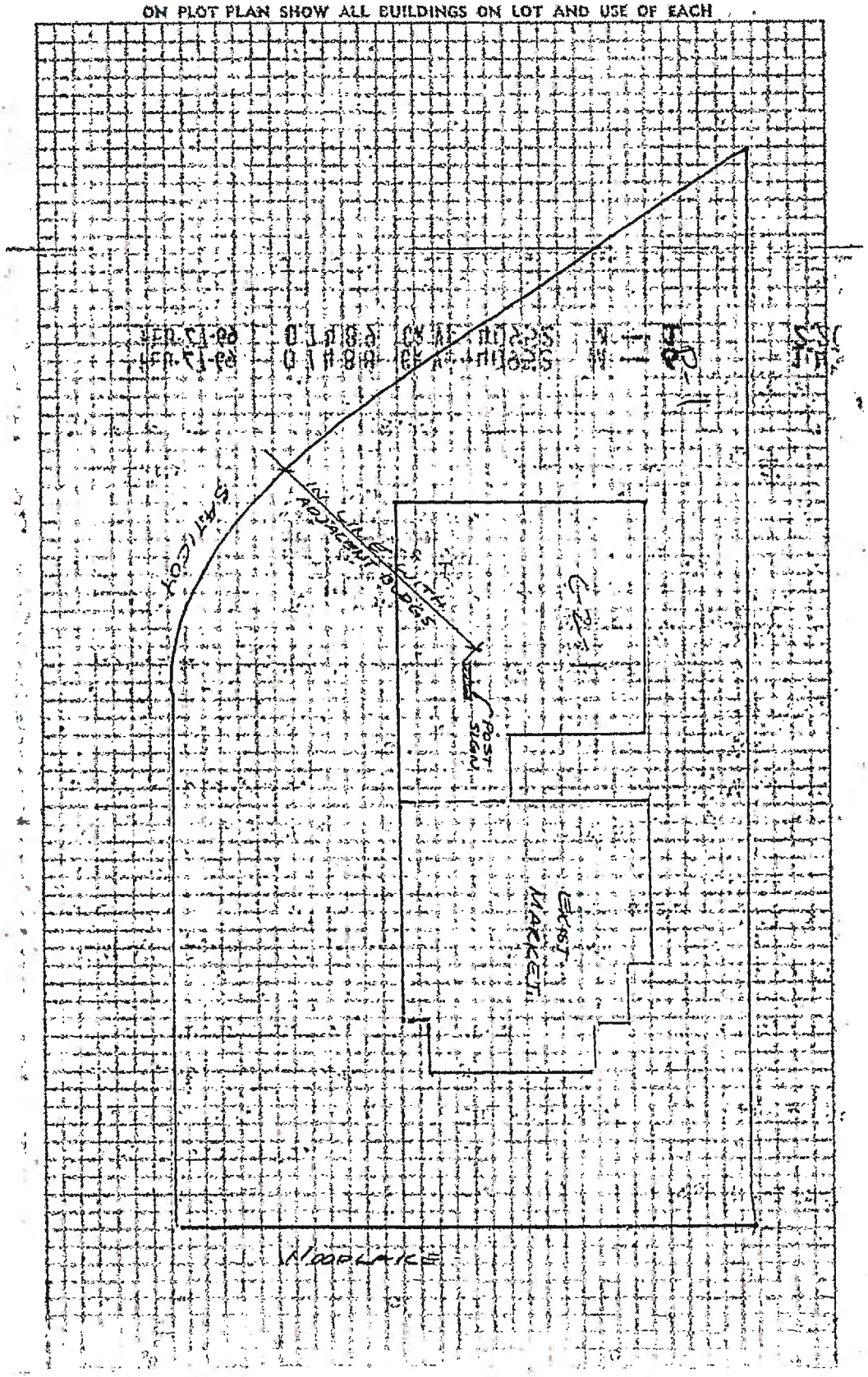
"This permit is an application for inspection, the issuance of which is not an approval or an authorization of the work specified herein. This permit does not authorize or permit, nor shall it be construed as authorizing or permitting the violation or failure to comply with any applicable law. Neither the City of Los Angeles, nor any board, department, officer or employee thereof make any warranty or shall be responsible for the performance or results of any work described herein, or the condition of the property or soil upon which such work is performed." (See Sec. 91.0202 L.A.M.C.)

Signed Anthony M. Wilcote Gimbel Signs (Owner or Agent)

		Name	Date
Bureau of Engineering	ADDRESS APPROVED		
	HIGHWAY DEDICATION REQUIRED		
	COMPLETED		
Municipal Arts Commissioners	APPROVED FOR ISSUE		
Board of Building Safety Commissioners	APPROVED FOR ISSUE FILE #		
Traffic	APPROVED FOR ISSUE		
Planning	APPROVED UNDER CASE #		
Conservation	APPROVED FOR ISSUE FILE #		

LEGAL DESCRIPTION

ON PLOT PLAN SHOW ALL BUILDINGS ON LOT AND USE OF EACH



1

APPLICATION FOR INSPECTION OF NEW BUILDING AND FOR CERTIFICATE OF OCCUPANCY

CITY OF LOS ANGELES — DEPT. OF BUILDING AND SAFETY — R&S B-1 — R 8.75

INSTRUCTIONS: 1. Applicant to Complete Numbered Items Only. 2. Plot Plan Required on Back of Original.

1. LEGAL DESCR. LOT: 1	BLK:	TRACT: 25773		DIST. MAP: 186-93
				CENSUS TRACT: 1344.01
2. PURPOSE OF BUILDING: (23) Automatic Ice vending machine RR2347				ZONE: C2-P-1
3. JOB ADDRESS: 23253 Saticoy St.				FIRE DIST.: II
4. BETWEEN CROSS STREETS: Woodlake Ave	AND: Keswick Ave			LOT (TYPE): Cor
5. OWNER'S NAME: Julio Gutierrez	PHONE: 999-3272			LOT SIZE: IRREG
6. OWNER'S ADDRESS: 20030 Sherman Way	CITY: CP	ZIP: 91306		SEE MAP
7. ENGINEER	BUS. LIC. NO.	ACTIVE STATE LIC. NO.	PHONE	ALLEY: /
8. ARCHITECT OR DESIGNER: S & S Automatic Vending Machine	BUS. LIC NO.	ACTIVE STATE LIC. NO.	PHONE	BLDG. LINE: /
9. CONTRACTOR: Same	BUS. LIC. NO.	ACTIVE STATE LIC. NO.	PHONE	AFFIDAVITS: ORD118552
10. BRANCH LENDER	ADDRESS	CITY		5' PUE(R)
11. SIZE OF NEW BLDG. WIDTH: 9 LENGTH: 24	STORIES	HEIGHT: 8'	NO. OF EXISTING BUILDINGS ON LOT AND USE: 1) Stores	Filled Ground
12. MATERIAL OF CONSTRUCTION: EXT WALLS: metal	ROOF: metal	FLOOR: wood		SEISMIC STUDY ZONE: NON
13. JOB ADDRESS: 23253 Saticoy St.				DIST. OFFICE: VNB49
14. VALUATION TO INCLUDE ALL FIXED EQUIPMENT REQUIRED TO OPERATE AND USE PROPOSED BUILDING: $2500				CRIT. SOIL: yes
				GRADING: yes
				HIGHWAY DED.: yes

PURPOSE OF BUILDING: Automatic Vending Machine					STORIES	HEIGHT	FLOOD: /	
TYPE: MISC STRUCT	GROUP	BLDG. AREA	PLANS CHECKED				CONS.: /	
DWELL. UNITS: 0	MAX. OCC.	TOTAL	PLANS APPROVED				ZONED BY: Smith	
GUEST ROOMS	PARKING REQ'D: n/C	PARKING PROVIDED STD.	COMP.	APPLICATION APPROVED			FILE WITH	
SPRINKLERS REQ'D SPECIFIED	CONT. INSP.		INSPECTION ACTIVITY: COMB	GEN	MAJ. S.	CONS	INSPECTOR	
P.C.: 18.70	S.P.C.	B.: 22.00	T.I.	P.M.	I.F.	G.P.I.	C/O	O.S.
P.C. No.	PLAN CHECK EXPIRES ONE YEAR AFTER FEE IS PAID. PERMIT EXPIRES TWO YEARS AFTER FEE IS PAID OR 180 DAYS AFTER FEE IS PAID IF CONSTRUCTION IS NOT COMMENCED.						TYPIST: rah	

CASHIER'S USE ONLY

MAR-30-77 53418 Ck VN 54616 J — 6 18.70

MAR-30-77 53419 Ck VN 54616 J — 1 22.00

STATEMENT OF RESPONSIBILITY

I certify that in doing the work specified herein I will not employ any person in violation of the Labor Code of the State of California relating to workmen's compensation insurance.

"This permit is an application for inspection, the issuance of which is not an approval or an authorization of the work specified herein. This permit does not authorize or permit, nor shall it be construed as authorizing or permitting the violation or failure to comply with any applicable law. Neither the City of Los Angeles, nor any board, department, officer or employee thereof make any warranty or shall be responsible for the performance or results of any work described herein, or the condition of the property or soil upon which such work is performed." (See Sec. 91.0202 L.A.M.C.)

Signed: Julio Gutierrez (Owner or Agent having Property Owner's Consent) — Signature/Date

Bureau of Engineering	ADDRESS APPROVED		
	DRIVEWAY		
	HIGHWAY DEDICATION	REQUIRED	
		COMPLETED	
	FLOOD CLEARANCE		
	SEWERS	SEWERS AVAILABLE	
		NOT AVAILABLE	
	NO SEWER/PLUMBING REQ'D.	SFC PAID	
	SFC NOT APPLICABLE	SFC DUE	
Conservation	APPROVED FOR ISSUE ☐	NO FILE ☐	
Fire	APPROVED (TITLE 19) (L.A.M.C.-57Q0)		
Housing	HOUSING AUTHORITY APPROVAL		
Planning	APPROVED UNDER CASE #		
Traffic	APPROVED FOR		

1. I certify that in the performance of the work for which this permit is issued I shall not employ any person in any manner so as to become subject to the workmen's compensation laws of California, or

2. I certify that if I employ any person in any manner so as to become subject to the workmen's compensation laws, I have on file with the permit authority prior to the following the issuance of this permit the Department of Building and Safety of the City of Los Angeles one of the following:

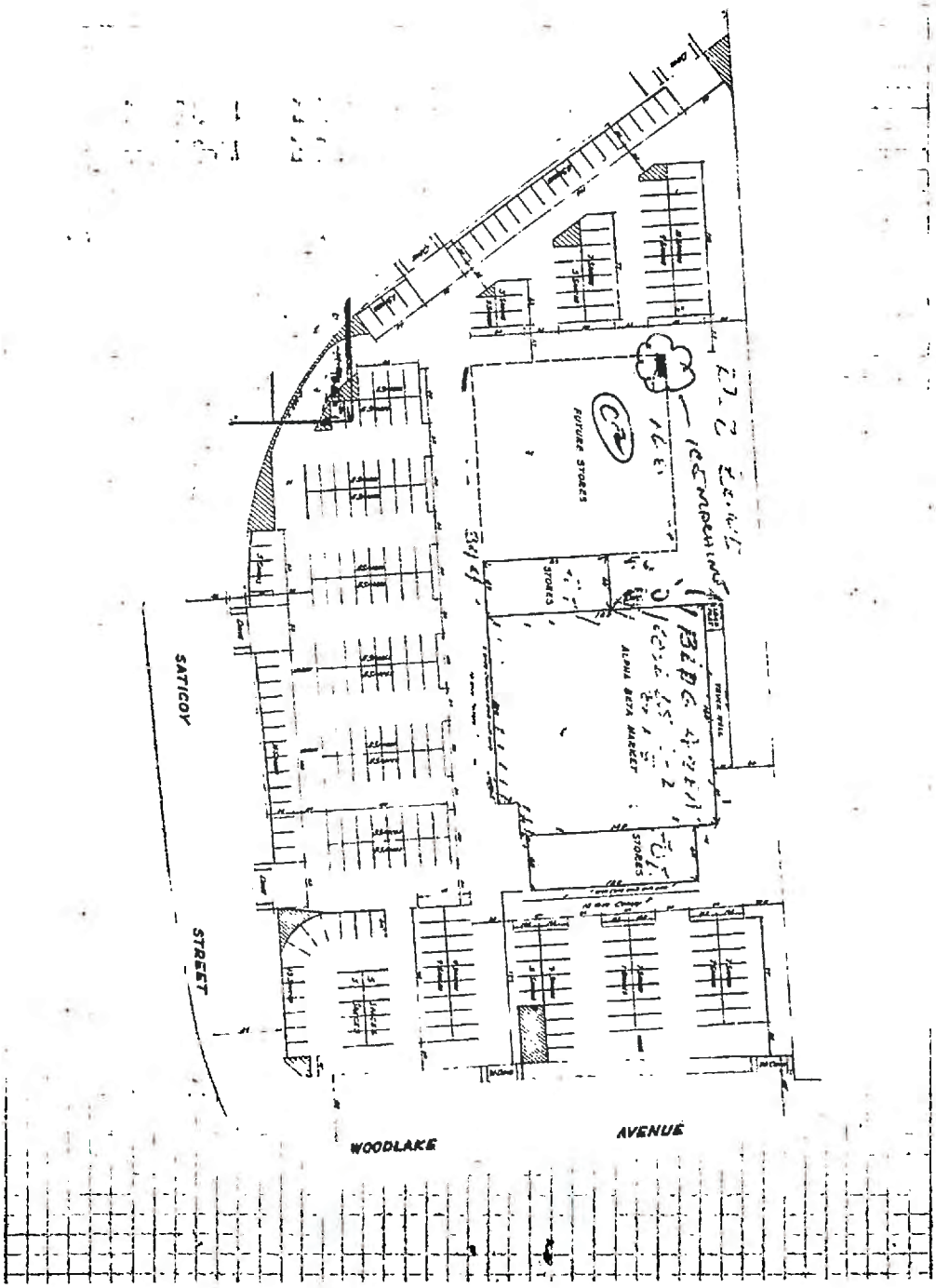
   a) A certificate of consent to self-insure issued by the Director of Industrial Relations, or

   b) A certificate of workmen's compensation insurance issued by an admitted insurer, or

   c) An exact copy or duplicate thereof certified by the director or insurer.

Owner 3-29-77

SIGNED TITLE DATE



3 APPLICATION FOR INSPECTION—TO ADD-ALTER-REPAIR-DEMOLISH AND FOR CERTIFICATE OF OCCUPANCY

CITY OF LOS ANGELES — DEPT. OF BUILDING AND SAFETY — B & S 8-3 (R 7.80)

INSTRUCTIONS: 1. Applicant to Complete Numbered Items Only.

1. LEGAL DESCR.	LOT: 1	BLOCK:	TRACT: 25773 W	COUNCIL DISTRICT NO.: 3	DIST. MAP: 186-093; CENSUS TRACT: 1344.01
2. PRESENT USE OF BUILDING: (10) Stores & Market	NEW USE OF BUILDING: ( ) Same				ZONE: C2Q1/P-1
3. JOB ADDRESS: 23207-33 Saticoy St.					FIRE DIST.: 11
4. BETWEEN CROSS STREETS: Woodlake	AND: Keswick				LOT TYPE: Cor
5. OWNER'S NAME: Walter Leimert M Jr.			PHONE		LOT SIZE: Irr
6. OWNER'S ADDRESS: 444 N. Larchmont	CITY: LA		ZIP		
7. ENGINEER /	BUS. LIC. NO.	ACTIVE STATE LIC. NO.	PHONE		ALLEY /
8. ARCHITECT OR DESIGNER: Theodore L. Pletsch	BUS. LIC. NO.	ACTIVE STATE LIC. NO.	PHONE		BLDG. LINE /
9. ARCHITECT OR ENGINEER'S ADDRESS /	CITY	ZIP			AFFIDAVITS
10. CONTRACTOR: Dyer Bros. Constr.	BUS. LIC. NO.	ACTIVE STATE LIC. NO.: 368043	PHONE: 359-2811		
11. SIZE OF EXISTING BLDG. WIDTH: 300 LENGTH: 170	STORIES: 1	HEIGHT	NO. OF EXISTING BUILDINGS ON LOT AND USE: 1--Retail Stores		
12. CONST. MATERIAL OF EXISTING BLDG. →	EXT. WALLS: Wood/Stucco	ROOF: Hot Mop	FLOOR: & Conc		
3 13. JOB ADDRESS: 23207-33 Saticoy St.			STREET GUIDE		DISTRICT OFFICE: VN B49
14. VALUATION TO INCLUDE ALL FIXED EQUIPMENT REQUIRED TO OPERATE AND USE PROPOSED BUILDING: $19,000.					SEISMIC STUDY ZONE /
15. NEW WORK (Describe): Add wood siding to store front facing Saticoy St. & Woodlake Av.					GRADING: Yes; FLOOD /; HWY. DED.: Yes; CONS. /
NEW USE OF BUILDING: Stores & Market	SIZE OF ADDITION: NC	STORIES	HEIGHT		ZONED BY: Wooding
TYPE: V/1	GROUP: Occ. G1/G2	BLDG. AREA: NC	PLANS CHECKED		FILE WITH
DWELL. UNITS: 0	MAX. OCC.: NC	TOTAL	APPLICATION APPROVED		TYPIST: YC
GUEST ROOMS: 0	PARKING REQ'D: NC	PARKING PROVIDED: STD. NC COMP.	INSPECTION ACTIVITY: COMB. / GEN. / MAJ. S. / CONS.		INSPECTOR

SPRINKLERS REQ'D SPEC. /		CONT. INSP. /	
P.C.: 102.85	P.M. /		
S.P.C. /	L.F.	Claims for refund of fees paid on permits must be filed: 1. Within one year from date of payment of fee; or 2. Within one year from date of expiration of extension for building or grading permits granted by the Dept. of B. & S. SECTIONS 22.12 & 22.13 LAMC.	
B.P.: 121.00	O.S.		
G.P.I. /	C/O		
DIST. OFFICE: VN	ENERGY:		
P.C. NO. /			

PLAN CHECK EXPIRES ONE YEAR AFTER FEE IS PAID. PERMIT EXPIRES TWO YEARS AFTER FEE IS PAID OR 180 DAYS AFTER FEE IS PAID IF CONSTRUCTION IS NOT COMMENCED

CASHIER'S USE ONLY

C 102.85 B-PC
C 121.00 BP-B
14895 0001 V-N:
L 41 1 07/01/80 223.85 CHTO

DECLARATIONS AND CERTIFICATIONS

LICENSED CONTRACTORS DECLARATION

16. I hereby affirm that I am licensed under the provisions of Chapter 9 (commencing with Section 7000) of Division 3 of the Business and Professions Code, and my license is in full force and effect.

Date 2-1-80 Lic. Class B-1 Lic. No. 36 9043 Contractor Dyer Bros. Constr.

Contractor's Mailing Address 1223 So. Baldwin Ave Arcadia CA. 91006

OWNER-BUILDER DECLARATION

17. I hereby affirm that I am exempt from the Contractor's License Law for the following reason (Sec. 7031.5, Business and Professions Code: Any city or county which requires a permit to construct, alter, improve, demolish, or repair any structure, prior to its issuance, also requires the applicant for such permit to file a signed statement that he is licensed pursuant to the provisions of the Contractor's License Law (Chapter 9 (commencing with Section 7000) of Division 3 of the Business and Professions Code) or that he is exempt therefrom and the basis for the alleged exemption. Any violation of Section 7031.5 by any applicant for a permit subjects the applicant to a civil penalty of not more than five hundred dollars ($500).):

☐ I, as owner of the property, or my employees with wages as their sole compensation, will do the work, and the structure is not intended or offered for sale (Sec. 7044, Business and Professions Code: The Contractor's License Law does not apply to an owner of property who builds or improves thereon, and who does such work himself or through his own employees, provided that such improvements are not intended or offered for sale. If, however, the building or improvement is sold within one year of completion, the owner-builder will have the burden of proving that he did not build or improve for the purpose of sale.).

☐ I, as owner of the property, am exclusively contracting with licensed contractors to construct the project (Sec. 7044, Business and Professions Code: The Contractor's License Law does not apply to an owner of property who builds or improves thereon, and who contracts for such projects with a contractor(s) licensed pursuant to the Contractor's License Law.).

☐ I am exempt under Sec. _____ B. & P. C. for this reason _____

Date _____ Owner _____

WORKERS' COMPENSATION DECLARATION

18. I hereby affirm that I have a certificate of consent to self-insure, or a certificate of Worker's Compensation Insurance, or a certified copy thereof (Sec. 3800, Lab. C.).

Policy No. 4412-2166 Company State Fund

☐ Certified copy is hereby furnished.

☒ Certified copy is filed with the Los Angeles City Dept. of Bldg. & Safety.

Date 2-1-80 Applicant [signature]

Applicant's Mailing Address 1223 So. Baldwin Ave Arcadia CA 91006

CERTIFICATE OF EXEMPTION FROM WORKERS' COMPENSATION INSURANCE

19. I certify that in the performance of the work for which this permit is issued, I shall not employ any person in any manner so as to become subject to the Workers' Compensation Laws of California.

Date _____ Applicant _____

NOTICE TO APPLICANT: If, after making this Certificate of Exemption, you should become subject to the Workers' Compensation provisions of the Labor Code, you must forthwith comply with such provisions or this permit shall be deemed revoked.

CONSTRUCTION LENDING AGENCY

20. I hereby affirm that there is a construction lending agency for the performance of the work for which this permit is issued (Sec. 3097, Civ. C.).

Lender's Name _____

Lender's Address _____

I certify that I have read this application and state that the above information is correct. I agree to comply with all city and county ordinances and state laws relating to building construction, and hereby authorize representatives of this city to enter upon the above-mentioned property for inspection purposes.

21. I realize that this permit is an application for inspection, that it does not approve or authorize the work specified herein, that it does not authorize or permit any violation or failure to comply with any applicable law, that neither the city of Los Angeles nor any board, department, officer or employee thereof make any warranty or shall be responsible for the performance or results of any work described herein or the condition of the property or soil upon which such work is performed. (See Sec. 91.0202 LAMC)

Signed [signature] Owner Contractor Date 2-1-80

3 APPLICATION FOR INSPECTION

CITY OF LOS ANGELES — DEPT. OF BUILDING AND SAFETY

Owner Bldr 2 0 0 4 4

REPAIR-DEMOLISH AND FOR CERTIFICATE OF OCCUPANCY

INSTRUCTIONS: 1. Applicant to Complete Numbered Items Only.

1. LEGAL DESCR.	LOT: Por Lot 1	BLOCK:	TRACT: 25773	COUNCIL DISTRICT NO.: 3	DIST. MAP: 186093
2. PRESENT USE OF BUILDING: ( ) Retail Sales	NEW USE OF BUILDING: ( ) Retail				CENSUS TRACT: 1344.01
3. JOB ADDRESS: 23204-33 Saticoy St Canoga Park		AND: Keswick st			ZONE: C2/P1
4. BETWEEN CROSS STREETS: Saticoy st			PHONE		FIRE DIST.: 11
5. OWNER'S NAME: Walter Leimert		CITY:		ZIP: 90004	LOT TYPE: int/thru
6. OWNER'S ADDRESS: 606 N. Larchmont bl#302	BUS. LIC. NO.	L.A. ACTIVE STATE LIC. NO.	PHONE		LOT SIZE: irreg
7. ENGINEER	BUS. LIC. NO.	ACTIVE STATE LIC. NO.	PHONE		ALLEY: /
8. ARCHITECT OR DESIGNER: T.W. Layman	BUS. LIC. NO.	818-709-1296 ACTIVE STATE LIC. NO.	PHONE		BLDG. LINE: /
9. ARCHITECT OR ENGINEER'S ADDRESS: 19725 Sherman Way Canoga Park		CITY		ZIP	AFFIDAVITS: 5'PUE Nside D of L 429 A B C SEE MAP
10. CONTRACTOR	BUS. LIC. NO.	ACTIVE STATE LIC. NO.	PHONE		P.D. REQ'D: YES 395

11. SIZE OF EXISTING BLDG. WIDTH / LENGTH	STORIES	HEIGHT	NO. OF EXISTING BUILDINGS ON LOT AND USE			DISTRICT OFFICE: VN
12. CONST. MATERIAL OF EXISTING BLDG. →	EXT. WALLS: wd		ROOF: wd	FLOOR: conc	STREET GUIDE	SEISMIC STUDY ZONE: /

3

13. JOB ADDRESS: 23204-33 Saticoy ST

14. VALUATION TO INCLUDE ALL FIXED EQUIPMENT REQUIRED TO OPERATE AND USE PROPOSED BUILDING: $15,000.00

15. NEW WORK (Describe): Remodel (exterior)

Stucco & reroof canopy

NEW USE OF BUILDING: stores	SIZE OF ADDITION		STORIES	HEIGHT	GRADING: Yes	FLOOR: /
TYPE I I/N: V-N	GROUP OCC.: B-2	FLOOR AREA TOTAL	PLANS CHECKED		HWY. DED.: YES	CONS.: /
DWELL. UNITS	MAX OCC.		APPLICATION APPROVED		ZONED BY: CARTER	
GUEST ROOMS	PARKING REQ'D	PARKING PROVIDED STD. COMP.	INSPECTION ACTIVITY: COMB. GEN. MALLS. CONS. ED.		FILE WITH:	
F.C. 88.40	G.P.I.	CONT. INSP.			TRACT: SM	
S.F.C.	P.M.				INSPECTOR	
B.P. 104.00	BS. 2.25	Claims for refund of fees paid on permits must be filed: 1. Within one year from date of payment of fee; or 2. Within one year from date of expiration or cancellation for building or grading permits covered by the Dept. of B. & S. SECTIONS 2212 & 2213 LAMC.				
I.E.	ESS.					
S.D.	GSS. 3.89					
DES. OFFICE: VN	SDSS.	SPRINKLERS REQ'D SPEC.				
F.C. INC.	CIO	ENERGY				

Unless a shorter period of time has been established by an official action, plan check approval expires one year after the fee is paid and this permit expires two years after the fee is paid or 180 days after the fee is paid if construction is not commenced.

CASHIER'S USE ONLY

C 88.40 B=PC
C 104.00 BP=A
C 2.25 ST=C
C 3.89 OSS
C 421 14 0081
LI143 3 06/01/88 198.84 CHTO

B&SB-3 (R2/87)

VN 42114

DECLARATIONS AND CERTIFICATIONS

LICENSED CONTRACTORS DECLARATION

16. I hereby affirm that I am licensed under the provisions of Chapter 9 (commencing with Section 7000) of Division 3 of the Business and Professions Code, and my license is in full force and effect.

Date _____ Lic. Class _____ Lic. Number _____ Contractor _____ (Signature)

OWNER-BUILDER DECLARATION

17. I hereby affirm that I am exempt from the Contractor's License Law for the following reason: (Sec. 7031.5, Business and Professions Code: Any city or county which requires a permit to construct, alter, improve, demolish, or repair any structure, prior to its issuance, also requires the applicant for such permit to file a signed statement that he is licensed pursuant to the provisions of the Contractor's License Law (Chapter 9 (commencing with Section 7000) of Division 3 of the Business and Professions Code) or that he is exempt therefrom and the basis for the alleged exemption. Any violation of Section 7031.5 by any applicant for a permit subjects the applicant to a civil penalty of not more than five hundred dollars ($500).):

☐ I, as owner of the property, or my employees with wages as their sole compensation, will do the work, and the structure is not intended or offered for sale. (Sec. 7044, Business and Professions Code: The Contractor's License Law does not apply to an owner of property who builds or improves thereon, and who does such work himself or through his own employees, provided that such improvements are not intended or offered for sale. If, however, the building or improvement is sold within one year of completion, the owner-builder will have the burden of proving that he did not build or improve for the purpose of sale.).

☐ I, as owner of the property, am exclusively contracting with licensed contractors to construct the project (Sec. 7044, Business and Professions Code: The Contractor's License Law does not apply to an owner of property who builds or improves thereon, and who contracts for such projects with a contractor(s) licensed pursuant to the Contractor's License Law.).

☐ I am exempt under Sec. _____ this reason _____

Date 4-7-88 Owner's Signature

WORKERS' COMPENSATION DECLARATION

18. I hereby affirm that I have a certificate of consent to self-insure, or a certificate of Workers' Compensation Insurance, or a certified copy thereof (Sec. 3800, Lab. C.).

Insurance Company _____ Policy No. _____

☐ Certified copy is hereby furnished.

☐ Certified copy is filed with the Los Angeles City Dept. of Bldg. & Safety.

Date _____ Applicant's Signature _____

Applicant's Mailing Address _____

CERTIFICATE OF EXEMPTION FROM WORKERS' COMPENSATION INSURANCE

19. I certify that in the performance of the work for which this permit is issued, I shall not employ any person in any manner so as to become subject to the Workers' Compensation Laws of California.

Date 4-7-88 Applicant's Signature

NOTICE TO APPLICANT: If, after making this Certificate of Exemption, you should become subject to the Workers' Compensation provisions of the Labor Code, you must forthwith comply with such provisions or this permit shall be deemed revoked.

CONSTRUCTION LENDING AGENCY

20. I hereby affirm that there is a construction lending agency for the performance of the work for which this permit is issued (Sec. 3097, Civ. C.).

Lender's Name _____ Lender's Address _____

21. I certify that I have read this application and state that the above information is correct. I agree to comply with all city and county ordinances and state laws relating to building construction, and hereby authorize representatives of this city to enter upon the above-mentioned property for inspection purposes.

I realize that this permit is an application for inspection, that it does not approve or authorize the work specified herein, that it does not authorize or permit any violation or failure to comply with any applicable law, that neither the City of Los Angeles nor any board, department, officer or employee thereof make any warranty, or shall be responsible for the performance of work, or results of any work specified herein, or the condition of the property or soil upon which such work is performed. (See Sec. 91.0202 LAMC.)

Owner 4-7-88

Position Date

2373

G APPLICATION FOR INSPECTION — CITY OF LOS ANGELES — DEPT. OF BUILDING AND SAFETY — AND FOR GRADING CERTIFICATE

INSTRUCTIONS: 1. Applicant to Complete Numbered Items Only. 2. Plot Plan Required on Back of Original.

1. LEGAL DESCR.	LOT: Por of Lot 1 See Attached	BLK.	TRACT: 25773	COUNCIL DIST. NO.: 3	DIST. MAP: 186-093
					CENSUS TRACT: 1344-01
2. PURPOSE OF GRADING	( ) Remove & Recompact under Bldg.				ZONE: C2-1VP-1
3. JOB ADDRESS	23233-55 Saticoy Street C.P.				FIRE DIST.: II
4. BETWEEN CROSS STREETS	Woodlake Ave. AND Keswick Street				LOT (TYPE)
5. OWNER'S NAME	Walter Leimert Co. PHONE 213)466-8593				LOT SIZE: Irreg.
6. OWNER'S ADDRESS	606 N. Larchmont Blvd #302, L.A. CITY 90004 ZIP				
7. PLANS BY CIVIL ENGR.	H & M Co. BUS. LIC. NO. 5392 ACTIVE STATE LIC. NO. (818)893-7966 PHONE				ALLEY
8. CIVIL ENGR. ADDRESS	8940 Gullo Avenue, Arleta, CA 91331 CITY ZIP				BLDG. LINE
9. ENGR. GEOLOGIST	BUS. LIC. NO. ACTIVE STATE LIC. NO./CERT. NO. PHONE				CPC 9934 ORD#128,579 118,552 ZA 87-0653 5 PUE (N)
10. SOIL ENGR.—TESTING AGENCY	R.S.A. Assoc. BUS. LIC. NO. 861 ACTIVE STATE LIC. NO. (818)989-5338 PHONE				
11. CONTRACTOR	N.S. BUS. LIC. NO. ACTIVE STATE LIC. NO. PHONE				P.C. RECTD
12. CONTRACTOR'S ADDRESS	CITY ZIP			STREET GUIDE	DIST. OFFICE: V.N.
G 13. JOB ADDRESS	23233-55 Saticoy Street				SEISMIC STUDY ZONE
14. NUMBER OF CUBIC YARDS	CUT 1700 FILL P&O 1700				GRADING: YES; FLOOD
15. MAXIMUM SLOPE	CUT FILL; RETAINING WALL REQUIRED YES NO			BOARD FILE NO.	HWY DED.: YES; CONS.
FILL DENSITY TESTS & CERTIFICATION	X 90% REQUIRED ☐ NOT REQUIRED			IMPORT/EXPORT REQ.	ZONED BY: OVER/LIU
CALIF. ENVIRONMENTAL QUALITY ACT REQUIREMENTS	EXEMPT COMPLETED			YARDAGE APPROVED	FILE WITH
				PLANS CHECKED	TYPIST
BOND	AMOUNT WAIVED			APPROVED	INSPECTOR
☐ CASH	DATE POSTED				B&S B-100 (R 2/87)
☐ SURETY	CA #				

P.A. —	E.P.I.	E.P.I. INSPECTOR	Claims for refund of fees paid on permits must be filed: 1. Within one year from date of payment of fee, or 2. Within one year from date of expiration of extension for building or grading permits granted by the Dept. of B. & S. SECTIONS 22.12 & 22.13 LAMC.
S.F.D.	I.F.		
E.P. 858.00	O.S.S. 17.16		
DEP. MGMT. VN	S.O.S.S.		
P.C. NO.			

Unless a shorter period of time has been established by an official action, plan check approval expires one year after the fee is paid and this permit expires two years after the fee is paid or 180 days after the fee is paid if construction is not commenced.

CASHIER USE ONLY: 658.00 GR-P 17.16.OSS 43329 0001 4623 3 06/21/88 875.16 CHTD

VN 43329

DECLARATIONS AND CERTIFICATIONS

LICENSED CONTRACTORS DECLARATION

16. I hereby affirm that I am licensed under the provisions of Chapter 9 (commencing with Section 7000) of Division 3 of the Business and Professions Code, and my license is in full force and effect.

Date _____ Lic. Class _____ Lic. No. _____ Contractor _____ (Signature)

OWNER-BUILDER DECLARATION

17. I hereby affirm that I am exempt from the Contractor's License Law for the following reason (Sec. 7031.5, Business and Professions Code: Any city or county which requires a permit to construct, alter, improve, demolish, or repair any structure, prior to its issuance, also requires the applicant for such permit to file a signed statement that he is licensed pursuant to the provisions of the Contractor's License Law (Chapter 9 (commencing with Section 7000) of Division 3 of the Business and Professions Code) or that he is exempt therefrom and the basis for the alleged exemption. Any violation of Section 7031.5 by any applicant for a permit subjects the applicant to a civil penalty of not more than five hundred dollars ($500).):

☐ I, as owner of the property, or my employees with wages as their sole compensation, will do the work, and the structure is not intended or offered for sale (Sec. 7044, Business and Professions Code: The Contractor's License Law does not apply to an owner of property who builds or improves thereon, and who does such work himself or through his own employees, provided that such improvements are not intended or offered for sale. If, however, the building or improvement is sold within one year of completion, the owner-builder will have the burden of proving that he did not build or improve for the purpose of sale.).

☐ I, as owner of the property, am exclusively contracting with licensed contractors to construct the project (Sec. 7044, Business and Professions Code: The Contractor's License Law does not apply to an owner of property who builds or improves thereon, and who contracts for such projects with a contractor(s) licensed pursuant to the Contractor's License Law.).

☐ I am exempt under Sec. _____ B. & P. C. for this reason _____

Date 6/7/88 Owner's Signature Walter H. Leimert

WORKERS' COMPENSATION DECLARATION

18. I hereby affirm that I have a certificate of consent to self-insure, or a certificate of Worker's Compensation Insurance, or a certified copy thereof (Sec. 3800, Lab. C.).

Insurance Company _____

Policy No. _____

☐ Certified copy is hereby furnished.

☐ Certified copy is filed with the Los Angeles City Dept. of Bldg. & Safety.

Date _____ Applicant's Signature _____

Applicant's Mailing Address _____

CERTIFICATE OF EXEMPTION FROM WORKERS' COMPENSATION INSURANCE

19. I certify that in the performance of the work for which this permit is issued, I shall not employ any person in any manner so as to become subject to the Workers' Compensation Laws of California.

Date 6/7/88 Applicant's Signature Walter H. Leimert

NOTICE TO APPLICANT: If, after making this Certificate of Exemption, you should become subject to the Workers' Compensation provisions of the Labor Code, you must forthwith comply with such provisions or this permit shall be deemed revoked.

CONSTRUCTION LENDING AGENCY

20. I hereby affirm that there is a construction lending agency for the performance of the work for which this permit is issued (See Sec. 91.0202 LAMC)

Lender's Name _____ Lender's Address _____

21. I certify that I have read this application and state that the above information is correct. I agree to comply with all city and county ordinances and state laws relating to building construction, and hereby authorize representatives of this city to enter upon the above-mentioned property for inspection purposes.

I realize that this permit is an application for inspection, that it does not approve or authorize the work specified herein, that it does not authorize or permit any violation or failure to comply with any applicable law, that neither the City of Los Angeles nor any board, department, officer or employee thereof make any warranty or shall be responsible for the performance of any work described herein or the condition of the property or soil upon which such work is performed. (See Sec. 91.0202 LAMC)

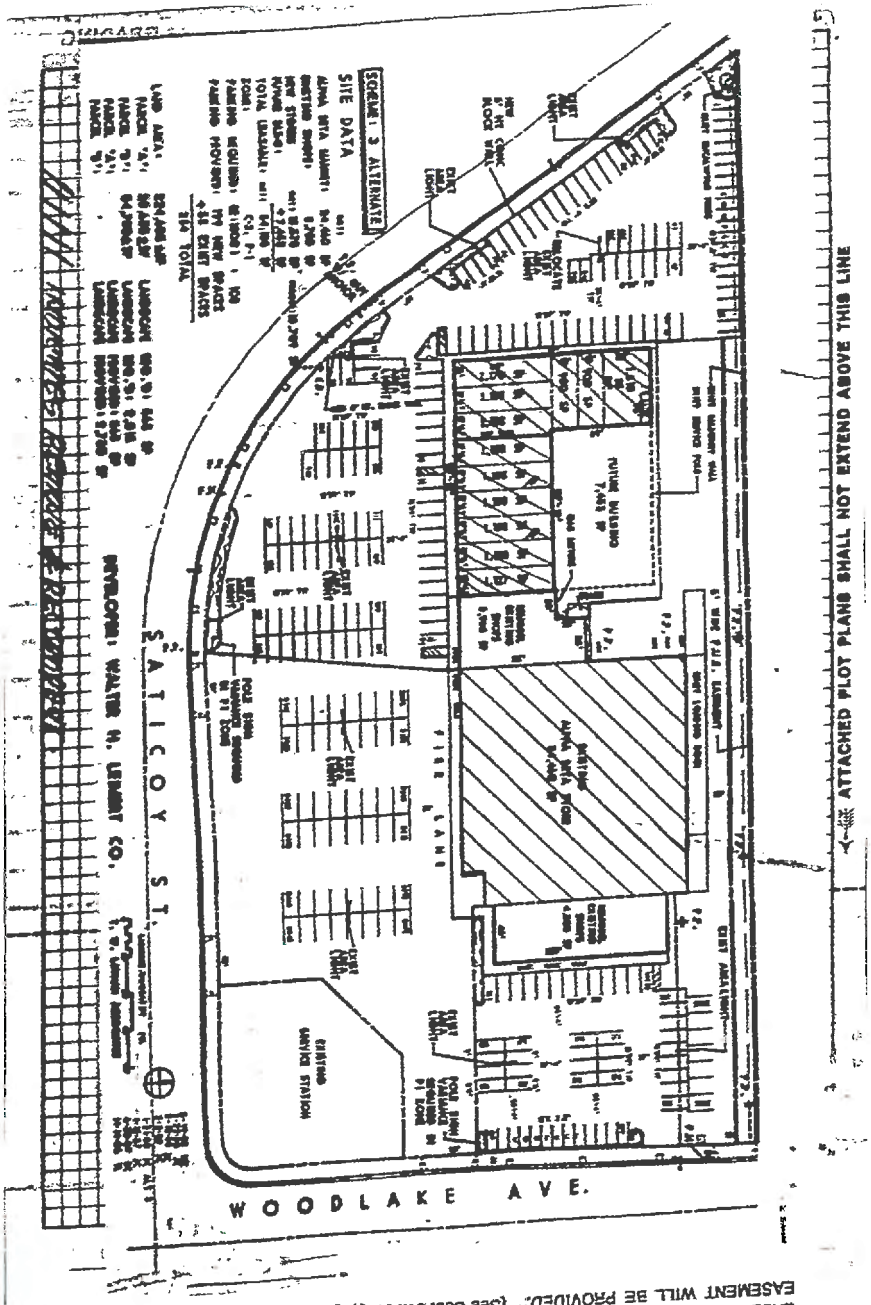
Signed _____ Position _____ Date _____

(Owner or agent having property owner's consent)

22. I certify that all of the land included in the Tentative Tract Map is under my ownership or land on which offsite rights have been granted.

Signed Walter H. Leimert Owner Position 6/7/88 Date

(Property owner's consent)



ATTACHED PLOT PLANS SHALL NOT EXTEND ABOVE THIS LINE

EASEMENT MAINTENANCE CERTIFICATION

UNDER PENALTY OF PERJURY I HEREBY CERTIFY THAT "THE PROPOSED GRADING WILL NOT DESTROY OR UNREASONABLY INTERFERE WITH ANY ACCESS OR UTILITY EASEMENT BELONGING TO OTHERS AND LOCATED ON MY PROPERTY. BUT IN THE EVENT SUCH GRADING DOES DESTROY OR UNREASONABLY INTERFERE WITH SUCH EASEMENT A SUBSTITUTE EASEMENT(S) SATISFACTORY TO THE HOLDER(S) OF THE EASEMENT WILL BE PROVIDED." (See Sec. 91.7002(f) (L.A.M.C.)

Legal Description

Lot 1 of Tract 25773, in the City of Los Angeles, in the County of Los Angeles, State of California, as per Map recorded in Book 668, Page 50 of Maps, in the Office of the County Recorder of said county.

Excepting therefrom that certain area beginning at the northeasterly corner of said Lot 1; thence south 19.42 feet; thence south 1 degrees 54 minutes 33 seconds west 150.08 feet; thence south 73.56 feet to the true point of beginning for this excepting; thence west 70.00 feet; thence south 45 degrees 00 minutes west 77.78 feet; thence south 71.44 feet to the northerly line of Saticoy Street, 73 feet wide; thence east along said northerly line of Saticoy Street and north along the westerly line of Woodlake Avenue, 73 feet wide, to the true point of beginning.

Also excepting therefrom that certain area beginning at the northeast corner of said lot in said tract; thence along the northerly boundary of said lot and tract west 544.00 feet; thence south 60.00 feet; thence east 172.00 feet; thence south 50.00 feet; thence east 40.00 feet; thence south 99.00 feet; thence south 7 degrees 41 minutes 49 seconds west 166.98 feet to a point in the northerly line of Saticoy Street; thence along said northerly street line north 88 degrees 04 minutes 57 seconds east 150.00 feet; thence continuing along said northerly street line, north 89 degrees 59 minutes 30 seconds east 74.37 feet; thence north 71.44 feet; thence north 45 degrees 00 minutes 00 seconds east 77.78 feet; thence east 70.00 feet to a point in the westerly line of Woodlake Avenue; thence along said westerly street line, north 50.00 feet; thence west 167.00 feet; thence north 140.00 feet; thence east 170.88 feet to a point in said westerly line of Woodlake Avenue; thence along said westerly street line, north 1 degrees 54 minutes 33 seconds east 33.60 feet; thence north 19.42 feet to the true point of beginning.

1 APPLICATION FOR INSPECTION 6000603567 AND FOR CERTIFICATE OF OCCUPANCY

INSTRUCTIONS: 1. Applicant to Complete Numbered Items Only. 2. Plot Plan Required on Back of Original.

1. LEGAL DESCR.	LOT: por of lot 1	BLOCK:	TRACT: 25773	COUNCIL DISTRICT NO.: 3	DIST. MAP: 186-093
	See Attached (SHELL ONLY)				CENSUS TRACT: 1344.01
					ZONE: C1.5P-1
					FIRE DIST.:
					TI:
					LOT TYPE: INT.
					LOT SIZE: irreg
					ALLEY:
					BLDG. LINE:
					AFFIDAVITS: CPC 9934 ORD # 125,529 ZA 87-0653 (W)
					P.C. BOOK: YPS 395
					DISTRICT OFFICE: VN
					SEISMIC STUDY ZONE: /
					GRADING: Yes; FLOOD: /
					WHY. DED.: Yes; CONS.: /
					ZONED BY: [redacted]/LIU
					FILE WITH:
					TYPIST: SM
					INSPECTOR:

2. PURPOSE OF BUILDING: (16) Retail shopping center (SHELL ONLY)

3. JOB ADDRESS: 23233 Saticoy ST

4. BETWEEN CROSS STREETS: Woodlake av AND Keswick st

5. OWNER'S NAME: Walter Leimert Co PHONE: 213- 466-8593

6. OWNER'S ADDRESS: 606 N. Larchmont bl #302 CITY: L.A. ZIP: 90004

7. ENGINEER: Mary Bornstein BUS. LIC. NO.: 875 ACTIVE STATE LIC. NO.: PHONE: 818-708-1860

8. ARCHITECT OR DESIGNER: T.W. Layman BUS. LIC. NO.: C-8720 ACTIVE STATE LIC. NO.: PHONE: 818-709-[redacted] 1296

9. ARCHITECT OR ENGINEER'S ADDRESS: 19725 Sherman Way #300 CITY: Canoga Park ZIP: 91306

10. CONTRACTOR: N.C Owner BUS. LIC. NO.: ACTIVE STATE LIC. NO.: PHONE:

11. SIZE OF NEW BLDG.: WIDTH 134' LENGTH 157'-10 STORIES: 1 HEIGHT: 21+ NO. OF EXISTING BUILDINGS ON LOT AND USE: 7- Retail

12. MATERIAL OF CONSTRUCTION: Plaster WALLS conc.blk/stud ROOF: comp FLOOR: concr STREET GUIDE:

1 13. JOB ADDRESS: 23233 Saticoy ST 23233-55

14. VALUATION TO INCLUDE ALL FIXED EQUIPMENT REQUIRED TO OPERATE AND USE PROPOSED BUILDING: ~~$ 515,000.00~~ 658,000.

PURPOSE OF BUILDING: Retail Stores STORIES: 1 HEIGHT: 21'

TYPE: V-N GROUP OCC.: B2 FLOOR AREA: 13573 ft² PLANS CHECKED: Nick Trotta

DWELL UNITS: — MAX. OCC.: 49 any 1 Tenant- 452 APPLICATION APPROVED:

GUEST ROOMS: — PARKING REQD.: 427/90 PARKING PROVIDED: STD. 258 comp INSPECTION ACTIVITY: COMM. 1 RES. 2 MISC. CONS.

P.C. 1518.26	BPI. 42.00	CONT. INSP. Lic Fab. Shop + Field Trusses, Shop Welding	
BPI. 181.01	P.M. 39.98		
E.P. 1999.14	E. 98.70	Claims for refund of fees paid on permits must be filed: 1. Within one year from date of payment of fee; or 2. Within one year from date of expiration of extension for building or grading permits granted by the Dept. of B. & S. SECTIONS 22.12 & 22.13 LAMC.	
LIC.	OSS. 31.21		
TOTAL 3393.25	SCHOOL 75.33		
DIST. OFFICE 04529	CO	SPRINKLERS	
P.C. NO.	ENV. 1447.60	ENERGY Env.	

Unless a shorter period of time has been established by an official action, plan check approval expires one year after the fee is paid and this permit expires two years after the fee is paid or 180 days after the fee is paid if construction is not commenced.

CASHIER'S USE ONLY

04813 - 03/17/88 1651:47 [illegible]

181.01	B-PC
1999.14	B2-B
39.98	PL-M
98.70	BT-C
75.33	OSS
1447.60	FIRE
3393.25	SD-C
44022	0081

52245 2 07/05/88 7235:01 CHIO

VN 44022

B&SB-1 (R.3/87)

DECLARATIONS AND CERTIFICATIONS

Notarized 6-7-88 Edward M. Lee

LICENSED CONTRACTORS DECLARATION

15. I hereby affirm that I am licensed under the provisions of Chapter 9 (commencing with Section 7000) of Division 3 of the Business and Professions Code, and my license is in full force and effect.

Date _____ Lic. Class _____ Lic. No. _____ Contractor's Signature _____

Contractor's Mailing Address _____

OWNER-BUILDER DECLARATION

16. I hereby affirm that I am exempt from the Contractor's License Law for the following reason (Sec. 7031.5, Business and Professions Code: Any city or county which requires a permit to construct, alter, improve, demolish, or repair any structure, prior to its issuance, also requires the applicant for such permit to file a signed statement that he is licensed pursuant to the provisions of the Contractor's License Law (Chapter 9 (commencing with Section 7000) of Division 3 of the Business and Professions Code) or that he is exempt therefrom and the basis for the alleged exemption. Any violation of Section 7031.5 by any applicant for a permit subjects the applicant to a civil penalty of not more than five hundred dollars ($500).):

☐ I, as owner of the property, or my employees with wages as their sole compensation, will do the work, and the structure is not intended or offered for sale (Sec. 7044, Business and Professions Code: The Contractor's License Law does not apply to an owner of property who builds or improves thereon, and who does such work himself or through his own employees, provided that such improvements are not intended or offered for sale. If, however, the building or improvement is sold within one year of completion, the owner-builder will have the burden of proving that he did not build or improve for the purpose of sale.).

☐ I, as owner of the property, am exclusively contracting with licensed contractors to construct the project (Sec. 7044, Business and Professions Code: The Contractor's License Law does not apply to an owner of property who builds or improves thereon, and who contracts for such projects with a contractor(s) licensed pursuant to the Contractors' License Law.).

☐ I am exempt under Sec. _____ B. & P.C. for this reason _____

Date 6/7/88 Owner's Signature _____

WORKERS' COMPENSATION DECLARATION

17. I hereby affirm that I have a certificate of consent to self-insure, or a certificate of Worker's Compensation Insurance, or a certified copy thereof (Sec. 3800, Lab. C.).

Policy No. _____ Insurance Company _____

☐ Certified copy is hereby furnished.

☐ Certified copy is filed with the City of Los Angeles City Dept. of _____

Date 6/7/88 Applicant's Signature _____

Applicant's Mailing Address 606 N. LARCHMONT BL. #302 L.A. CA. 90004

CERTIFICATE OF EXEMPTION FROM WORKERS' COMPENSATION INSURANCE

18. I certify that in the performance of the work for which this permit is issued, I shall not employ any person in any manner so as to become subject to the Workers' Compensation Laws of California.

Date 6/7/88 Applicant's Signature _____

NOTICE TO APPLICANT: If after making this Certificate of Exemption, you should become subject to the Workers' Compensation provisions of the Labor Code you must forthwith comply with such provisions or this permit shall be deemed revoked.

CONSTRUCTION LENDING AGENCY

19. I hereby affirm that there is a construction lending agency for the performance of the work for which this permit is issued (Sec. 3097, Civ. C.).

Lender's Name _____

Lender's Address _____

20. I certify that I have read this application and state that the above information is correct. I agree to comply with all city and county ordinances and state laws relating to building construction, and hereby authorize representatives of this city to enter upon the above-mentioned property for inspection purposes.

I understand that the permit issued on this application for inspections, that it does not approve or authorize the work specified herein, that it does not authorize or permit any violation or failure to comply with any applicable law, that neither the city of Los Angeles nor any board, department, officer or employee thereof make any warranty or shall be responsible for the performance or results of any work described herein or the condition of the property or soil upon which such work is performed. (See Sec. 91.0107.1 LAMC)

Signed _____ Owner Position 6/7/88 Date

Bureau of Engineering		ADDRESS APPROVED	
		DRIVEWAY	
		HIGHWAY DEDICATION	REQUIRED / COMPLETED
		FLOOD CLEARANCE	
SEWERS		SEWERS AVAILABLE	
		NOT AVAILABLE	
		SFC PAID	
		SFC DUE	
	SFC NOT APPLICABLE		
Grading	PRIVATE SEWAGE SYSTEM APPROVED		
Conservation	APPROVED FOR ISSUE ☐ NO FILE ☐ FILE CLOSED ☐		
Fire	APPROVED (TITLE 19) (L.A.M.C.-5730)		
Housing	HOUSING AUTHORITY APPROVAL		
Plumbing	APPROVED UNDER CASE #		
Transportation	APPROVED FOR	DWELLING UNITS	
Construction Tax	RECEIPT NO.		

School Dev = 0.25 x 13573 = 3393.25

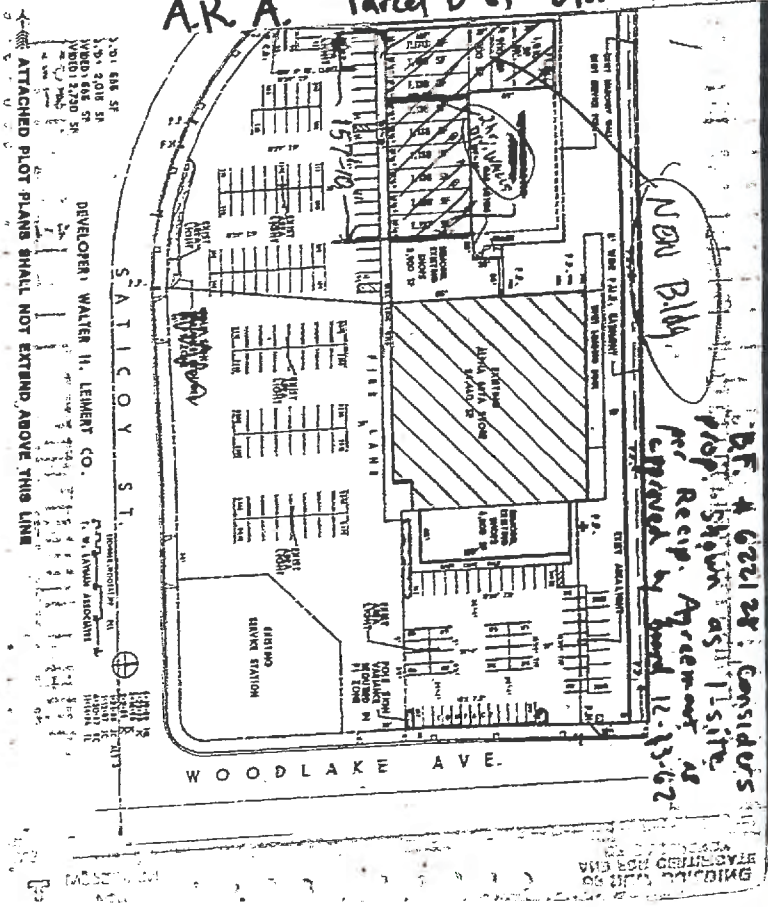
Legal Description

Lot 1 of Tract 25773, in the City of Los Angeles, in the County of Los Angeles, State of California, as per Map recorded in Book 668, Page 50 of Maps, in the Office of the County Recorder of said county.

Excepting therefrom that certain area beginning at the northeasterly corner of said Lot 1; thence south 19.42 feet; thence south 1 degrees 54 minutes 33 seconds west 150.08 feet; thence south 73.56 feet to the true point of beginning for this excepting; thence west 70.00 feet; thence south 45 degrees 00 minutes west 77.78 feet; thence south 71.44 feet to the northerly line of Saticoy Street, 73 feet wide; thence east along said northerly line of Saticoy Street and north along the westerly line of Woodlake Avenue, 73 feet wide, to the true point of beginning.

Also excepting therefrom that certain area beginning at the northeast corner of said lot in said tract; thence along the northerly boundary of said lot and tract west 544.00 feet; thence south 60.00 feet; thence east 172.00 feet; thence south 50.00 feet; thence east 40.00 feet; thence south 99.00 feet; thence south 7 degrees 41 minutes 49 seconds west 166.98 feet to a point in the northerly line of Saticoy Street; thence along said northerly street line north 88 degrees 04 minutes 57 seconds east 150.00 feet; thence continuing along said northerly street line, north 89 degrees 59 minutes 30 seconds east 74.37 feet; thence north 71.44 feet; thence north 45 degrees 00 minutes 00 seconds east 77.78 feet; thence east 70.00 feet to a point in the westerly line of Woodlake Avenue; thence along said westerly street line, north 50.00 feet; thence west 167.00 feet; thence north 140.00 feet; thence east 170.88 feet to a point in said westerly line of Woodlake Avenue; thence along said westerly street line, north 1 degrees 54 minutes 33 seconds east 33.60 feet; thence north 19.42 feet to the true point of beginning.

A.K.A. Parcel B of Div. of Land Map. No. 492



3 APPLICATION FOR INSPECTION — 2 3 6 0 0 1 0 2 3 2 — REPAIR-DEMOLISH AND FOR CERTIFICATE OF OCCUPANCY

INSTRUCTIONS: 1. Applicant to Complete Numbered Items Only.

1. LEGAL DESCR. LOT	1	BLOCK	TRACT 25773	COUNCIL DISTRICT NO. 3	DIST. MAP 186-093 / CENSUS TRACT 1344.01
2. PRESENT USE OF BUILDING ( ) 16- Retail/ Sales		NEW USE OF BUILDING ( ) same			ZONE C2-1/P-1
3. JOB ADDRESS 23235 Saticoy					FIRE DIST. FBZ
4. BETWEEN CROSS STREETS Woodlake		AND Keswick			LOT TYPE Cor.
5. OWNER'S NAME Rhonda Corvington			PHONE (818)999-3590		LOT SIZE irr.
6. OWNER'S ADDRESS 5430 Nevada Street Woodland Hills, CA 91364		CITY	ZIP		
7. ENGINEER	BUS. LIC. NO.	ACTIVE STATE LIC. NO.	PHONE		ALLEY —
8. ARCHITECT OR DESIGNER	BUS. LIC. NO.	ACTIVE STATE LIC. NO.	PHONE		BLDG. LINE —
9. ARCHITECT OR ENGINEER'S ADDRESS	CITY	ZIP			AFFIDAVITS DLM 492/see mp ZA 87-0653
10. CONTRACTOR ~~Street~~ Mark Steven Land J.	BUS. LIC. NO. B-308470	ACTIVE STATE LIC. NO. 40-782245	PHONE		5' Pue rear
11. SIZE OF EXISTING BLDG. WIDTH LENGTH	STORIES HEIGHT	NO. OF EXISTING BUILDINGS ON LOT AND USE			P.C. REQ'D NO(b)
12. CONST. MATERIAL OF EXISTING BLDG. →	EXT. WALLS	ROOF	FLOOR		
3 13. JOB ADDRESS 23235 Saticoy Street			STREET GUIDE		DISTRICT OFFICE VN
3 14. VALUATION TO INCLUDE ALL FIXED EQUIPMENT REQUIRED TO OPERATE AND USE PROPOSED BUILDING	$ 2,000				SEISMIC STUDY ZONE —
15. NEW WORK (Describe) T.I. Interior Partitions					GRADING — FLOOD — HWY. DED. CONS.

NEW USE OF BUILDING (16) RETAIL/SALES		SIZE OF ADDITION —		STORIES 1 HEIGHT 16	ZONED BY Cornejo
TYPE	GROUP OCC. B-2	FLOOR AREA —	PLANS CHECKED COD Feb		FILE WITH
DWELL UNITS N/A	MAX. OCC. N/A TOTAL		APPLICATION APPROVED		TYPIST
GUEST ROOMS N/A	PARKING REQ'D	PARKING PROVIDED STO. 16 COMP.	INSPECTION ACTIVITY COMB	GEN. MAJ.S. CONS.	INSPECTOR I.O.

P.C. 24.31	B.P.I.	CONT. INSP.	
S.P.C. —	P.M.		
B.P. 28.60	E.I. 0.50	Claims for refund of fees paid on permits must be filed: 1. Within one year from date of payment of fee; or 2. Within one year from date of expiration or extension for building or grading permits granted by the Dept. of B. & S. SECTIONS 22.12 & 22.13 LAMC.	
I.F.	F.H.		
S.D. N/A.	O.S.S. 1.07		
DIST. OFFICE C-X-	S.O.S.S.	SPRINKLERS REQ'D SPEC.	
P.C. NO. —	C/O	ENERGY MCVE. - D.A.D.	

Unless a shorter period of time has been established by an official action, plan check approval expires one year after the fee is paid and this permit expires two years after the fee is paid or 180 days after the fee is paid if construction is not commenced.

59.48

CASHIER'S USE ONLY

84 31 B-PC
28.60 BP-R
.50 EI-C
1.07 OSS
308 84 0001
A6181 4 05/03/89 54588 CHIO

30894

B & S B-3 (R.2/87)

DECLARATIONS AND CERTIFICATIONS

LICENSED CONTRACTORS DECLARATION

16. I hereby affirm that I am licensed under the provisions of Chapter 9 (commencing with Section 7000) of Division 3 of the Business and Professions Code, and my license is in full force and effect.

Date 5/3/89 Lic. Class B Lic. Number 308470 Contractor _____ (Signature)

OWNER-BUILDER DECLARATION

17. I hereby affirm that I am exempt from the Contractor's License Law for the following reason (Sec. 7031.5, Business and Professions Code: Any city or county which requires a permit to construct, alter, improve, demolish, or repair any structure, prior to its issuance, also requires the applicant for such permit to file a signed statement that he is licensed pursuant to the provisions of the Contractor's License Law (Chapter 9 (commencing with Section 7000) of Division 3 of the Business and Professions Code) or that he is exempt therefrom and the basis for the alleged exemption. Any violation of Section 7031.5 by any applicant for a permit subjects the applicant to a civil penalty of not more than five hundred dollars ($500).):

☐ I, as owner of the property, or my employees with wages as their sole compensation, will do the work, and the structure is not intended or offered for sale (Sec. 7044, Business and Professions Code: The Contractor's License Law does not apply to an owner of property who builds or improves thereon, and who does such work himself or through his own employees, provided that such improvements are not intended or offered for sale. If, however, the building or improvement is sold within one year of completion, the owner-builder will have the burden of proving that he did not build or improve for the purpose of sale.).

☐ I, as owner of the property, am exclusively contracting with licensed contractors to construct the project (Sec. 7044, Business and Professions Code: The Contractor's License Law does not apply to an owner of property who builds or improves thereon, and who contracts for such projects with a contractor(s) licensed pursuant to the Contractor's License Law.).

☐ I am exempt under Sec. _____, B. & P. C. for this reason _____

Date _____ Owner's Signature _____

WORKERS' COMPENSATION DECLARATION

18. I hereby affirm that I have a certificate of consent to self-insure, or a certificate of Workers' Compensation Insurance, or a certified copy thereof (Sec. 3800, Lab. C.).

Policy No. _____ Insurance Company Statefund

☐ Certified copy is hereby furnished.

☑ Certified copy is filed with the Los Angeles City Dept. of Bldg. & Safety.

Date 5/3/89 Applicant's Signature _____

Applicant's Mailing Address _____

CERTIFICATE OF EXEMPTION FROM WORKERS' COMPENSATION INSURANCE

19. I certify that in the performance of the work for which this permit is issued, I shall not employ any person in any manner so as to become subject to the Workers' Compensation Laws of California.

Date _____ Applicant's Signature _____

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CONSTRUCTION LENDING AGENCY

20. I hereby affirm that there is a construction lending agency for the performance of the work for which this permit is issued (Sec. 3097, Civ. C.).

Lender's Name _____ Lender's Address _____

21. I certify that I have read this application and state that the above information is correct. I agree to comply with all city and county ordinances and state laws relating to building construction, and hereby authorize representatives of this city to enter upon the above-mentioned property for inspection purposes.

I realize that this permit is an application for inspection, that it does not approve or authorize the work specified herein, that it does not authorize or permit any violation or failure to comply with any applicable law, that neither the city of Los Angeles nor any board, department, officer or employee thereof make any warranty or shall be responsible for the performance or results of any work described herein or the condition of the property or soil upon which such work is performed. (See Sec. 91.0202 LAMC)

Mark Steven Land. 5/3/89

S FOR INSPECTION 3 7 0 0 5 0 0 3 8 0 OF SIGNS

INSTRUCTIONS: 1. Applicant to Complete Numbered Items Only. 2. Plot Plan Required on Back of Original.

1. LEGAL DESCR. LOT: 1	BLOCK:	TRACT: 25773	COUNCIL DISTRICT NO.: 3	DIST. MAP: 186-093	CENSUS TRACT: 1344.01
2. TYPE OF SIGN OR NEW WORK: ( )19 Wall Signs	☒ ON-SITE SIGN ☐ OFF-SITE SIGN			ZONE: C2-1/P-1	
3. JOB ADDRESS: 23233 Saticoy St	☐ TEMP.	EXP. DATE		FIRE DIST.: -	
4. BETWEEN CROSS STREETS: Saticoy	AND: Woodlake			LOT (TYPE): cor	
5. OWNER'S NAME: Leimert	PHONE			LOT SIZE: Irreg	
6. OWNER'S ADDRESS: 23233 Saticoy St	CITY: West Hills	ZIP			
7. ARCHITECT OR ENGINEER: -	BUS. LIC. NO.	ACTIVE STATE LIC. NO.	PHONE	ALLEY: -	
8. ARCHITECT OR ENGINEER ADDRESS: -	CITY	ZIP		BLDG. LINE: -	
9. QUALIFIED INSTALLER: General Sign Co	BUS. LIC. NO.	ACTIVE STATE LIC. NO.: 390315	PHONE: 886-9108	AFFIDAVITS: ZA87-0658	
10. INSTALLER'S ADDRESS: 19119 Frankfort St	CITY: Northridge	ZIP: 91324		CPC9934	
11. SIZE OF EXISTING BUILDING WIDTH: 20 LENGTH: 140	TYPE: com	STORIES: 1	NO. OF EXISTING BUILDINGS ON LOT AND USE: 4) Commercial		
12. SIZE OF SIGN: 2.5X10all S/F	TOTAL COPY AREA: 23 SF	OVERALL HEIGHT:	FROM GRADE: 10'	FROM ROOF: 4'	P.C. REQ'D: no
S 13. JOB ADDRESS: 23233 Saticoy St			STREET GUIDE	DIST. OFFICE: VN	
14. VALUATION TO INCLUDE ALL FIXED EQUIPMENT REQUIRED TO OPERATE AND USE PROPOSED SIGN: $ 1564.00				SEISMIC STUDY ZONE: -	
15. MATERIAL OF SIGN CONSTRUCTION	SUPPORTING FRAME: metal	FRAME OF COPY: metal	SURFACE OF SIGN: plastic	GRADING: -	FLOOD
16. TYPE OF SIGN OR NEW WORK: Wall Signs	☐ SINGLE FACE ☐ DOUBLE FACE ☐ OTHER X			HWY. DED.: yes	CONS.
17. ILLUMINATION ☐ NONE ☒ INTERNAL ☐ EXTERNAL	☐ FLASHING ☐ OTHER ☐ REVOLVING ☒ NONE			ZONED BY: McIntyre	
18. NO. OF SIGNS OR GAS TUBE SYSTEMS: 1	NO. OF ADDITIONAL BRANCH CIRCUITS: -	NO. OF CONTROL DEVICES: 1		FILE WITH:	

PERMIT FEES		CONT. INSP.	PLANS CHECKED: Godinez	TYPIST
SIGNS/G. T. SYSTEMS	15.00	FREEWAY CLEARANCE: Clear	APPLICATION APPROVED	DIRECTOR
ADDITIONAL CIRCUITS				
ELECTRICAL SERVICE				
CONTROL DEVICES	5.00	DATE		
ISSUING FEE	10.00	TRANSPORTATION DEPT. CLEARANCE		
BLDG. PERMIT	41.60			
P.C. 20.80	TOTAL 71.60	DATE		
S.P.C.	E.I. .50	F.H.		
S.P.I.	O.S.S. 1.86	I.F.		
DISTRICT OFFICE VN	S.O.S.S.	P.C. NO.		

B & S B-5 (R 8.86)

CASHIER'S USE ONLY

C 20.80 P-PC
71.80 B-CI
.50 E-MR
1.86 OSS
620858 0001
0950 2 05/12/89 94.76 CHTD

89 VN 62058

Unless a shorter period of time has been established by an official action, plan check approval expires one year after the fee is paid and this permit expires two years after the fee is paid or 180 days after the fee is paid if construction is not commenced.

DECLARATIONS AND CERTIFICATIONS

LICENSED CONTRACTORS DECLARATION

19. I hereby affirm that I am licensed under the provisions of Chapter 9 (commencing with Section 7000) of Division 3 of the Business and Professions Code, and my license is in full force and effect.

Date 5/12 Lic. Class C-45 Lic. No. 390315 Contractor's Signature H. F. Helsten

Contractor's Mailing Address 19119 Frankfort St Northridge

OWNER-BUILDER DECLARATION

20. I hereby affirm that I am exempt from the Contractor's License Law for the following reason (Sec. 7031.5, Business and Professions Code: Any city or county which requires a permit to construct, alter, improve, demolish, or repair any structure, prior to its issuance, also requires the applicant for such permit to file a signed statement that he is licensed pursuant to the provisions of the Contractor's License Law (Chapter 9 (commencing with Section 7000) of Division 3 of the Business and Professions Code) or that he is exempt therefrom and the basis for the alleged exemption. Any violation of Section 7031.5 by any applicant for a permit subjects the applicant to a civil penalty of not more than five hundred dollars ($500).):

☐ I, as owner of the property, or my employees with wages as their sole compensation, will do the work, and the structure is not intended or offered for sale (Sec. 7044, Business and Professions Code: The Contractor's License Law does not apply to an owner of property who builds or improves thereon, and who does such work himself or through his own employees, provided that such improvements are not intended or offered for sale. If, however, the building or improvement is sold within one year of completion, the owner-builder will have the burden of proving that he did not build or improve for the purpose of sale.).

☐ I, as owner of the property, am exclusively contracting with licensed contractors to construct the project (Sec. 7044, Business and Professions Code: The Contractor's License Law does not apply to an owner of property who builds or improves thereon, and who contracts for such projects with a contractor(s) licensed pursuant to the Contractor's License Law.).

☐ I am exempt under Sec. _____ B. & P. C. for this reason _____

Date _____ Owner's Signature _____

WORKERS' COMPENSATION DECLARATION

21. I hereby affirm that I have a certificate of consent to self-insure, or a certificate of Worker's Compensation Insurance, or a certified copy thereof (Sec. 3800, Lab. C.).

Policy No. N/A Insurance Company See # 20

☐ Certified copy is hereby furnished.

☐ Certified copy is filed with the Los Angeles City Dept. of Bldg. & Safety.

Date _____ Applicant's Signature _____

Applicant's Mailing Address _____

CERTIFICATE OF EXEMPTION FROM WORKERS' COMPENSATION INSURANCE

22. I certify that in the performance of the work for which this permit is issued, I shall not employ any person in any manner so as to become subject to the Workers' Compensation Laws of California.

Date 5/12/89 Applicant's Signature H. F. Helsten

NOTICE TO APPLICANT: If, after making this Certificate of Exemption, you should become subject to the Workers' Compensation provisions of the Labor Code, you must forthwith comply with such provisions or this permit shall be deemed revoked.

CONSTRUCTION LENDING AGENCY

23. I hereby affirm that there is a construction lending agency for the performance of the work for which this permit is issued (Sec. 3097, Civ. C.).

Lender's Name _____

Lender's Address _____

24. I certify that I have read this application and state that the above information is correct. I agree to comply with all city and county ordinances and state laws relating to building construction, and hereby authorize representatives of this city to enter upon the above-mentioned property for inspection purposes.

I realize that this permit is an application for inspection, that it does not approve or authorize the work specified herein, that it does not authorize or permit any violation or failure to comply with any applicable law, that neither the city of Los Angeles nor any board, department, officer or employee thereof make any warranty or shall be responsible for the performance or results of any work described herein or the condition of the property or soil upon which such work is performed. (See Sec. 91.0202 LAMC)

Signed H. F. Helsten (Owner or agent having property owner's consent) Pres Position 5/12/89 Date

Bureau of Engineering	23/0050	ADDRESS APPROVED	
		HIGHWAY DEDICATION	
CITY PLANNING			
OFF SITE CLEARANCE:			
LEGAL DESCRIPTION:			

COMBINED SIGN AREAS

Existing Sign Area

1. Illum. Canopy Sign .....
2. Monument Sign .....
3. Pole Sign .....
4. Projecting Sign .....
5. Roof Sign .....
6. Wall Sign .....
7. Window Sign .....
8. Proposed _____ Sign _____

Total Area _____

Signs Facing _____

Allowable Combined Sign Area .....

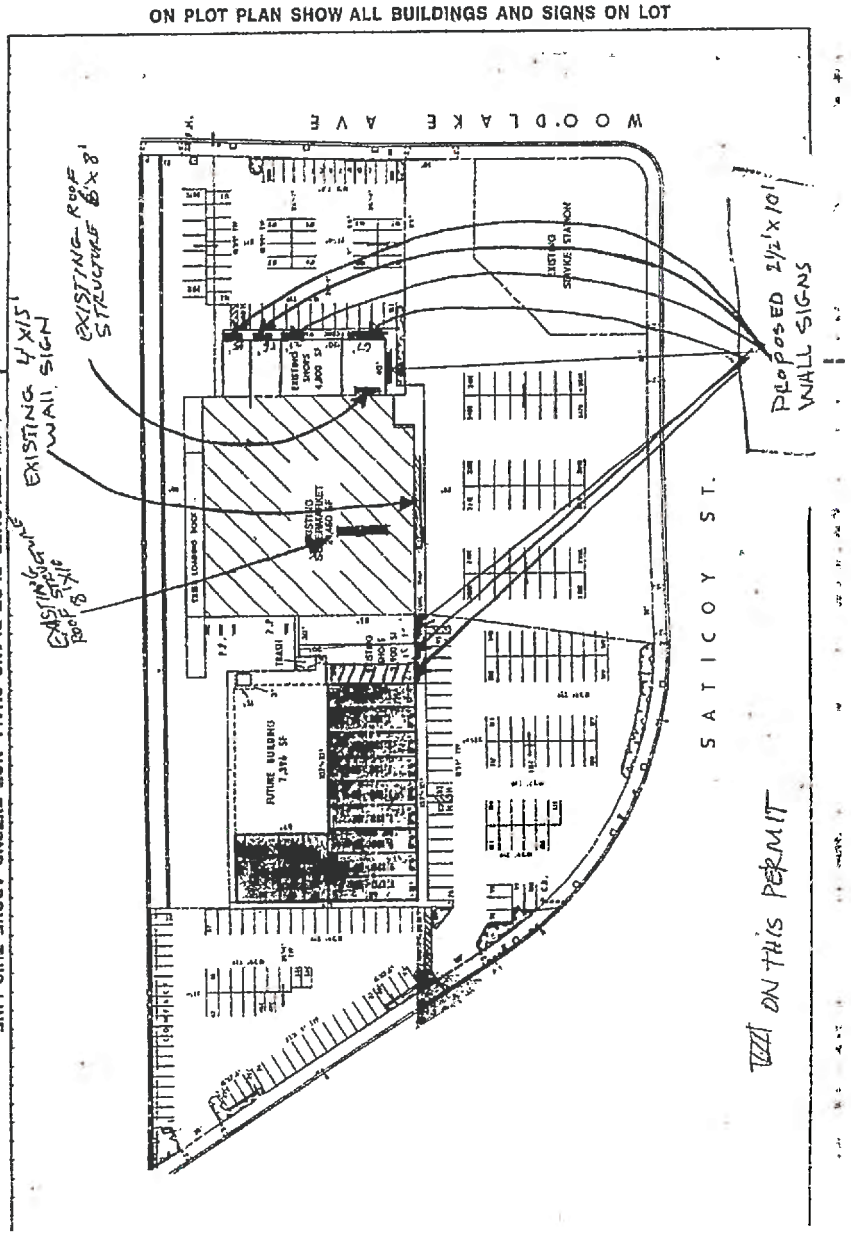
Actual Combined Sign Area .....

Allowable _____ Sign Area .....

Actual _____ Sign Area .....

Proposed Sign Facing _____

ON PLOT PLAN SHOW ALL BUILDINGS AND SIGNS ON LOT



3 APPLICATION FOR INSPECTION 2 3 8 0 0 3 0 0 0 1 5 REPAIR-DEMOLISH AND FOR CERTIFICATE OF OCCUPANCY

INSTRUCTIONS: 1. Applicant to Complete Numbered Items Only.

1. LEGAL DESCR.	LOT: Por 1 SEE ATTACHED	BLOCK: See 88 VN	TRACT: 44022 25773	COUNCIL DISTRICT NO.: 3	DIST. MAP: 186B093
					CENSUS TRACT: 1344.01
2. PRESENT USE OF BUILDING: ( ) Retail Shopping	NEW USE OF BUILDING: ( )				ZONE: C2-1/P-1
3. JOB ADDRESS: 23233 Saticoy St					FIRE DIST.: II
4. BETWEEEN CROSS STREETS: Woodlake	AND				LOT TYPE: int
5. OWNER'S NAME: Leimert Saticoy Partnerships			PHONE: 213-466-8591		LOT SIZE: irreg
6. OWNER'S ADDRESS: 606 N. Larchmont Bl	CITY: LA	ZIP: 90004			
7. ENGINEER: John Denny	BUS. LIC. NO.	ACTIVE STATE LIC. NO.: 37698	PHONE: 714-989-3670		ALLEY: --
8. ARCHITECT OR DESIGNER: --	BUS. LIC. NO.	ACTIVE STATE LIC. NO.	PHONE		BLDG. LINE: --
9. ARCHITECT OR ENGINEER'S ADDRESS: --	CITY	ZIP			AFFIDAVITS: see map
10. CONTRACTOR: Westbilt Ent. Const	BUS. LIC. NO.	ACTIVE STATE LIC. NO.: 324186	PHONE: 714-594-0101		

11. SIZE OF EXISTING BLDG. WIDTH 154 LENGTH 157	STORIES: 1	HEIGHT: 20	NO. OF EXISTING BUILDINGS ON LOT AND USE: 1)Retail		P.C. REQ'D: yes 395
12. CONST. MATERIAL OF EXISTING BLDG. →	EXT. WALLS: Block/conc	ROOF: Plywood	FLOOR: conc	STREET GUIDE	DISTRICT OFFICE: VN
13. JOB ADDRESS: 23233 Saticoy St					SEISMIC STUDY ZONE
14. VALUATION TO INCLUDE ALL FIXED EQUIPMENT REQUIRED TO OPERATE AND USE PROPOSED BUILDING	$1,000.00				
15. NEW WORK (Describe): Change of Truds manufacture ON 88VN 44022					GRADING: yes; FLOOD: --; HWY. DED.: yes; CONS.: --
NEW USE OF BUILDING: Retail Shopping Center	SIZE OF ADDITION: N/C	STORIES	HEIGHT		ZONED BY: Dilson
TYPE: V N; GROUP OCC.: B2; FLOOR AREA: N/C; PLANS CHECKED					FILE WITH
DWELL UNITS: —; MAX OCC.: N/C; TOTAL; APPLICATION APPROVED					TYPIST: sa
GUEST ROOMS: —; PARKING REQ'D: N/C; PARKING PROVIDED STD. COMP.	INSPECTION ACTIVITY: CONST. GEN. MAJ.				INSPECTOR

P.C. 17.00	G.P.I. —	CONT. WSP.	
S.P.C.	P.M. 60.00		
B.P. 20.00	E.I. 0.50	Claims for refund of fees paid on permits must be filed: 1. Within one year from date of payment of fee; or 2. Within one year from date of expiration of extension for building or grading permits granted by the Dept. of B. & S. SECTIONS 22.12 & 22.13 LAMC.	
I.E.	F.S.		
S.D. —	O.S.S. 1.00		
DIST. OFFICE VN	S.D.S. —	SPRINKLERS REQ'D SPEC.	
P.C. NO. 27336	CHG. 1.00	ENERGY N/A	N/A

Unless a shorter period of time has been established by an official action, plan check approval expires one year after the fee is paid and this permit expires two years after the fee is paid or 180 days after the fee is paid if construction is not commenced.

CASHIERS USE ONLY

C.O. 1.00 OBS
D6906 3 03/28/89 18.00 CHTD
20.00 BP
1.00 PCP
0.50 EI
0.50 SMF
1.00 OBS
370 P 06/18/89 27.50 CHTD

89 VN 62385

DECLARATIONS AND CERTIFICATIONS

LICENSED CONTRACTORS DECLARATION

16. I hereby affirm that I am licensed under the provisions of Chapter 9 (commencing with Section 7000) of Division 3 of the Business and Professions Code, and my license is in full force and effect.

Date 5-18-89 Lic. Class B-1 Lic. Number 324186 Contractor: JHN 711 (Signature)

OWNER-BUILDER DECLARATION

17. I hereby affirm that I am exempt from the Contractor's License Law for the following reason (Sec. 7031.5, Business and Professions Code: Any city or county which requires a permit to construct, alter, improve, demolish, or repair any structure, prior to its issuance, also requires the applicant for such permit to file a signed statement that he is licensed pursuant to the provisions of the Contractor's License Law (Chapter 9 (commencing with Section 7000) of Division 3 of the Business and Professions Code) or that he is exempt therefrom and the basis for the alleged exemption. Any violation of Section 7031.5 by any applicant for a permit subjects the applicant to a civil penalty of not more than five hundred dollars ($500).):

☐ I, as owner of the property, or my employees with wages as their sole compensation, will do the work, and the structure is not intended or offered for sale (Sec. 7044, Business and Professions Code: The Contractor's License Law does not apply to an owner of property who builds or improves thereon, and who does such work himself or through his own employees, provided that such improvements are not intended or offered for sale. If, however, the building or improvement is sold within one year of completion, the owner-builder will have the burden of proving that he did not build or improve for the purpose of sale.).

☐ I, as owner of the property, am exclusively contracting with licensed contractors to construct the project (Sec. 7044, Business and Professions Code: The Contractor's License Law does not apply to an owner of property who builds or improves thereon, and who contracts for such projects with a contractor(s) licensed pursuant to the Contractor's License Law.).

☐ I am exempt under Sec. _____ B. & P. C. for this reason _____

Date _____ Owner's Signature _____

WORKERS' COMPENSATION DECLARATION

18. I hereby affirm that I have a certificate of consent to self-insure, or a certificate of Worker's Compensation Insurance, or a certified copy thereof (Sec. 3800, Lab. C.).

Policy No. _____ Insurance Company _____

☐ Certified copy is hereby furnished.

☒ Certified copy is filed with the Los Angeles City Dept. of Bldg. & Safety.

Date 5-18-89 Applicant's Signature JHN 711

Applicant's Mailing Address 652 Brea Canyon Rd. Walnut Ca. 91789

CERTIFICATE OF EXEMPTION FROM WORKERS' COMPENSATION INSURANCE

19. I certify that in the performance of the work for which this permit is issued, I shall not employ any person in any manner so as to become subject to the Workers' Compensation Laws of California.

Date _____ Applicant's Signature _____

NOTICE TO APPLICANT: If, after making this Certificate of Exemption, you should become subject to the Workers' Compensation provisions of the Labor Code, you must forthwith comply with such provisions or this permit shall be deemed revoked.

CONSTRUCTION LENDING AGENCY

20. I hereby affirm that there is a construction lending agency for the performance of the work for which this permit is issued (Sec. 3097, Civ. C.).

Lender's Name _____ Lender's Address _____

21. I certify that I have read this application and state that the above information is correct. I agree to comply with all city and county ordinances and state laws relating to building construction, and hereby authorize representatives of this city to enter upon the above-mentioned property for inspection purposes.

I realize that this permit is an application for inspection, that it does not approve or authorize the work specified herein, that it does not authorize or permit any violation or failure to comply with any applicable law, that neither the city of Los Angeles nor any board, department, officer or employee thereof make any warranty or shall be responsible for the performance or results of any work described herein or the condition of the property or soil upon which such work is performed. (See Sec. 91.0202 LAMC).

JHN 711 5-18-89

3 APPLICATION FOR INSPECTION — 2 4 9 0 3 0 0 1 0 5 — TO ALTER, REPAIR-DEMOLISH AND FOR CERTIFICATE OF OCCUPANCY

INSTRUCTIONS: 1. Applicant to Complete Numbered Items Only.

1. LEGAL DESCR. LOT	BLOCK	TRACT	COUNTY REF. NO.	DIST. MAP	
Por 1		25773		186B093	
				CENSUS TRACT	1344.01
2. PRESENT USE OF BUILDING (16 RETAIL)	NEW USE OF BUILDING (16 SME)			ZONE	C2-1/P1
3. JOB ADDRESS 23233 SATICOY ST., #111				FIRE DIST.	II
				COUN. DIST.	3
4. BETWEEEN CROSS STREETS WOODLAKE AV	AND SATICOY ST			LOT TYPE	int
5. OWNER'S NAME NABEEL B SAOUD	PHONE 818 888-8818			LOT SIZE	irreg
6. OWNER'S ADDRESS 5807 TOPANGA CANYON BL #B-102	CITY WDLN HLS	ZIP 91367			
7. ENGINEER	BUS. LIC. NO.	ACTIVE STATE LIC. NO.	PHONE	ALLEY	--
8. ARCHITECT OR DESIGNER	BUS. LIC. NO.	ACTIVE STATE LIC. NO.	PHONE	BLDG. LINE	--
9. ARCHITECT OR ENGINEER'S ADDRESS	CITY	ZIP		AFFIDAVITS	Ord 138 582
10. CONTRACTOR LEASEE	BUS. LIC. NO.	ACTIVE STATE LIC. NO.	PHONE		

11. SIZE OF EXISTING BLDG. WIDTH LENGTH	STORIES	HEIGHT	NO. OF EXISTING BUILDINGS ON LOT AND USE 1) SHPG CNTR		
12. FRAMING MATERIAL OF EXISTING BLDG. ⇒	EXT. WALLS	ROOF	FLOOR		
13. JOB ADDRESS 23233 SATICOY ST., #111			STREET GUIDE		
14. VALUATION TO INCLUDE ALL FIXED EQUIPMENT REQUIRED TO OPERATE AND USE PROPOSED BUILDING $ 2,000				DIST. OFF. VN	P.C. REQ'D --
				GRADING --	SEISMIC --
15. NEW WORK (Describe) T.I. & ADDING A NON BEARING PARTITION (HALF HOUR PHOTO)				HWY. DED. yes	FLOOD --
NEW USE OF BUILDING RETAIL	SIZE OF ADDITION	STORIES	HEIGHT	FILE WITH	

TYPE NC	GROUP OCC. B2	FLOOR AREA NA	PLANS CHECKED KALDAWI				ZONED BY MENDOZA
DWELL UNITS NC	MAX OCC. NC	TOTAL	APPLICATION APPROVED				TYPIST NS
GUEST ROOMS	PARKING REQ'D	PARKING PROVIDED STD. / COMP.	INSPECTION ACTIVITY CS	GEN.	MAJ. S.	EQ.	INSPECTOR

P.C. 24.31	G.P.I.	CONT. INSP.	
S.P.C.	P.M.		
B.P. 28.60	E. .50	Claims for refund of fees paid on permits must be filed: 1. Within one year from date of payment of fee; or 2. Within one year from date of expiration of extension for building or grading permits granted by the Dept. of B. & S. SECTIONS 22.12 & 22.13 LAMC.	
I.F.	F.H.		
S.D.	S.O.S. 1.06		
ISSUING OFFICE VN	S.O.S.S.	SPRINKLERS REQ'D SPEC.	
P.C. NO.	C/O	ENERGY	DAS

Unless a shorter period of time has been established by an official action, plan check approval expires one year after the fee is paid and this permit expires two years after the fee is paid or 180 days after the fee is paid if construction is not commenced.

CASHIER'S USE ONLY

24.31 B-PC
28.60 B2-2
.50 E1-C
1.06 OSS
67050 MISC
2150 2 0 8/07/89 74.47 CATO

B & S B-3 (R.8/88)

89VN 67050

DECLARATIONS AND CERTIFICATIONS

LICENSED CONTRACTORS DECLARATION

16. I hereby affirm that I am licensed under the provisions of Chapter 9 (commencing with Section 7000) of Division 3 of the Business and Professions Code, and my license is in full force and effect.

Date _____ Lic. Class _____ Lic. Number _____ Contractor: _____ (Signature)

OWNER-BUILDER DECLARATION

17. I hereby affirm that I am exempt from the Contractor's License Law for the following reason (Sec. 7031.5, Business and Professions Code: Any city or county which requires a permit to construct, alter, improve, demolish, or repair any structure, prior to its issuance, also requires the applicant for such permit to file a signed statement that he is licensed pursuant to the provisions of the Contractor's License Law (Chapter 9 (commencing with Section 7000) of Division 3 of the Business and Professions Code) or that he is exempt therefrom and the basis for the alleged exemption. Any violation of Section 7031.5 by any applicant for a permit subjects the applicant to a civil penalty of not more than five hundred dollars ($500).):

☒ I, as owner of the property, or my employees with wages as their sole compensation, will do the work, and the structure is not intended or offered for sale (Sec. 7044, Business and Professions Code: The Contractor's License Law does not apply to an owner of property who builds or improves thereon, and who does such work himself or through his own employees, provided that such improvements are not intended or offered for sale. If, however, the building or improvement is sold within one year of completion, the owner-builder will have the burden of proving that he did not build or improve for the purpose of sale.).

☐ I, as owner of the property, am exclusively contracting with licensed contractors to construct the project (Sec. 7044, Business and Professions Code: The Contractor's License Law does not apply to an owner of property who builds or improves thereon, and who contracts for such projects with a contractor(s) licensed pursuant to the Contractor's License Law.).

☐ I am exempt under Sec. _____, B. & P. C. for this reason. _____

Date 8/7/89 Owner's Signature Nabeel B. Saoud

WORKERS' COMPENSATION DECLARATION

18. I hereby affirm that I have a certificate of consent to self-insure, or a certificate of Worker's Compensation Insurance, or a certified copy thereof (Sec. 3800, Lab. C.).

Policy No. _____ Insurance Company _____

☐ Certified copy is hereby furnished.

☐ Certified copy is filed with the Los Angeles City Dept. of Bldg. & Safety.

Date _____ Applicant's Signature _____

Applicant's Mailing Address _____

CERTIFICATE OF EXEMPTION FROM WORKERS' COMPENSATION INSURANCE

19. I certify that in the performance of the work for which this permit is issued, I shall not employ any person in any manner so as to become subject to the Workers' Compensation Laws of California.

Date 8/7/89 Applicant's Signature Nabeel B. Saoud

NOTICE TO APPLICANT: If, after making this Certificate of Exemption, you should become subject to the Workers' Compensation provisions of the Labor Code, you must forthwith comply with such provisions or this permit shall be deemed revoked.

CONSTRUCTION LENDING AGENCY

20. I hereby affirm that there is a construction lending agency for the performance of the work for which this permit is issued (Sec. 3097, Civ. C.).

Lender's Name _____ Lender's Address _____

21. I certify that I have read this application and state that the above information is correct. I agree to comply with all city and county ordinances and state laws relating to building construction, and hereby authorize representatives of this city to enter upon the above-mentioned property for inspection purposes.

I realize that this permit is an application for inspection, that it does not approve or authorize the work specified herein, that it does not authorize or permit any violation or failure to comply with any applicable law, that neither the city of Los Angeles nor any board, department, officer or employee thereof make any warranty or shall be responsible for the performance or results of any work described herein or the condition of the property or soil upon which such work is performed. (See Sec. 91.0202 LAMC)

Nabeel B. Saoud 8/7/89

24103333106

Bureau of ADDRESS APPROVED

Project Address: 13255 Satico st. #111, Westm. Co. CA. 92683 91304

I have read the Hazardous Material Information Guide and understand my requirements under Section 25505, 25533 and 25534 of the Health and Safety Code and Section 8758 of the UFC regarding hazardous materials.

I have also read the Infomation Guide regarding Air Pollution Permits and understand my requirements under Section 42303 of the Health and Safety Code.

1. Will the applicant or future building occupant handle a hazardous or an acutely hazardous material or a mixture containing a hazardous or acutely hazardous material equal to or greater than the threshold quantities specified on the Hazardous Materials Information Guide?

yes (no) Nabeel B. Saoud, Owner
Owner or Agent, position

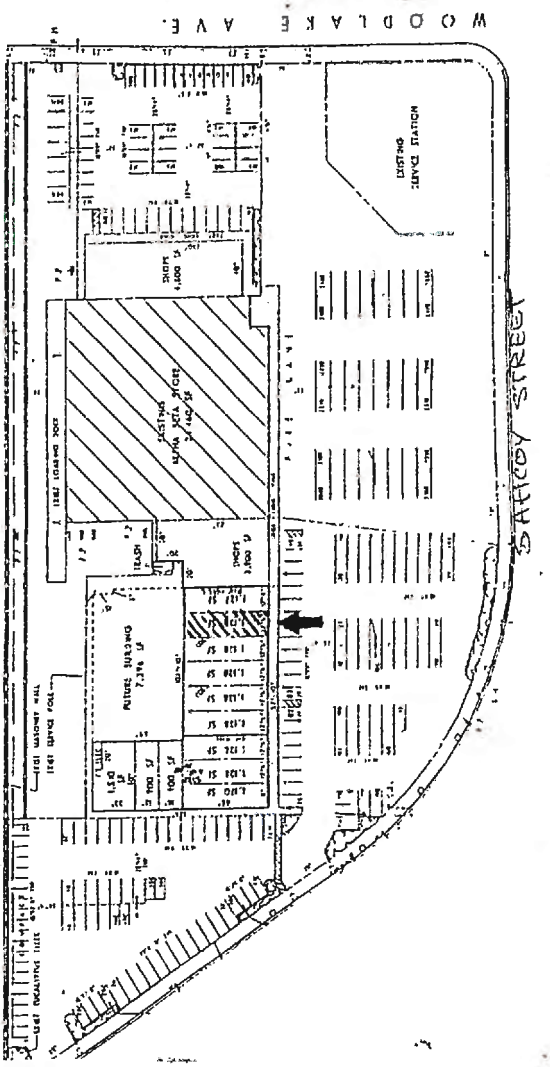
2. Is the proposed work within 1000 feet from the outer boundary of a school? (Fire Department clearance is required prior to issuance of the permit if marked yes).

yes (no) Nabeel B. Saoud
Haz Mat Unit, Fire Dept.

3. Will the intended use of the building by the applicant or future building occupant require a permit for construction or modification from the Air Quality Management Districts?

yes (no) Nabeel B. Saoud, owner
Owner or Agent, position

ON PLOT PLAN SHOW ALL BUILDINGS ON LOT AND USE OF EACH



ATTACHED PLOT PLANS SHALL NOT EXTEND ABOVE THIS LINE

5

S FOR INSPECTION 2 5 0 0 0 7 4 3 7 6 OF SIGNS

INSTRUCTIONS: 1. Applicant to Complete Numbered Items Only. 2. Plot Plan Required on Back of Original.

1. LEGAL DESCR.	LOT: Port of 1 Por 1	BLOCK:	TRACT: 25773	COUNCIL DISTRICT NO.: 3	DIST. MAP: 186B093 / CENSUS TRACT: 1344.01
2. TYPE OF SIGN OR NEW WORK: (19 WALL SIGN	☒ ON-SITE SIGN ☐ OFF-SITE SIGN				ZONE: C2-1/P-1
3. JOB ADDRESS: 23233 SATICOY ST	☐ TEMP.	EXP. DATE			FIRE DIST.: I
4. BETWEEN CROSS STREETS: WOODLAKE	AND: KESWICK				LOT (TYPE): corner
5. OWNER'S NAME: HALF HOUR PHOTO	PHONE				LOT SIZE: Irreg
6. OWNER'S ADDRESS: 23233 SATICOY ST	CITY: WEST HILLS	ZIP: 91304			
7. ARCHITECT OR ENGINEER	BUS. LIC. NO.	ACTIVE STATE LIC. NO.	PHONE		ALLEY: --
8. ARCHITECT OR ENGINEER ADDRESS	CITY	ZIP			BLDG. LINE: --
9. QUALIFIED INSTALLER: M & M SIGNS	BUS. LIC. NO.: 509989	ACTIVE STATE LIC. NO.	PHONE: 772-6097		AFFIDAVITS: see kmap
10. INSTALLER'S ADDRESS: 19015 PARTHENIA ST	CITY: NORTHRIDGE	ZIP: 91324			
11. SIZE OF EXISTING BUILDING WIDTH LENGTH	TYPE: V	STORIES: 7	NO. OF EXISTING BUILDINGS ON LOT AND USE: shopping center		see kmap
12. SIZE OF SIGN: 30x10	TOTAL COPY AREA: 25	OVERALL HEIGHT →	FROM GRADE	FROM ROOF	P.C. REQ'D
S 13. JOB ADDRESS: 23233 SATICOY ST			STREET GUIDE: F-2		DIST. OFFICE: VN
14. VALUATION TO INCLUDE ALL FIXED EQUIPMENT REQUIRED TO OPERATE AND USE PROPOSED SIGN: $ 2040.00					SEISMIC STUDY ZONE: --
15. MATERIAL OF SIGN CONSTRUCTION →	SUPPORTING FRAME: mtl	FRAME OF COPY: mtl	SURFACE OF SIGN: plex		GRADING: -- / FLOOD: --
16. TYPE OF SIGN OR NEW WORK: WALL SIGN	☒ SINGLE FACE ☐ DOUBLE FACE ☐ OTHER				HWY. DED.: yes / CONS.: -
17. ILLUMINATION ☐ NONE ☒ INTERNAL ☐ EXTERNAL	☐ FLASHING ☐ REVOLVING ☐ OTHER ☒ NONE				ZONED BY: GARTNER
18. NO. OF SIGNS OR GAS TUBE SYSTEMS: 1	NO. OF ADDITIONAL BRANCH CIRCUITS: 0	NO. OF CONTROL DEVICES: 1			FILE WITH: NS

PERMIT FEES		CONT. INSP. LIC FAB LIC APPR	PLANS CHECKED: MUNDT	TYPIST: NS
SIGNS/G. T. SYSTEMS	15 00	FREEWAY CLEARANCE: Clear 8/17	APPLICATION APPROVED	INSPECTOR
ADDITIONAL CIRCUITS				
ELECTRICAL SERVICE				
CONTROL DEVICES	5 00	DATE		
ISSUING FEE	10 00	TRANSPORTATION DEPT. CLEARANCE		
BLDG. PERMIT	54 26			
P.C. 27.13	TOTAL 84 26	DATE		
S.P.C.	E.I. .50	F.H.		
S.P.I.	O.S.S. 2.24	I.F.		
DISTRICT OFFICE: Decal 2219	S.O.S.S.	P.C. NO.		

Unless a shorter period of time has been established by an official action, plan check approval expires one year after the fee is paid and this permit expires two years after the fee is paid or 180 days after the fee is paid if construction is not commenced.

CASHIER'S USE ONLY

C 27.13 B-PC
C 84.26 BP-R
C .50 EI-C
C 2.24 OSS
67744 DO
N8424 3 08/17/89 14:13 CHTD

B & S B-6 (R 8.88)

89VN67744

DECLARATIONS AND CERTIFICATIONS

LICENSED CONTRACTORS DECLARATION

19. I hereby affirm that I am licensed under the provisions of Chapter 9 (commencing with Section 7000) of Division 3 of the Business and Professions Code, and my license is in full force and effect.

Date 8-17-89 Lic. Class C45 Lic. No. 509989 Contractor's Signature M & M Sign

Contractor's Mailing Address 19015 Parthenia Northridge

OWNER-BUILDER DECLARATION

20. I hereby affirm that I am exempt from the Contractor's License Law for the following reason (Sec. 7031.5, Business and Professions Code: Any city or county which requires a permit to construct, alter, improve, demolish, or repair any structure, prior to its issuance, also requires the applicant for such permit to file a signed statement that he is licensed pursuant to the provisions of the Contractor's License Law (Chapter 9 (commencing with Section 7000) of Division 3 of the Business and Professions Code) or that he is exempt therefrom and the basis for the alleged exemption. Any violation of Section 7031.5 by any applicant for a permit subjects the applicant to a civil penalty of not more than five hundred dollars ($500).):

☐ I, as owner of the property, or my employees with wages as their sole compensation, will do the work, and the structure is not intended or offered for sale (Sec. 7044, Business and Professions Code: The Contractor's License Law does not apply to an owner of property who builds or improves thereon, and who does such work himself or through his own employees, provided that such improvements are not intended or offered for sale. If, however, the building or improvement is sold within one year of completion, the owner-builder will have the burden of proving that he did not build or improve for the purpose of sale.).

☐ I, as owner of the property, am exclusively contracting with licensed contractors to construct the project (Sec. 7044, Business and Professions Code: The Contractor's License Law does not apply to an owner of property who builds or improves thereon, and who contracts for such projects with a contractor(s) licensed pursuant to the Contractor's License Law.).

☐ I am exempt under Sec. _____, B. & P. C. for this reason _____

Date _____ Owner's Signature _____

WORKERS' COMPENSATION DECLARATION

21. I hereby affirm that I have a certificate of consent to self-insure, or a certificate of Worker's Compensation Insurance, or a certified copy thereof (Sec. 3800, Lab. C.).

Policy No. 100 2399 Insurance Company State Fund

☐ Certified copy is hereby furnished.

☒ Certified copy is filed with the Los Angeles City Dept. of Bldg. & Safety.

Date 8-17-89 Applicant's Signature M & M Sign

Applicant's Mailing Address 19015 Parthenia Northridge

CERTIFICATE OF EXEMPTION FROM WORKERS' COMPENSATION INSURANCE

22. I certify that in the performance of the work for which this permit is issued, I shall not employ any person in any manner so as to become subject to the Workers' Compensation Laws of California.

Date _____ Applicant's Signature _____

NOTICE TO APPLICANT: If, after making this Certificate of Exemption, you should become subject to the Workers' Compensation provisions of the Labor Code, you must forthwith comply with such provisions or this permit shall be deemed revoked.

CONSTRUCTION LENDING AGENCY

23. I hereby affirm that there is a construction lending agency for the performance of the work for which this permit is issued (Sec. 3097, Civ. C.).

Lender's Name _____

Lender's Address _____

24. I certify that I have read this application and state that the above information is correct. I agree to comply with all city and county ordinances and state laws relating to building construction, and hereby authorize representatives of this city to enter upon the above-mentioned property for inspection purposes.

I realize that this permit is an application for inspection, that it does not approve or authorize the work specified herein, that it does not authorize or permit any violation or failure to comply with any applicable law, that neither the city of Los Angeles nor any board, department, officer or employee thereof make any warranty or shall be responsible for the performance or results of any work described herein or the condition of the property or soil upon which such work is performed. (See Sec. 91.0202 LAMC)

Signed Dana DeHart M-M's Agent 8-17-89

(Owner or agent having property owner's consent) Position Date

Bureau of Engineering	ADDRESS APPROVED	
CITY PLANNING	HIGHWAY DEDICATION	
OFF SITE CLEARANCE:		
LEGAL DESCRIPTION:		

COMBINED SIGN AREAS

Existing Sign Area

1. Illum. Canopy Sign _____
2. Monument Sign _____
3. Pole Sign _____
4. Projecting Sign _____
5. Roof Sign _____
6. Wall Sign _____
7. Window Sign _____
8. Proposed _____ Sign _____

Total Area _____

Signs Facing _____

Allowable Combined Sign Area _____

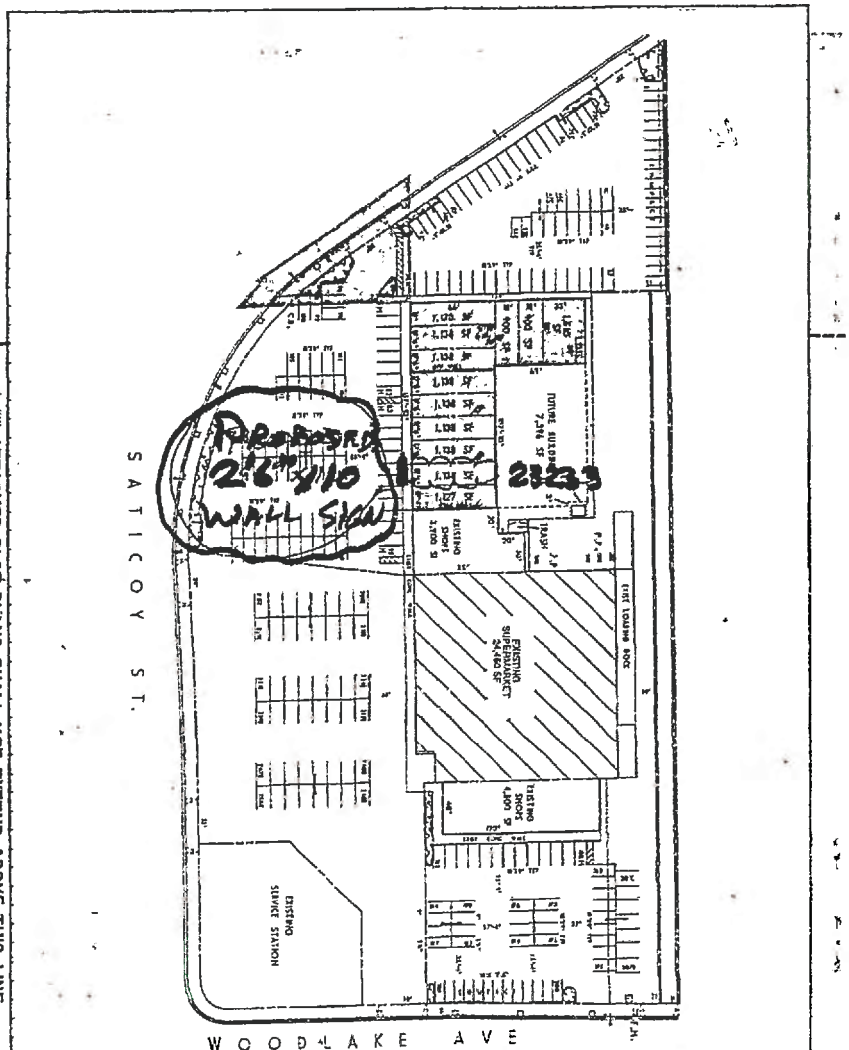
Actual Combined Sign Area _____

Allowable _____ Sign Area _____

Actual _____ Sign Area _____

Proposed Sign Facing _____

ON PLOT PLAN SHOW ALL BUILDINGS AND SIGNS ON LOT



ATTACHED PLOT PLANS SHALL NOT EXTEND ABOVE THIS LINE

FOR INSPECTION 2 3 0 0 6 0 0 0 8 1 OF SIGNS

INSTRUCTIONS: 1. Applicant to Complete Numbered Items Only. 2. Plot Plan Required on Back of Original.

1. LEGAL DESCR.	LOT	BLOCK	TRACT	COUNCIL DISTRICT NO.	DIST. MAP / CENSUS TRACT
	1	—	25773	3	186-093 / 1344.01

2. TYPE OF SIGN OR NEW WORK: (19) Wall Sign — ☒ ON-SITE SIGN ☐ OFF-SITE SIGN — ZONE: C2-1/P-1

3. JOB ADDRESS: 23233 Saticoy St. — ☐ TEMP. — EXP. DATE — FIRE DIST.: FBZ

4. BETWEEN CROSS STREETS: Keswick AND Woodlake — LOT (TYPE): Acre

5. OWNER'S NAME: Frank Blair — PHONE: (818) 716-6576 — LOT SIZE: Irreg.

6. OWNER'S ADDRESS: 8230 Soviet Hills Ct. — CITY: W. Hill Circle L.A. — ZIP: 91304

7. ARCHITECT OR ENGINEER: — — BUS. LIC. NO. — ACTIVE STATE LIC. NO. — PHONE — ALLEY: —

8. ARCHITECT OR ENGINEER ADDRESS: — — CITY — ZIP — BLDG. LINE: —

9. QUALIFIED INSTALLER: Clear Signs — BUS. LIC. NO. — ACTIVE STATE LIC. NO.: 549201 — PHONE: (213) 445-9393 — AFFIDAVITS: —

10. INSTALLER'S ADDRESS: 11321 Iowa Ave. Suite 11 — CITY: L.A. — ZIP: 90025

11. SIZE OF EXISTING BUILDING WIDTH	LENGTH	TYPE	STORIES	NO. OF EXISTING BUILDINGS ON LOT AND USE
36	48'	—	1	2-retail/service station

12. SIZE OF SIGN	TOTAL COPY AREA	OVERALL HEIGHT ⇒	FROM GRADE	FROM ROOF	P.C. REQ'D
18' x 30"	45		12'	3'-6"	No (H)

S 13. JOB ADDRESS: 23233 Saticoy St. — STREET GUIDE: 5 F-3 — DIST. OFFICE: VN

14. VALUATION TO INCLUDE ALL FIXED EQUIPMENT REQUIRED TO OPERATE AND USE PROPOSED SIGN: $ 3,060 — SEISMIC STUDY ZONE: —

15. MATERIAL OF SIGN CONSTRUCTION ⇒	SUPPORTING FRAME	FRAME OF COPY	SURFACE OF SIGN	GRADING	FLOOD
	metal	plex	plex	yes	—

16. TYPE OF SIGN OR NEW WORK: Wall Sign — ☒ SINGLE FACE ☐ DOUBLE FACE ☐ OTHER — HWY. DED.: yes — CONS.: —

17. ILLUMINATION: ☐ NONE ☒ INTERNAL ☐ EXTERNAL — ☐ FLASHING ☐ OTHER ☐ REVOLVING ☒ NONE — ZONED BY: Moon

18. NO. OF SIGNS OR GAS TUBE SYSTEMS	NO. OF ADDITIONAL BRANCH CIRCUITS	NO. OF CONTROL DEVICES	FILE WITH
1	0	1	

PERMIT FEES		CONT. INSP.	PLANS CHECKED	TYPIST
SIGNS/G. T. SYSTEMS	15 00	LIC. FAB.	Moon	Toya
ADDITIONAL CIRCUITS	—	FREEWAY CLEARANCE	APPLICATION APPROVED	INSPECTOR
ELECTRICAL SERVICE	—	CLEAR		
CONTROL DEVICES	5 00	DATE P.S		
ISSUING FEE	10 00	TRANSPORTATION DEPT. CLEARANCE		
BLDG. PERMIT	81 40			
P.C. 40.70	TOTAL 111 40	DATE —		
S.P.C. —	E.I. .50	F.H. —		
S.P.I. —	O.S.S. 3.05	I.F. —		
DISTRICT OFFICE 1189.	S.O.S.S. —	P.C. NO. CC		

B & S B-5 (R 8.86)

155.65

B 2858 9-20-89

CASHIER'S USE ONLY

89LA

42323

Unless a shorter period of time has been established by an official action, plan check approval expires one year after the fee is paid and this permit expires two years after the fee is paid or 180 days after the fee is paid if construction is not commenced

DECLARATIONS AND CERTIFICATIONS

LICENSED CONTRACTORS DECLARATION

19. I hereby affirm that I am licensed under the provisions of Chapter 9 (commencing with Section 7000) of Division 3 of the Business and Professions Code, and my license is in full force and effect.

Date 9/20/89 Lic. Class C45 Lic. No. 549201 Contractor's Signature

Contractor's Mailing Address 11321 Iowa Ave LA 90025

OWNER-BUILDER DECLARATION

20. I hereby affirm that I am exempt from the Contractor's License Law for the following reason (Sec. 7031.5, Business and Professions Code: Any city or county which requires a permit to construct, alter, improve, demolish, or repair any structure, prior to its issuance, also requires the applicant for such permit to file a signed statement that he is licensed pursuant to the provisions of the Contractor's License Law (Chapter 9 (commencing with Section 7000) of Division 3 of the Business and Professions Code) or that he is exempt therefrom and the basis for the alleged exemption. Any violation of Section 7031.5 by any applicant for a permit subjects the applicant to a civil penalty of not more than five hundred dollars ($500).):

☐ I, as owner of the property, or my employees with wages as their sole compensation, will do the work, and the structure is not intended or offered for sale (Sec. 7044, Business and Professions Code: The Contractor's License Law does not apply to an owner of property who builds or improves thereon, and who does such work himself or through his own employees, provided that such improvements are not intended or offered for sale. If, however, the building or improvement is sold within one year of completion, the owner-builder will have the burden of proving that he did not build or improve for the purpose of sale.).

☐ I, as owner of the property, am exclusively contracting with licensed contractors to construct the project (Sec. 7044, Business and Professions Code: The Contractor's License Law does not apply to an owner of property who builds or improves thereon, and who contracts for such projects with a contractor(s) licensed pursuant to the Contractor's License Law.).

☐ I am exempt under Sec. _____, B. & P. C. for this reason _____

Date _____ Owner's Signature _____

WORKERS' COMPENSATION DECLARATION

21. I hereby affirm that I have a certificate of consent to self-insure, or a certificate of Worker's Compensation Insurance, or a certified copy thereof (Sec. 3800, Lab. C.).

Policy No. _____ Insurance Company _____

☐ Certified copy is hereby furnished.

☐ Certified copy is filed with the Los Angeles City Dept. of Bldg. & Safety.

Date _____ Applicant's Signature _____

Applicant's Mailing Address _____

CERTIFICATE OF EXEMPTION FROM WORKERS' COMPENSATION INSURANCE

22. I certify that in the performance of the work for which this permit is issued, I shall not employ any person in any manner so as to become subject to the Workers' Compensation Laws of California.

Date 9/20/89 Applicant's Signature

NOTICE TO APPLICANT: If, after making this Certificate of Exemption, you should become subject to the Workers' Compensation provisions of the Labor Code, you must forthwith comply with such provisions or this permit shall be deemed revoked.

CONSTRUCTION LENDING AGENCY

23. I hereby affirm that there is a construction lending agency for the performance of the work for which this permit is issued (Sec. 3097, Civ. C.).

Lender's Name _____

Lender's Address _____

24. I certify that I have read this application and state that the above information is correct. I agree to comply with all city and county ordinances and state laws relating to building construction, and hereby authorize representatives of this city to enter upon the above-mentioned property for inspection purposes.

I realize that this permit is an application for inspection, that it does not approve or authorize the work specified herein, that it does not authorize or permit any violation or failure to comply with any applicable law, that neither the city of Los Angeles nor any board, department, officer or employee thereof make any warranty or shall be responsible for the performance or results of any work described herein or the condition of the property or soil upon which such work is performed. (See Sec. 91.0202 L.A.M.C.)

Signed _____ (Owner or agent having property owner's consent) Position: contractor Date: 9/20/89

Bureau of Engineering	2 5 5 0 0 6 0	ADDRESS APPROVED / HIGHWAY DEDICATION	Paul 8-23-89
CITY PLANNING			
OFF SITE CLEARANCE:			
LEGAL DESCRIPTION:			

COMBINED SIGN AREAS

Existing Sign Area

1. Illum. Canopy Sign ..... —
2. Monument Sign ..... —
3. Pole Sign 446
4. Projecting Sign ..... —
5. Roof Sign ..... —
6. Wall Sign 705
7. Window Sign ..... —
8. Proposed WALL Sign 45

Total Area 1196

Signs Facing SAICOY / WOODLAKE

Allowable Combined Sign Area 4967

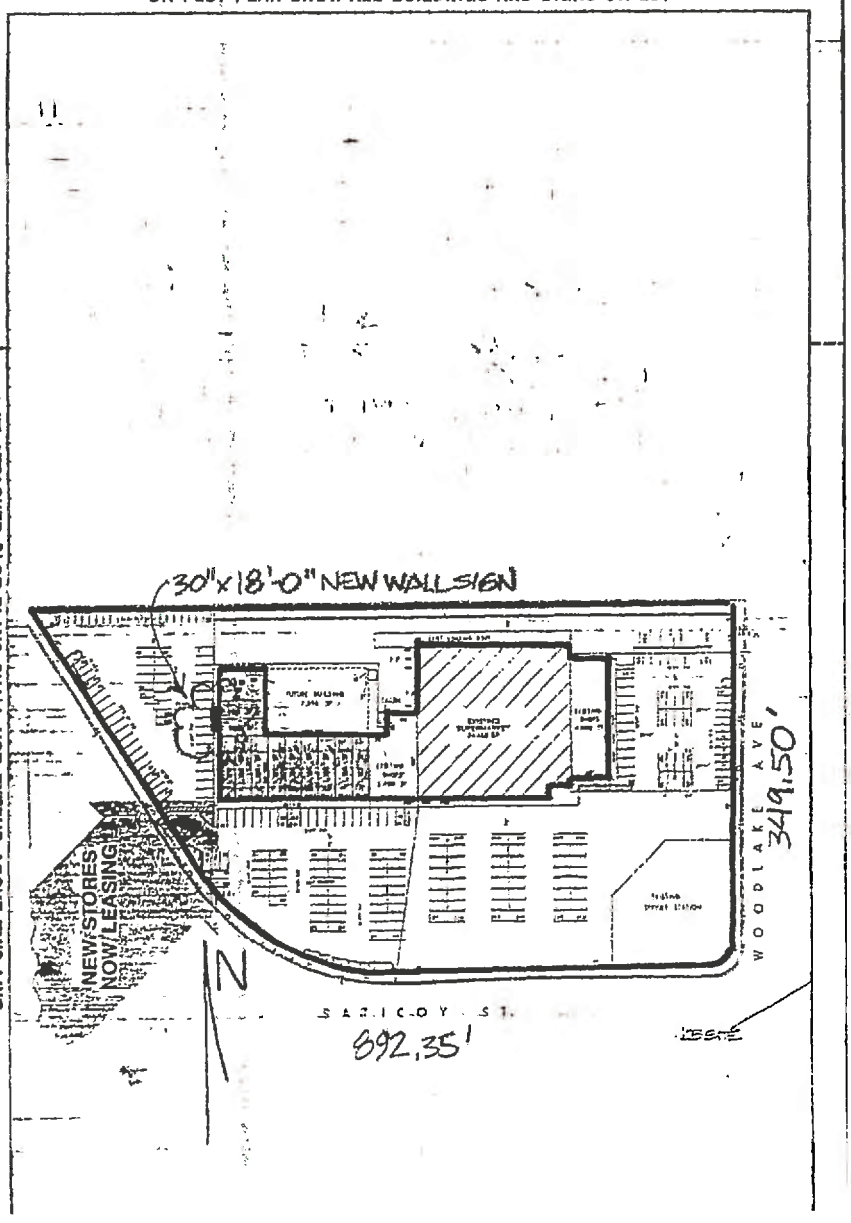
Actual Combined Sign Area 1196

Allowable WALL Sign Area 2200

Actual " Sign Area 660

Proposed Sign Facing SAICOY

ON PLOT PLAN SHOW ALL BUILDINGS AND SIGNS ON LOT



ATTACHED PLOT PLANS SHALL NOT EXTEND ABOVE THIS LINE

3 FOR INSPECTION 2 5 9 0 0 6 0 0 2 5 9 REPAIR-DEMOLISH AND FOR CERTIFICATE OF OCCUPANCY

INSTRUCTIONS: 1. Applicant to Complete Numbered Items Only.

1. LEGAL DESCR. LOT: Pt 1	BLOCK:	TRACT: 25773	COUNTY REF. NO.: 668-50	DIST. MAP: 186B093	CENSUS TRACT: 1344.01
2. PRESENT USE OF BUILDING: (23) Pet Clinic	NEW USE OF BUILDING: (23) Same			ZONE: C2-1/P-1	
3. JOB ADDRESS: 23233 Saticoy St. Unit 101				FIRE DIST.: FBZ	COUN. DIST.: 3
4. BETWEEN CROSS STREETS: Woodlake Ave.	AND: Keswick St.			LOT TYPE: int	
5. OWNER'S NAME: Leimert/Saticoy	PHONE: 466-8591			LOT SIZE: inc legal	
6. OWNER'S ADDRESS: 606 N. Larchmont Ave.#302	CITY: Los Angeles	ZIP: 90004			
7. ENGINEER: --	BUS. LIC. NO.	ACTIVE STATE LIC. NO.	PHONE	ALLEY: --	
8. ARCHITECT OR DESIGNER: Same	BUS. LIC. NO.	ACTIVE STATE LIC. NO.	PHONE	BLDG. LINE: --	
9. ARCHITECT OR ENGINEER'S ADDRESS: --	CITY	ZIP		AFFIDAVITS: --	
10. CONTRACTOR: Owner	BUS. LIC. NO.	ACTIVE STATE LIC. NO.	PHONE		
11. SIZE OF EXISTING BLDG. WIDTH 33 LENGTH 50	STORIES: 1	HEIGHT: 15	NO. OF EXISTING BUILDINGS ON LOT AND USE: one- mini mall		
12. FRAMING MATERIAL OF EXISTING BLDG. →	EXT. WALLS: masonry	ROOF: wood	FLOOR: concrete		
13. JOB ADDRESS: 23233 Saticoy St. #101			STREET GUIDE		
14. VALUATION TO INCLUDE ALL FIXED EQUIPMENT REQUIRED TO OPERATE AND USE PROPOSED BUILDING	$ ~~42,000~~ 38,000			DIST. OFF.: VN	P.C. REQ'D: No-P
15. NEW WORK (Describe): Tenant improvements. Unit 101 (1500SD).				GRADING: yes	SEISMIC: --
				NWY. DED.: yes	FLOOD: --
NEW USE OF BUILDING: Same	SIZE OF ADDITION	STORIES: 1	HEIGHT: 15	FILE WITH	
TYPE: V-N	GROUP OCC.: B2	FLOOR AREA: ~~1500~~	PLANS CHECKED: Craven	ZONED BY: J. Roo	
DWELL UNITS: 0	MAX OCC.: 14	TOTAL	APPLICATION APPROVED: Craven	TYPIST: Toya	
GUEST ROOMS: 0	PARKING REQ'D	PARKING PROVIDED: STD. / COMP.	INSPECTION ACTIVITY: CS / GEN. / MAJ.S. / EQ.	INSPECTOR	

P.C. 217.86	G.P.I.	CONT INSP	
S.P.C.	P.M. 6.00		
B.S. 36.50	5.70	Claims for refund of fees paid on permits must be filed: 1. Within one year from date of payment of fee, or 2. Within one year from date of expiration or extension for building or grading permits granted by the Dept. of B. & S. SECTIONS 22.12 & 22.13 LAMC.	
I.F.	F.H.		
S.D.	S.O.S. 4.36		
ISSUING OFFICE: LA	S.O.S. 496	SPRINKLERS REQ'D SPEC.	
P.C. NO.: CC	C/O	ENERGY: NO	DAS: YES

Unless a shorter period of time has been established by an official action, plan check approval expires one year after the fee is paid and this permit expires two years after the fee is paid or 180 days after the fee is paid if construction is not commenced.

CASHIER'S USE ONLY

B-PC - 217.86 B & S B-3 (R.9/8
055 4.36
H 8496 10/13 222.22
per verified
P-R 236.5[illegible]
PL-M 6.5[illegible]
EI-C 5.70
OSS 4.36
44095H
CHECK 253.16
OCT13 89d7771h2659 13:19R

LA 44095

DECLARATIONS AND CERTIFICATIONS

LICENSED CONTRACTORS DECLARATION

16. I hereby affirm that I am licensed under the provisions of Chapter 9 (commencing with Section 7000) of Division 3 of the Business and Professions Code, and my license is in full force and effect.

Date _____ Lic. Class _____ Lic. Number _____ Contractor _____ (Signature)

OWNER-BUILDER DECLARATION

17. I hereby affirm that I am exempt from the Contractor's License Law for the following reason (Sec. 7031.5, Business and Professions Code: Any city or county which requires a permit to construct, alter, improve, demolish, or repair any structure, prior to its issuance, also requires the applicant for such permit to file a signed statement that he is licensed pursuant to the provisions of the Contractor's License Law (Chapter 9 (commencing with Section 7000) of Division 3 of the Business and Professions Code) or that he is exempt therefrom and the basis for the alleged exemption. Any violation of Section 7031.5 by any applicant for a permit subjects the applicant to a civil penalty of not more than five hundred dollars ($500).):

☐ I, as owner of the property, or my employees with wages as their sole compensation, will do the work, and the structure is not intended or offered for sale (Sec. 7044, Business and Professions Code: The Contractor's License Law does not apply to an owner of property who builds or improves thereon, and who does such work himself or through his own employees, provided that such improvements are not intended or offered for sale. If, however, the building or improvement is sold within one year of completion, the owner-builder will have the burden of proving that he did not build or improve for the purpose of sale.).

☐ I, as owner of the property, am exclusively contracting with licensed contractors to construct the project (Sec. 7044, Business and Professions Code: The Contractor's License Law does not apply to an owner of property who builds or improves thereon, and who contracts for such projects with a contractor(s) licensed pursuant to the Contractor's License Law.).

☐ I am exempt under Sec. _____ B. & P. C. for this reason _____

X Date 10-13-89 Owner's Signature Walter H. Leimert

WORKERS' COMPENSATION DECLARATION

18. I hereby affirm that I have a certificate of consent to self-insure, or a certificate of Worker's Compensation Insurance, or a certified copy thereof (Sec. 3800, Lab. C.).

Policy No. _____ Insurance Company _____

☐ Certified copy is hereby furnished.

☐ Certified copy is filed with the Los Angeles City Dept. of Bldg. & Safety.

Date _____ Applicant's Signature _____

Applicant's Mailing Address _____

CERTIFICATE OF EXEMPTION FROM WORKERS' COMPENSATION INSURANCE

19. I certify that in the performance of the work for which this permit is issued, I shall not employ any person in any manner so as to become subject to the Workers' Compensation Laws of California.

X Date 10-13-89 Applicant's Signature Michael Buffum

NOTICE TO APPLICANT: If, after making this Certificate of Exemption, you should become subject to the Workers' Compensation provisions of the Labor Code, you must forthwith comply with such provisions or this permit shall be deemed revoked.

CONSTRUCTION LENDING AGENCY

20. I hereby affirm that there is a construction lending agency for the performance of the work for which this permit is issued (Sec. 3097, Civ. C.).

Lender's Name _____ Lender's Address _____

21. I certify that I have read this application and state that the above information is correct. I agree to comply with all city and county ordinances and state laws relating to building construction, and hereby authorize representatives of this city to enter upon the above-mentioned property for inspection purposes.

I realize that this permit is an application for inspection, that it does not approve or authorize the work specified herein, that it does not authorize or permit any violation or failure to comply with any applicable law, that neither the city of Los Angeles nor any board, department, officer or employee thereof make any warranty or shall be responsible for the performance or results of any work described herein or the condition of the property or soil upon which such work is performed. (See Sec. 91.0202 LAMC)

Signature [signature] AGENT 10-13-89

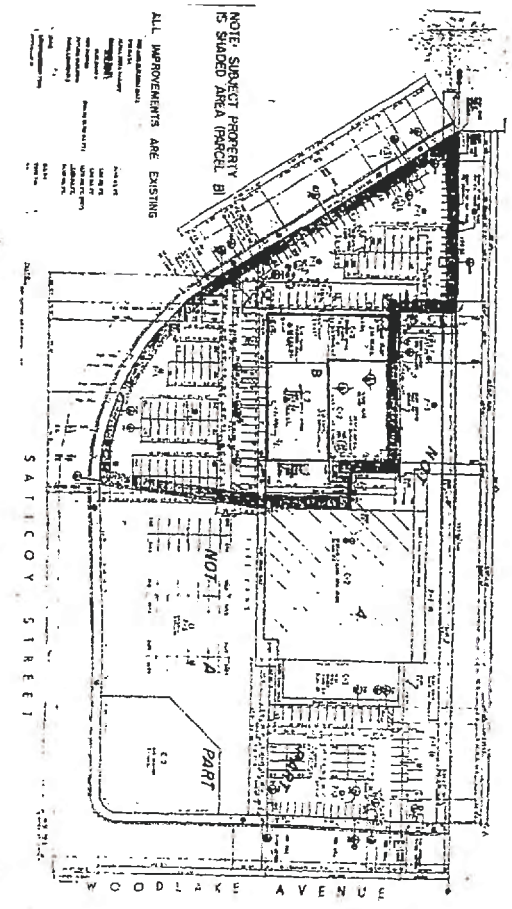
2 5 9 0 0 6 0 0 2 5 0

Bureau of Engineering	ADDRESS APPROVED		Paul 10-12-89
	DRIVEWAY		
	HIGHWAY DEDICATION	REQUIRED / COMPLETED	
	FLOOD CLEARANCE		
SEWERS RES. NO. CERT. NO.	X SEWERS AVAILABLE		Scott 10-13-89
	NOT AVAILABLE		
	SFC PAID		
X SFC NOT APPLICABLE Scott 10-13-89	SFC DUE		
Grading	PRIVATE SEWAGE SYSTEM APPROVED		
Comm. Safety	APPROVED FOR ISSUE ☐ NO FILE ☐ FILE CLOSED ☐		
Fire	APPROVED (TITLE 19) (L.A.M.C.-5700)		[signature] 10-13-89
Housing	HOUSING AUTHORITY APPROVAL		
Planning	APPROVED UNDER CASE #		
Transportation	APPROVED FOR		
Construction Tax	RECEIPT NO.	DWELLING UNITS	

LEGAL DESCRIPTION

ON PLOT PLAN SHOW ALL BUILDINGS ON LOT AND USE OF EACH

ATTACHED PLOT PLANS SHALL NOT EXTEND ABOVE THIS LINE



S FOR INSPECTION: 7600400217 OF SIGNS

INSTRUCTIONS: 1. Applicant to Complete Numbered Items Only. 2. Plot Plan Required on Back of Original.

1. LEGAL DESCR. LOT: por 1	BLK.	TRACT: 25773	COUNTY REF. NO.	DIST. MAP: 186B093	CENSUS TRACT: 1344.01
2. TYPE OF SIGN OR NEW WORK: 19) Wall Sign	☒ ON-SITE SIGN ☐ OFF-SITE SIGN			ZONE: C2-1/P1	
3. JOB ADDRESS: 23253 Saticoy St	☐ TEMP.	EXP. DATE		FIRE DIST.: II	COUN. DIST.: 3
4. BETWEEN CROSS STREETS: Woodlake	AND: Keswick			LOT (TYPE): cor	
5. OWNER'S NAME: West Hills Pet Clinic	PHONE: 363-7444			LOT SIZE: irr	
6. OWNER'S ADDRESS: 23253 Saticoy St	CITY: West Hills	ZIP: 91304		ST. FRONT.	
7. ARCHITECT OR ENGINEER: --	BUS. LIC. NO.	ACTIVE STATE LIC. NO.	PHONE	ALLEY: --	
8. ARCHITECT OR ENGINEER ADDRESS: --	CITY	ZIP		BLDG. LINE: --	
9. QUALIFIED INSTALLER: M & M Signs	BUS. LIC. NO.	ACTIVE STATE LIC. NO.: 509989	PHONE: 772-6097	AFFIDAVITS: see map	
10. INSTALLER'S ADDRESS: 19015 Parthenia St	CITY: Northridge	ZIP: 91324			
11. SIZE OF EXISTING BUILDING WIDTH / LENGTH	TYPE: URM ☐	STORIES: 1	NO. OF EXIST. BLDGS. ON LOT AND USE: Shopping Ctr		
12. SIZE OF SIGN: 2.5'X18'	TOTAL COPY AREA: 45 sf	OVERALL HEIGHT →	FROM GRADE	FROM ROOF	
S 13. JOB ADDRESS: 23253 Saticoy St				STREET GUIDE	
14. VALUATION TO INCLUDE ALL FIXED EQUIPMENT REQUIRED TO OPERATE AND USE PROPOSED SIGN: $ 3,060					
15. MATERIAL OF SIGN CONSTRUCTION →	SUPPORTING FRAME: metal	FRAME OF COPY: metal	SURFACE OF SIGN: plex	DIST. OFFICE: VN	
16. TYPE OF SIGN OR NEW WORK: Wall Sign	☒ SINGLE FACE ☐ DOUBLE FACE ☐ OTHER			HWY. DED.: yes	
17. ILLUMINATION ☐ NONE ☒ INTERNAL ☐ EXTERNAL	☐ FLASHING ☐ REVOLVING ☐ OTHER ☐ NONE			ZONED BY: Behdad	
18. NO. OF SIGNS OR GAS TUBE SYSTEMS: 1	NO. OF ADDITIONAL BRANCH CIRCUITS:	NO. OF CONTROL DEVICES: 1		FILE WITH.	

PERMIT FEES			CONT. INSP.	PLANS CHECKED: Wong	TYPIST: ba
SIGNS/G. T. SYSTEMS	15	00	FREEWAY CLEARANCE	APPLICATION APPROVED	INSPECTOR
ADDITIONAL CIRCUITS			500' ☐ 2000' ☐		
ELECTRICAL SERVICE			clr		
CONTROL DEVICES	5	00	DATE		
ISSUING FEE	10	00	TRANSPORTATION		
BLDG. PERMIT	81	40	DEPT. CLEARANCE clr		
P.C. 40.70	TOTAL 111	40	DATE		
S.P.C.	E.I. .50		F.H.		
I.F. / S.P.I.	O.S.S. 3.05		INSP. ACTIVITY: BMI		
ISSUING OFFICE: VN	S.O.S.S.		P.C. NO.		

CASHIER'S USE ONLY: M8386 3-037097 90 1 65.65 CHTO

S & S B-5 (R 9-86)

Unless a shorter period of time has been established by an official action, plan check approval expires one year after the fee is paid and this permit expires two years after the fee is paid or 180 days after the fee is paid if construction is not commenced.

90 VN 77852

155.65

DECLARATIONS AND CERTIFICATIONS

LICENSED CONTRACTORS DECLARATION

19. I hereby affirm that I am licensed under the provisions of Chapter 9 (commencing with Section 7000) of Division 3 of the Business and Professions Code, and my license is in full force and effect.

Date 3-9-90, Lic. Class C-45 Lic. No. 509989 Contractor's Signature M: M Signs

Contractor's Mailing Address 19015 Parthenia St. Northridge Ca.

OWNER-BUILDER DECLARATION

20. I hereby affirm that I am exempt from the Contractor's License Law for the following reason (Sec. 7031.5, Business and Professions Code: Any city or county which requires a permit to construct, alter, improve, demolish, or repair any structure, prior to its issuance, also requires the applicant for such permit to file a signed statement that he is licensed pursuant to the provisions of the Contractor's License Law (Chapter 9 (commencing with Section 7000) of Division 3 of the Business and Professions Code) or that he is exempt therefrom and the basis for the alleged exemption. Any violation of Section 7031.5 by any applicant for a permit subjects the applicant to a civil penalty of not more than five hundred dollars ($500).):

☐ I, as owner of the property, or my employees with wages as their sole compensation, will do the work, and the structure is not intended or offered for sale (Sec. 7044, Business and Professions Code: The Contractor's License Law does not apply to an owner of property who builds or improves thereon, and who does such work himself or through his own employees, provided that such improvements are not intended or offered for sale. If, however, the building or improvement is sold within one year of completion, the owner-builder will have the burden of proving that he did not build or improve for the purpose of sale.).

☐ I, as owner of the property, am exclusively contracting with licensed contractors to construct the project (Sec. 7044, Business and Professions Code: The Contractor's License Law does not apply to an owner of property who builds or improves thereon, and who contracts for such projects with a contractor(s) licensed pursuant to the Contractor's License Law.).

☐ I am exempt under Sec. _____, B. & P. C. for this reason _____

Date _____ Owner's Signature _____

WORKERS' COMPENSATION DECLARATION

21. I hereby affirm that I have a certificate of consent to self-insure, or a certificate of Worker's Compensation Insurance, or a certified copy thereof (Sec. 3800, Lab. C.).

Policy No. 1002399 Insurance Company State Fund.

☐ Certified copy is hereby furnished.

☒ Certified copy is filed with the Los Angeles City Dept. of Bldg. & Safety.

Date 3-9-90 Applicant's Signature M: M Signs

Applicant's Mailing Address 19015 Parthenia St Northridge Ca.

CERTIFICATE OF EXEMPTION FROM WORKERS' COMPENSATION INSURANCE

22. I certify that in the performance of the work for which this permit is issued, I shall not employ any person in any manner so as to become subject to the Workers' Compensation Laws of California.

Date _____ Applicant's Signature _____

NOTICE TO APPLICANT: If, after making this Certificate of Exemption, you should become subject to the Workers' Compensation provisions of the Labor Code, you must forthwith comply with such provisions or this permit shall be deemed revoked.

CONSTRUCTION LENDING AGENCY

23. I hereby affirm that there is a construction lending agency for the performance of the work for which this permit is issued (Sec. 3097, Civ. C.).

Lender's Name _____

Lender's Address _____

24. I certify that I have read this application and state that the above information is correct. I agree to comply with all city and county ordinances and state laws relating to building construction, and hereby authorize representatives of this city to enter upon the above-mentioned property for inspection purposes.

I realize that this permit is an application for inspection, that it does not approve or authorize the work specified herein, that it does not authorize or permit any violation or failure to comply with any applicable law, that neither the city of Los Angeles nor any board, department, officer or employee thereof make any warranty or shall be responsible for the performance or results of any work described herein or the condition of the property or soil upon which such work is performed. (See Sec. 91.0204 LAMC)

Signed [illegible] M: M Signs Agent 3-9-90

Bureau of Engineering	2760004	ADDRESS APPROVED HIGHWAY DEDICATION
CITY PLANNING		
OFF SITE CLEARANCE:		
LEGAL DESCRIPTION:		

COMBINED SIGN AREAS

Existing Sign Area

1. Illum. Canopy Sign .....
2. Monument Sign .....
3. Pole Sign .....
4. Projecting Sign .....
5. Roof Sign .....
6. Wall Sign .....
7. Window Sign .....
8. Proposed _____ Sign _____

Total Area _____

Signs Facing _____

Allowable Combined Sign Area .....

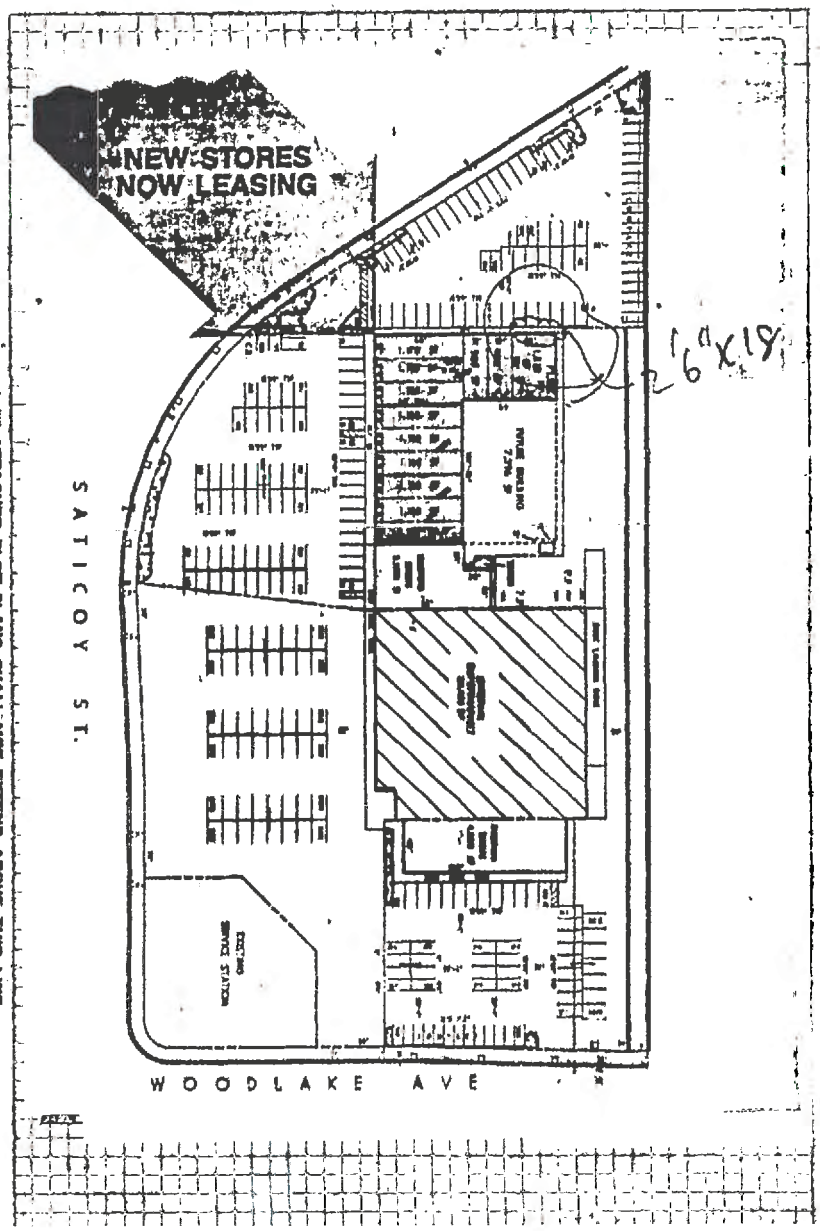
Actual Combined Sign Area .....

Allowable _____ Sign Area .....

Actual _____ Sign Area .....

Proposed Sign Facing _____

ON PLOT PLAN SHOW ALL BUILDINGS AND SIGNS ON LOT



ATTACHED PLOT PLANS SHALL NOT EXTEND ABOVE THIS LINE

S APPLICATION FOR INSPECTION 518.350 | 100184 OF **SIGNS**

INSTRUCTIONS: 1. Applicant to Complete Numbered Items Only. 2. Plot Plan Required on Back of Original.

1. LEGAL DESCR. LOT: Portion of 1	BLK.	TRACT: 25773	COUNTY REF. NO.	DIST. MAP: 186B093	CENSUS TRACT: 1344.01
2. TYPE OF SIGN OR NEW WORK: (19) Pole sign	☒ ON-SITE SIGN ☐ OFF-SITE SIGN			ZONE: C1-IVL/P-1VL	
3. JOB ADDRESS: 23233 Saticoy St	☐ TEMP.	EXP. DATE		FIRE DIST.: I	COUN. DIST.: 3
4. BETWEEN CROSS STREETS: Woodlake	AND: Keswick			LOT (TYPE): corner	
5. OWNER'S NAME: Walter J Lamiert	PHONE: 213 466-8591			LOT SIZE: acreage	
6. OWNER'S ADDRESS: 606 N Larchmont Bl	CITY: Los Angeles	ZIP: 90004		ST. FRONT.	
7. ARCHITECT OR ENGINEER: PB Ramirez	BUS. LIC. NO.	ACTIVE STATE LIC. NO.: CE33461	PHONE	ALLEY: --	
8. ARCHITECT OR ENGINEER ADDRESS: --	CITY	ZIP		BLDG. LINE	
9. QUALIFIED INSTALLER: M & M Signs	BUS. LIC. NO.: 509989	ACTIVE STATE LIC. NO.	PHONE: 772-6097	AFFIDAVITS: see map	
10. INSTALLER'S ADDRESS: 19015 Parthenia St	CITY: Northridge	ZIP: 91324			
11. SIZE OF EXISTING BUILDING WIDTH LENGTH	TYPE: V URM ☐	STORIES: 1	NO. OF EXIST. BLDGS. ON LOT AND USE: Shopping Center		
12. SIZE OF SIGN: 9 X 6	TOTAL COPY AREA: 54 sf	OVERALL HEIGHT →	FROM GRADE: 17	FROM ROOF	
S 13. JOB ADDRESS: 23233 Saticoy St				STREET GUIDE	
14. VALUATION TO INCLUDE ALL FIXED EQUIPMENT REQUIRED TO OPERATE AND USE PROPOSED SIGN: $ 4,596.00					
15. MATERIAL OF SIGN CONSTRUCTION →	SUPPORTING FRAME: metal	FRAME OF COPY: metal	SURFACE OF SIGN: plex	DIST. OFFICE: VN	
16. TYPE OF SIGN OR NEW WORK: Pole Sign	☐ SINGLE FACE ☒ DOUBLE FACE ☐ OTHER			HWY. DED.: yes	
17. ILLUMINATION ☐ NONE ☒ INTERNAL ☐ EXTERNAL	☐ FLASHING ☐ REVOLVING ☐ OTHER ☒ NONE			ZONED BY: Mundt	
18. NO. OF SIGNS OR GAS TUBE SYSTEMS: 1	NO. OF ADDITIONAL BRANCH CIRCUITS: 0	NO. OF CONTROL DEVICES: 1		FILE WITH	

PERMIT FEES					
SIGNS/G. T. SYSTEMS	15	00	CONT. INSP. LICFAB LL-PERM	PLANS CHECKED: Mundt	TYPIST: sm
ADDITIONAL CIRCUITS			FREEWAY CLEARANCE	APPLICATION APPROVED	INSPECTOR
ELECTRICAL SERVICE			500' ☐ 2000' ☐	08/28/90 12:25:45PM VN03 T-5660 A-35	
CONTROL DEVICES	5	00	DATE 8/28/90	BUILD PLAN CHE 61.13	
ISSUING FEE	10	00	TRANSPORTATION DEPT. CLEARANCE	BLDG PER COMME 152.25	
BLDG. PERMIT	122	25		EI COMMERCIAL 0.69	
P.C. 61.13	TOTAL 152	25	DATE 8/28/90	ONE STOP 4.28	
S.P.C. -	E.I. .69		F.H.	CARRY 218.35	
I.F. - S.P.I. -	O.S.S. 4.28		INSP. ACTIVITY: BMI	TO TRAN 5660	
ISSUING OFFICE: VN decal 6360.	S.O.S.S.		P.C. NO.	90VN 86382	

CASHIER'S USE ONLY

Unless a shorter period of time has been established by an official action, plan check approval expires one year after the fee is paid and this permit expires two years after the fee is paid or 180 days after the fee is paid if construction is not commenced.

DECLARATIONS AND CERTIFICATIONS

LICENSED CONTRACTORS DECLARATION

19. I hereby affirm that I am licensed under the provisions of Chapter 9 (commencing with Section 7000) of Division 3 of the Business and Professions Code, and my license is in full force and effect.

Date 8/28/90 Lic. Class C-45 Lic. No. 509989 Contractor's Signature M & M SIGNS

Contractor's Mailing Address 19015 PARTHENIA NORTHRIDGE

OWNER-BUILDER DECLARATION

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☐ I, as owner of the property, or my employees with wages as their sole compensation, will do the work, and the structure is not intended or offered for sale (Sec. 7044, Business and Professions Code: The Contractor's License Law does not apply to an owner of property who builds or improves thereon, and who does such work himself or through his own employees, provided that such improvements are not intended or offered for sale. If, however, the building or improvement is sold within one year of completion, the owner-builder will have the burden of proving that he did not build or improve for the purpose of sale.).

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Date _____ Owner's Signature _____

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21. I hereby affirm that I have a certificate of consent to self-insure, or a certificate of Worker's Compensation Insurance, or a certified copy thereof (Sec. 3800, Lab. C.).

Policy No. 1002399 Insurance Company STATE FUND

☐ Certified copy is hereby furnished.

☒ Certified copy is filed with the Los Angeles City Dept. of Bldg. & Safety.

Date 8/28/90 Applicant's Signature M & M SIGNS

Applicant's Mailing Address 19015 PARTHENIA NORTHRIDGE

CERTIFICATE OF EXEMPTION FROM WORKERS' COMPENSATION INSURANCE

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Date _____ Applicant's Signature _____

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23. I hereby affirm that there is a construction lending agency for the performance of the work for which this permit is issued (Sec. 3097, Civ. C.).

Lender's Name _____

Lender's Address _____

24. I certify that I have read this application and state that the above information is correct. I agree to comply with all city and county ordinances and state laws relating to building construction, and hereby authorize representatives of this city to enter upon the above-mentioned property for inspection purposes.

I realize that this permit is an application for inspection, that it does not approve or authorize the work specified herein, that it does not authorize or permit any violation or failure to comply with any applicable law, that neither the city of Los Angeles nor any board, department, officer or employee thereof make any warranty or shall be responsible for the performance or results of any work described herein or the condition of the property or soil upon which such work is performed. (See Sec. 91.0303 LAMC)

Signed C.J. DeHart M. M Signs Agent 8/28/90

Bureau of Engineering 2 9 8 0 0 1	ADDRESS APPROVED HIGHWAY DEDICATION	
CITY PLANNING		
OFF SITE CLEARANCE:		
LEGAL DESCRIPTION:		

COMBINED SIGN AREAS

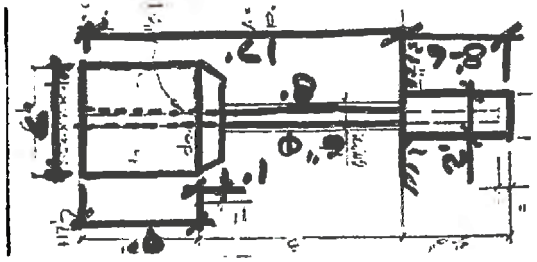
Existing Sign Area

1. Illum. Canopy Sign .....
2. Monument Sign .....
3. Pole Sign .....
4. Projecting Sign .....
5. Roof Sign .....
6. Wall Sign .....
7. Window Sign .....
8. Proposed 1 POLE Sign 54
   Total Area

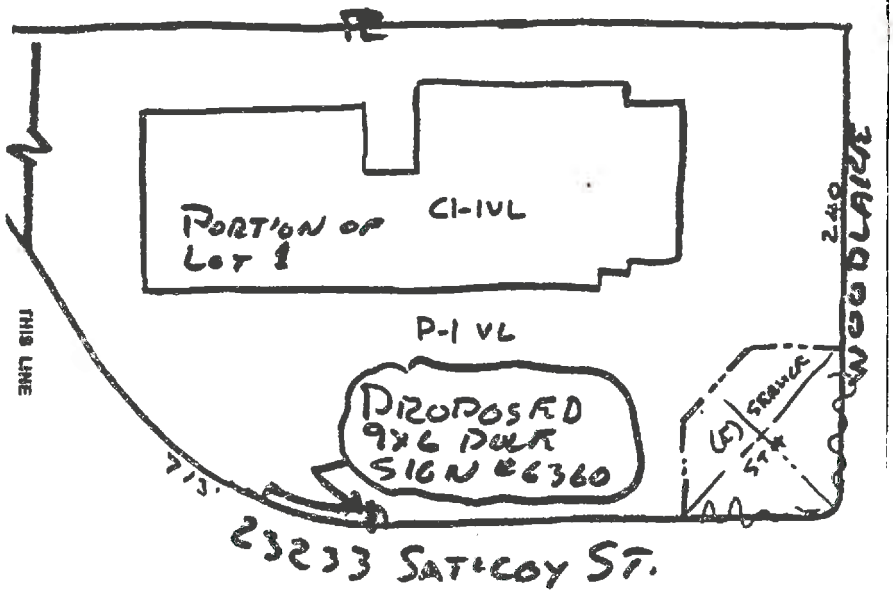
Signs Facing SATICOY
Allowable Combined Sign Area .....
Actual Combined Sign Area .....
Allowable POLE Sign Area 150
Actual POLE Sign Area 54
Proposed Sign Facing SATICOY

ON PLOT PLAN SHOW ALL BUILDINGS AND SIGNS ON LOT

NO OTHER POLE SIGNS ON PROP.
SIGN IN P ZONE, 12.12.1.A3(6)(2)



ATTACHED PLOT PLAN



3 FOR INSPECTION 1 0 0 2 9 0 1 0 6 — REPAIR-DEMOLITION AND FOR CERTIFICATE OF OCCUPANCY

INSTRUCTIONS: 1. Applicant to Complete Numbered Items Only.

1. LEGAL DESCR.	LOT PRT 1 ~~AND 2~~ SEE OVER OF ~~Par Tract~~	BLOCK	TRACT 25773	CITY CLERK REF. NO.	DIST. MAP 186B093
					CENSUS TRACT 1344.01
2. PRESENT USE OF BUILDING '16 Retail		NEW USE OF BUILDING '17 Restaurant SAME ¢			ZONE C1-1VL
3. JOB ADDRESS 23233 Saticoy St			SUITE/UNIT NO. 104		FIRE DIST. FBZ / COUN. DIST. 03
4. BETWEEN CROSS STREETS Woodlake		AND Keswick			LOT TYPE int
5. OWNER'S NAME ( ) TENANT (X) BUILDING Susan Fahlberg			PHONE 225-9187		LOT SIZE irr
6. OWNER'S ADDRESS 5157 Calenda Dr	CITY Wdland Hills	ZIP 91367			~~Inc Legal~~
7. ENGINEER --	BUS. LIC. NO.	ACTIVE STATE LIC. NO.	PHONE		ALLEY --
8. ARCHITECT OR DESIGNER Sherry Wertheim	BUS. LIC. NO. 729842-22	ACTIVE STATE LIC. NO. 14046	PHONE 784-2349		BLDG. LINE --
9. ARCHITECT OR ENGINEER'S ADDRESS P.O. Box 55186	CITY Sherman Oaks	ZIP 91403			DOCUMENTS/ EASEMENTS 5' PUE S
10. CONTRACTOR EARL R. WERTHEIM CONSTRUC INC.	BUS. LIC. NO. 729842-22	ACTIVE STATE LIC. NO. 602338	PHONE 784-3088		CFG 1500
11. SIZE OF EXISTING BLDG. WIDTH / LENGTH	STORIES	HEIGHT	NO. OF EXISTING BUILDINGS ON LOT AND USE		ORD 165479
					SA 1040
12. FRAMING MATERIAL OF EXISTING BLDG. ⇒ wd & conc blk	EXT. WALLS wd	ROOF	FLOOR slab		ZI 1802
13. JOB ADDRESS 23233 Saticoy St			SUITE/UNIT NO. 104		See Map
14. VALUATION TO INCLUDE ALL FIXED EQUIPMENT REQUIRED TO OPERATE AND USE PROPOSED BUILDING		$ 58,000			DIST. OFF. VN / P.C. REQ'D
15. NEW WORK (Describe) T.I. & Change of Use (1170 ft)					GRADING yes / SEISMIC --
					HWY. DED. yes / FLOOD --

NEW USE OF BUILDING	SIZE OF ADDITION	STORIES	HEIGHT BUILDING	ZONING	FILE WITH
Restaurant	None				

TYPE	GROUP OCC.	MAX. OCC.	PLANS CHECKED	ZONED BY
A III-N	B2	30	B. Cert	SA 7/16/93

DWELL UNITS	BUILDING AREA	ZONING AREA	APPLICATION APPROVED	TYP/ST
N/A	N/C	N/C	54238	sa

GUEST ROOMS	PARKING REQ'D	PARKING PROVIDED	INSPECTION ACTIVITY	INSPECTOR
N/A	+7/194	s250c HC 5	CS / GEN. 7 / MAJ. S. / EQ.	

P.C.	G.P.I. + NP	CONT. INSP.
385.46	—	

S.P.C.	P.M.
—	10.00

B.P.	E.I.	Claims for refund of fees paid on permits must be filed: 1. Within one year from date of payment of fee; or 2. Within one year from date of expiration of extension for building or grading permits granted by the Dept. of B. & S. SECTIONS 22.12 & 22.13 LAMC.
453.49	12.18	

I.F.	F.H.
—	*

S.D.	O.S.S.
—	7.71

ISS. OFF.	S.O.S.S.	SPRINKLERS REQ'D SPEC.
VN	9.51	

PD. NO.	C/O	ENERGY	DAS
90820	—	—	YES

SYS 23.13 / SYS 28.54

B & S 08-B-3 (R.7/90)

CASHIER'S USE ONLY

04/08/93 10:17:50AM VN04 T-9550 C 16
BLDG PLAN CHEC 385.46
ONE STOP 7.71
SYS DEV FEE 23.13
TOTAL 416.30
CHECK 297.39
CHECK 118.91
23233 SATICOY ST

07/16/93 02:24:25PM VN04 T-3505 C 25
BLDG PERMIT CO 453.49
INVOICE # 0054238 BB
ELECT PERMIT R 10.00
SCHOOL FMM IN 12.18
ONE STOP SURCH 9.51
SYS DEV FEE 28.54
TOTAL 513.72
CHECK 513.72

93VN 23444

Unless a shorter period of time has been established by an official action, plan check data will expire one year after the fee is paid and the permit expires two years after issuance paid or 180 days after the fee is paid if construction is not commenced

*APPLICANT REFUSES TO PAY F.H. FEE
NEW AFFIDAVITS

PLAN CHECK EXTENDED TO _____ PER _____

ADMINISTRATIVE APPROVAL DATED _____

BY _____

D.A.D. PLANS CHECKED ~~Dennis~~ see one stop

HOUSING MITIGATION FEE ORDINANCE

☐ REQUIRED ☐ EXEMPT

ASBESTOS NOTIFICATION

Check Box: ☐ Notification letter sent to AQMD or EPA.
☐ I declare that notification of asbestos removal is not applicable to addressed project.

Signature X Earl Albrecht Date 7/16/93

DECLARATIONS AND CERTIFICATIONS

LICENSED CONTRACTORS DECLARATION

16. I hereby affirm that I am licensed under the provisions of Chapter 9 (commencing with Section 7000) of Division 3 of the Business and Professions Code, and my license is in full force and effect.

Date 7/16/93 Lic. Class B Lic. Number 602338 Contractor Earl Albrecht (Signature)

OWNER-BUILDER DECLARATION

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Date _____ Owner's Signature _____

WORKERS' COMPENSATION DECLARATION

18. I hereby affirm that I have a certificate of consent to self-insure, or a certificate of Worker's Compensation Insurance, or a certified copy thereof (Sec. 3800, Lab. C.).

Policy No. 249933157 Insurance Company ST FUND

☐ Certified copy is hereby furnished.

☑ Certified copy is filed with the Los Angeles City Dept. of Bldg. & Safety.

Date 7/16/93 Applicant's Signature Earl Albrecht

Applicant's Mailing Address 19744 Beaver Ridge Rd CW 91304

CERTIFICATE OF EXEMPTION FROM WORKERS' COMPENSATION INSURANCE

19. I certify that in the performance of the work for which this permit is issued, I shall not employ any person in any manner so as to become subject to the Workers' Compensation Laws of California.

Date _____ Applicant's Signature _____

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Lender's Name _____ Lender's Address _____

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I realize that this permit is an application for inspection, that it does not approve or authorize the work specified herein, that it does not authorize or permit any violation or failure to comply with any applicable law, that neither the city of Los Angeles nor any board, department, officer or employee thereof make any warranty or shall be responsible for the performance or results of any work described herein or the condition of the property or soil upon which such work is performed. (See Sec. 91.0202 LAMC)

Signed Earl Albrecht CONTRACTOR 7/16/93

4 1 1 0 0 2 0 4 9 2 0 7

Bureau of Engineering			
	ADDRESS APPROVED		6/07/93
	DRIVEWAY	EX	6-8-93
	HIGHWAY	REQUIRED	
	DEDICATION	Y/N COMPLETED	6693
F. I. only	FLOOD CLEARANCE		
Public Works Improvement	Required YES ☐ NO ☐ PERMIT #		
SEWERS	C9381-0391	SEWERS AVAILABLE	7-16-93
RES. NO.	Available for plan	NOT AVAILABLE	
CERT. NO.	Check only	SFC PAID	7-16-93
	SFC NOT APPLICABLE	SFC DUE	
Grading	PRIVATE SEWAGE SYSTEM APPROVED		
Comm. Safety	APPROVED FOR ISSUE ☐ NO FILE ☐ FILE CLOSED ☐		
CEQA	OK TO ISSUE PERMIT 7-16-93		
Fire	APPROVED (TITLE 19, LA.M.C.57.09)		Hydrant 6-8-93
BY	APPROVED - HYDRANT UNIT, ROOM 920 CHE		
CRA	APPROVED PER REDEV. PROJECT		
Transportation	APPROVED FOR DRIVEWAY LOCATION		
	APPROVED FOR ORD.#		
Planning	WORK SHEET # 93-0641 V		
	APPROVED UNDER CASE # CPC 86-		
	LANDSCAPE/XERISCAPE N/A		
	SIGHT PLAN REVIEW N/A		
	ZI 1802 - Zoning		
Housing	HOUSING AUTHORITY AFFIDAVIT NO.		
Construction Tax	RECEIPT NO.		
Cultural Affairs			
Rent Stabilization Division			

THE CITY OF LOS ANGELES MAY AMEND THE FIRE HYDRANT FEE ORDINANCE (LAMC SECTION 91.0304 (b) 8). THE OWNER OF THE PROJECT DESIGNATED ON THIS PERMIT SHALL BE OBLIGATED TO PAY TO THE DEPARTMENT A FIRE HYDRANT FEE IN THE AMOUNT TO BE CALCULATED OWNERSHIP SUBJECT TO ANY AMENDMENT TO THE FIRE HYDRANT FEE ORDINANCE. THIS FEE WILL BE USED TO PROVIDE ADEQUATE FIRE SAFETY FACILITIES AND SERVICES FOR NEW DEVELOPMENT. EXCEPTION: THIS PARAGRAPH NUMBER 8 SHALL NOT APPLY TO ANY PERMIT FOR DEMOLITION OF A BUILDING OR STRUCTURE.

LEGAL DESCRIPTION

D.A.D. OK PER PLAN FULL COMPLIES AS SHOWN 7/6/93

* 2 EMPLOYEES ONLY

LOT 1

SEE ASSESSOR MAPBOOK FOR MISSING PORTION

99 FT TH W 40 FT TH N 50 FT TH W 172 FT

562.9 FT TH N 7641'49" E 166.98 FT TH N

LOT 1 TH SE ON NE LINE OF SAVICOY ST

TRACT NO 25773 LOT COM AT NW COR OF

SEE PERMIT # 88VN44022

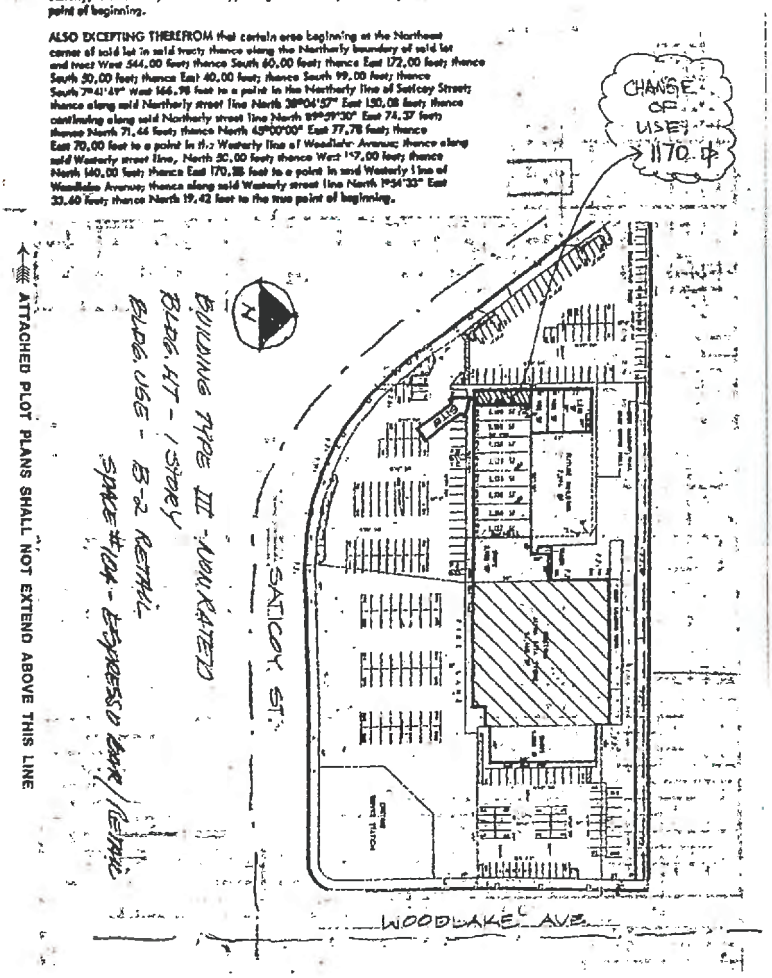
BOARD FILE #622128 considers prop. shown as 1 site

PARKING : $\frac{1170}{100} - \frac{1170}{250} = 7$ more req'd.

That certain area in the State of California, county of Los Angeles, city of Los Angeles, being Lot 1 of Tract No. 25773, as recorded in book 668 page 30 of Maps, records of Los Angeles County.

EXCEPTING That portion of said Lot 1, described as follows: Beginning at a point in the easterly boundary of said lot distant South 73.38 feet from the northerly terminus of that certain course in said boundary shown on said map as "North 180.00 feet"; thence west 70.00 feet; thence South 45° 00' 00" West 77.78 feet; thence South 71.44 feet to the southerly line of said lot; thence easterly, northeasterly and northerly, along the boundary of said lot, to the point of beginning.

ALSO EXCEPTING THEREFROM that certain area beginning at the Northeast corner of said lot in said tract; thence along the Northerly boundary of said lot and tract West 544.00 feet; thence South 60.00 feet; thence East 172.00 feet; thence South 30.00 feet; thence East 40.00 feet; thence South 99.00 feet; thence South 7°41'49" West 166.98 feet to a point in the Northerly line of Saticoy Street; thence along said Northerly street line North 38°04'57" East 150.08 feet; thence continuing along said Northerly street line North 89°59'30" East 74.37 feet; thence North 71.44 feet; thence North 45°00'00" East 77.78 feet; thence East 70.00 feet to a point in the Westerly line of Woodlake Avenue; thence along said Westerly street line, North 30.00 feet; thence West 17.00 feet; thence North 140.00 feet; thence East 170.38 feet to a point in said Westerly line of Woodlake Avenue; thence along said Westerly street line North 1°54'33" East 33.60 feet; thence North 19.42 feet to the true point of beginning.



23233 W Saticoy St

Application #: **02016 - 20000 - 18921**
Plan Check #: B02VN01610 Printed: 04/09/21 01:25 PM
Event Code:

Bldg-Alter/Repair
Commercial
Regular Plan Check
Plan Check

City of Los Angeles - Department of Building and Safety

APPLICATION FOR BUILDING PERMIT AND CERTIFICATE OF OCCUPANCY

Issued on: 10/07/2002
Last Status: Permit Finaled
Status Date: 10/31/2002

1. TRACT	BLOCK	LOT(s)	ARB	COUNTY MAP REF #	PARCEL ID # (PIN #)	2. ASSESSOR PARCEL #
TR 25773		LT 1	2	M B 668-50	186B093 85	2027 - 005 - 005

3. PARCEL INFORMATION

Area Planning Commission - South Valley
LADBS Branch Office - VN
Council District - 3
Cmpt. Fill Grd. - CFG-1500
Community Plan Area - Canoga Park-West Hills-Winnetl
Census Tract - 1344.01
Census Tract - 1344.22
District Map - 186B093
Energy Zone - 9
Fire District - FBZ
Hillside Grading Area - YES
Highway Dedication - YES
Earthquake-Induced Liquefaction Area - YES
Lot Size - IRR
Lot Type - Interior

ZONES(S): P-1VL / [Q]C1-1VL

4. DOCUMENTS

ZI - ZI-1802
ORD - ORD-165479-SA1040
ORD - ORD-173518-SA1
CPC - CPC-1997-41-CPU

5. CHECKLIST ITEMS

6. PROPERTY OWNER, TENANT, APPLICANT INFORMATION

Owner(s):
LEIMERT SATICOY L P 606 LARCHMONT BLVD STE 300 LOS ANGELES CA 90004

Tenant:

Applicant: (Relationship: Tenant)
CAMILLO MAZZIEO - 18900 ROHAR ST NORTHRIDGE 91324 (818) 772-1258

7. EXISTING USE / **PROPOSED USE**

(17) Restaurant
(16) Retail

8. DESCRIPTION OF WORK

CONVERT PORTION OF RETAIL ADJOINING A RESTAURANT TO RESTAURANT ALSO CHANGE OF OCCUPANCY TO A-3 FOR RESTAURANT AREA

9. # Bldgs on Site & Use:

10. APPLICATION PROCESSING INFORMATION

BLDG. PC By: Angelo Yumul
DAS PC By: Aldous Chic
OK for Cashier: Angelo Yumul
Coord. OK:
Signature:
Date:

For inspection requests, call toll-free **(888) LA4BUILD (524-2845)**, or request inspections via **www.ladbs.org.** To speak to a Call Center agent, call **311**. Outside LA County, call (213) 473-3231.

For Cashier's Use Only **W/O #: 21618921**

11. PROJECT VALUATION & FEE INFORMATION Final Fee Period

Permit Valuation: $30,000 PC Valuation:

FINAL TOTAL Bldg-Alter/Repair	448.86
Permit Fee Subtotal Bldg-Alter/Re	393.75
Handicapped Access	
Plan Check Subtotal Bldg-Alter/R	0.00
Off-hour Plan Check	0.00
Fire Hydrant Refuse-To-Pay	0.00
E.Q. Instrumentation	6.30
O.S. Surcharge	8.00
Sys. Surcharge	24.00
Planning Surcharge	11.81
Planning Surcharge Misc Fee	5.00
Permit Issuing Fee	0.00

Sewer Cap ID: Total Bond(s) Due:

Payment Date: 10/07/02
Receipt No: VN07-068694
Amount: $448.86
Method: Check

2002VN18210

12. ATTACHMENTS

Plot Plan

08001020162000018921FN

13. STRUCTURE INVENTORY (Note: Numeric measurement data in the format "number / number" implies "change in numeric value / total resulting numeric value") **02016 - 20000 - 18921**

(E) Floor Area (ZC): 1170 Sqft
(NC) Height (ZC)
(NC) Length
(NC) Stories
(NC) Width
(P) A3 Occupancy: +1150 Sqft / 70 Max Occ.
(P) Parking Req'd for Bldg: +7 Stalls / 201 Stalls
(E) Provided Disabled for Bldg: 5 Stalls
(E) Provided Standard for Bldg: 250 Stalls
(NC) Total Parking for Site: 255 Site Total
(NC) Type III-N Construction

14. APPLICATION COMMENTS:

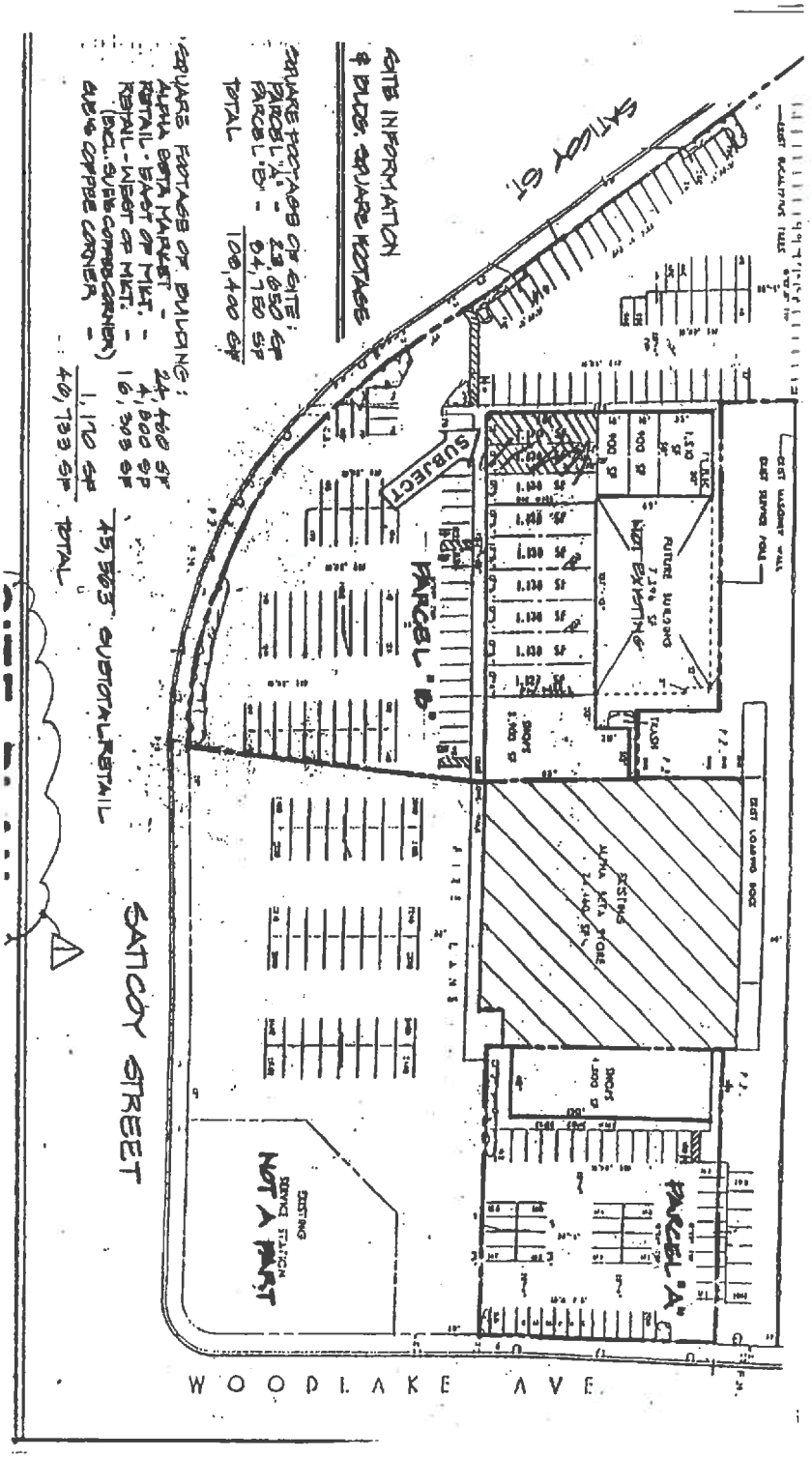
** Approved Seismic Gas Shut-Off Valve may be required. **

15. BUILDING RELOCATED FROM:

16. CONTRACTOR, ARCHITECT & ENGINEER NAME	ADDRESS	CLASS	LICENSE #	PHONE #
(O) OWNER-BUILDER			0	(818) 772-1238

PLOT PLAN ATTACHMENT

(DO NOT DRAW, WRITE, OR PASTE ATTACHMENTS OUTSIDE BORDER)



23233 W Saticoy St

Permit #: **03014 - 10000 - 04774**
Plan Check #: B03LA01375 Printed: 04/09/21 01:25 PM
Event Code:

Bldg-Addition
Commercial
Regular Plan Check
Plan Check

City of Los Angeles - Department of Building and Safety

APPLICATION FOR BUILDING PERMIT AND CERTIFICATE OF OCCUPANCY

Issued on: 05/17/2004
Last Status: Issued
Status Date: 05/17/2004

1. TRACT	BLOCK	LOT(s)	ARB	COUNTY MAP REF #	PARCEL ID # (PIN #)	2. ASSESSOR PARCEL #
TR 25773		LT 1	2	M B 668-50	186B093 85	2027 - 005 - 005

3. PARCEL INFORMATION

Area Planning Commission - South Valley
LADBS Branch Office - VN
Council District - 3
Cmpt. Fill Grd. - CFG-1500
Certified Neighborhood Council - West Hills
Community Plan Area - Canoga Park-West Hills-Winnetl
Census Tract - 1344.01
Census Tract - 1344.22
District Map - 186B093
Energy Zone - 9
Fire District - FBZ
Hillside Grading Area - YES
Earthquake-Induced Liquefaction Area - YES
Near Source Zone Distance - 12.7
Thomas Brothers Map Grid - 529-F4

ZONES(S): P-1VL / [Q]C1-1VL

4. DOCUMENTS

ZI - ZI-1802
ORD - ORD-165479-SA1040
ORD - ORD-173518-SA1
CPC - CPC-1997-41-CPU

5. CHECKLIST ITEMS

Special Inspect - Concrete>2.5ksi
Special Inspect - Masonry
Special Inspect - Structural Observation
Fabricator Reqd - Prefabricated Joist

6. PROPERTY OWNER, TENANT, APPLICANT INFORMATION

Owner(s):
LEIMERT SATICOY L P 606 LARCHMONT BLVD STE 300 LOS ANGELES CA 90004

Tenant:

Applicant: (Relationship: Architect)
MICHELE MCDONOUGH - 2424 5TH AV LA, CA 90018 (323) 731-8377

7. EXISTING USE **PROPOSED USE**
(16) Retail

8. DESCRIPTION OF WORK
1-story, 7315 sqft, storage building addition to (E) retail .

9. # Bldgs on Site & Use: RETAIL

10. APPLICATION PROCESSING INFORMATION

BLDG. PC By: Timothy Fan
OK for Cashier: Timothy Fan
DAS PC By: Wai Lau
Coord. OK:
Signature:
Date:

For inspection requests, call toll-free **(888) LA4BUILD (524-2845)**, or request inspections via **www.ladbs.org.** To speak to a Call Center agent, call **311**. Outside LA County, call (213) 473-3231.

For Cashier's Use Only **W/O #: 31404774**

11. PROJECT VALUATION & FEE INFORMATION Final Fee Period

Permit Valuation: $200,000 PC Valuation:

FINAL TOTAL Bldg-Addition	4,056.17	Permit Issuing Fee	0.00
Permit Fee Subtotal Bldg-Additior	1,341.38		
Energy Surcharge			
Handicapped Access			
Off-hour Plan Check			
Plan Maintenance	26.83		
Fire Hydrant Refuse-To-Pay			
E.Q. Instrumentation	42.00		
O.S. Surcharge	28.20		
Sys. Surcharge	84.61		
Planning Surcharge	41.05		
Planning Surcharge Misc Fee	5.00		
School District Commercial Area	2,487.10		

Sewer Cap ID: Total Bond(s) Due:

Payment Date: 05/17/04
Receipt No: LA03-110777
Amount: $4,056.17
Method: Check

2004LA58439

12. ATTACHMENTS

Plot Plan



13. STRUCTURE INVENTORY (Note: Numeric measurement data in the format "number / number" implies "change in numeric value / total resulting numeric value")

03014 - 10000 - 04774

(P) Floor Area (ZC): +7315 Sqft / Sqft
(P) Height (ZC): +19.33 Feet / Feet
(P) Length: 0 Feet / Feet
(P) Stories: +1 Stories / Stories
(P) Width: 0 Feet / Feet
(P) NFPA-13 Fire Sprinklers Thru-out
(P) Masonry Shearwall
(P) Wood (Plywood, OSB, etc.)Shearwall
(P) S2 Occ. Group: +7315 Sqft / Sqft
(P) Parking Req'd for Bldg: +29 Stalls / 223 Stalls
(P) Provided Compact for Bldg: 0 Stalls / 35 Stalls
(P) Provided Disabled for Bldg: +9 Stalls / Stalls
(P) Provided Standard for Bldg: +206 Stalls / Stalls
(P) Total Parking for Site: 250 Site Total
(P) Type III-N Construction

14. APPLICATION COMMENTS:

** Approved Seismic Gas Shut-Off Valve may be required. **

In the event that any box (i.e. 1-16) is filled to capacity , it is possible that additional information has been captured electronically and could not be printed due to space restrictions. Nevertheless the information printed exceeds that required by section 19825 of the Health and Safety Code of the State of California.

15. BUILDING RELOCATED FROM:

16. CONTRACTOR, ARCHITECT & ENGINEER NAME	ADDRESS		CLASS	LICENSE #	PHONE #
(A) MCDONOUGH, MICHELE MARIE	2424 FIFTH AVENUE,	LOS ANGELES, CA 90018		C25320	
(E) MERCADO, LIZANDRO	30403 NORTH MALLORCA PL,	CASTAIC, CA 91384		S4331	
(O) OWNER-BUILDER				0	

PERMIT EXPIRATION/REFUNDS: This permit expires two years after the date of the permit issuance. This permit will also expire if no construction work is performed for a continuous period of 180 days (Sec. 98.0602 LAMC). Claims for refund of fees paid must be filed within one year from the date of expiration for permits granted by LADBS (Sec. 22.12 & 22.13 LAMC). The permittee may be entitled to reimbursement of permit fees if the Department fails to conduct an inpection within 60 days of receiving a request for final inspection (HS 17951).

17. OWNER-BUILDER DECLARATION

I hereby affirm under penalty of perjury that I am exempt from the Contractors' State License Law for the following reason (Section 7031.5, Business and Professions Code: Any city or county which requires a permit to construct, alter, improve, demolish, or repair any structure, prior to its issuance, also requires the applicant for such permit to file a signed statement that he or she is licensed pursuant to the provisions of the Contractors License Law (Chapter 9 (commencing with Section 7000) of Division 3 of the Business and Professions Code) or that h or she is exempt therefrom and the basis for the alleged exemption. Any violation of Section 7031.5 by any applicant for a permit subjects the applicant to a civil penalty of not more than five hundred dollars ($500).):

(_) I, as the owner of the property, or my employees with wages as their sole compensation, will do the work, and the structure is not intended or offered for sale (Sec. 7044, Business and Professions Code: The Contractors License Law does not apply to an owner of property who builds or improves thereon, and who does such work himself or herself or through his or her own employees, provided that such improvements are not intended or offered for sale. If, however, the building or improvement is sold within one year from completion, the owner-builder will have the burden of proving that he or she did not build or imrove for the purpose of sale).

OR

(_) I, as the owner of the property, am exclusively contracting with licensed contractors to construct the project (Sec. 7044, Business and Professions Code: The Contractors License Law does not apply to an owner of property who builds or improves thereon, and who contracts for such projects with a contractor(s) licensed pursuant to the Contractors License Law.)

18. WORKERS' COMPENSATION DECLARATION

I hereby affirm, under penalty of perjury, one of the following declarations:

(_) I have and will maintain a certificate of consent to self insure for workers' compensation, as provided for by Section 3700 of the Labor Code, for the performance of the work for which this permit is issued.

(_) I have and will maintain workers' compensation insurance, as required by Section 3700 of the Labor Code, for the performance of the work for which this permit is issued. My workers' compensation insurance carrier and policy number are:

Carrier: _____ Policy Number: _____

(_) I certify that in the performance of the work for which this permit is issued, I shall not employ any person in any manner so as to become subject to the workers' compensation laws of California, and agree that if I should become subject to the workers' compensation provisions of Section 3700 of the Labor Code, I shall forthwith comply with those provisions.

WARNING: FAILURE TO SECURE WORKERS' COMPENSATION COVERAGE IS UNLAWFUL, AND SHALL SUBJECT AN EMPLOYER TO CRIMINAL PENALTIES AND CIVIL FINES UP TO ONE HUNDRED THOUSAND DOLLARS ($100,000), IN ADDITION TO THE COST OF COMPENSATION, DAMAGES AS PROVIDED FOR IN SECTION 3706 OF THE LABOR CODE, INTEREST, AND ATTORNEY'S FEES

19. ASBESTOS REMOVAL DECLARATION / LEAD HAZARD WARNING

I certify that notification of asbestos removal is either not applicable or has been submitted to the AQMD or EPA as per section 19827.5 of the Health and Safety Code. Information is available at (909) 396-2336 and the notification form at www.aqmd.gov. Lead safe construction practices are required when doing repairs that disturb paint in pre-1978 buildings due to the presence of lead per section 6716 and 6717 of the Labor Code. Information is available at Health Services for LA County at (800) 524-5323 or the State of California at (800) 597-5323 or www.dhs.ca.gov/childlead.

20. FINAL DECLARATION

I certify that I have read this application **INCLUDING THE ABOVE DECLARATIONS** and state that the above information **INCLUDING THE ABOVE DECLARATIONS** is correct. I agree to comply with all city and county ordinances and state laws relating to building construction, and hereby authorize representatives of this city to enter upon the above-mentioned property for inspection purposes. I realize that this permit is an application for inspection and that it does not approve or authorize the work specified herein, and it does not authorize or permit any violation or failure to comply with any applicable law. Furthermore, neither the City of Los Angeles nor any board, department officer, or employee thereof, make any warranty, nor shall be responsible for the performance or results of any work described herein, nor the condition of the property nor the soil upon which such work is performed. I further affirm under penalty of perjury, that the proposed work will not destroy or unreasonably interfere with any access or utility easement belonging to others and located on my property, but in the event such work does destroy or unreasonably interfere with such easement, a substitute easement(s) satisfactory to the holder(s) of the easement will be provided (Sec. 91.0106.4.3.4 LAMC).

By signing below, I certify that:

(1) I accept all the declarations above namely the Owner-Builder Declaration, Workers' Compensation Declaration, Asbestos Removal Declaration/ Lead Hazard Warning, and Final Declaration; and

(2) This permit is being obtained with the consent of the legal owner of the property.

Print Name: _____ Sign: _____ Date: _____ ☐ Owner ☐ Authorized Agent

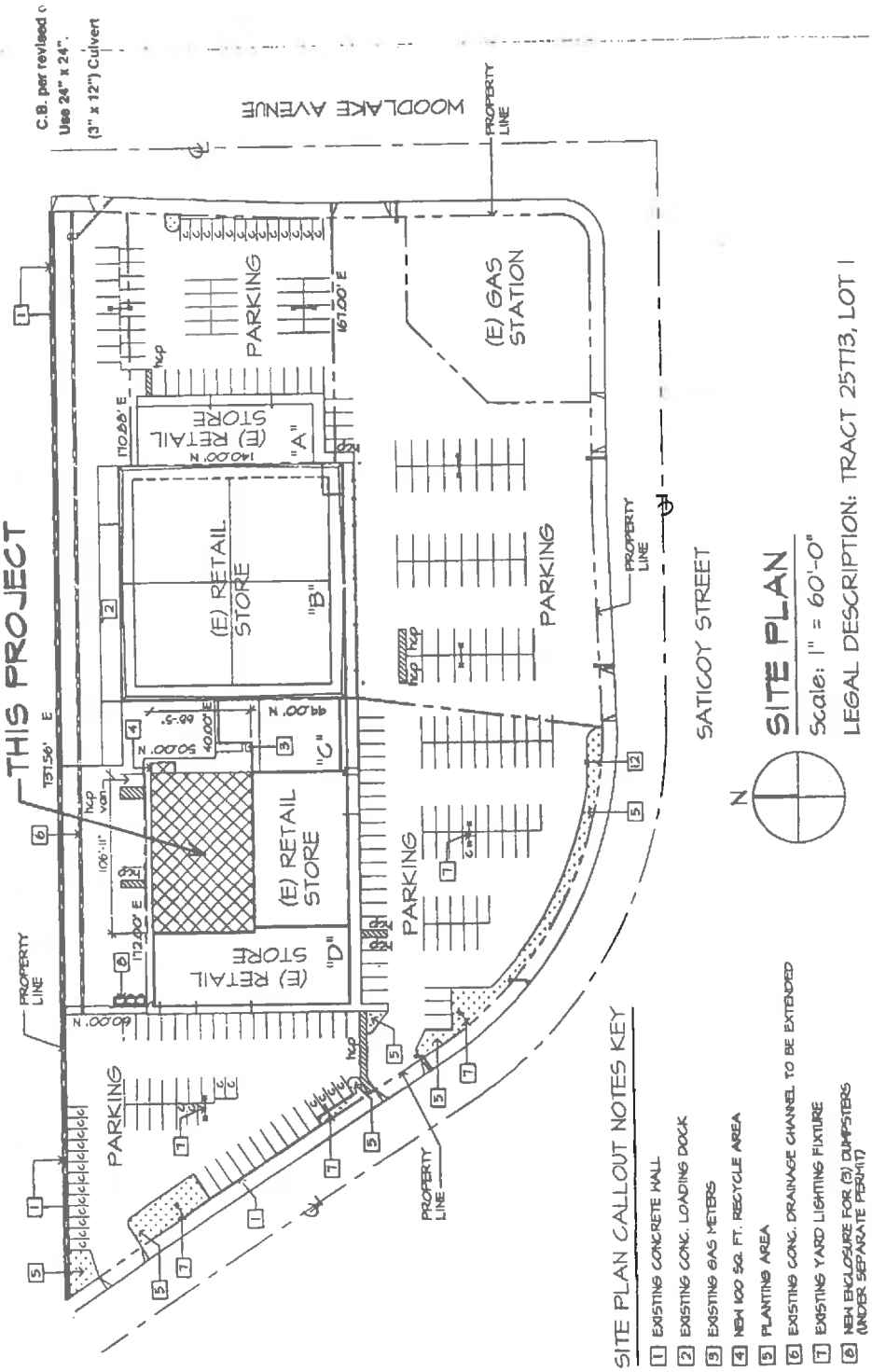
Bldg-Addition
Commercial
Plan Check Submittal

City of Los Angeles - Department of Building and Safety

PLOT PLAN ATTACHMENT

Plan Check #: B03LA1375FO
Initiating Office: METRO
Printed on: 07/01/03 09:05:34

(DO NOT DRAW, WRITE, OR PASTE ATTACHMENTS OUTSIDE BORDER)



23233 W Saticoy St

Application #: **04020 - 10000 - 01892**
Plan Check #: B03LA01375 Printed: 04/09/21 01:25 PM
Event Code:

Nonbldg-New
Commercial
Regular Plan Check
Plan Check

City of Los Angeles - Department of Building and Safety

APPLICATION FOR BUILDING PERMIT AND CERTIFICATE OF OCCUPANCY

Issued on: 05/17/2004
Last Status: Permit Finaled
Status Date: 01/29/2009

1. TRACT	BLOCK	LOT(s)	ARB	COUNTY MAP REF #	PARCEL ID # (PIN #)	2. ASSESSOR PARCEL #
TR 25773		LT 1	2	M B 668-50	186B093 85	2027 - 005 - 005

3. PARCEL INFORMATION

Area Planning Commission - South Valley
LADBS Branch Office - VN
Council District - 3
Cmpt. Fill Grd. - CFG-1500
Certified Neighborhood Council - West Hills
Community Plan Area - Canoga Park-West Hills-Winnetl
Census Tract - 1344.01
Census Tract - 1344.22
District Map - 186B093
Energy Zone - 9
Fire District - FBZ
Hillside Grading Area - YES
Earthquake-Induced Liquefaction Area - YES
Near Source Zone Distance - 12.7
Thomas Brothers Map Grid - 529-F4

ZONES(S): P-1VL / [Q]C1-1VL

4. DOCUMENTS

ZI - ZI-1802
ORD - ORD-165479-SA1040
ORD - ORD-173518-SA1
CPC - CPC-1997-41-CPU

5. CHECKLIST ITEMS

6. PROPERTY OWNER, TENANT, APPLICANT INFORMATION

Owner(s):
LEIMERT SATICOY L P 606 LARCHMONT BLVD STE 300 LOS ANGELES CA 90004

Tenant:

Applicant: (Relationship: Architect)
MICHELE MCDONOUGH - 2424 5TH AV LA, CA 90018 (323) 731-8377

7. EXISTING USE

PROPOSED USE
(23) Miscellaneous Bldg/Structi

8. DESCRIPTION OF WORK
4'-8" height cmu trash enclosure.

9. # Bldgs on Site & Use: RETAIL

10. APPLICATION PROCESSING INFORMATION

BLDG. PC By: Timothy Fan DAS PC By:
OK for Cashier: Timothy Fan Coord. OK:
Signature: Date:

For inspection requests, call toll-free **(888) LA4BUILD (524-2845)**, or request inspections via **www.ladbs.org.** To speak to a Call Center agent, call **311**. Outside LA County, call (213) 473-3231.

For Cashier's Use Only **W/O #: 42001892**

11. PROJECT VALUATION & FEE INFORMATION Final Fee Period

Permit Valuation: $1,500 PC Valuation:

FINAL TOTAL Nonbldg-New	214.78
Permit Fee Subtotal Nonbldg-New	130.00
Plan Check Subtotal Nonbldg-New	58.50
Fire Hydrant Refuse-To-Pay	
E.Q. Instrumentation	0.50
O.S. Surcharge	3.78
Sys. Surcharge	11.34
Planning Surcharge	5.66
Planning Surcharge Misc Fee	5.00
Permit Issuing Fee	0.00

Sewer Cap ID: Total Bond(s) Due:

Payment Date: 05/17/04
Receipt No: LA03-110778
Amount: $214.78
Method: Credit Card

2004LA58441

12. ATTACHMENTS

Plot Plan

08001040201000001892FN

13. STRUCTURE INVENTORY (Note: Numeric measurement data in the format "number / number" implies "change in numeric value / total resulting numeric value") 04020 - 10000 - 01892

14. APPLICATION COMMENTS:

15. BUILDING RELOCATED FROM:

16. CONTRACTOR, ARCHITECT & ENGINEER NAME	ADDRESS		CLASS	LICENSE #	PHONE #
(A) MCDONOUGH, MICHELE MARIE	2424 FIFTH AVENUE,	LOS ANGELES, CA 90018		C25320	
(E) MERCADO, LIZANDRO	30403 NORTH MALLORCA PL,	CASTAIC, CA 91384		S4331	
(O) OWNER-BUILDER				0	

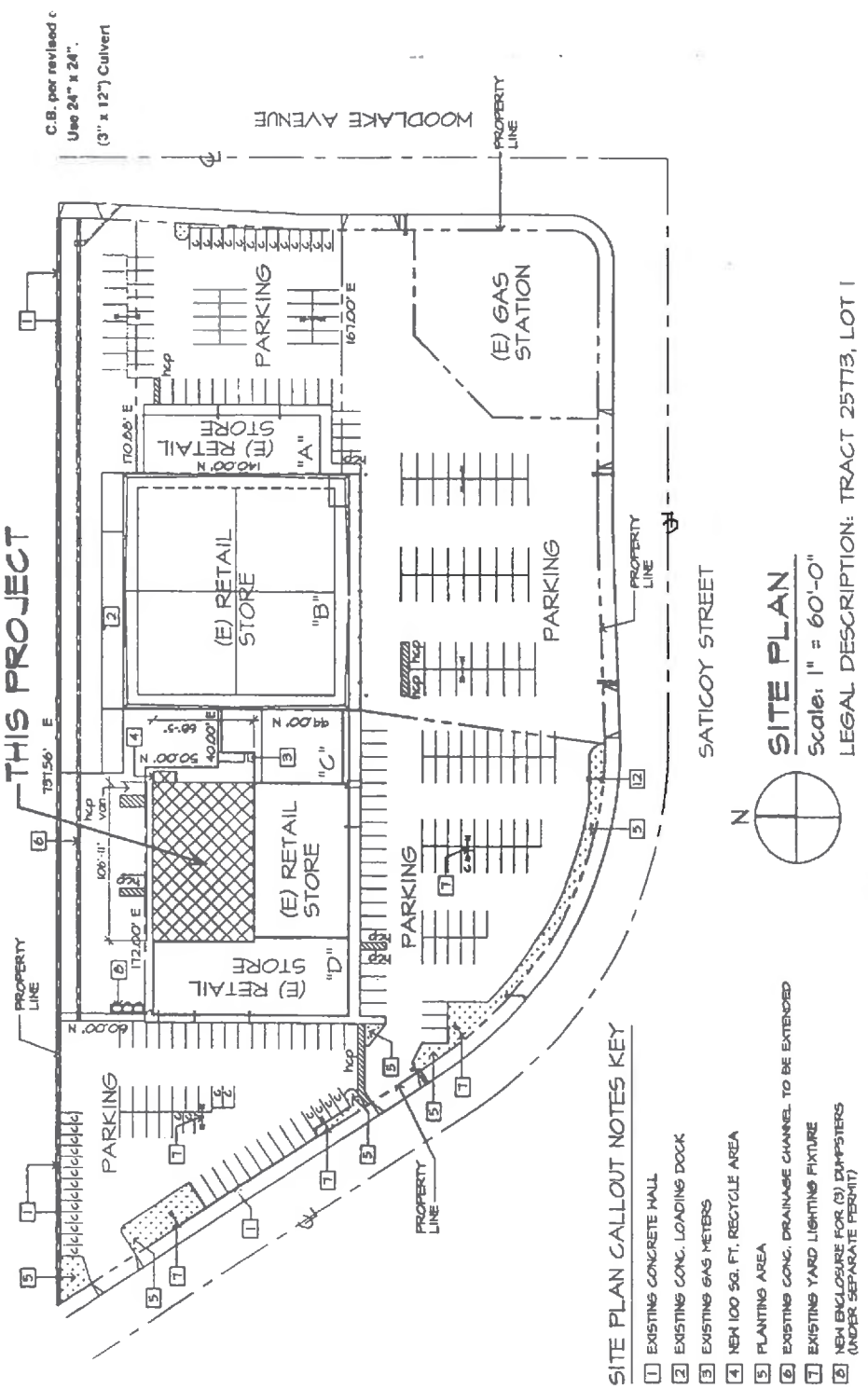
Nonbldg-New
Commercial
No Submit Plan Check

City of Los Angeles - Department of Building and Safety

PLOT PLAN ATTACHMENT

Plan Check #: B03LA1375FO
Initiating Office: METRO
Printed on: 05/17/04 15:37:56

(DO NOT DRAW, WRITE, OR PASTE ATTACHMENTS OUTSIDE BORDER)



23233 W Saticoy St

Application #: **06016 - 20000 - 03888**
Plan Check #: B06VN02861 Printed: 04/09/21 01:26 PM
Event Code:

Bldg-Alter/Repair
Commercial
Appointment Plan Check
Plan Check

City of Los Angeles - Department of Building and Safety

APPLICATION FOR BUILDING PERMIT AND CERTIFICATE OF OCCUPANCY

Issued on: 03/30/2006
Last Status: CofO Issued
Status Date: 06/13/2006

1. TRACT	BLOCK	LOT(s)	ARB	COUNTY MAP REF #	PARCEL ID # (PIN #)	2. ASSESSOR PARCEL #
TR 25773		LT 1	2	M B 668-50	186B093 85	2027 - 005 - 005

3. PARCEL INFORMATION

Area Planning Commission - South Valley
LADBS Branch Office - VN
Council District - 3
Cmpt. Fill Grd. - CFG-1500
Certified Neighborhood Council - West Hills
Community Plan Area - Canoga Park-West Hills-Winnetl
Census Tract - 1344.01
Census Tract - 1344.22
District Map - 186B093
Energy Zone - 9
Hillside Grading Area - YES
Earthquake-Induced Liquefaction Area - Yes
Lot Size - IRR
Lot Type - Interior
Near Source Zone Distance - 12.7

ZONES(S): P-1VL / [Q]C1-1VL

4. DOCUMENTS

ZI - ZI-1802 Hillside Grading Ordinance
ORD - ORD-165479-SA1030
ORD - ORD-165479-SA1040
ORD - ORD-173518-SA1
CPC - CPC-1986-609-GPC
CPC - CPC-1997-41

5. CHECKLIST ITEMS

6. PROPERTY OWNER, TENANT, APPLICANT INFORMATION

Owner(s):
LEIMERT SATICOY L P — 606 LARCHMONT BLVD STE 300 — LOS ANGELES CA 90004

Tenant:

Applicant: (Relationship: Agent for Owner)
GABRIEL RUSPINI - — 3857 PROSPECT AV — CULVER CITY 90232 — (310) 202-1859

7. EXISTING USE	PROPOSED USE
(16) Retail	(17) Restaurant
(17) Restaurant	(13) Medical Office
	(16) Retail

8. DESCRIPTION OF WORK
CHG OF USE TO MEDICAL OFFICE FROM RETAIL (17.5'x65')=1137 s.f.

9. # Bldgs on Site & Use: 1-RETAILS/RESTAURANT

10. APPLICATION PROCESSING INFORMATION

BLDG. PC By: Abdul Chegeni
OK for Cashier: Abdul Chegeni
DAS PC By:
Coord. OK:
Signature:
Date:

For inspection requests, call toll-free **(888) LA4BUILD** (524-2845), or request inspections via **www.ladbs.org.** To speak to a Call Center agent, call **311**. Outside LA County, call (213) 473-3231.

For Cashier's Use Only **W/O #: 61603888**

11. PROJECT VALUATION & FEE INFORMATION Final Fee Period

Permit Valuation: $23,000 PC Valuation:

FINAL TOTAL Bldg-Alter/Repair	416.63
Permit Fee Subtotal Bldg-Alter/Re	346.50
Handicapped Access	
Plan Check Subtotal Bldg-Alter/R	0.00
Plan Maintenance	10.00
Fire Hydrant Refuse-To-Pay	
E.Q. Instrumentation	4.83
O.S. Surcharge	7.23
Sys. Surcharge	21.68
Planning Surcharge	21.39
Planning Surcharge Misc Fee	5.00
Permit Issuing Fee	0.00

Sewer Cap ID: Total Bond(s) Due:

Payment Date: 03/30/06
Receipt No: VN16-130181
Amount: $416.63
Method: Credit Card

12. ATTACHMENTS
Plot Plan

0800106016200000038888FN

13. STRUCTURE INVENTORY (Note: Numeric measurement data in the format "number / number" implies "change in numeric value / total resulting numeric value")

06016 - 20000 - 03888

(P) Floor Area (ZC): 0 Sqft / Sqft
(P) Height (ZC): 0 Feet / Feet
(P) Length: 0 Feet / Feet
(P) Stories: 0 Stories / 1 Stories
(P) Width: 0 Feet / Feet
(P) A3 Occ. Group: 0 Sqft / Sqft
(P) B Occ. Group: +1137 Sqft / 1137 Sqft
(P) M Occ. Group: -1137 Sqft / Sqft
(P) Parking Req'd for Bldg (Auto+Bicycle): +1 Stalls / 26
(P) Provided Compact for Bldg: 0 Stalls / 38 Stalls
(P) Provided Disabled for Bldg: 0 Stalls / 5 Stalls
(P) Provided Standard for Bldg: 0 Stalls / 212 Stalls
(P) Parking Req'd for Site (Auto+Bicycle): 0 Stalls / 255
(P) Provided Disabled for Site: 0 Stalls / 5 Stalls
(P) Provided Standard for Site: 0 Stalls / 212 Stalls
(P) Type III-N Construction
(P) Floor Construction - Concrete Slab on Grade
(P) Roof Construction - Wood Frame/Sheathing
(P) Wall Construction - Masonry
(P) Wall Construction - Wood Stud

14. APPLICATION COMMENTS:

** Approved Seismic Gas Shut-Off Valve may be required. ** EXTRA OF 1-PKG. STALL REQ'D AND PROVIDED.

15. BUILDING RELOCATED FROM:

16. CONTRACTOR, ARCHITECT & ENGINEER NAME	ADDRESS		CLASS	LICENSE #	PHONE #
(C) M C PLUMBING AND ROOTER SERVICI	20658 ROSCOE BLVD,	WINNETKA, CA 91306	B	648161	(818) 348-6302

PLOT PLAN ATTACHMENT
City of Los Angeles - Department of Building and Safety
Bldg-Alter/Repair
Commercial
Plan Check
Plan Check #: B06VN02861
Initiating Office: VAN NUYS
Printed on: 03/30/06 12:43:00
23233 W Saticoy St
Permit Application #: 06016 - 20000 - 03888
PLOT PLAN ATTACHMENT
COUNCIL DISTRICT: 3
SATICOY STREET
SUBJECT UNIT
SUPERMARKET 24,460 SF
SHOES 4600 SF
SHOES 3900 SF
BUILDING 7396 SF
TRASH
P.P.
EXISTING LOADING DOCK
SERVICE STATION
NOT A PART
PARCEL "A"
PARCEL "B"
P.O.T.
18'(E)
8'10'(E)
10'(E)
1510 SF
900 SF
900 SF
1170 SF
1138 SF
1127 SF
ELEC.
Parking req'd: see permit # 06016-20000-03888
Provided: 211 + 4 H/C = 215
Req'd: 1 / 200 = 215

23233 W Saticoy St

Application #: **04030 - 10000 - 02800**
Plan Check #: B03LA01375 Printed: 04/09/21 01:25 PM
Event Code:

Grading
Commercial
Express Permit
No Plan Check

City of Los Angeles - Department of Building and Safety

APPLICATION FOR GRADING PERMIT AND GRADING CERTIFICATE

Issued on: 08/26/2004
Last Status: Permit Finaled
Status Date: 05/19/2005

1. TRACT	BLOCK	LOT(s)	ARB	COUNTY MAP REF #	PARCEL ID # (PIN #)	2. ASSESSOR PARCEL #
TR 25773		LT 1	2	M B 668-50	186B093 85	2027 - 005 - 005

3. PARCEL INFORMATION

Area Planning Commission - South Valley
LADBS Branch Office - VN
Council District - 3
Cmpt. Fill Grd. - CFG-1500
Certified Neighborhood Council - West Hills
Community Plan Area - Canoga Park-West Hills-Winnetl
Census Tract - 1344.01
Census Tract - 1344.22
District Map - 186B093
Energy Zone - 9
Fire District - FBZ
Hillside Grading Area - YES
Earthquake-Induced Liquefaction Area - YES
Near Source Zone Distance - 12.7
Thomas Brothers Map Grid - 529-F4

ZONES(S): P-1VL / [Q]C1-1VL

4. DOCUMENTS

ZI - ZI-1802
ORD - ORD-165479-SA1040
ORD - ORD-173518-SA1
CPC - CPC-1997-41-CPU

5. CHECKLIST ITEMS

6. PROPERTY OWNER, TENANT, APPLICANT INFORMATION

Owner(s):
LEIMERT SATICOY L P 606 LARCHMONT BLVD STE 300 LOS ANGELES CA 90004

Tenant:

Applicant: (Relationship: Architect)
MICHELE MCDONOUGH - 2424 5TH AV LA, CA 90018 (323) 731-8377

7. EXISTING USE

PROPOSED USE
(70) Grading - Hillside

8. DESCRIPTION OF WORK
Remove and Recompaction at 12" depth at bldg pad for bldg addition under permit # 03014-10000-04774. 120 cuyd.

9. # Bldgs on Site & Use: RETAIL

10. APPLICATION PROCESSING INFORMATION

BLDG. PC By:
DAS PC By:
OK for Cashier: Timothy Fan
Coord. OK:
Signature:
Date:

For inspection requests, call toll-free **(888) LA4BUILD (524-2845)**, or request inspections via **www.ladbs.org.** To speak to a Call Center agent, call **311**. Outside LA County, call (213) 473-3231.

For Cashier's Use Only **W/O #: 43002800**

11. PROJECT VALUATION & FEE INFORMATION Final Fee Period

Permit Valuation: 120 cu yd PC Valuation:

FINAL TOTAL Grading	354.65
Permit Fee Subtotal Grading	295.00
O.S. Surcharge	6.30
Sys. Surcharge	18.90
Planning Surcharge	9.45
Planning Surcharge Misc Fee	5.00
Permit Issuing Fee	20.00

Payment Date: 08/26/04
Receipt No: LA03-118595
Amount: $354.65
Method: Check

2004LA63091

Sewer Cap ID: Total Bond(s) Due:

12. ATTACHMENTS

08001040301000002800FN

13. STRUCTURE INVENTORY (Note: Numeric measurement data in the format "number / number" implies "change in numeric value / total resulting numeric value") **04030 - 10000 - 02800**

14. APPLICATION COMMENTS:

15. BUILDING RELOCATED FROM:

16. CONTRACTOR, ARCHITECT & ENGINEER NAME	ADDRESS		CLASS	LICENSE #	PHONE #
(A) MCDONOUGH, MICHELE MARIE	2424 FIFTH AVENUE,	LOS ANGELES, CA 90018		C25320	
(C) WIEDER JONATHAN SIMON	5146 GREEN CREST ROAD,	LA CANADA, CA 91011	B	351241	
(E) MERCADO, LIZANDRO	30403 NORTH MALLORCA PL,	CASTAIC, CA 91384		S4331	

23233 W Saticoy St #109

Application #: **16016 - 20000 - 18168**
Plan Check #: B16VN10533 Printed: 04/09/21 01:26 PM
Event Code:

Bldg-Alter/Repair
Commercial
Expanded Counter Plan Check
Plan Check

City of Los Angeles - Department of Building and Safety

APPLICATION FOR BUILDING PERMIT AND CERTIFICATE OF OCCUPANCY

Issued on: 01/23/2017
Last Status: CofO Issued
Status Date: 04/21/2017

1. TRACT	BLOCK	LOT(s)	ARB	COUNTY MAP REF #	PARCEL ID # (PIN #)	2. ASSESSOR PARCEL #
TR 25773		LT 1	2	M B 668-50	186B093 85	2027 - 005 - 005

3. PARCEL INFORMATION

Area Planning Commission - South Valley
LADBS Branch Office - VN
Council District - 12
Cmpt. Fill Grd. - CFG-1500
Certified Neighborhood Council - West Hills
Community Plan Area - Canoga Park-West Hills-Winnetl
Census Tract - 1344.23
District Map - 186B093
Energy Zone - 9
Hillside Grading Area - YES
Earthquake-Induced Liquefaction Area - Yes
Near Source Zone Distance - 12
Thomas Brothers Map Grid - 529-F4
Thomas Brothers Map Grid - 529-G4

ZONES(S): P-1VL / [Q]C1-1VL

4. DOCUMENTS

ZA - ZA-2014-957-CUW
ZA - ZA-2016-1069-ZV
ORD - ORD-118551
ORD - ORD-129279
ORD - ORD-165479-SA1030
ORD - ORD-165479-SA1040
ORD - ORD-173518-SA1
CPC - CPC-1986-609-GPC
CPC - CPC-1997-41-CPU
CPC - CPC-9934-ZBA

5. CHECKLIST ITEMS

Std. Work Descr - Seismic Gas Shut Off Valve

6. PROPERTY OWNER, TENANT, APPLICANT INFORMATION

Owner(s):
LEIMERT SATICOY LP 606 LARCHMONT BLVD 300 LOS ANGELES CA 90004

Tenant:

Applicant: (Relationship: Tenant)
GUIZHI YANG - 23233 SATICOY ST #109 WEST HILLS, CA 91304 (818) 486-6858

7. EXISTING USE
(16) Retail

PROPOSED USE
(16) Massage Parlor

8. DESCRIPTION OF WORK
Change of use from retail to massage parlor per ZA-2016-1069-ZV with non structural interior tenant improvement, where any person who provides massage services at this premise shall be certified as a massage therapist or massage practitioner pursuant to California Business and Professions Section 4600 et seq. HOURS OF OPERATION

9. # Bldgs on Site & Use:

10. APPLICATION PROCESSING INFORMATION

BLDG. PC By: Jose Rodriguez DAS PC By:
OK for Cashier: Angelica Martinez Coord. OK:
Signature: Date:

For inspection requests, call toll-free **(888) LA4BUILD (524-2845)**, or request inspections via **www.ladbs.org.** To speak to a Call Center agent, call **311**. Outside LA County, call (213) 473-3231.

For Cashier's Use Only **W/O #: 61618168**

11. PROJECT VALUATION & FEE INFORMATION Final Fee Period

Permit Valuation: $40,000 PC Valuation:

FINAL TOTAL Bldg-Alter/Repair	577.71
Permit Fee Subtotal Bldg-Alter/Re	461.25
Handicapped Access	
Plan Check Subtotal Bldg-Alter/R	0.00
E.Q. Instrumentation	11.20
D.S.C. Surcharge	14.17
Sys. Surcharge	28.35
Planning Surcharge	27.68
Planning Surcharge Misc Fee	10.00
Planning Gen Plan Maint Surcharg	23.06
CA Bldg Std Commission Surchar	2.00
Permit Issuing Fee	0.00

Sewer Cap ID: Total Bond(s) Due:

Payment Date: 01/23/17
Receipt No: 0202384251
Amount: $577.71
Method: Check

12. ATTACHMENTS

Plot Plan

08001160162000018168FN

13. STRUCTURE INVENTORY (Note: Numeric measurement data in the format "number / number" implies "change in numeric value / total resulting numeric value")

16016 - 20000 - 18168

(P) B Occ. Group: +1138 Sqft / 1138 Sqft
(P) M Occ. Group: -1138 Sqft / 0 Sqft
(P) B Occ. Load: +6 Max Occ. / 6 Max Occ.
(P) M Occ. Load: -37 Max Occ. / 0 Max Occ.
(P) Parking Req'd for Site (Auto+Bicycle): 0 Stalls / Stal
(P) Total Provided Parking for Site: 0 Stalls / Stalls
(P) Type V-B Construction

14. APPLICATION COMMENTS:

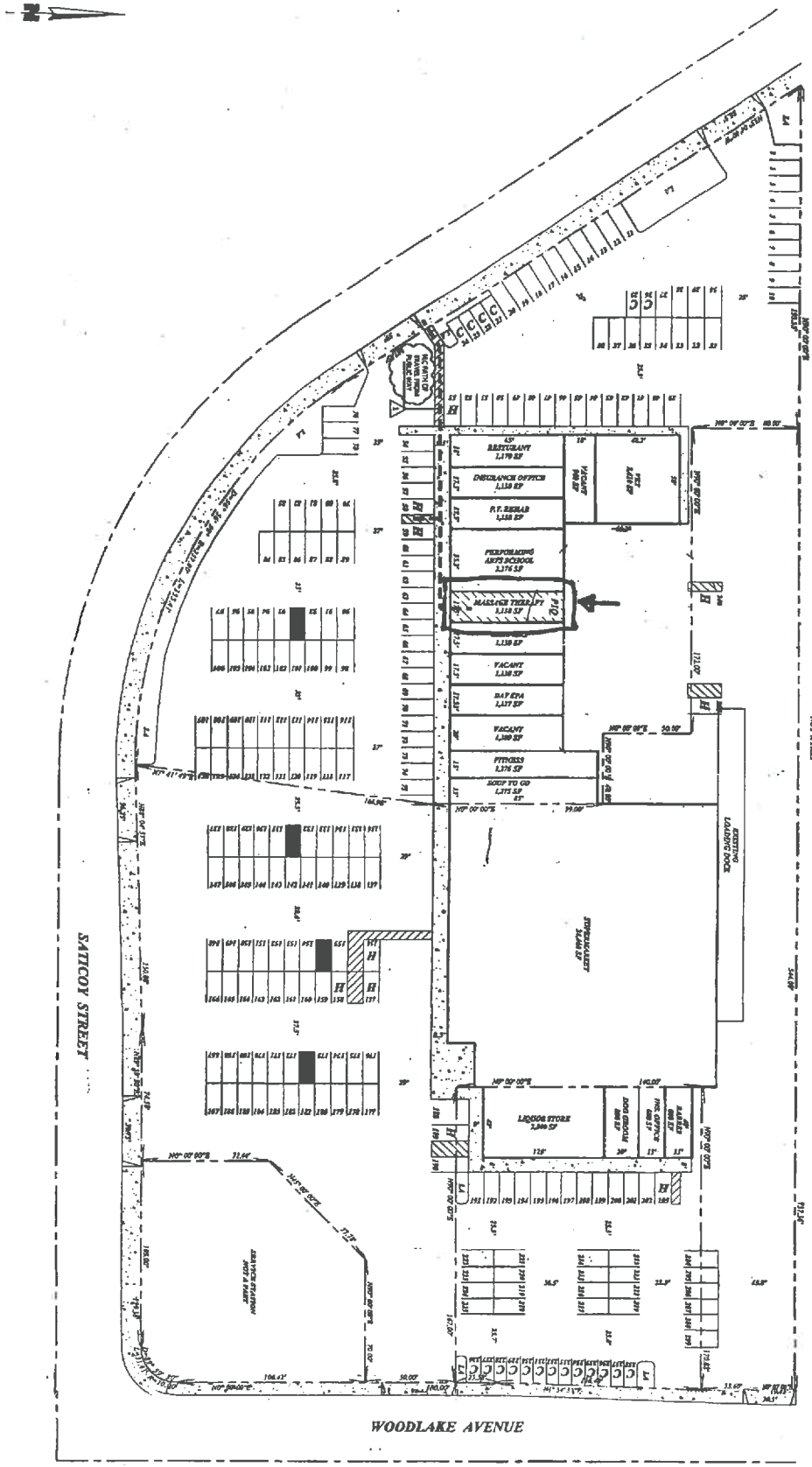
** Approved Seismic Gas Shut-Off Valve may be required. ** Existing Retail use under Cof O 1988VN44022

15. BUILDING RELOCATED FROM:

16. CONTRACTOR, ARCHITECT & ENGINEER NAME	ADDRESS		CLASS	LICENSE #	PHONE #
(A) CHOU, GEORGE KECHUNG	18501 VIDORA DRIVE A,	ROWLAND HEIGHTS, CA		C27103	
(C) A L C CONSTRUCTION LLC	924 WEST WASHINGTON BLVD,	LOS ANGELES, CA 90015	B	988010	

Bldg-Alter/Repair Commercial Plan Check	City of Los Angeles - Department of Building and Safety **PLOT PLAN ATTACHMENT**	Plan Check #: B16VN10533 Initiating Office: VAN NUYS Printed on: 01/23/17 15:51:48

(DO NOT DRAW, WRITE, OR PASTE ATTACHMENTS OUTSIDE BORDER)



am 01/23/17

COUNCIL DISTRICT: 12 INSPECTION DISTRICT: BIGIVN1 PLOT PLAN

23233 W Saticoy St #111

Application #: **19016 - 20000 - 05783**
Plan Check #: B19VN03212 Printed: 04/09/21 01:26 PM
Event Code:

Bldg-Alter/Repair **GREEN - NONE**
Commercial
Plan Check at Counter
Plan Check

City of Los Angeles - Department of Building and Safety

APPLICATION FOR BUILDING PERMIT AND CERTIFICATE OF OCCUPANCY

Issued on: 03/08/2019
Last Status: Permit Finaled
Status Date: 02/06/2020

1. TRACT	BLOCK	LOT(s)	ARB	COUNTY MAP REF #	PARCEL ID # (PIN #)	2. ASSESSOR PARCEL #
TR 25773		LT 1	2	M B 668-50	186B093 85	2027 - 005 - 005

3. PARCEL INFORMATION

Area Planning Commission - South Valley
LADBS Branch Office - VN
Council District - 12
Cmpt. Fill Grd. - CFG-1500
Certified Neighborhood Council - West Hills
Community Plan Area - Canoga Park-West Hills-Winnetl
Census Tract - 1344.23
District Map - 186B093
Energy Zone - 9
Hillside Grading Area - YES
Earthquake-Induced Liquefaction Area - Yes
Near Source Zone Distance - 12
Thomas Brothers Map Grid - 529-F4
Thomas Brothers Map Grid - 529-G4

ZONES(S): P-1VL / [Q]C1-1VL

4. DOCUMENTS

ZA - ZA-2014-957-CUW
ZA - ZA-2016-1069-ZV
ORD - ORD-118551
ORD - ORD-129279
ORD - ORD-165479-SA1030
ORD - ORD-165479-SA1040
ORD - ORD-173518-SA1
CPC - CPC-1986-609-GPC
CPC - CPC-1997-41-CPU
CPC - CPC-9934-ZBA

5. CHECKLIST ITEMS

Permit Flag - Not a Fire Life Safety Project
Std. Work Descr - Seismic Gas Shut Off Valve
Combine Plumbg - Wrk. per 91.107.2.1.1.1

6. PROPERTY OWNER, TENANT, APPLICANT INFORMATION

Owner(s):
CHAMINADE COLLEGE PREPARATORY 10210 OAKDALE AVE CHATSWORTH CA 91311

Tenant:

Applicant: (Relationship: Agent for Contractor)
CHRISTIAN HARREL - (480) 343-1886

7. EXISTING USE / **PROPOSED USE**

(16) Retail

8. DESCRIPTION OF WORK

TENANT IMPROVEMENT TO (E) RETAIL STORE TO REMOVE SINK & TOILET AND ADD ONE SHOWER STALL. NO STRUCTURAL CHANGES ARE MADE. "COMPLY WITH DEPARTMENT ORDER effective date10/04/2016. PERMIT WILL EXPIRE 30 DAYS FROM ISSUANCE DATE". All permits shall be for the same time

9. # Bldgs on Site & Use: 1) COMMERCIAL BUILDING

10. APPLICATION PROCESSING INFORMATION

BLDG. PC By: Gurunath Nesarajah
DAS PC By:
OK for Cashier: Karen Hyde
Coord. OK:
Signature:
Date:

For inspection requests, call toll-free **(888) LA4BUILD (524-2845)**, or request inspections via **www.ladbs.org.** To speak to a Call Center agent, call **311**. Outside LA County, call (213) 473-3231.

For Cashier's Use Only **W/O #: 91605783**

11. PROJECT VALUATION & FEE INFORMATION Final Fee Period

Permit Valuation: $6,500 PC Valuation:

FINAL TOTAL Bldg-Alter/Repair	627.41	Permit Issuing Fee	0.00
Permit Fee Subtotal Bldg-Alter/Re	146.25	Linkage Fee	0.00
Handicapped Access			
Plan Check Subtotal Bldg-Alter/R	0.00		
E.Q. Instrumentation	1.82		
Investigation-CE	400.00		
D.S.C. Surcharge	16.44		
Sys. Surcharge	32.88		
Planning Surcharge	8.78		
Planning Surcharge Misc Fee	10.00		
Planning Gen Plan Maint Surcharg	10.24		
CA Bldg Std Commission Surchar	1.00		
Green Building			

Sewer Cap ID: Total Bond(s) Due:

Payment Date: 03/08/19
Receipt No: 0202610887
Amount: $627.41
Method: Visa

2019VN88843

12. ATTACHMENTS

Plot Plan



13. STRUCTURE INVENTORY (Note: Numeric measurement data in the format "number / number" implies "change in numeric value / total resulting numeric value")

19016 - 20000 - 05783

(P) M Occ. Load. +11.15 Max Occ. / 11.15 Max Occ.

14. APPLICATION COMMENTS:

- 1 WATER CLOSET IS REQUIRED PER RETAIL STORE - 2 (E) WATER CLOSETS TO BE REDUCED TO1 PER TENANT IMPROVEMENT.

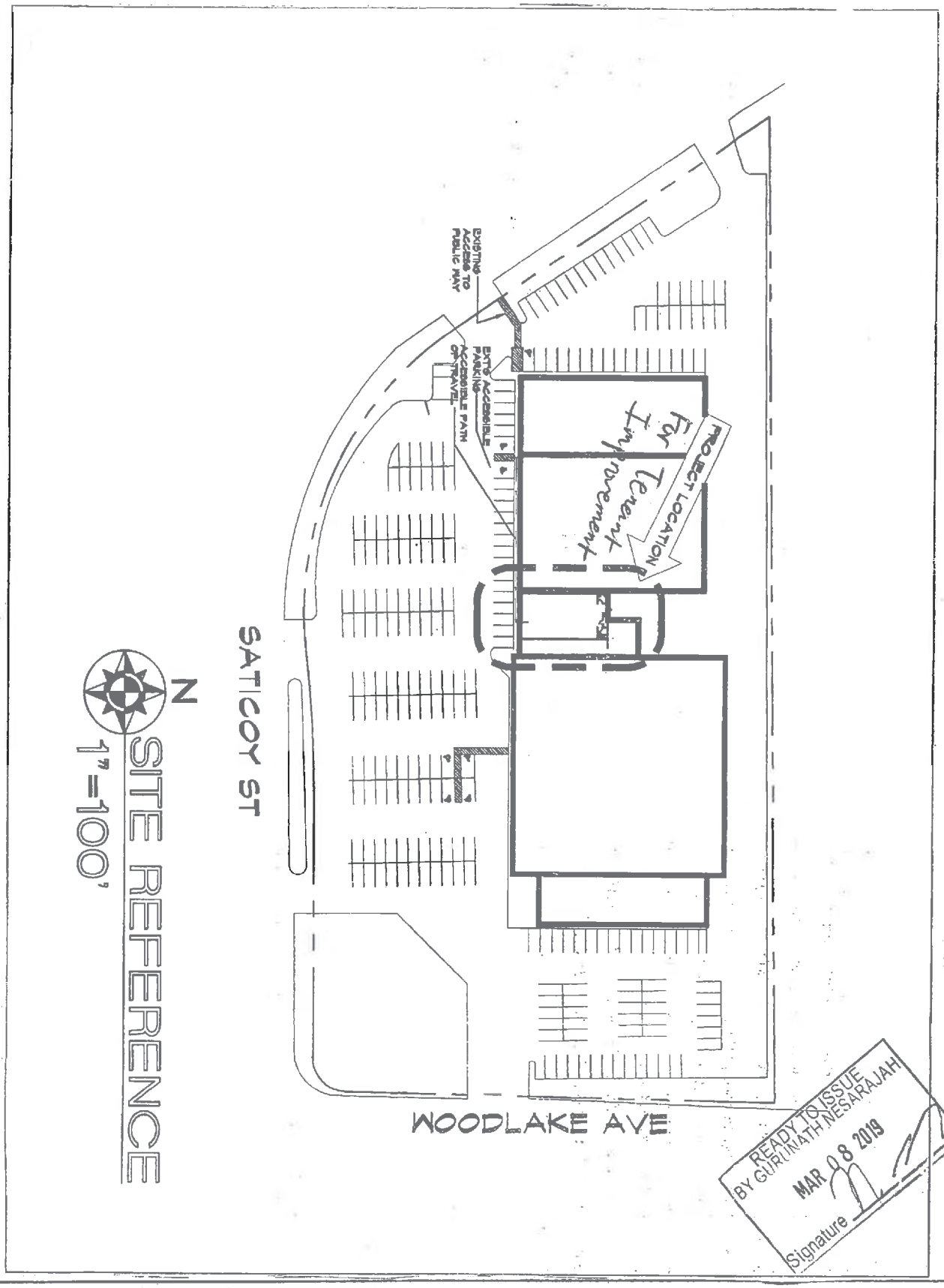
15. BUILDING RELOCATED FROM:

16. CONTRACTOR, ARCHITECT & ENGINEER NAME	ADDRESS		CLASS	LICENSE #	PHONE #
(C) DESERT WEST CONTRACTING	925 N MC QUEEN RD STE 103,	GILBERT, AZ 85233	B	863116	(480) 862-6925
(E) SAHYOUNI,, GEORGE MICHAEL	PO BOX 31136,	TUCSON, AZ 857511136		C54565	

23233 W Saticoy St #111 Permit Application # : **19016 - 20000 - 05783**

Bldg-Alter/Repair Commercial Plan Check	City of Los Angeles - Department of Building and Safety **PLOT PLAN ATTACHMENT**	Plan Check #: B19VN03212 Initiating Office: VAN NUYS Printed on: 02/28/19 10:28:59

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COUNCIL DISTRICT: 12 INSPECTION DISTRICT: BIGIVN1 PLOT PLAN

23217 W Saticoy St

Application #: **04016 - 20000 - 15478**
Plan Check #:
Printed: 04/09/21 01:34 PM
Event Code:

Bldg-Alter/Repair
Commercial
Plan Check at Counter
Plan Check

City of Los Angeles - Department of Building and Safety

APPLICATION FOR BUILDING PERMIT AND CERTIFICATE OF OCCUPANCY

Issued on: 08/12/2004
Last Status: Permit Finaled
Status Date: 01/21/2005

1. TRACT	BLOCK	LOT(s)	ARB	COUNTY MAP REF #	PARCEL ID # (PIN #)	2. ASSESSOR PARCEL #
TR 25773		LT 1	3	M B 668-50	186B093 86	2027 - 005 - 006

3. PARCEL INFORMATION

Area Planning Commission - South Valley
LADBS Branch Office - VN
Council District - 3
Certified Neighborhood Council - West Hills
Community Plan Area - Canoga Park-West Hills-Winnetl
Census Tract - 1344.01
District Map - 186B093
Energy Zone - 9
Fire District - FBZ
Hillside Grading Area - YES
Earthquake-Induced Liquefaction Area - YES
Near Source Zone Distance - 12.7
Thomas Brothers Map Grid - 529-F4
Thomas Brothers Map Grid - 529-G4

ZONES(S): P-1VL / [Q]C1-1VL

4. DOCUMENTS

ZI - ZI-1802
ZA - ZA-1987-653-PAB
ORD - ORD-118552
ORD - ORD-165479-SA1030
ORD - ORD-165479-SA1040
ORD - ORD-173518-SA1
CPC - CPC-1986-609
CPC - CPC-1997-41
CPC - CPC-25571
CPC - CPC-9934

5. CHECKLIST ITEMS

Special Inspect - Anchor Bolts
Special Inspect - Epoxy Bolts
Std. Work Descr - Doors/Windows Changeout
Std. Work Descr - Interior Non-struct. Remo
Std. Work Descr - Patch Plaster/Drywall

6. PROPERTY OWNER, TENANT, APPLICANT INFORMATION

Owner(s):
LEIMERT, WALTER H JR TR ET AL TIM 606 LARCHMONT BLVD # 302 LOS ANGELES CA 90004

Tenant:

Applicant: (Relationship: Owner)
-

7. EXISTING USE / **PROPOSED USE**

(16) Retail

8. DESCRIPTION OF WORK

INTERIOR REMODEL <IN (E) LIQUER STORE, NO CHANGE OF USE> - ADD (2) OPENINGS IN (E) WALL AND(2) HEADERS ABOVE. REMOVE (E) 9' LONG HALF WALL

9. # Bldgs on Site & Use: (1) -LIQUOR STORE

10. APPLICATION PROCESSING INFORMATION

BLDG. PC By: Charles Chang
OK for Cashier: Tienjen Wang
DAS PC By:
Coord. OK:
Signature:
Date:

For inspection requests, call toll-free **(888) LA4BUILD (524-2845)**, or request inspections via **www.ladbs.org.** To speak to a Call Center agent, call **311**. Outside LA County, call (213) 473-3231.

For Cashier's Use Only **W/O #: 41615478**

11. PROJECT VALUATION & FEE INFORMATION Final Fee Period

Permit Valuation: $3,000 PC Valuation:

FINAL TOTAL Bldg-Alter/Repair	600.02
Permit Fee Subtotal Bldg-Alter/Re	146.25
Handicapped Access	
Plan Check Subtotal Bldg-Alter/R	0.00
Fire Hydrant Refuse-To-Pay	
E.Q. Instrumentation	0.63
Investigation	400.00
O.S. Surcharge	10.94
Sys. Surcharge	32.81
Planning Surcharge	4.39
Planning Surcharge Misc Fee	5.00
Permit Issuing Fee	0.00

Sewer Cap ID:
Total Bond(s) Due:

Payment Date: 08/12/04
Receipt No: VN07-112975
Amount: $600.02
Method: Check

2004VN56709

12. ATTACHMENTS

Plot Plan



13. STRUCTURE INVENTORY (Note: Numeric measurement data in the format "number / number" implies "change in numeric value / total resulting numeric value") 04016 - 20000 - 15478

14. APPLICATION COMMENTS:

15. BUILDING RELOCATED FROM:

16. CONTRACTOR, ARCHITECT & ENGINEER NAME	ADDRESS		CLASS	LICENSE #	PHONE #
(A) SILVA, MICHAEL DEAN	P O BOX 260192,	ENCINO, CA 91426		C12976	(818) 705-7768
(C) FORM ARCHITECTURAL	17721 VALLEY VISTA BLVD.	ENCINO, CA 91316	B	442000	(818) 705-7768

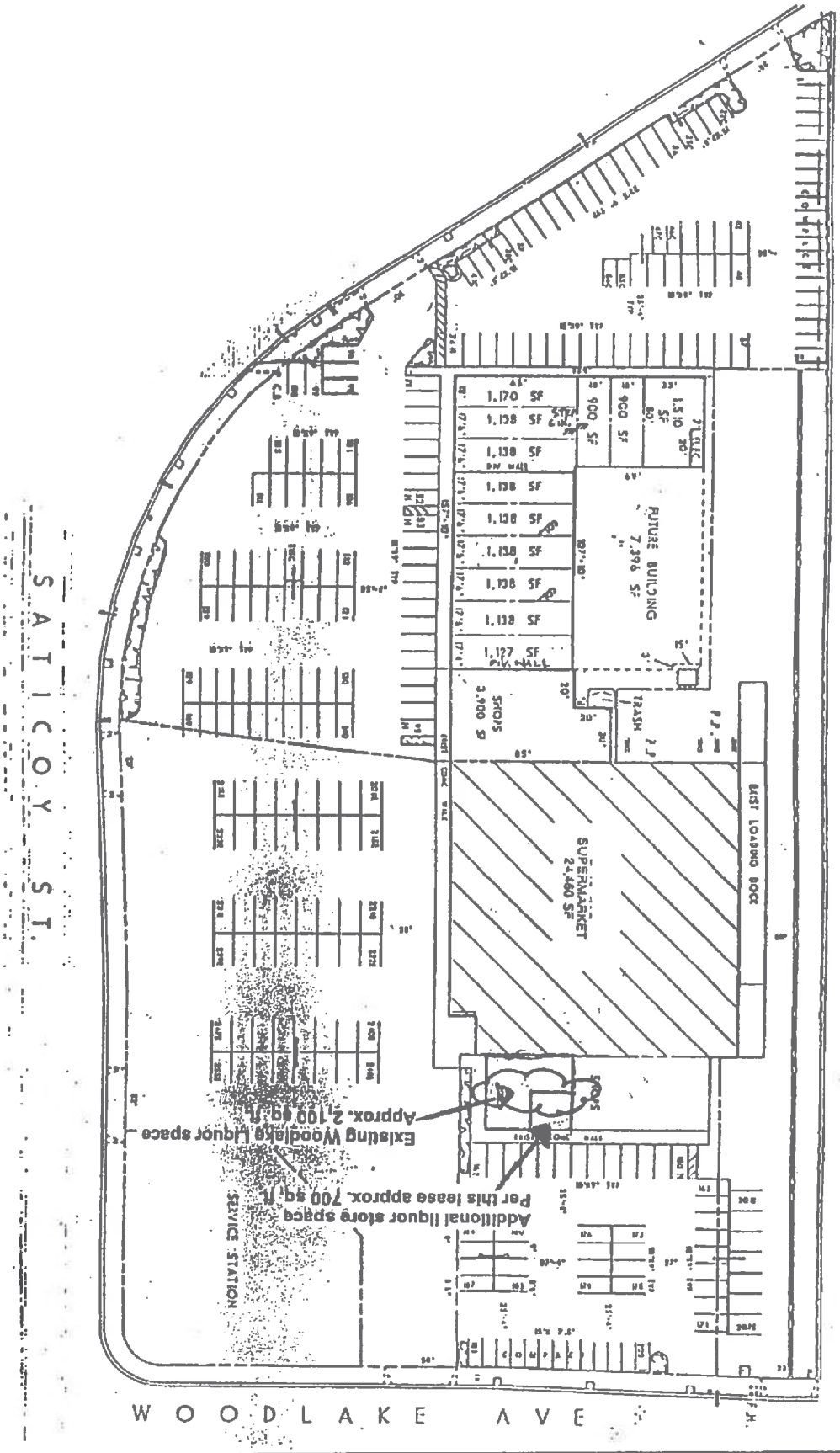
Bldg-Alter/Repair
Commercial
No Submit Plan Check

City of Los Angeles - Department of Building and Safety

PLOT PLAN ATTACHMENT

Plan Check #:
Initiating Office: VAN NUYS
Printed on: 08/09/04 16:34:09

(DO NOT DRAW, WRITE, OR PASTE ATTACHMENTS OUTSIDE BORDER)



COUNCIL DISTRICT: 3

PLOT PLAN ATTACHMENT

SWCA®
ENVIRONMENTAL CONSULTANTS
Sound Science. Creative Solutions.®

320 North Halstead Street, Suite 120
Pasadena, California 91107
Tel 626.240.0587 Fax 626.568.2958
www.swca.com

2136

TECHNICAL MEMORANDUM

To: Stacie Henderson
CAJA Environmental Services, LLC
15350 Sherman Way, Suite 315
Van Nuys, California 91406

From: Rafaella Lisboa, Project Manager

Date: March 9, 2023

Re: **Archaeological Resources Assessment for the Proposed Chaminade College Preparatory High School Project, West Hills, California / SWCA Project No. 067816**

INTRODUCTION

CAJA Environmental Services, LLC (CAJA), retained SWCA Environmental Consultants (SWCA) to conduct an archaeological resources assessment for the proposed Chaminade College Preparatory High School Project (project), located in the West Hills neighborhood of the city of Los Angeles, California. The study was carried out to identify the presence of archaeological resources on the project site and assess the potential for encountering undocumented archaeological resources as a result of project implementation. In accordance with the approved scope of work, built architectural resources are not addressed.

The proposed project will expand and update the school campus with a total lot area of approximately 25.86 acres, including a new three-story school building, updated parking areas, remodeled athletic fields, new student quads, and renovated classrooms and offices on the existing campus (located on approximately 21.03 acres at 7500 Chaminade Avenue, 23241 Cohasset Street, and 23260 Saticoy Street; "Main Campus"), an expanded school campus to include approximately 4.83 acres located across Saticoy Street at 23217–23255 Saticoy Street and 7619–7629 Woodlake Avenue proposed for new athletic and parking facilities (new "North Campus"), and a new pedestrian bridge across Saticoy Street ("pedestrian bridge"). This memorandum summarizes the environmental and cultural context for the project and its vicinity, presents the results of background research conducted through the California Historical Resources Information System (CHRIS) and additional archival sources, provides findings with regard to potential archaeological constraints, and offers recommendations for future work based on the findings. Since the project site is fully paved, landscaped, or otherwise developed, thereby obscuring the original ground surface, an archaeological resources survey was not conducted as part of this study. The studies were conducted in accordance with the California Environmental Quality Act (CEQA), with the City of Los Angeles (City) as lead agency.

This archaeological resources assessment was prepared by Project Manager Rafaella Lisboa, M.A., RPA, who conducted background research and authored the report, under the direction of Principal Investigator Michael Bever, Ph.D., RPA, who meets the Secretary of the Interior's Professional Qualifications Standards (PQS) for archaeology.

PROJECT DESCRIPTION

The project consists of changing the existing Main Campus and adding a new North Campus. The changes to the Main Campus include a partial demolition of existing surface parking lots, demolition of approximately 32,204 square feet of existing classroom buildings, including the removal of existing portable buildings, and the addition of approximately 60,760 square feet of new floor area to include a new administrative, multi-purpose and classroom building, renovation of existing offices, and the addition of electric vehicle (EV) parking and charging stations within most existing surface parking lots.

The project also involves the expansion of the high school to the North Campus on the north side of Saticoy Street, including the demolition of the existing structures on site totaling approximately 58,706 square feet and the existing surface parking lot. The expansion to the North Campus includes the development of approximately 8,494 square feet of floor area within a proposed athletic field pool house, locker rooms, and proposed building to house restrooms and concessions. The balance of the North Campus site will include a proposed new soccer and baseball field, a new pool and two new surface parking lots. The maximum depth of excavation within the Main Campus area is 8 feet; the North Campus area will be excavated to a maximum depth of 20 feet below surface.

A new pedestrian bridge will be constructed to span Saticoy Street, connecting the North Campus to the Main Campus. The pedestrian bridge will have access at the surface parking lot of the North Campus and the new main entrance to the high school on the Main Campus. In addition, new fencing and vehicular gates, to be located along the northeast drive aisle, parent drop-off along Chaminade Avenue, and the easternmost access along Cohasset Street, will be provided on the Main Campus to complete the perimeter security. New 10-foot-high ornamental fencing will be provided around the perimeter of the North Campus.

New construction on the Main Campus includes a multistory building at the main entrance that will include administrative offices, counseling offices, a library, a multi-purpose room, classrooms, and laboratories. The existing single-story administrative office buildings at the southeast corner of the Main Campus will undergo renovation but will not increase in floor area or height. A new surface parking lot will be constructed in place of the existing paved driveway adjacent to the single-story office building at the southeast corner of the Main Campus. Finally, additional improvements to the Main Campus will include minor demolition and resurfacing of the existing baseball field along Cohasset Street, to be reutilized as a softball field, and the removal and resurfacing of the north surface parking lot to create a new landscaped quad area adjacent to the new administrative building.

Improvements to the North Campus include a baseball field, practice soccer fields, swimming pool, associated facilities, and surface parking. The baseball and soccer fields are inclusive of 40-foot-high safety netting along a portion of the outfield perimeter; a 26-foot-high electric scoreboard located in left-center field facing Saticoy Street; single-story locker rooms, batting cages, and bull pens located along the first and third base-lines; bleachers providing approximately 350 seats and a shade structure reaching 19 feet in height are located behind home plate; and an approximately 100-square-foot press box located between the home and visiting seating sections. Eight stadium light standards ranging in height from 70 to 90 feet are proposed, with the 70-foot light standards located along the perimeter of left and right field and the 80- and 90-foot light standards along Saticoy Street and adjacent to the new surface parking lot. To the west of the baseball field, a 1,540-square-foot single story concession and restroom building (16 feet in height), a 95-stall surface parking lot, and entrance to the pedestrian bridge are proposed.

To the east of the baseball field, an in ground pool with four 40-foot-tall light standards, a single-story (19-foot-high), 6,094-square-foot athletic field and pool house, and 19 surface parking stalls is proposed. There are currently four ingress/egress points along Saticoy Street which will be reduced to the two

access points for this project. There are currently two ingress/egress points along Woodlake Avenue, which will be reduced to one ingress/egress driveway at the approximate location of the existing north access point.

PROJECT LOCATION

The project site comprises five parcels. This includes 7500 Chaminade Avenue (Assessor's Parcel Numbers [APNs] 2027-005-002 and -009), which contains the high school campus (the Main Campus). The proposed project will develop another property designated as the North Campus, which is located at the northwest corner of Saticoy Street and Woodlake Avenue, at 23255 Saticoy Street, 7629 Woodlake Avenue, and 7621 Woodlake Avenue (APNs 2027-005-005, -006, and -007). Combined, the Main Campus and proposed North Campus total approximately 25.9 acres. The proposed North Campus is currently developed with a multi-tenant mini shopping center and surface parking lot, built between 1962 to 1964 (Figure A-1 in Appendix A). The project site is in Section 35, Township 2 North, Range 17 West, and is plotted on the U.S. Geological Survey (USGS) Calabasas, California, quadrangle (Figure A-2 in Appendix A).

REGULATORY SETTINGS

State Regulations

The California Office of Historic Preservation (OHP), a division of the California Department of Parks and Recreation (DPR), is responsible for carrying out the duties described in the California Public Resources Code (PRC) and maintaining the California Historic Resources Inventory and California Register of Historical Resources (CRHR). The state-level regulatory framework also includes CEQA, which requires the identification and mitigation of substantial adverse impacts that may affect the significance of eligible historical and archaeological resources.

California Environmental Quality Act

CEQA requires a lead agency to analyze whether historic or archaeological resources may be adversely impacted by a proposed project. Under CEQA, a "project that may cause a substantial adverse change in the significance of a historic resource is a project that may have a significant effect on the environment" (PRC 21084.1). Answering this question is a two-part process. First, the determination must be made as to whether the proposed project involves cultural resources. Second, if cultural resources are present, the proposed project must be analyzed for a potential "substantial adverse change in the significance" of the resource.

HISTORICAL RESOURCES

According to Section 15064.5 of the CEQA Guidelines, for the purposes of CEQA, historical resources are defined as follows:

- A resource listed in, or formally determined eligible . . . for listing in the [CRHR] (PRC 5024.1, Title 14 California Code of Regulations [CCR], Section 4850 et seq.).
- A resource included in a local register of historical resources, as defined in Section 5020.1(k) of the [PRC] or identified as significance in a historic resources survey meeting the requirements of Section 5024.1(g) of the [PRC].
- Any object, building, structure, site, area, place, record, or manuscript that the lead agency determines to be eligible for national, state, or local landmark listing; generally, a resource shall

> be considered by the lead agency to be historically significant (and therefore a historic resource under CEQA) if the resource meets the criteria for listing in the [CRHR] (as defined in PRC Section 5024.1, Title 14 CCR, Section 4852).

Resources nominated to the CRHR must retain enough of their historic character or appearance to convey the reasons for their significance. Resources whose historic integrity (as defined above) does not meet National Register of Historic Places (NRHP) criteria may still be eligible for listing in the CRHR.

According to CEQA, the fact that a resource is not listed in or determined eligible for the CRHR or is not included in a local register or survey shall not preclude the lead agency from determining that the resource may be a historical resource (PRC 5024.1). Pursuant to CEQA, a project with an effect that may cause a substantial adverse change in the significance of a historical resource may have a significant effect on the environment (CEQA Guidelines, Section 15064.5[b]).

ARCHAEOLOGICAL RESOURCES

In terms of archaeological resources, PRC 21083.2(g) defines a unique archaeological resource as an archaeological artifact, object, or site about which it can be clearly demonstrated that without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

- Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information.
- Has a special and particular quality such as being the oldest of its type or the best available example of its type.
- Is directly associated with a scientifically recognized important prehistoric or historic event or person.

If it can be demonstrated that a proposed project will cause damage to a unique archaeological resource, the lead agency may require that reasonable efforts be made to permit any or all of these resources to be preserved in place or left in an undisturbed state. To the extent that they cannot be left undisturbed, mitigation measures are required (PRC 21083.2[a]–[c]). CEQA notes that if an archaeological resource is neither a unique archaeological resource nor a historical resource, the effects of the project on those resources shall not be considered to be a significant effect on the environment (CEQA Guidelines, Section 15064.5[c][4]).

California Register of Historical Resources

Created in 1992 and implemented in 1998, the CRHR is “an authoritative guide in California to be used by state and local agencies, private groups, and citizens to identify the state’s historical resources and to indicate what properties are to be protected, to the extent prudent and feasible, from substantial adverse change” (PRC 21083.2 and 21084.1). Certain properties, including those listed in or formally determined eligible for the NRHP and California Historical Landmarks numbered 770 and higher, are automatically included in the CRHR. Other properties recognized under the California Points of Historical Interest program, identified as significant in historical resources surveys, or designated by local landmarks programs, may be nominated for inclusion in the CRHR. According to PRC 5024.1(c), a resource, either an individual property or a contributor to a historic district, may be listed in the CRHR if the State Historical Resources Commission determines that it meets one or more of the following criteria, which are modeled on NRHP criteria:

- **Criterion 1:** It is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage.
- **Criterion 2:** It is associated with the lives of persons important in our past.
- **Criterion 3:** It embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values.
- **Criterion 4:** It has yielded, or may be likely to yield, information important in history or prehistory.

Resources nominated to the CRHR must retain enough of their historic character or appearance to convey the reasons for their significance. Resources whose historic integrity does not meet NRHP criteria may still be eligible for listing in the CRHR.

Treatment of Human Remains

The disposition of burials falls first under the general prohibition on disturbing or removing human remains under California Health and Safety Code (CHSC) Section 7050.5. More specifically, remains suspected to be Native American are treated under CEQA at CCR Section 15064.5; PRC Section 5097.98 illustrates the process to be followed in the event that remains are discovered. If human remains are discovered during construction, no further disturbance to the site shall occur, and the County Coroner must be notified (CCR 15064.5 and PRC 5097.98).

Local Regulations

Los Angeles Historic-Cultural Monuments

Local landmarks in the City of Los Angeles are known as Historic-Cultural Monuments (HCMs) and are under the aegis of the City of Los Angeles Planning Department, Office of Historic Resources (OHR). An HCM, monument, or local landmark is defined in the Cultural Heritage Ordinance as follows:

> Historic-Cultural Monument (Monument) is any site (including significant trees or other plant life located on the site), building or structure of particular historic or cultural significance to the City of Los Angeles, including historic structures or sites in which the broad cultural, economic or social history of the nation, State or community is reflected or exemplified; or which is identified with historic personages or with important events in the main currents of national, State or local history; or which embodies the distinguishing characteristics of an architectural type specimen, inherently valuable for a study of a period, style or method of construction; or a notable work of a master builder, designer, or architect whose individual genius influenced his or her age (Municipal Code Section 22.171.7).

City of Los Angeles General Plan

The Conservation Element of the City of Los Angeles General Plan recognizes paleontological resources in Section 3: "Archaeological and Paleontological" (II-3) and identifies protection of paleontological resources as an objective (II-5). The General Plan identifies site protection as important, stating, "Pursuant to CEQA, if a land development project is within a potentially significant paleontological area, the developer is required to contact a bona fide paleontologist to arrange for assessment of the potential impact and mitigation of potential disruption of or damage to the site. If significant paleontological resources are uncovered during project execution, authorities are to be notified and the designated paleontologist may order excavations stopped, within reasonable time limits, to enable assessment, removal or protection of the resources" (City of Los Angeles 2001).

City of Los Angeles CEQA Thresholds of Significance

The City of Los Angeles' CEQA Thresholds of Significance Guide (City of Los Angeles 2006) Section D:1 specifies that the determination of significance for paleontological resources shall be made on a case-by-case basis, taking into consideration the following factors:

- Whether, or the degree to which, the project might result in the permanent loss of, or loss of access to, a paleontological resource; and
- Whether the paleontological resource is of regional or statewide significance (City of Los Angeles 2006).

SETTING

Environmental Setting

The project site is located in the West Hills neighborhood of the City, situated in the western portion of the San Fernando Valley. The project site is within a highly developed and urbanized area bordered by the Simi Hills to the west, Chatsworth to the north, Canoga Park to the east, and U.S. Route 101 to the south (Figure A-3 in Appendix A). The immediate vicinity of the project site is characterized primarily by residential properties. Geographically, the project site is located 4 miles north of the Santa Monica Mountains and 2 miles southwest of Chatsworth Reservoir, which is formed on the eastern margin of the Simi Hills. The project site is situated on a relatively flat, alluvial plain with a slight southern aspect at an elevation of approximately 255 meters (m) (837 feet) above mean sea level. The surficial geology of the site has been identified as late to middle Pleistocene old alluvial fan deposits, undivided (Qof) and late Miocene Modelo Formation, undivided (Tm). According to the paleontological resources study conducted for this project, the depth to the underlying, previously undisturbed sediments is unknown, but likely very shallow (e.g., 3 feet below ground surface) (Carson 2022). Historical topographic maps show two intermittent streams in the vicinity of the project site: Dayton Creek approximately 0.6 miles to the north, and Bell Creek approximately 0.7 mile to the south. Dayton Creek connects to Chatsworth Creek, which is located approximately 0.7 mile east of the project site. Both Chatsworth and Bell Creeks connect to the south-flowing Los Angeles River, currently located approximately 2.1 miles southeast of the project site (Figure A-4 in Appendix A).

CULTURAL SETTING

Prehistoric Period

In the past several decades, researchers have devised numerous prehistoric chronological sequences to aid in understanding cultural changes in southern California. Building on early studies and focusing on data synthesis, Wallace (1955, 1978) developed a prehistoric chronology for the southern California coastal region that is still widely used today and is applicable to near-coastal and many inland areas. Four horizons are presented in Wallace's prehistoric sequence: Early Man, Milling Stone, Intermediate, and Late Prehistoric. Although Wallace's 1955 synthesis initially lacked chronological precision due to a paucity of absolute dates (Moratto 1984:159), this situation has been alleviated by the availability of thousands of radiocarbon dates obtained by southern California researchers in the last three decades (Byrd and Raab 2007:217). Given this, several revisions were subsequently made to Wallace's 1955 synthesis using radiocarbon dates and projectile point assemblages (e.g., Koerper and Drover 1983; Koerper et al. 2002; Mason and Peterson 1994). The summary of prehistoric chronological sequences for southern California coastal and near-coastal areas presented below is a composite of information in Wallace (1955) and Warren (1968), as well as later studies, including Koerper and Drover (1983).

Horizon I: Early Man (ca. 10,000–6000 B.C.)

The earliest accepted dates for archaeological sites on the southern California coast are from two of the northern Channel Islands, located off the coast of Santa Barbara. On San Miguel Island, Daisy Cave clearly establishes the presence of people in this area ca. 10,000 years ago (Erlandson 1991:105). On Santa Rosa Island, human remains have been dated from the Arlington Springs site to ca. 13,000 years ago (Johnson et al. 2002). Present-day Orange and San Diego Counties contain several sites dating from 9,000 to 10,000 years ago (Byrd and Raab 2007:219; Macko 1998:41; Mason and Peterson 1994:55–57; Sawyer and Koerper 2006). Although the dating of these finds remains controversial, several sets of human remains from the Los Angeles Basin (e.g., "Los Angeles Man," "La Brea Woman," and the Haverty skeletons) apparently date to the middle Holocene, if not earlier (Brooks et al. 1990; Erlandson et al. 2007:54).

Recent data from Horizon I sites indicate that the economy was a diverse mixture of hunting and gathering, with a major emphasis on aquatic resources in many coastal areas (e.g., Jones et al. 2002) and a greater emphasis on large-game hunting inland.

Horizon II: Milling Stone (6000–3000 B.C.)

Set during a drier climatic regime than the previous horizon, the Milling Stone horizon is characterized by subsistence strategies centered on collecting plant foods and small animals. The importance of seed processing is apparent in the dominance of stone grinding implements in contemporary archaeological assemblages, namely milling stones (metates) and hand stones (manos). Recent research indicates that Milling Stone horizon food procurement strategies varied in both time and space, reflecting divergent responses to variable coastal and inland environmental conditions (Byrd and Raab 2007:220).

Horizon III: Intermediate (3000 B.C.–A.D. 500)

The Intermediate horizon is characterized by a shift toward a hunting and maritime subsistence strategy, along with a wider use of plant foods. An increasing variety and abundance of fish, land mammal, and sea mammal remains are found in sites from this horizon along the California coast. Related chipped stone tools suitable for hunting are more abundant and diversified, and shell fishhooks became part of the toolkit during this period. Mortars and pestles became more common during this period, gradually replacing manos and metates as the dominant milling equipment and signaling a shift away from the processing and consuming of hard seed resources to the increasing importance of the acorn (e.g., Glassow et al. 1988; True 1993).

Horizon IV: Late Prehistoric (A.D. 500–Spanish contact)

In the Late Prehistoric horizon, there was an increase in the use of plant food resources in addition to an increase in land and sea mammal hunting. There was a concomitant increase in the diversity and complexity of material culture during the Late Prehistoric horizon, demonstrated by more classes of artifacts. The recovery of a greater number of small, finely chipped projectile points suggests increased use of the bow and arrow rather than the atlatl (spear thrower) and dart for hunting. Steatite cooking vessels and containers are also present in sites from this time, and there is an increased presence of smaller bone and shell circular fishhooks; perforated stones; arrow shaft straighteners made of steatite; a variety of bone tools; and personal ornaments such as beads made from shell, bone, and stone. There was also an increased use of asphalt for waterproofing and as an adhesive. Late Prehistoric burial practices are discussed in the Native American Ethnographic Overview section below.

By A.D. 1000, fired clay smoking pipes and ceramic vessels were being used at some sites (Drover 1971, 1975; Meighan 1954; Warren and True 1961). The scarcity of pottery in coastal and near-coastal sites

implies that ceramic technology was not well developed in that area, or that occupants were trading with neighboring groups to the south and east for ceramics. The lack of widespread pottery manufacture is usually attributed to the high quality of tightly woven and watertight basketry that functioned in the same capacity as ceramic vessels.

During this period, there was an increase in population size accompanied by the advent of larger, more permanent villages (Wallace 1955:223). Large populations and, in places, high population densities are characteristic, with some coastal and near-coastal settlements containing as many as 1,500 people. Many of the larger settlements were permanent villages in which people resided year-round. The populations of these villages may have also increased seasonally.

In Warren's (1968) cultural ecological scheme, the period between A.D. 500 and European contact, which occurred as early as 1542, is divided into three regional patterns: Chumash (Santa Barbara and Ventura Counties), Takic/Numic (Los Angeles, Orange, and western Riverside Counties), and Yuman (San Diego County). The seemingly abrupt introduction of cremation, pottery, and small triangular arrow points in parts of modern-day Los Angeles, Orange, and western Riverside Counties at the beginning of the Late Prehistoric period is thought to be the result of a Takic migration to the coast from inland desert regions. Modern Gabrielino, Juaneño, and Luiseño people in this region are considered the descendants of the Uto-Aztecan, Takic-speaking populations that settled along the California coast in this period.

Ethnographic Overview

Alfred Kroeber was the first scholar to propose boundaries of traditional territories inhabited by California Native American populations following Spanish contact. Kroeber's ethnographic work (1925) established the conventions for names and territorial boundaries, drawn heavily from linguistic groupings, on which subsequent scholarly research would be based (Bean and Smith 1978). These proposed tribal boundaries, however, are far from exact and subsequent scholars have suggested alternate delineations for traditional tribal territories for the region (cf. Johnson 2006). Based on more recent iterations of traditional tribal territory boundaries, the project site is located just within the boundaries of the Ventureño Chumash (King 2011) along a shared border with the Gabrielino to the east, and the Tataviam to the northeast. Therefore, ethnographic contexts for all three tribal groups are presented below.

Chumash

The project area is a cultural transition zone and was traditionally occupied by the Ventureño Chumash (Grant 1978a–c; Kroeber 1925). The Chumash people lived between Malibu in Los Angeles County and San Marcos Creek near the Monterey County line, on all four of the northern Channel Islands, and as far east as the edge of Kern County (Milliken and Johnson 2005). The Chumash territory was divided into seven parts, each representing various linguistic subgroups, some of which were nearly mutually unintelligible (Kroeber 1925; Milliken and Johnson 2005). Most of our information regarding Chumash traditional culture comes from the ethnographic studies conducted by J. P. Harrington, who worked among the surviving Chumash population between 1912 and 1958. The following descriptions of Chumash society are compiled from scant ethnographic and ethnohistoric sources that entail numerous biases and should be taken as general accounts of Native lifeways observed at the time of European contact and later (after indigenous lifeways had been severely disrupted by European presence in the Americas) that likely preclude primary aspects of cultural identity and practices.

The term "Chumash" is derived from a Native American word initially applied to the people living on Santa Cruz Island (King 1994); though Chumash now refers to the entire linguistic and ethnic group of societies that occupied the coast between San Luis Obispo and northwestern Los Angeles County, including the northern Channel Islands, and inland to the western edge of the San Joaquin Valley.

Neighboring groups included the Salinan to the north, the Southern Valley Yokuts and Tataviam to the east, and the Gabrielino (Tongva) to the south.

The Chumash spoke at least six closely related Chumashan languages, which have been divided into two broad groups—Northern Chumash (consisting only of Obispeño) and Southern Chumash (Purisimeño, Ineseño, Barbareño, Ventureño, and Island Chumash) (Mithun 2001). While Island Chumash was the most divergent of the five southern languages, Ventureño may have had the most internal variation with at least six distinct dialects. The Chumashan languages are considered by some to be part of the Hokan language family, though others consider Chumashan to be an isolate stock with a long history in the Santa Barbara region, and not part of the Hokan linguistic family (Mithun 2001). As much of these languages were lost during the past several hundred years post-European contact, it is likely that debate regarding their origins will continue.

Numerous large Chumash villages extended along the Santa Barbara coastline at the time of European contact, particularly at the mouths of large drainages (Grant 1978a:Figure 1) suggesting extensive use of the greater area by Indigenous peoples. At the time of Spanish contact in 1542 and again in 1769, accounts describe settlement along the Santa Barbara Channel coast as relatively dense with multiple large villages. Estimates of total Chumash population for the initial Contact period vary from 8,000–10,000 (Kroeber 1925:551) to 18,000–22,000 (Cook and Heizer 1965:21). Coastal Ventureño and Barbareño Chumash villages were described as containing anywhere from 30 to 120 houses with several hundred to over 1,000 inhabitants and multiple canoes (Brown 2001; Grant 1978b). Early accounts by Spanish explorers note that inland villages were smaller than their coastal counterparts, with 100–500 occupants.

Permanent Chumash villages located along the coast contained hemispherical dwellings arranged in close groups. These were constructed of bent poles and covered by grass or tule mats. Average family dwellings measured approximately 6–7 m (20–23 feet) and had a hole in the roof through which light could enter and smoke would escape, and in rainy weather, these holes were covered with animal skins. Larger dwellings were also described for housing related family groups; these measured approximately 15–17 m (50–56 feet) and could contain around 60 people (Brown 2001; Hudson and Blackburn 1981). Houses in the smaller inland villages were described as rectangular and more like those found among the adjacent Takic speakers, though style and types of artifacts were distinctly like those used by the coastal Chumash (Grant 1978a:518). The chief's house was often the largest dwelling, encompassing his extended household and providing for his hospitality duties. Villages often contained storehouses, one or more subterranean sweat lodges, and a semi-circular dance ground and associated sacred ceremonial enclosure, with a nearby game field surrounded by low walls (McCall and Perry 1986). Satellite gathering or processing areas included earth ovens used to roast yucca and other foods, rockshelters, quarries, and bedrock mortars for processing acorns and similar plant resources (King 1994).

Each Chumash village had a formal cemetery, generally separate from the village proper. Ethnographic records indicate that cemeteries were marked by tall painted poles and frequently had an entrance area where ceremonies were performed. Within the cemetery, stone, wood, or bone markers identified burial sites. Occasionally, individual burials were marked by painted boards with markings indicating the occupation or clan of the deceased (Gamble et al. 2001). Prior to burial, a wake was held in a sacred enclosure. Individuals were then interred face down in a flexed position with personal objects, including effigies, steatite pipes, bowls, ollas, beads, and other grave goods. Social differentiation and hierarchy are inferred from archaeological studies that identified distinct areas appearing to denote high- and low-status families within the cemetery grounds (King 1969).

Chumash society was organized into craft guilds including canoe building, bead making, basketry making, woodworking, and weapon making, among others (Miller 1988). Being a guild member had

strong economic advantages. Membership was primarily open to the upper class, and ranking members of the guilds were *'antap* society members. Chumash society was divided into three classes (McCall and Perry 1986). Upper class members held the important social and religious positions, including chief, canoe builders and owners, and members in the *'antap* society. The middle class contained about half the population, mainly hunters, gatherers, and general workers, and social outcasts and unproductive people populated the lower class. Unlike their southern neighbors, the Chumash did not have a lineage organization and most elite marriages were matrilocal.

Every village had a chief, or *wot*, who was usually male, but hereditary rights to this role were passed down matrilineally (Johnson 1987). The *wot* had both political and religious ceremonial duties to perform; his assistant, the *paha*, helped officiate at rituals. Other officials known as *ksen* were "messengers who traveled from place to place, making announcements and gathering news for the *wot*" (McCall and Perry 1986:40). A large village usually had three to four chiefs, one of whom would be the head chief (Brown 2001). Other portions of Chumash territory were organized into provinces, or groups of villages that were ruled by a single chief.

Chumash subsistence practices varied somewhat between coastal and inland groups based on available resources, but like many indigenous Californian groups, the acorn was a dietary staple. Acorns were gathered in the autumn and stored in villages, where they were ground to a meal, leached, and then cooked daily. In addition to acorns—mainly from the coast live oak (*Quercus agrifolia*)—other nuts, such as pine nuts and walnuts, were collected. Chumash diet also included cattail roots, fruits, and pads from *Opuntia* cactus, along with bulbs and tubers (Miller 1988; Timbrook 2007). Yucca stalks were harvested and roasted, and the buds and flowers were also gathered and consumed. Staples included small hard seeds of several annual and perennial plants such as grass, chia and other sages, and buckwheat. Seasonal resources included berries (blackberry, elderberry, grape, madrone, laurel, and wild cherry), mushrooms, and cress.

Seeds were processed using various grinding implements including wooden and stone mortars, pestles, bedrock mortars, and hand stones. Tools used to gather plant foodstuffs consisted of at least several forms of gathering and winnowing baskets, woven seed beaters, and sharpened digging sticks. A variety of basket styles were manufactured for the processing and serving of foods, including straining and leaching acorn meal, and processed meal and other foods were cooked in water-tight baskets (Miller 1988). Other baskets were made for storing grains, acorns, meal, prepared foods, and other dietary resources. Carved steatite bowls, ollas, and comals also were used for cooking, and meals were sometimes served on wooden plates and bowls.

On the coast, shellfish was harvested from intertidal habitats and fishing was conducted from shore as well as from wooden plank canoes (*tomol*), which may also have been employed for marine mammal hunting. The *tomol* not only facilitated marine resource procurement but also facilitated interaction between the mainland and the Channel Islands. Seals, sea lions, otters, porpoises, and whales were hunted with harpoons. Deep-sea fish such as bonito, sea bass, halibut, barracuda, yellowtail, and shark were caught with hooks and lines, harpoons, and deep or shoreline nets. Digging sticks were used to procure clams and scallops from the beach sands, and flat bone or wood wedges were used to pry mussels and abalone from intertidal rocks during low tides.

Local Chumash populations captured mule deer, antelope, cottontail, jackrabbit, mice, and wood rats; mountain and valley quail, dove, and resident and migratory waterfowl, among other birds; and various types of reptiles, amphibians, and insects. Larger animals, such as mule deer, coyote, and fox, were hunted with the bow and arrow; smaller game was captured with traps and snares. Hunting was accomplished by various means, with the bow and arrow, spears, slings, throwing sticks, traps, and deadfalls (Hudson and Blackburn 1979). Hunting parties were comprised of up to eight people;

communal hunting groups used large nets and clubs, and individuals used throwing sticks to kill smaller prey like rabbits and hares (Brown 2001). Bone and shell were used to produce a wide range of utilitarian and nonutilitarian items, such as eating utensils, ornaments, whistles, gorges, fishhooks, harpoons, awls, and antler wedges. The steatite industry was especially developed in the southern areas, manifested in a variety of ornaments, vessel forms, and ceremonial objects.

Trade was an integral component of Chumash subsistence, and trade relationships among inland, coastal, and island groups were well established, though the specifics of what was traded between island and mainland groups is less clear. Coastal Chumash traded with their inland Chumash neighbors, who in turn traded with their Yokut, Tataviam, Kitanemuk, and Gabrielino neighbors to the north, east, and south (Miller 1988). Extensive trade network increased the diversity of goods available throughout Chumash territory, encouraged craft specialization, and established the coastal villages as middlemen. The coastal villages were well positioned with their access to abundant marine resources; they built and kept the boats that moved trade goods across the channel and likely profited from this exchange.

The Chumash are well known for their material culture, which included highly decorated utilitarian tools and ceremonial items, as well as rock art (Grant 1978a–b; Hudson and Blackburn 1984, 1986). Carved steatite items included bowls decorated with beads, medicine tubes, effigies, beads, pipes, and charmstones. Rock paintings are found in sheltered locations near the coast and inland to the farthest reaches of the Chumash sphere. In the interior region inhabited by the Cuyama Chumash who spoke the Ineseño dialect, archaeological and ethnographic evidence strongly suggest a Chumash affiliation with the Carrizo Plain rock art, where the rock paintings—mostly pictographs comprised of polychrome abstract designs and some petroglyphs—reach a high degree of development. Despite being recognized as the location of the most extensive rock art, the Carrizo Plain area is among the least studied of Chumash regions. The remote location of the majority of Chumash rock art suggests the paintings may represent shrines or sacred areas.

Chumash religion was well developed and integrated into everyday life. Rituals and ceremonies were observed throughout the year; the most important was performed at the Winter Solstice, when a large festival was held in honor of the Sun. Astronomers carefully marked the shortest day of the year to know when to begin the rites and dances and used the observation to recalibrate their calendar. The *Hutush* autumn harvest festival, a time of thanksgiving, celebrated the Earth Goddess as provider of all foods (McCall and Perry 1986). Ceremonies were performed in everyday life and to mark special occasions; rituals were performed to name children, cure the sick of various ailments, and initiate young men into the mysteries of religion. The *'antap* society, restricted to the upper class, was also the federation of shamans who controlled ceremonial observances.

Gabrielino/Tongva

The name Gabrielino (sometimes spelled Gabrieleno or Gabrieleño) denotes those people who were administered by the Spanish from Mission San Gabriel Arcángel. By the same token, Native Americans in the sphere of influence of Mission San Fernando Rey de España were historically referred to as Fernandeño (Kroeber 1925). This group is now considered to be a regional dialect of the Gabrielino language, along with the Santa Catalina Island and San Nicolas Island dialects (Bean and Smith 1978). In the post-Contact period, Mission San Gabriel included natives of the greater Los Angeles area, as well as members of surrounding groups such as Kitanemuk, Serrano, and Cahuilla. There is little evidence that the people we call Gabrielino had a broad term for their group; rather, they identified themselves as an inhabitant of a specific community through the use of locational suffixes (e.g., a resident of Yaanga was called a Yabit, much the same way that a resident of New York is called a New Yorker) (Dakin 1978:222).

Native words that have been suggested as labels for the broader group of Native Americans in the Los Angeles region include Tongva (or Tong-v) and Kizh (Kij or Kichereno); although there is evidence that these terms originally referred to local places or smaller groups of people within the larger group that we now call Gabrielino (Heizer 1968). Many present-day descendants of these people have taken on Tongva as a preferred group name because it has a native rather than Spanish origin and one group of descendants prefers the term Kizh (King 1994). The term Gabrielino/Tongva, which combines the most commonly used group names, is used in the remainder of this study to designate native people of the Los Angeles Basin and their descendants.

Gabrielino/Tongva lands encompassed the greater Los Angeles Basin and three Channel Islands—San Clemente, San Nicolas, and Santa Catalina. Their mainland territory was bounded on the north by the Chumash at Topanga Creek, the Serrano at the San Gabriel Mountains in the east, and the Juaneño on the south at Aliso Creek (Bean and Smith 1978:538; Kroeber 1925:636).

The Gabrielino/Tongva language, as well as that of the neighboring Juaneño/Luiseño, Serrano, and Tatataviam/Alliklik, belongs to the Takic branch of the Uto-Aztecan language family, which can be traced to the Great Basin area (Mithun 2004:539, 543–544). This language family's origin differs substantially from that of the Chumash to the north and the Ipai, Tipai, and Kumeyaay farther south. The language of the Ipai, Tipai, and Kumeyaay is derived from the California-Delta branch of the Yuman-Cochimi language family, which originated in the American Southwest (Mithun 2004:577). The Chumash language is unlike both the Yuman-Cochimi and Uto-Aztecan families and may represent a separate lineage (Mithun 2004:390). Linguistic analysis suggests that Takic-speaking immigrants from the Great Basin area began moving into southern California around 500 B.C. (Kroeber 1925:579). This migration may have displaced both Chumashan- and Yuman-speaking peoples, but the timing and extent of the migrations and their impact on indigenous peoples is not well understood. The Gabrielino/Tongva language consisted of two main dialects, Eastern and Western; the Western included much of the coast and the Channel Island population (King 2004). Lands of the Western group encompassed much of the western Los Angeles Basin and San Fernando Valley, northward along the coast to the Palos Verdes Peninsula (McCawley 1996:47).

Gabrielino/Tongva society was organized along patrilineal non-localized clans, a characteristic Takic pattern. Clans consisted of several lineages, each with their own ceremonial leader. The chief, or *tómyaar*, always came from the primary lineage of the clan/village. One or two clans generally made up the population of a village. Even though the Gabrielino/Tongva did not have a distinctly stratified society, there were two general classes of individuals: elites and commoners. The elites consisted of primary lineage members, other lineage leaders (who maintained a separate ceremonial language), the wealthy, and the elite families of the various villages who commonly married among themselves. The commoner class contained those from "fairly well-to-do and long-established lineages" (Bean and Smith 1978:543). A third, lower class consisted of slaves taken in war and individuals, unrelated to the inhabitants, who drifted into the village.

The Gabrielino/Tongva established large, permanent villages in the fertile lowlands along rivers and streams, and in sheltered areas along the coast, stretching from the foothills of the San Gabriel Mountains to the Pacific Ocean. A total tribal population has been estimated of at least 5,000 (Bean and Smith 1978:540), but recent ethnohistoric work suggests that a number approaching 10,000 seems more likely (O'Neil 2002). Several Gabrielino/Tongva villages appear to have served as trade centers, due in large part to their centralized geographic position in relation to the southern Channel Islands and to other tribes. These villages maintained particularly large populations and hosted annual trade fairs that would bring their population to 1,000 or more for the duration of the event (McCawley 1996:113–114).

Houses constructed by the Gabrielino/Tongva were large, circular, domed structures made of willow poles thatched with tule that could hold up to 50 people (Bean and Smith 1978). Other structures served as sweathouses, menstrual huts, ceremonial enclosures, and probably communal granaries. Cleared fields for races and games, such as lacrosse and pole throwing, were created adjacent to Gabrielino/Tongva villages (McCawley 1996:27).

The Gabrielino/Tongva subsistence economy centered on gathering and hunting. The surrounding environment was rich and varied, and the tribe exploited mountains, foothills, valleys, and deserts as well as riparian, estuarine, and open and rocky coastal eco-niches. Like most Native Californians, acorns were the staple food (an established industry by the time of the early Intermediate period). Acorns were supplemented by the roots, leaves, seeds, and fruits of a wide variety of flora (e.g., islay, cactus, yucca, sages, and agave). Fresh and saltwater fish, shellfish, birds, reptiles, and insects, as well as large and small mammals, were also consumed (Bean and Smith 1978:546; Kroeber 1925:631-632; McCawley 1996:119–131). Groups residing near the ocean used ocean-going plank canoes (known as a *ti'at*) and tule balsa canoes for fishing, travel, and trade between the mainland and the Channel Islands. The ocean-going canoes were capable of holding six to 14 people and were also used for travel and trade between the mainland and the Channel Islands. The tule balsa canoes were used for near-shore fishing (Blackburn 1963; McCawley 1996:117–127).

The Gabrielino/Tongva participated in an extensive exchange network, trading coastal goods for inland resources. They exported Santa Catalina Island steatite products, roots, seal and otter skins, fish and shellfish, red ochre, and lead ore to neighboring tribes, as well as people as far away as the Colorado River. In exchange, they received ceramic goods, deer skin shirts, obsidian, acorns, and other items. This burgeoning trade was facilitated through craft specialists, a standard medium of exchange (*Olivella* bead currency), and the regular destruction of valuables in ceremonies, which maintained a high demand for these goods (McCawley 1996:112–115).

Deceased Gabrielino/Tongva were either buried or cremated, with inhumation being more common on the Channel Islands and the neighboring mainland coast and cremation predominating on the remainder of the coast and in the interior (Harrington 1942; McCawley 1996:157). Cremation ashes have been found in archaeological contexts buried within stone bowls and in shell dishes (Ashby and Winterbourne 1966:27), as well as scattered among broken ground stone implements (Cleland et al. 2007). Archaeological data such as this correspond with ethnographic descriptions of an elaborate mourning ceremony that included a wide variety of offerings, including seeds, stone grinding tools, otter skins, baskets, wood tools, shell beads, bone and shell ornaments, and projectile points and knives. Offerings varied with the sex and status of the deceased (Johnston 1962:52–54; McCawley 1996:155–165; Reid 1926:24–25). At the behest of the Spanish missionaries, cremation essentially ceased during the post-Contact period (McCawley 1996:157).

European contact with the Gabrielino/Tongva occurred as early as 1542 with the Spanish expedition led by Juan Rodriguez Cabrillo, followed by Sebastián Vizcaíno in 1602, who both visited Santa Catalina Island. Colonization of Gabrielino/Tongva lands did not begin in earnest until after the inland expedition led by Gaspar de Portolá in 1769. By 1771, four missions had been constructed in the region, including Mission San Gabriel, founded in Los Angeles County in September 1771 (Bean and Smith 1978:540–541; Engelhardt 1927; McCawley 1996:3–6).

In the early twentieth century, Gabrielino/Tongva who still lived in San Gabriel neighborhoods near the old mission joined the Mission Indian Federation and sought redress from the federal government over lost lands. A generation later, partly as an outgrowth of the Civil Rights Movement, Gabrielino/Tongva started to form political organizations of their own to affect handling of ancestral remains discovered at construction sites and to seek federal acknowledgement of their tribe. There are currently five such

organizations with total membership approaching nearly a thousand people. They are still struggling to receive federal recognition.

Tataviam

The Tataviam lived in the upper drainage of the Santa Clara River between the San Fernando Valley to the south and the top of Pastoria Creek in the Tehachapi Mountains to the north. To the east, their ancestral lands extended to part of the southern fringe of Antelope Valley. The core Tataviam population centered on the south sides of the Liebre, Sawmill, and Sierra Pelona Mountains. Neighboring groups include the Ventureño Chumash to the west, Emigdiano Chumash to the north, Kitanemuk to the northeast, Vanyume Serrano to the east, and Western Gabrielino to the south in the San Fernando Valley (Grant 1978a; Johnson and Earle 1990:193; King and Blackburn 1978:535).

The Tataviam language is a part of the Takic branch of the Uto-Aztecan language family, also spoken by the Western Gabrielino and Kitanemuk (Mithun 2001:540). This language family can be traced to the Great Basin area, which represents an origin different from the Chumash. According to Bright (1975), the Tataviam language may be "the remnant, influenced by Takic, of a language family otherwise unknown in southern California" or the language was probably Takic but not from the Serran or Cupan branches like Kitanemuk and Vanyume, respectively. The Tataviam language probably began to differentiate itself from the others around 1000 B.C. (King and Blackburn 1978:535). The name "Tataviam" itself is derived from the Kitanemuk's designation for this group (King and Blackburn 1978:535). Kroeber (1925:614) referred to them as the "Alliklik," named by the Ventureño Chumash to separate them from the Beñeme Serrano in the western Mojave Desert and Antelope Valley.

Information about Tataviam social organization and political structure is relatively limited, but there is no evidence that would substantially differentiate them from the Kitanemuk and Western Gabrielino. Tataviam villages ranged from large centers of around 200 individuals to small settlements of 10 to 15 people (King and Blackburn 1978:536). Intermediate-sized villages were dispersed between the larger centers, with smaller villages spaced around the larger villages. King and Blackburn (1978:534) estimate the total Tataviam population at the time of historic contact at no more than 1,000 people, with the widest possible territorial extent considered. Mortuary practices probably included cremation, as well as a mourning ceremony practiced in late summer or early fall (King and Blackburn 1978:535).

Archaeological data, the primary source of information available, indicate broad similarities among the Tataviam, Chumash, and Gabrielino (King and Blackburn 1978:536). Considering their environment and available data, it is probable that Tataviam relied more heavily on yucca as a staple than neighboring groups. Additional plant foods most likely included acorns, sage seeds, juniper seeds, and islay berries. Animal resources included small mammals such as rabbits and rodents, as well as deer and possibly antelope. Extensive trade networks developed between inland groups of the desert regions. They traded lithic material and large game animals with coastal groups for marine resources, shell, asphaltum, and steatite.

The first European visit to the general Tataviam area occurred in A.D. 1769, when Lieutenant Colonel Gaspar de Portolá led an overland expedition from the newly established settlement at San Diego in an attempt to find Monterey Bay. They traversed the San Fernando Valley in August 1769, passing to the north of where Mission San Fernando would be founded 28 years later. From there, they entered Tataviam territory in the Newhall-Saugus area through the Freemont Pass (Portolá 1909). The general vicinity was probably crossed again during the second Portolá expedition in 1770 and by the Friar Francisco Garces expedition in 1776 (Beck and Haase 1974:15). The Mission of San Fernando was founded in 1798 on the southern fringe of Tataviam lands, and by 1820, most of the population had been baptized at the mission. During this time, Tataviam often intermarried with surrounding Native American groups, most notably the Kitanemuk, and often attended and participated in Chumash ceremonies.

Following the Spanish period, interest in the Santa Clara Valley grew as fur trappers in the early 1800s, the discovery of gold in Placerita Canyon in 1842, and provisioning of miners heading for the gold strikes in the 1850s led to Euro-American settlement, ranching, and agriculture within the valley. Beef, grain, and other foodstuffs in demand by the miners resulted in an economic windfall for the ranches in the valley. As a consequence, the ranchers expanded their range into Tataviam hunting grounds and harvesting fields. Tataviam families and communities intermarried with and were absorbed into other Native American settlements in southern California during the late nineteenth century (Johnson and Earle 1990:209). Several Tataviam descendant families lasted into the twentieth century, but by 1916, there were no longer any Tataviam speakers (King and Blackburn 1978:536).

Native American Communities in the San Fernando Valley

In general, it has proven very difficult or impossible to establish definitively the precise location of Native American villages occupied after Spanish contact (McCawley 1996:31–32). Native American place names recorded during this period did not necessarily represent continually occupied settlements within discrete locations. Instead, in at least some cases, the communities were represented by several smaller camps scattered throughout an approximate geography, shaped by natural features subject to change over generations (Johnston 1962:122). In fact, many of the villages had long since been abandoned by the time ethnographers, anthropologists, and historians attempted to document any of their locations, at which point the former village sites were affected by urban and agricultural development, and Native American lifeways had been irrevocably changed. Kroeber remarked on the subject as follows:

> Many of the latter (i.e., place-names) no doubt originally denoted villages; but it is usually impossible to determine. The Indians of this region, Serrano, Gabrielino, and Luiseño, have long had relations to the old ranchos or land grants, by which chiefly the country was known and designated until the Americans began to dot it with towns. The Indians kept in use, and often still retain, native names for these grants. Some were the designations of the principal village on the grant, others of the particular spot on which the ranch headquarters were erected, still others of the camp sites, or hills, or various natural features. The villages, however, are long since gone, or converted into reservations, and the Indians, with all their native terminology, think in terms of Spanish grants or American towns. Over much of southern California—the "Mission Indian" district—the opportunity to prepare an exact aboriginal village map passed away 50 years ago. (Kroeber 1925:616)

Efforts at relocating former settlements have been further complicated by the frequency with which alternative names and spellings for communities were used, and that there are conflicting reports on the meaning or locational references in the names. Although the precise location of any given village is subject to much speculation, it is clear the San Fernando Valley and greater Los Angeles area once contained many Gabrielino settlements, including several concentrated along the banks of major waterways, near the coast, and along the base of foothills.

The closest ethnographically documented villages to the project site are *Atavsanga* (also known as *Ataguama* or *Totongna*) located approximately 2 miles to the southwest, *Momonga* located 3.5 miles to the north (near present-day Chatsworth), and *Siutcanga* located approximately 8.4 miles to the southeast (near present-day Encino) (Figure A-5). As described above by Kroeber (1925) and later noted by others (e.g., Harrington 1986 [cited in McCawley 1996]), the settlements and placename are often correlated with the later Spanish and Mexican period ranchos. This appears to be because the ranchos developed around existing Native American settlements, partly because Native Americans intentionally established rancherias near the Spanish and Mexican ranch houses, and also because the ranchos were the most common means by which geographic locations were historically described. For example, *Atavsanga* and *Siutcanga* are both believed to have been located within the boundaries of Ranchos El Escorpion and

Encino, respectively. The project site is located approximately 0.7 miles north of Rancho El Escorpion (Figure A-6).

Trails and travel corridors between settlements shared a similar association so that the roads established by the Spanish between the missions, presidios, and pueblos likely followed existing footpaths used by Native Americans, some of which have been retained by contemporary street alignments. Some of these early trails are depicted in nineteenth century maps (see Figures A-6and A-7). The closest such trail to the project site—labeled "Road from Ventura to Los Angeles" in Figure A-6—is plotted approximately 2.5 miles south of the project site. This is typically understood to have been the route taken by the first Spanish land expedition, and then maintained as part of the network of roads connecting the major settlements of the Mission system, known as El Camino Real (lit. "The Royal Road"). The "road," however, was never a single trail. Many of these early travel routes were likely established along the trails previously used by Native Americans for foraging, communication, travel, and trade. Though foot trails can be ephemeral and completely change course from year to year, such trails are known to have existed between significant Gabrielino settlements, and temporary camps or other types of Native American features (such as burials) would have been common along these paths, especially where they intersect water sources or are located near other natural resources and culturally significant landmarks, including favorable viewsheds. The earliest survey maps created after California's annexation into the United States offer some indication of the trail system operating prior to this time. Unfortunately, as with the location of settlements, maps of Native American trails were never drawn after Spanish contact and the routes described in ethnographic sources refer only to generalized travel corridors.

Historic Overview

The post-Contact history of California is divided into three periods that are defined by the ruling national government: the Spanish period (1769–1822), the Mexican period (1822–1848), and the American period (1848–present). Each period is briefly described below. Some chronologies include the Mission period (1769–1834), defined by the active span of those Spanish, and later Mexican, Catholic institutions. The Protohistoric period is used here to refer to the era of initial interaction between Native Americans and European explorers and settlers, ranging from 1542 through the early 1800s in outlying areas, where a mixture of native and nonnative cultural traits can be observed archaeologically.

Spanish Period (1769–1822)

The first Europeans to observe what became southern California were members of the 1542–1543 expedition of Juan Rodriguez Cabrillo. When sailing past Santa Monica Bay, Cabrillo noted the numerous campfires of the Gabrielino/Tongva and thus named the area the Bay of Smokes. Cabrillo and other early explorers sailed along the coast and made limited expeditions into Alta (upper) California between 1529 and 1769. Although Spanish, Russian, and British explorers briefly visited Alta California during this nearly 250-year span, they did not establish permanent settlements.

Gaspar de Portolá and Franciscan Father Junípero Serra established the first Spanish settlement in Alta California at San Diego in 1769. Mission San Diego de Alcalá was the first of 21 missions built by the Spanish between 1769 and 1823. Portolá continued north, passing near the project site in August of 1769, and reaching San Francisco Bay on October 31. The process of converting the local Native American population to Christianity through baptism and relocation to mission grounds was begun in this region by the Franciscan padres at the San Gabriel Mission, which was established in 1771 (Engelhardt 1927). The San Fernando Mission was founded 26 years later, its location chosen as a stopping point between the San Gabriel and San Buenaventura missions (Englehardt 1927b). Most Native Americans from the Los Angeles Basin were persuaded to settle in the vicinity of the two missions. These included the Eastern Gabrielino of the plains as far south as the Santa Ana River and west to the Los Angeles River.

The padres also proselytized the Serrano of the San Gabriel and San Bernardino Mountains, as well as the Vanyume Serrano of the Mojave Desert; many of the western Cahuilla in the Coachella and San Jacinto Valley; some Luiseño of the San Jacinto Valley; and Western Gabrielino of the plains west of the Los Angeles River, San Fernando Valley, and the southern Channel Islands. The missions were charged with administering to the Native Americans within their areas. Although mission life gave the Native Americans the skills needed to survive in their rapidly changing world, the close quarters and regular contact with Europeans transmitted diseases for which they had no immunity, decimating their populations (McCawley 1996).

Mexican Period (1822–1848)

After the end of the Mexican Revolution against the Spanish crown (1810–1821), all Spanish holdings in North America (including both Alta and Baja California) became part of the newly formed Mexican Empire, and shortly thereafter, a constitutionally based United Mexican States. Under Mexican rule, the authority of the California missions gradually declined, culminating with their secularization. Events leading up to the secularization of the California missions spanned many years and much political upheaval, after which the Mexican Congress passed the Secularization Act in August 1833. Not only did the action divest the Franciscans of property, it also opened both of the Californias to colonization. The first 10 of the missions were secularized in 1834, San Gabriel among them.

Historical documents suggest that what followed was a period of intrigue, revolution, and lawlessness. With a disruption in trade came an increase in the number of American interlopers. Political resistance erupted on every front as Mexican citizens in California (*Californios*) vied for control of their ranchos against American intruders and Mexican authority. Although the Mexican government directed that each mission's lands, livestock, and equipment be divided among its neophytes, the majority of these holdings quickly fell into non-Indian hands. As mission landholdings passed into private hands, neophyte workers, who had become dependent on the missions, were left to fend for themselves.

If mission life was difficult for Native Americans, secularization was worse. After two generations of dependence upon the missions, they were suddenly disenfranchised. After secularization, "nearly all of the Gabrielinos went north while those of San Diego, San Luis and San Juan overran this county, filling the Angeles and surrounding ranchos with more servants than were required" (Dakin 1978[1939]:282)

Former mission lands were quickly divided and granted to private citizens for use as agricultural and pastoral land. Most of the land grants to Californios were located inland, a policy intended to increase the population away from the coastal areas where the Spanish settlements were concentrated (Dakin 1978[1939]:282). With no work at the mission, there was a far greater labor force in the region than could be employed.

After years of surreptitious commerce, the first party of American immigrants arrived in Los Angeles in 1841, including William Workman and John Rowland, who soon became influential landowners. As the possibility of a takeover of California by the United States loomed large in the 1840s, the Mexican government increased the number of land grants in an effort to keep the land in Mexican hands (Wilkman and Wilkman 2006). Governor Pío Pico and his predecessors made more than 600 rancho grants between 1833 and 1846, putting most of the state's lands into private ownership for the first time (Gumprecht 1999). Trade in the region changed as well. British and American trade displaced supply ships from Mexico and, in 1841, the first party of American immigrants arrived at the Pueblo de Los Angeles.

American Period (1848–Present)

The United States took control of California in 1846, seizing Monterey, San Francisco, San Diego, and Los Angeles with little resistance. Los Angeles soon slipped from American control, however, and was

retaken in 1847. Approximately 600 U.S. sailors, marines, Army dragoons, and mountain men converged under the leadership of Colonel Stephen W. Kearney and Commodore Robert F. Stockton in early January of that year to challenge the California resistance, which was led by General Jose Maria Flores. The American party scored a decisive victory over the Californios in the Battle of the Rio San Gabriel and at the Battle of La Mesa the following day, effectively ending the war and opening the door for increased American immigration (Harlow 1992).

The 1848 Treaty of Guadalupe Hidalgo formally ended the war and required that legitimate land grants be honored. California was admitted as the 31st state on September 9, 1850. Pursuant to the Land Act of 1851 requiring claims be filed with the United States Public Lands Commission, Eulogio de Celis filed his claim in 1852; it was granted in 1873. After de Celis died in 1869, San Fernando Mission land was sold in 1874 to California State Senator Charles Maclay and his partner George K. Porter. Maclay founded the community of San Fernando in 1874 on his eastern section and included land for the Southern Pacific Railroad (SPRR) that would eventually construct a tunnel through the pass at San Fernando.

In 1903, George Porter sold his share of the land to Leslie Brand's newly syndicated San Fernando Mission Land Company. One of their major shareholders was Moses Sherman, who sat on the city water commission board that in 1905 approved plans for the Los Angeles Aqueduct and later exercised their option to buy Porter's land (Roderick 2001). The aqueduct was constructed between 1908 and 1913, which was preceded by a real estate boom in the San Fernando Valley, leading to the founding of several modern-day cities and communities, including Owensmouth in March of 1912—renamed Canoga Park in 1931. Around 1911, the Pacific Electric Railway had extended its lines from Hollywood to Van Nuys, sharing portions of track with SPRR, and connecting passenger rails to the northwest portion of the San Fernando Valley. The San Fernando Valley was annexed to Los Angeles County in 1917, and the region's economy slowly began shifting from agricultural to light industrial and commercial.

Chatsworth Reservoir and Chatsworth High Line Conduit

The Los Angeles Aqueduct was opened in 1913 and measured 233 miles long. The aqueduct diverted water from the Owens Valley to the San Fernando Reservoir. The Chatsworth Reservoir was built in 1918 and was fed from the San Fernando Reservoir by a conduit called the Chatsworth High Line (alternatively spelled or referred to as the Chatsworth Hi-Line) that ran along the northern edge of the San Fernando Valley. The Chatsworth Reservoir was the nineteenth and last water-retention basin developed to store and manage water imported via the Los Angeles Aqueduct. The reservoir was placed into service in 1919 and was created by two large earth-filled dams and two smaller dikes spanning gaps between hills. The reservoir dams were built using the hydraulic fill method where there was no mechanical compaction of the soil forming the dam. From 1919 to 1950, the reservoir was the main water storage facility for the western San Fernando Valley and primarily served agricultural irrigation needs. The reservoir use shifted toward domestic water supply as the valley shifted away from agricultural usage toward suburban housing. Following the 1971 Sylmar earthquake, the California Department of Water Resources Division of Safety of Dams determined that the Chatsworth dams would have to be completely rebuilt in order to be safe during a major earthquake. The reservoir was drained and taken out of service in 1972. The Chatsworth Nature Preserve/Reservoir Ecology Pond was established as mitigation for waterfowl habitat lost as a result of the draining of residual water from Chatsworth Reservoir following the 1971 Sylmar earthquake and was located at the northern end of the reservoir (Chatsworth Historical Society 2017). In 1997, the City Council renamed the 1,325-acre parcel Chatsworth Reservoir the Chatsworth Nature Preserve/Reservoir, forming the only nature preserve in the City of Los Angeles.

ARCHIVAL RESEARCH

Aerial Photograph Review

SWCA's archival research included a review of historical maps for the project site and vicinity and focused on documenting modifications to the physical setting and identifying any potential natural or artificial features with relevance to use by Native Americans (e.g., stream courses, vegetation, historical topography, roads, habitation markers) or use of the location by non–Native American people in the Historic period. Historical topographic maps show the project area appears to be used for agriculture or is vacant unused land from 1903 to 1944. A review of historical aerial photographs beginning in 1947, the earliest year for which an aerial map is available, shows both the Main and proposed North Campuses were being used as agricultural fields. This continued until 1959, as shown on an aerial photo from that year. Sometime between 1959 and 1967, the area was graded for the construction of the Chaminade College Preparatory high school and shopping mall where the proposed North Campus will be developed. An aerial photograph from 1967 shows the high school and shopping mall fully built by then (Historic Aerials 2021). The original buildings are still present on the project site, though it appears to have been subject to several alterations. The multi-tenant mini shopping center within the proposed North Campus area that is slated for demolition was built between 1962 to 1964 and expanded in 1981 to its current size. Between 1959 and 1967, residential development started on parcels immediately adjacent to the south and southwest boundaries of the project site, with residences showing in the parcels between Chaminade Avenue and Cohasset Street, between Cohasset Street and Valerio Street, and west of Platt Avenue. By 1977, the entire neighboring areas were developed with residences.

Cultural Resources Records Search

On August 23, 2021, SWCA requested a confidential search of CHRIS records from the South Central Coastal Information Center (SCCIC) located at California State University, Fullerton, which houses the records for Los Angeles County. The purpose of the record search was to identify all previously conducted cultural resource surveys and all previously recorded cultural resources within the project area, including potential eligibility for inclusion in the NRHP and CRHR. The search included any previously recorded cultural resources and investigations within a 0.5-mile radius of the project site. The search also involved a review of the National Register of Historic Places, the California Register of Historical Resources, the California Points of Historical Interest list, the California Historical Landmarks list, the Archaeological Determinations of Eligibility list, and the California State Historic Resources Inventory list. In addition, the search consisted of a review of all available historic USGS 7.5- and 15-minute quadrangle maps.

Previously Conducted Cultural Resource Studies

Results of the CHRIS records search indicate that six previous archaeological investigations have been conducted within 0.5 mile of the project site. None of these studies intersect the project site. Details pertaining to these studies are included in Confidential Appendix B.

Previously Recorded Cultural Resources

The CHRIS records search indicated that no previously recorded cultural resources have been identified within the project site or within a 0.5-mile radius of the project site.

Sacred Lands File Search

SWCA submitted a Sacred Lands File (SLF) search request for the project site to the Native American Heritage Commission (NAHC) on August 23, 2021. The NAHC's email response (Appendix C) was

received on September 24, 2021, indicating that the results for the SLF check conducted by through the NAHC was positive. The reply requested that associated California Native American tribes be contacted for more information. The NAHC provided a contact list of 14 Native American individuals or tribal organizations that may have knowledge of tribal cultural resources in or near the study area (Table 1). SWCA provided the contact list to CAJA on October 11, 2021, since they were in coordination with the City.

Table 1. Summary of Native American Individuals and Groups Culturally Affiliated with the Project Area.

Name and Title	Affiliation
Andrew Salas, Chairperson	Gabrieleño Band of Mission Indians–Kizh Nation
Anthony Morales, Chairperson	Gabrieleño/Tongva San Gabriel Band of Mission Indians
Julie Tumamait-Stenslie, Chairperson	Barbareño/Ventureño Band of Mission Indians
Christina Conley, Tribal Consultant and Administrator	Gabrielino Tongva Indians of California Tribal Council
Charlez Alvarez	Gabrielino-Tongva Tribe
Jairo Avila, Tribal Historic Preservation Officer	Fernadeño Tataviam Band of Mission Indians
Sandonne Goad, Chairperson	Gabrielino Tongva Nation
Robert F. Dorame, Chairperson	Gabrielino Tongva Indians of California Tribal Council
Rudy Ortega, President	Fernadeño Tataviam Band of Mission Indians
Julio Quair, Chairperson	Chumash Council of Bakersfield
Mariza Sullivan, Chairperson	Coastal Band of the Chumash Nation
Fred Collins, Spokesperson	Northern Chumash Tribal Council
Mark Vigil, Chief	San Luis Obispo County Chumash Council
Kenneth Kahn, Chairperson	Santa Ynez Band of Chumash Indians

SUMMARY AND RECOMMENDATIONS

SWCA reviewed the results of CHRIS and SLF searches to identify the presence of cultural resources within the project site. The CHRIS records search indicated that there have been no cultural resources studies conducted within the project site, and that no cultural resources have been previously documented in the project site or within a 0.5-mile radius. The results of the SLF search conducted by the NAHC indicated that there are known tribal cultural resources in the vicinity of the project site. The NAHC provided a contact list of tribal representatives who may have more information about these known resources. SWCA provided the contact list to CAJA on October 11, 2021, since they were in coordination with the City.

The closest ethnographically documented Native American village sites in the general vicinity include *Atavsanga*, located approximately 2 miles southwest of the project site, and *Momonga* approximately 3.5 miles to the north, and *Siutcanga* located approximately 8.4 miles to the southeast. Two intermittent streams are located in the vicinity of the project site: Dayton Creek, approximately 0.6 mile to the north, and Bell Creek, approximately 0.7 mile to the south. Dayton Creek connects to Chatsworth Creek, which is located approximately 0.7 mile east of the project site.

Archival research indicated that beginning at least in the mid-1940s, the project site (both the Main and proposed North Campuses) was a plowed field associated with agricultural activities. The parcels were

graded sometime after 1959 for the construction of the Chaminade College Preparatory High School and shopping mall where the proposed North Campus will be developed.

Archaeological remains associated with prehistoric or historic Native Americans can occur below paved surfaces within developed urban settings. While the CHRIS records search results did not identify any such archaeological resources within the project site or vicinity, most of the project site was not inspected for archaeological resources before being developed. SWCA considers the greater region of the project site as having moderate sensitivity for prehistoric or historic Native American archaeological resources. However, the project site consists of a comparatively small area within the greater region and has been subject to multiple episodes of ground disturbances. As a result, archaeological materials once located on the surface or in shallow deposits are very unlikely to have been preserved within the project site, and though more deeply buried deposits could exist, SWCA considers the sensitivity for prehistoric and historic Native American archaeological resources to decrease within the project site, compared with the surrounding area.

Based on the above considerations, SWCA finds a **low potential for encountering prehistoric and Historic period Native American archaeological resources** within the project site. This is supported by the surficial geology of the site, which has been identified as late to middle Pleistocene old alluvial fan deposits, undivided (Qof) and late Miocene Modelo Formation, undivided (Tm). According to the paleontological resources study conducted for this project, the depth to the underlying, previously undisturbed sediments is unknown, but likely very shallow (e.g., 3 feet below ground surface) (Carson 2022). These types of sediments are naturally less likely to contain buried archaeological resources. The likelihood of encountering any cultural resources is further decreased due to the compromised integrity of the physical setting as a result of plowing, as evidenced by past agricultural activities as seen on historic aerial imagery, and the development of the school campus and commercial property. The maximum depth of excavation for the project is anticipated to be approximately eight feet below surface within the Main Campus area, which likely would be within previously disturbed or artificial fill. The North Campus area will be excavated to a maximum depth of 20 feet below surface, which would likely require excavation of underlying alluvial sediments and removal of the overlying artificial fill.

Historic period archaeological resources could be preserved below the current ground surface, especially within the artificial fill. The CHRIS results were negative for previously recorded historic-era archaeological sites. As previously mentioned, the project site consisted of agricultural land from at least 1928 to 1959, with the high school and the shopping center constructed between 1959 and 1967. This shopping center was expanded in 1981 to its current size. The lack of evidence of built structures within the project site prior to 1959, indicates there is a low potential to encounter structural remains, features, and artifacts associated with the agricultural fields from the late nineteenth to mid twentieth century. For these reasons, SWCA finds the project site has a **low sensitivity for containing Historic period (non-Native American) archaeological resources.**

The multi-tenant mini shopping center and surface parking lot located within the proposed North Campus area were built between 1962 to 1964; however, an assessment of built architectural resources was not included in this current scope and not addressed in this study. Because these buildings are at least 45 years old, SWCA recommends that they be assessed by a qualified architectural historian to determine if the properties qualify as historical resources for the purposes of CEQA. CEQA requires a lead agency to analyze whether historic and/or archaeological resources may be adversely impacted by a proposed project. Under CEQA, a “project that may cause a substantial adverse change in the significance of a historic resource is a project that may have a significant effect on the environment” (PRC Section 21084.1). Answering this question is a two-part process: first, the determination must be made as to whether the proposed project involves cultural resources. Second, if cultural resources are present, the

proposed project must be analyzed for a potential "substantial adverse change in the significance" of the resource.

According to CEQA Guidelines Section 15064.5, historical resources are:

1. A resource listed in, or formally determined eligible for listing in, the California Register of Historical Resources (CRHR) (PRC 5024.1, Title 14 CCR, Section 4850 et seq);
2. A resource included in a local register of historical resources, as defined in Section 5020.1(k) of the PRC or identified as significance in a historic resources survey meeting the requirements of Section 5024.1(g) of the PRC;
3. Any building, structure, object, site, or district that the lead agency determines eligible for national, state, or local landmark listing; generally, a resource shall be considered by the lead agency to be historically significant (and therefore a historic resource under CEQA) if the resource meets the criteria for listing on the California Register (as defined in PRC Section 5024.1, Title 14 CCR, Section 4852).

Resources nominated to the CRHR must retain enough of their historic character or appearance to convey the reasons for their significance. According to CEQA, the fact that a resource is not listed in or determined eligible for listing in the CRHR or is not included in a local register or survey shall not preclude the lead agency from determining that the resource may be an historical resource (PRC Section 5024.1). Pursuant to CEQA, a project with an effect that may cause a substantial adverse change in the significance of a historical resource may have a significant effect on the environment (CEQA Guidelines, Section 15064.5(b).

CEQA Guidelines specify that "substantial adverse change in the significance of an historical resource means physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of an historical resource would be materially impaired" (CEQA Guidelines, Section 15064.5). Material impairment occurs when a project alters in an adverse manner or demolishes "those physical characteristics of an historical resource that convey its historical significance and that justify its inclusion" or eligibility for inclusion in the NRHP, CRHR, or local register.
In addition, pursuant to CEQA Guidelines Section 15126.2, the "direct and indirect significant effects of the project on the environment shall be clearly identified and described, giving due consideration to both the short-term and long-term effects."

In order to satisfy the above-stated requirements of CEQA, SWCA recommends a built architectural resources study be conducted, where the buildings identified on the project site, including the buildings on the proposed North Campus, which will be demolished, be evaluated as historical resources.
The evaluation should include property-specific research to fully characterize construction and development history, an examination of the building's features and characteristics, and an accurate depiction of the building's condition, historic integrity, alterations, and changes over time. The regulatory setting, methods, and results of the work, including any recommendations for additional work (if needed), should be compiled into a historic resources assessment report. SWCA recommends this work be carried out by a qualified architectural historian, defined as one who meets or exceeds the Secretary of Interior's Professional Qualifications Standards for Architectural History.

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APPENDIX A

Figures



Figure A-1. Project site vicinity, 1:300,000 scale.

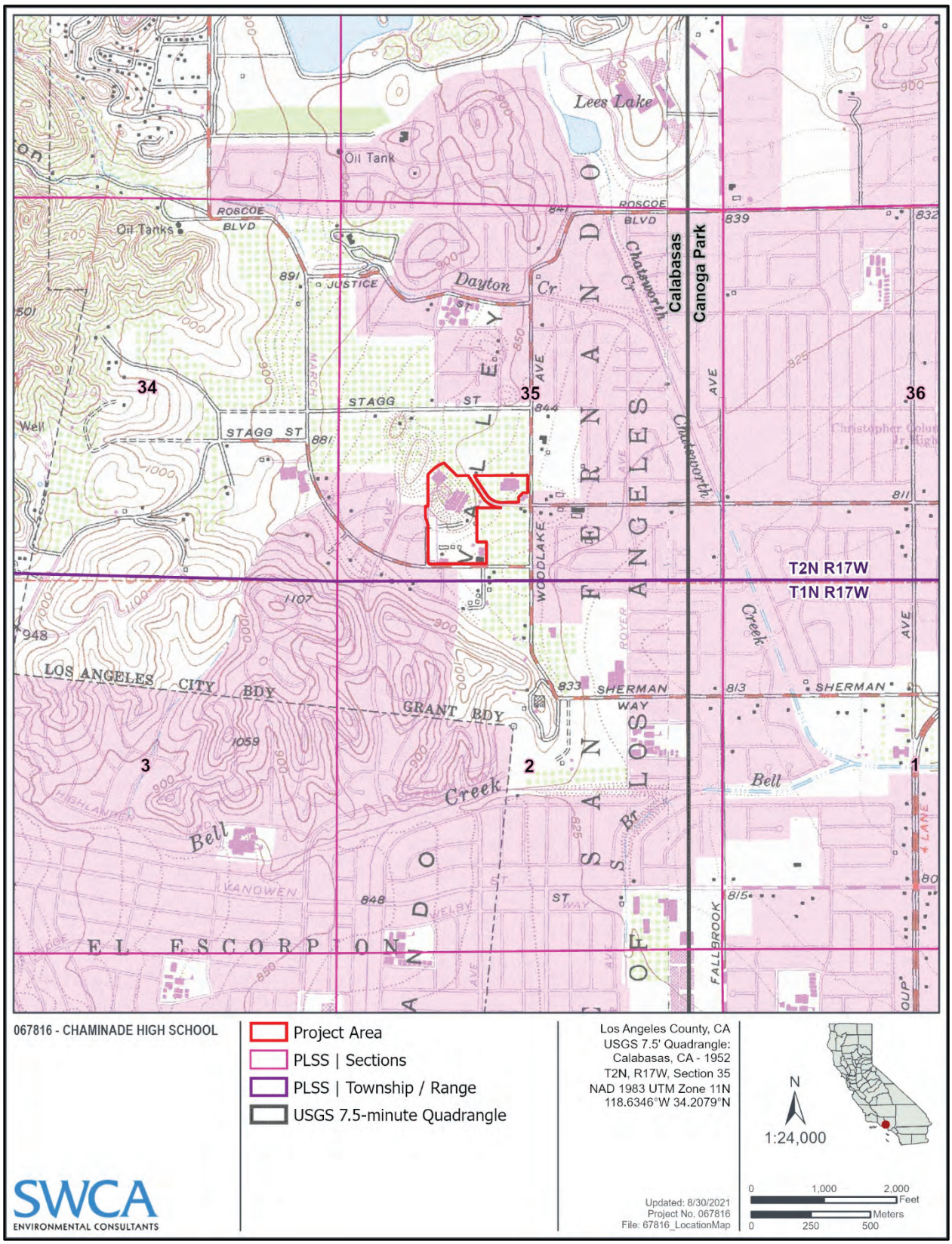


Figure A-2. Project site on the USGS Calabasas, California, 7.5-minute quadrangle.



Figure A-3. Project site shown on a 2021 aerial photograph.

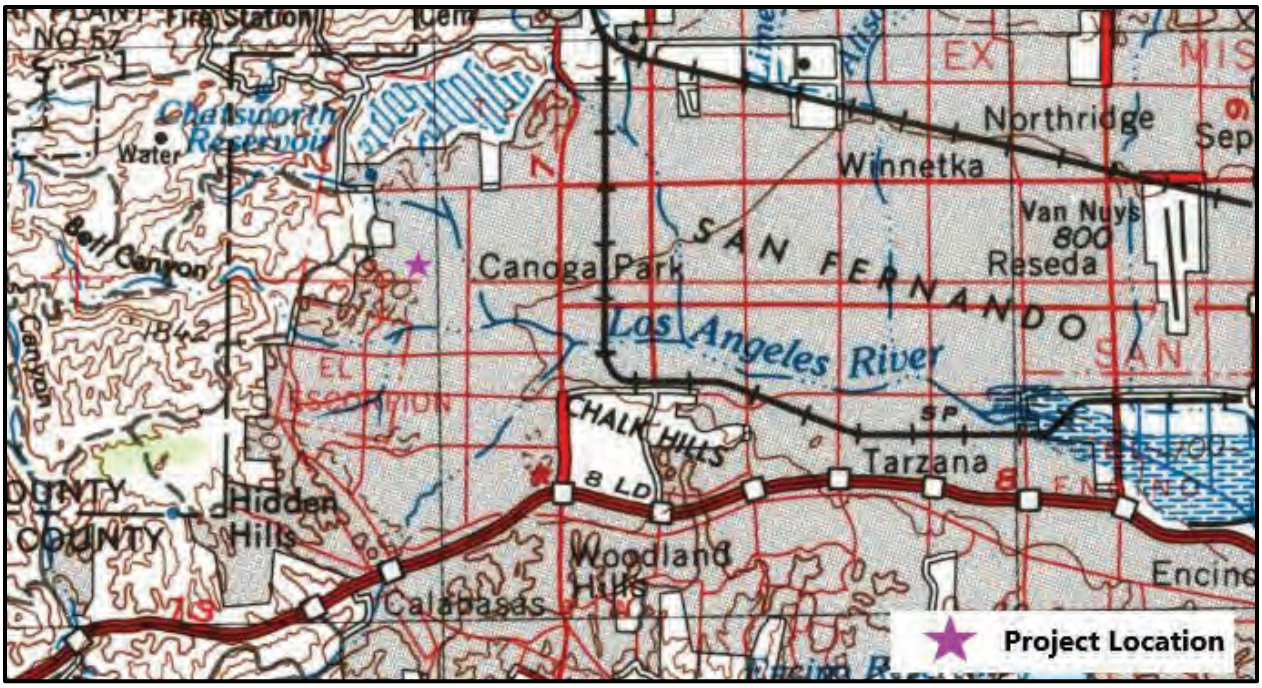


Figure A-4. Project location shown on a 1975 Los Angeles topographic map. Note the two intermittent streams in the vicinity of the project site: Dayton Creek to the north and Bell Creek to the south, as well as Chatsworth Creek, which is located approximately 0.7 miles east of the project site.

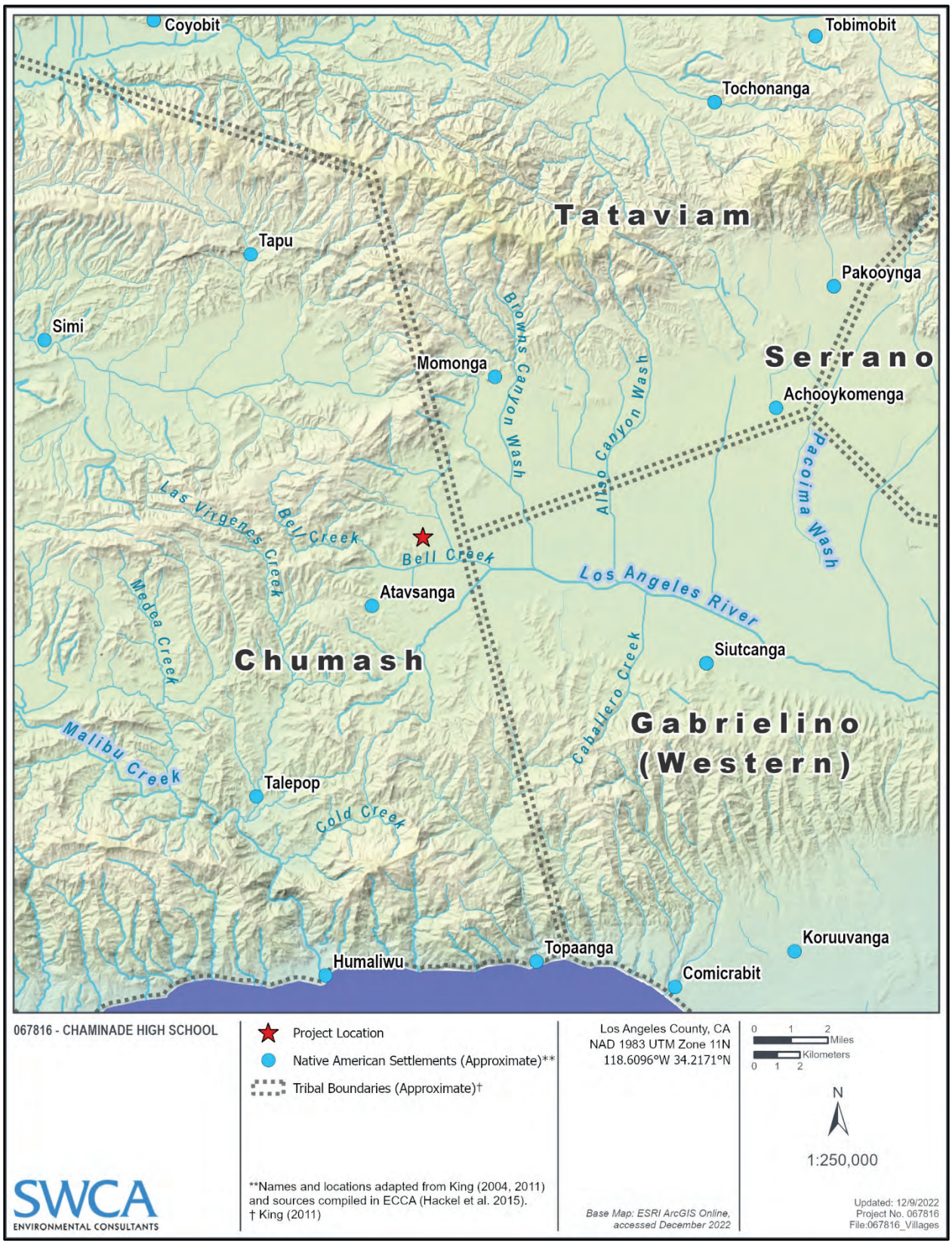


Figure A-5. Native American villages and place names (based on Fernandeño Tataviam Band of Mission Indians [2022], Hackel et al. [2015], Johnson [1997], and King [2011]).

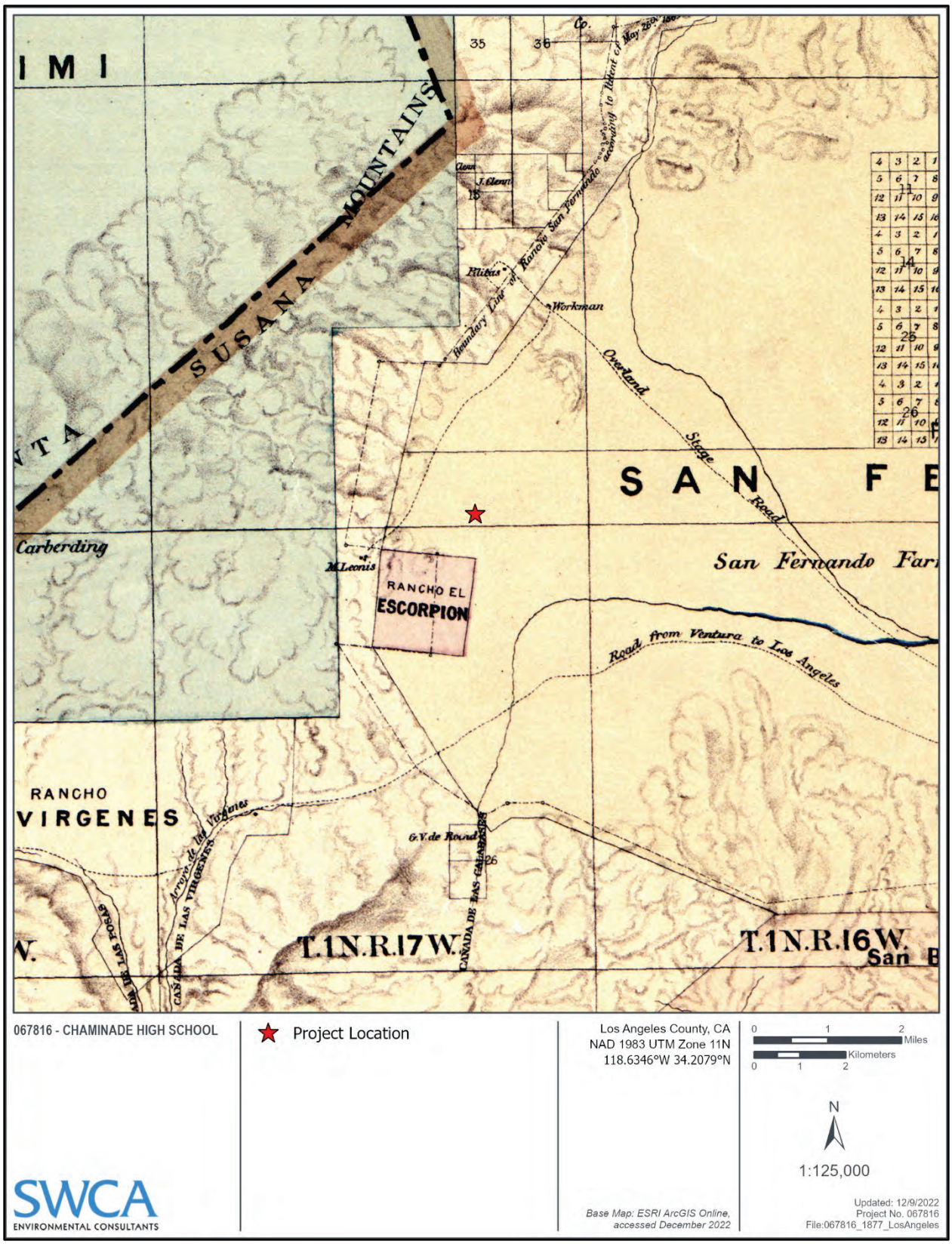


Figure A-6. Historical topographic map showing the project site in 1877.

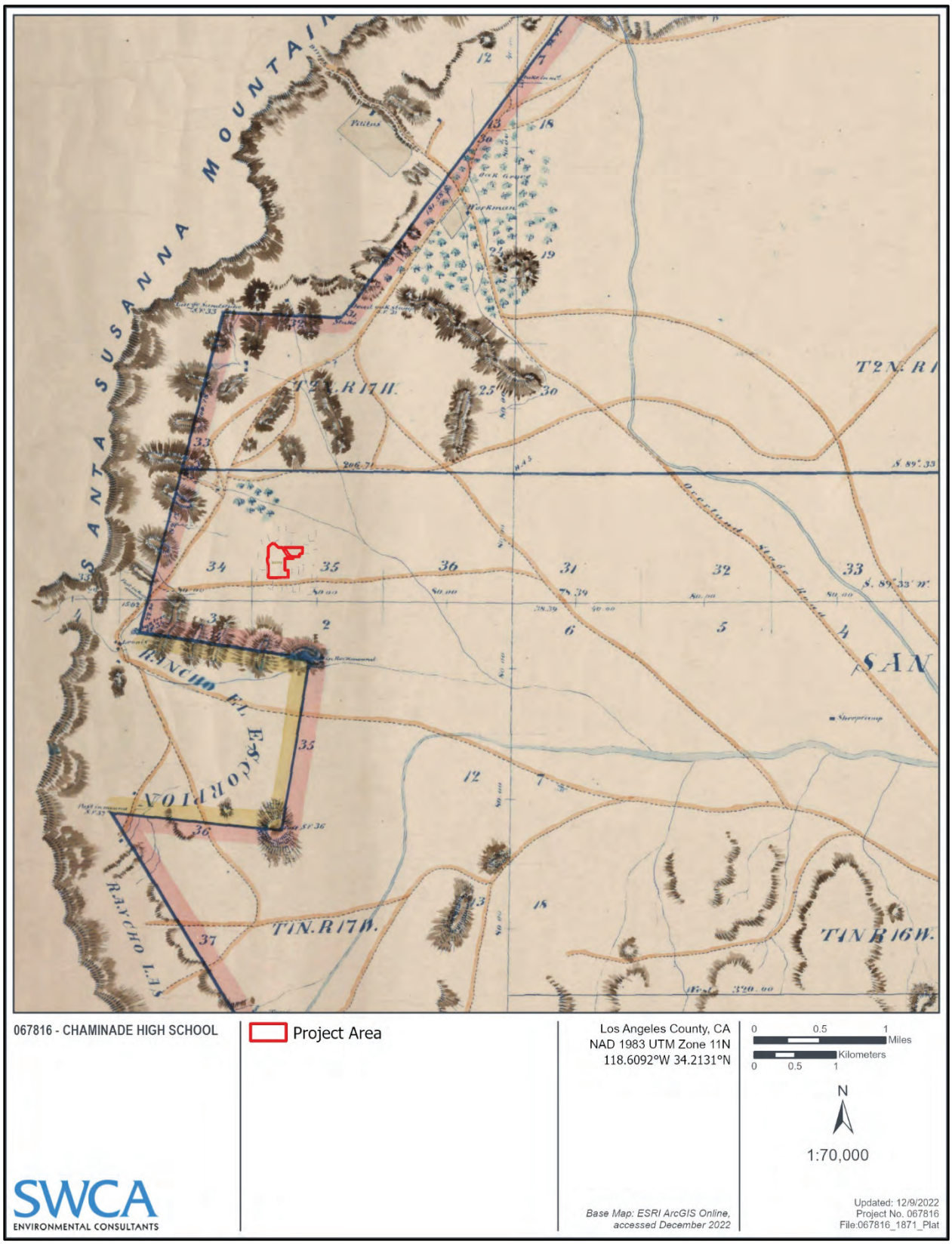


Figure A-7. Plat of the former Mission de San Fernando lands ca. 1871 annotated with the Historic-period ranchos located nearest to the project site.

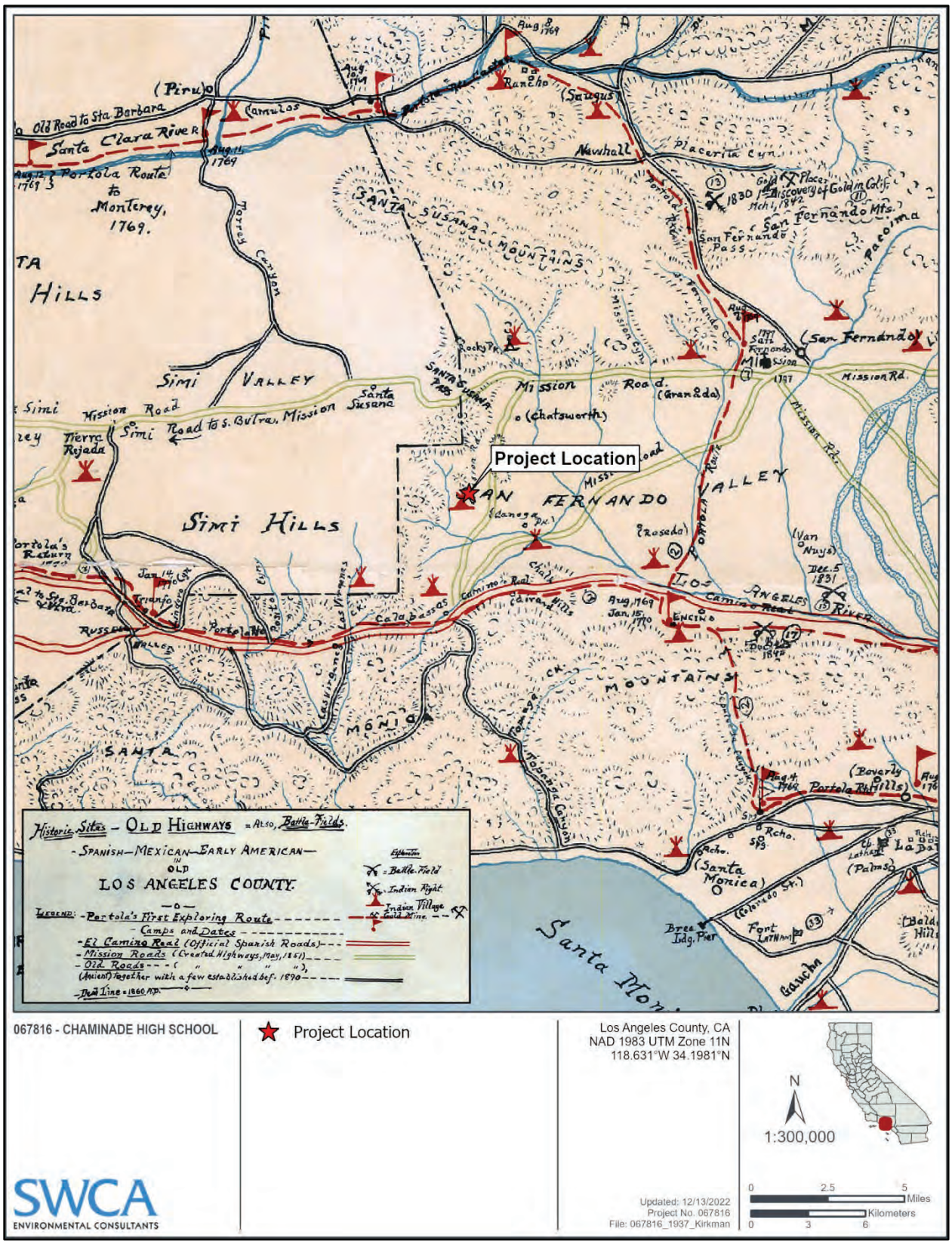


Figure A-8. Kirkman-Harriman's pictorial and historical map of Los Angeles County: 1860–1937.

APPENDIX B

SCCIC Record Search Results

Table B-1. Previous Cultural Resources Studies within 0.5 Mile of the Project Area

Report No.	Author (Affiliation)	Year	Study Title	Relationship to Project Area
LA-00475	Hector, Susan M. (University of California, Los Angeles Archaeological Survey)	1978	An Archaeological Resource Survey and Impact Assessment of Tract 34924 (sanger), Los Angeles County	Outside—within 0.5 mile
LA-01953	Singer, Clay A., and John E. Atwood (C.A. Singer & Associates, Inc.)	1989	Archaeological Monitoring at Tentative Tracts 34924, 41060, and 41062, Near Bell Canyon in the Community of West Hills, Los Angeles County, California	Outside—within 0.5 mile
LA-02011	McIntyre, Michael J. (Northridge Archaeological Research Center, CSUN)	1976	Assessment of the Archaeological Impact by the Development of Tentative Tract No. 27795	Outside—within 0.5 mile
LA-02014	McIntyre, Michael J. (Northridge Archaeological Research Center, CSUN)	1976	Assessment of the Archaeological Impact by the Development of Woodlake Avenue Between Leadwell Street to Bell Creek Channel (70 W.v)	Outside—within 0.5 mile
LA-03753	Anonymous (Department of Public Works)	1977	Historic Property Survey Woodlake Avenue and Bridge - Sherman Way to Bell Creek W.o. 61480 Woodlake Avenue - N/o Leadwell Street to Sherman Way W.o. 61825	Outside—within 0.5 mile
LA-09507	Bonner, Wayne H. and Sarah A. Williams (MBA)	2009	Cultural Resources Records Search and Site Visit Results for T. Mobile USA Candidate SV11662A (Fernando Monopalm), 7531 Fallbrook Ave, Los Angeles, Los Angeles County, California	Outside—within 0.5 mile

APPENDIX C

Sacred Lands File Search Results

GEOTECHNICAL INVESTIGATION

PROPOSED CHAMINADE HIGH SCHOOL IMPROVEMENTS
7500 CHAMINADE AVENUE, 23241 COHASSET STREET,
23217-23260 SATICOY STREET
7619-7629 WOODLAKE AVENUE
WEST HILLS NEIGHBORHOOD OF LOS ANGELES, CALIFORNIA

TRACT: 2607; LOT: LT1;
TRACT: 2500; LOT: 19;
TRACT: 25733; LOT: LT1; ARB: 1-4

GEOCON
WEST, INC.

GEOTECHNICAL
ENVIRONMENTAL
MATERIALS

PREPARED FOR

CAHMINADE COLLEGE PREPARATORY
WEST HILLS, CALIFORNIA

PROJECT NO. W1547-06-01

REVISED JANUARY 12, 2023

GEOCON
WEST, INC.
GEOTECHNICAL ■ ENVIRONMENTAL ■ MATERIALS

Project No. W1547-06-01
Revised January 12, 2023

Chaminade College Preparatory
7500 Chaminade Avenue
West Hills, CA 91304

Attention: Mr. Chris Landon

Subject: GEOTECHNICAL INVESTIGATION
PROPOSED CHAMINADE HIGH SCHOOL IMPROVEMENTS
7500 CHAMINADE AVENUE, 23241 COHASSET STREET,
23217-23260 SATICOY STREET, 7619-7629 WOODLAKE AVENUE
WEST HILLS NEIGHBORHOOD OF LOS ANGELES, CALIFORNIA
TRACT: 2607; LOT: LT1;
TRACT: 2500; LOT: 19;
TRACT: 25733; LOT: LT1; ARB: 1-4

Dear Mr. Landon:

In accordance with your authorization of our proposal dated March 16, 2022, we have performed a geotechnical investigation for the proposed Chaminade High School improvements located at 7500 Chaminade Avenue, 23241 Cohasset Street, 23217-23260 Saticoy Street, 7619-7629 Woodlake Avenue in the City of Los Angeles, California. The accompanying report presents the findings of our study, and our conclusions and recommendations pertaining to the geotechnical aspects of proposed design and construction. Based on the results of our investigation, it is our opinion that the site can be developed as proposed, provided the recommendations of this report are followed and implemented during design and construction.

If you have any questions regarding this report, or if we may be of further service, please contact the undersigned.

Very truly yours,

GEOCON WEST, INC.







Joe Hicks, M.S.
PE 93183

Susan F. Kirkgard
CEG 1754

Neal Berliner
GE 2576

(EMAIL) Addressee

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LIMITATIONS AND UNIFORMITY OF CONDITIONS

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GEOTECHNICAL INVESTIGATION

1. PURPOSE AND SCOPE

This report presents the results of a geotechnical investigation for proposed Chaminade High School improvements located at 7500 Chaminade Avenue, 23241 Cohasset Street, 23217-23260 Saticoy Street, 7619 and 7629 Woodlake Avenue in the City of Los Angeles, California (see Vicinity Map, Figure 1). The purpose of the investigation was to evaluate subsurface soil and geologic conditions underlying the site and, based on conditions encountered, to provide conclusions and recommendations pertaining to the geotechnical aspects of design and construction.

The scope of this investigation included a site reconnaissance, field exploration, laboratory testing, engineering analysis, and the preparation of this report. The site was explored on April 18, 2022, and April 19, 2022, by excavating twelve 8-inch diameter borings to depths ranging between approximately 6½ to 51 feet below the existing ground surface using a truck-mounted hollow-stem auger drilling machine. The approximate locations of the exploratory borings are depicted on the Site Plan (see Figures 2A through 2D). A detailed discussion of the field investigation, including boring logs, is presented in Appendix A.

Laboratory tests were performed on selected soil samples obtained during the investigation to determine pertinent physical and chemical soil properties. Appendix B presents a summary of the laboratory test results.

The recommendations presented herein are based on analysis of the data obtained during the investigation and our experience with similar soil and geologic conditions. References reviewed to prepare this report are provided in the *List of References* section.

If project details vary significantly from those described herein, Geocon should be contacted to determine the necessity for review and possible revision of this report.

2. SITE AND PROJECT DESCRIPTION

The subject site is located at 7500 Chaminade Avenue, 23241 Cohasset Street, 23217-23260 Saticoy Street, 7619 and 7629 Woodlake Avenue in the City of Los Angeles, California. The subject property consists of the Main Campus at 7500 Chaminade Avenue, 23241 Cohasset Street, and 2360 Saticoy Street (see Figure 2B), and the North Campus located at 23217-23255 Saticoy Street and 7619-7629 Woodlake Avenue (see Figure 2C).

The Main Campus is currently occupied by the existing Chaminade High School campus located at the northeast corner of the intersection of Chaminade Avenue and Cohasset Street. The Main Campus includes several one- and multi-level classroom, administrative, and ancillary buildings, as well as a sports stadium and athletic fields. The Main Campus is bounded by Keswick Street to the north, by Chaminade Avenue to the west, by Cohasset Street to the south, and by multiple single-story residential structures to the east. The main campus slopes to the south with approximately 42 feet of vertical relief across the site.

The North Campus, north and east of Saticoy Street, is relatively level with approximately 4 feet of vertical relief (see Figure 2C). The North Campus is currently occupied by several single-story commercial structures surrounded by on grade asphalt parking. Surface water drainage at the site appears to be by sheet flow along the existing ground contours to the city streets.

It is our understanding that the proposed improvements will include :

- Constructing a pedestrian bridge over Saticoy Street connecting the Main and North Campus
- North Campus:
    - Demolish the existing commercial structures and remove the existing paving
    - Construct a new pool and pool house
    - Construct new sports fields with associated ancillary structures
    - Construct an on-grade parking area
- Main Campus:
    - Demolish 6 of the existing administrative and classroom structures (including 2 portable buildings)
    - Construct a new Main three-story administrative/classroom structure
    - Renovate existing surface parking areas and sports fields.

Based on the preliminary nature of the design at this time, wall and column loads were not available. It is anticipated that column loads for the proposed structures will be up to 300 kips, and wall loads will be up to 4 kips per linear foot.

At this time the proposed building elevations have not yet been finalized. The existing and anticipated proposed site conditions are depicted on the Site Plans and Cross Sections (see Figures 2A through 2E). Once the design phase and foundation configuration proceeds to a more finalized plan, the recommendations within this report should be reviewed and revised, if necessary. Any changes in the design, location or elevation of any structure, as outlined in this report, should be reviewed by this office. Geocon should be contacted to determine the necessity for review and possible revision of this report.

3. PRIOR INVESTIGATION REPORTS

We were provided with a copy of prior geotechnical investigation reports for the site prepared by Geotechnologies, Inc. that include the following:

Geotechnical Engineering Investigation, Proposed Performing Arts Center, 7500 Chaminade Avenue, West Hills, California, File No. 19793, dated June 1, 2009, by Geotechnologies, Inc.

Stormwater Disposal, Performing Arts Center, Chaminade High School, 7500 Chaminade Avenue, West Hills, California, File No. 19793, dated February 24, 2010, by Geotechnologies, Inc.

Response to Geology and Soils Report Correction Letter, Proposed Performing Arts Center, Chaminade High School, 7500 Chaminade Avenue, West Hills, California, File No. 19793, dated May 5, 2010, by Geotechnologies, Inc.

In 2009, Geotechnologies, Inc. excavated five hollow stem auger borings and three test pits on the west side of the Main Campus for the design of a proposed auditorium/performing arts center. Also, as part of the same investigation, three additional large-diameter borings were excavated in 2010, two in the area west of the existing football stadium, in the parking lot for a proposed infiltration area (borings B6 and B7) and one in the area of the deepest portion of the excavation for the performing arts center (boring B8). The borings ranged from 20 to 40 feet beneath the existing ground surface and the test pits ranged from 5½ to 7½ feet beneath the existing ground surface. The geologic materials encountered in the borings consist of artificial fill, alluvium, and sedimentary bedrock of the Monterey Formation. The depth to bedrock in the explorations ranged from 1 to 16 feet and the bedrock consists of interbedded siltstone, diatomaceous siltstone, siliceous siltstone and sandstone. Boring B8 was downhole logged by a geologist. Bedding in the Monterey Formation bedrock was observed in the borings and test pits to strike N20W to N70E and dip 10 degrees northeast and 12 to 30 degrees southeast. Static groundwater was not encountered in the prior borings; however, water seepage was encountered in boring B7 within the bedrock at a depth of approximately 18 feet below the ground surface. Residual shear tests were performed on bedrock samples collected in boring B8.

Geocon West, Inc. has reviewed the referenced report by Geotechnologies Inc. (2009, 2010). Where applicable, the recommendations presented herein consider the subsurface and laboratory data included in the prior report, as well as our own subsurface and laboratory data. Furthermore, we assume responsibility for the utilization of the exploration and laboratory data presented within the prior geotechnical report. Geocon West, Inc. is the Geotechnical Consultant of Record and will be providing all necessary geotechnical consultation, plan review, design recommendations, inspection and testing services for this project. Where differing, the recommendations presented herein supersede all previous recommendations. The previous investigation reports are presented in Appendix C.

4. GEOLOGIC SETTING

The site is located in the western portion of the San Fernando Valley, an alluvial-filled basin approximately 23 miles wide and 12 miles long (Hitchcock and Wills, 2000). The alluvium within the San Fernando Valley is derived primarily from the Santa Monica Mountains to the south, the Santa Susana Mountains to the north, the Simi Hills to the west, the San Gabriel Mountains to the northeast, and the Verdugo Mountains to the east. The site is located on the valley floor and the surficial alluvial sediments underlying the site were derived primarily from local drainages originating in the Santa Susana Mountains to the north (Hitchcock and Wills, 2000). Locally, isolated bedrock outcrops are present in the site vicinity and shallow bedrock underlies the northern portion of the main campus.

5. SOIL AND GEOLOGIC CONDITIONS

Based on our field investigation and published geologic maps of the area, the site is underlain by artificial fill, Holocene age alluvium and colluvium, and the northern portion of the main campus is underlain by shallow sedimentary bedrock of the Monterey Formation, also called the Modelo Formation (Dibblee, 1992). Detailed stratigraphic profiles of the materials encountered at the site are provided on the boring logs in Appendix A.

5.1 Artificial Fill

As encountered in the borings, the artificial fill at the site is typically less than 3 feet thick except in the northeastern portion of the Main Campus (B6) and the eastern portion of the North Campus (B2) where fill was encountered to depths of 6 feet in boring B6 and 5 feet in boring B2. The artificial fill generally consists of brown to dark brown or grayish brown sandy clay, sandy silt, and silty sand with varying amounts of gravel. The fill is characterized as dry to moist and soft to hard or loose to medium dense. Artificial fill was encountered in the prior Geotechnologies borings at the site to a maximum depth of 7 feet beneath the ground surface in boring B3. The fill consists of dark brown to yellowish brown sandy and clayey silt, silty clay, and silty sand and is characterized moist and stiff or medium dense. The fill is likely the result of past grading or construction activities at the site. Deeper fill may exist between excavations and in other portions of the site that were not directly explored.

5.2 Alluvium

The artificial fill is locally underlain by Holocene age alluvium in borings B1 through B4 on the North Campus and in borings B5 through B7 along the east side of the Main Campus and in boring B12 in the southern portion of the Main Campus. The alluvium consists primarily of brown to dark brown, olive brown or dark gray interbedded clay, sandy clay, sandy silt, silty sand, clayey sand, and poorly graded sand with various amounts of gravel. The alluvium is characterized as fine to medium-grained, dry to saturated, and very loose to dense or soft to hard. Alluvium was encountered beneath the fill in the prior Geotechnologies borings B6 and B7, in southern portion of the Main Campus. As logged in the prior borings, the alluvium consists of yellowish brown to dark brown silty sand to sandy silt or clayey silt to silty clay and is characterized moist and stiff or medium dense.

5.3 Colluvium

Colluvium was encountered beneath the artificial fill in borings B10 and B11, south of the existing performing arts center. The colluvium ranges from 2 to 3 feet thick and consists of olive brown to dark brown sandy clay and sandy silt with various amounts of bedrock fragments. The colluvium is characterized as slightly moist to moist, and stiff to hard.

5.4 Monterey Formation

Sedimentary bedrock of the Miocene age Monterey Formation (also known as the Modelo Formation) directly underlies the artificial fill in borings B8 and B9 (adjacent to the proposed administration building in the central portion of the Main Campus) and was encountered below the surficial soils (alluvium and colluvium) in the remainder of the borings. The bedrock at the site consists of interbedded sandstone and siltstone with some localized diatomaceous siltstone and siliceous siltstone beds. The bedrock is characterized as poorly bedded to well-bedded, soft to hard, and slightly to highly weathered with various amounts of oxidation staining. Bedrock was encountered in all borings, including the prior borings by Geotechnologies Inc., except in the current borings B2 and B12. Boring B2 is located on the east side of the North Campus in the vicinity of the proposed pool house and boring B12 is located on the southern portion of the Main Campus. Based on the prior explorations at the site, bedding in the Monterey Formation bedrock was observed in the prior borings and test pits to strike N20W to N70E and dip 10 degrees northeast and 12 to 30 degrees southeast (Geotechnologies, 2009; 2010).

6. GROUNDWATER

Based on a review of the California Division of Mines and Geology (CDMG) Seismic Hazard Evaluation of the Calabasas 7.5-Minute Quadrangle (CDMG, 1997; revised 2001), the historic high groundwater level beneath the site is greater than 10 feet below the ground surface. Groundwater information presented in this document is generated from data collected in the early 1900's to the late 1990s. Based on current groundwater basin management practices, it is unlikely that groundwater levels will ever exceed the historic high levels.

Groundwater was encountered during site exploration in borings B1 and B12 at depths of approximately 32 feet and 14½ feet beneath the existing ground surface, respectively. However, static groundwater was not encountered in the prior borings by Geotechnologies Inc. (2009, 2010), drilled to a maximum depth of 40 feet below ground surface. Groundwater seepage was encountered within the bedrock at a depth of approximately 18 feet in boring B7 (Geotechnologies, 2010). Based on the reported historic high groundwater levels in the site vicinity (CDMG, 1997; revised 2001), the depth to groundwater encountered in our borings, and the depth of proposed construction, static groundwater is not expected to be encountered during construction or to have a detrimental effect on the project. However, it is not uncommon for groundwater levels to vary seasonally or for groundwater seepage conditions to develop where none previously existed, especially along the top of the bedrock contact and within impermeable fine-grained soils which are heavily irrigated or after seasonal rainfall. In addition, recent requirements for stormwater infiltration could result in shallower seepage conditions in the immediate site vicinity. Proper surface drainage of irrigation and precipitation will be critical for future performance of the project. Recommendations for drainage are provided in the S*urface Drainage* section of this report (see Section 8.25).

7. GEOLOGIC HAZARDS

7.1 Surface Fault Rupture

The numerous faults in Southern California include Holocene-active, pre-Holocene, and inactive faults. The criteria for these major groups are based on criteria developed by the California Geological Survey (CGS, formerly known as CDMG) for the Alquist-Priolo Earthquake Fault Zone Program (CGS, 2018a). By definition, a Holocene-active fault is one that has had surface displacement within Holocene time (about the last 11,700 years). A pre-Holocene fault has demonstrated surface displacement during Quaternary time (approximately the last 1.6 million years) but has had no known Holocene movement. Faults that have not moved in the last 1.6 million years are considered inactive.

The site is not within a state-designated Alquist-Priolo Earthquake Fault Zone (CGS, 2022b; 2018b) for surface fault rupture hazards. No Holocene-active or pre-Holocene faults with the potential for surface fault rupture are known to pass directly beneath the site. Therefore, the potential for surface rupture due to faulting occurring beneath the site during the design life of the proposed development is considered low. However, the site is located in the seismically active Southern California region and could be subjected to moderate to strong ground shaking in the event of an earthquake on one of the many active Southern California faults. The faults in the vicinity of the site are shown in Figure 3, Regional Fault Map.

The closest active fault to the site is the Simi-Santa Rosa Fault Zone, located approximately 7.4 miles to the northwest (USGS, 2006). Other nearby active faults are the Santa Susana Fault, the San Fernando segment of the Sierra Madre Fault Zone, an unnamed fault in North Hollywood, the San Gabriel Fault Zone, and the Verdugo Fault located approximately 8.2 miles north-northeast, 9.7 miles northeast, 13 miles east-southeast, 15 miles north, and 18 miles east of the site, respectively. (Ziony and Jones, 1989; USGS, 2006). The active San Andreas Fault Zone is located approximately 34 miles northeast of the site (USGS, 2006).

Several buried thrust faults, commonly referred to as blind thrusts, underlie the Southern California area at depth. These faults are not exposed at the ground surface and are typically identified at depths greater than 3.0 kilometers. The October 1, 1987, M_w 5.9 Whittier Narrows earthquake and the January 17, 1994 M_w 6.7 Northridge earthquake were a result of movement on the Puente Hills Blind Thrust and the Northridge Thrust, respectively. These thrust faults and others in the Southern California area are not exposed at the surface and do not present a potential surface fault rupture hazard at the site; however, these deep thrust faults are considered active features capable of generating future earthquakes that could result in moderate to significant ground shaking at the site.

7.2 Seismicity

As with all of Southern California, the site has experienced historic earthquakes from various regional faults. The seismicity of the region surrounding the site was formulated based on research of an electronic database of earthquake data. The epicenters of recorded earthquakes with magnitudes equal to or greater than 5.0 in the site vicinity are depicted on Figure 4, Regional Seismicity Map. A partial list of moderate to major magnitude earthquakes that have occurred in the Southern California area within the last 100 years is included in the following table.

LIST OF HISTORIC EARTHQUAKES

Earthquake (Oldest to Youngest)	Date of Earthquake	Magnitude	Distance to Epicenter (Miles)	Direction to Epicenter
Near Redlands	July 23, 1923	6.3	80	E
Long Beach	March 10, 1933	6.4	56	SE
Tehachapi	July 21, 1952	7.5	59	NNW
San Fernando	February 9, 1971	6.6	19	NE
Whittier Narrows	October 1, 1987	5.9	33	ESE
Sierra Madre	June 28, 1991	5.8	36	E
Landers	June 28, 1992	7.3	125	E
Big Bear	June 28, 1992	6.4	103	E
Northridge	January 17, 1994	6.7	6	E
Hector Mine	October 16, 1999	7.1	137	E
Ridgecrest	July 5, 2019	7.1	122	NE

The site could be subjected to strong ground shaking in the event of an earthquake. However, this hazard is common in Southern California and the effects of ground shaking can be mitigated if the proposed structures are designed and constructed in conformance with current building codes and engineering practices.

7.3 Seismic Design Criteria

The following table summarizes the site-specific design criteria obtained from the 2022 California Building Code (CBC; Based on the 2021 International Building Code [IBC] and ASCE 7-16), Chapter 16 Structural Design, Section 1613 Earthquake Loads. The data was calculated using the online application *U.S. Seismic Design Maps*, provided by the Structural Engineers Association of California (SEAOC). The short spectral response uses a period of 0.2 second. We evaluated the Site Class based on the discussion in Section 1613.2.2 of the 2022 CBC and Table 20.3-1 of ASCE 7-16. The values presented below are for the risk-targeted maximum considered earthquake (MCE_R).

2022 CBC SEISMIC DESIGN PARAMETERS

Parameter	Value	2019 CBC Reference
Site Class	C	Section 1613.2.2
MCE_R Ground Motion Spectral Response Acceleration – Class B (short), S_S	1.5g	Figure 1613.2.1(1)
MCE_R Ground Motion Spectral Response Acceleration – Class B (1 sec), S_1	0.6g	Figure 1613.2.1(2)
Site Coefficient, F_A	1.2	Table 1613.2.3(1)
Site Coefficient, F_V	1.7	Table 1613.2.3(2)
Site Class Modified MCE_R Spectral Response Acceleration (short), S_{MS}	1.8g	Section 1613.2.3 (Eqn 16-36)
Site Class Modified MCE_R Spectral Response Acceleration – (1 sec), S_{M1}	1.02g	Section 1613.2.3 (Eqn 16-37)
5% Damped Design Spectral Response Acceleration (short), S_{DS}	1.2g	Section 1613.2.4 (Eqn 16-38)
5% Damped Design Spectral Response Acceleration (1 sec), S_{D1}	0.68g	Section 1613.2.4 (Eqn 16-39)

The table on the following page presents the mapped maximum considered geometric mean (MCE_G) seismic design parameters for projects located in Seismic Design Categories of D through F in accordance with ASCE 7-16.

ASCE 7-16 PEAK GROUND ACCELERATION

Parameter	Value	ASCE 7-16 Reference
Mapped MCE_G Peak Ground Acceleration, PGA	0.538g	Figure 22-9
Site Coefficient, F_{PGA}	1.2	Table 11.8-1
Site Class Modified MCE_G Peak Ground Acceleration, PGA_M	0.646g	Section 11.8.3 (Eqn 11.8-1)

The Maximum Considered Earthquake Ground Motion (MCE) is the level of ground motion that has a 2 percent chance of exceedance in 50 years, with a statistical return period of 2,475 years. According to the 2022 California Building Code and ASCE 7-16, the MCE is to be utilized for the evaluation of liquefaction, lateral spreading, seismic settlements, and it is our understanding that the intent of the Building code is to maintain "Life Safety" during a MCE event. The Design Earthquake Ground Motion (DE) is the level of ground motion that has a 10 percent chance of exceedance in 50 years, with a statistical return period of 475 years.

Deaggregation of the MCE peak ground acceleration was performed using the USGS online Unified Hazard Tool, 2014 Conterminous U.S. Dynamic edition (v4.2.0). The result of the deaggregation analysis indicates that the predominant earthquake contributing to the MCE peak ground acceleration is characterized as a 6.66 magnitude event occurring at a hypocentral distance of 11.17 kilometers from the site.

Deaggregation was also performed for the Design Earthquake (DE) peak ground acceleration, and the result of the analysis indicates that the predominant earthquake contributing to the DE peak ground acceleration is characterized as a 6.58 magnitude occurring at a hypocentral distance of 13.67 kilometers from the site.

Conformance to the criteria in the above tables for seismic design does not constitute any kind of guarantee or assurance that significant structural damage or ground failure will not occur if a large earthquake occurs. The primary goal of seismic design is to protect life, not to avoid all damage, since such design may be economically prohibitive.

7.4 Liquefaction Potential - General

Liquefaction is a phenomenon in which loose, saturated, relatively cohesionless soil deposits lose shear strength during strong ground motions. Primary factors controlling liquefaction include intensity and duration of ground motion, gradation characteristics of the subsurface soils, in-situ stress conditions, and the depth to groundwater. Liquefaction is typified by a loss of shear strength in the liquefied layers due to rapid increases in pore water pressure generated by earthquake accelerations.

The current standard of practice, as outlined in the "Recommended Procedures for Implementation of DMG Special Publication 117, Guidelines for Analyzing and Mitigating Liquefaction in California" and "Special Publication 117A, Guidelines for Evaluating and Mitigating Seismic Hazards in California" requires liquefaction analysis to a depth of 50 feet below the lowest portion of the proposed structure. Liquefaction typically occurs in areas where the soils below the water table are composed of poorly consolidated, fine- to medium-grained, primarily sandy soil. In addition to the requisite soil conditions, the ground acceleration and duration of the earthquake must also be of a sufficient level to induce liquefaction.

The State of California Seismic Hazard Zone Map for the Calabasas Quadrangle (CDMG, 1998; CGS, 2022b) indicates that the southern portion of the Main Campus and the entire North Campus are located in an area designated as having a potential for liquefaction. Consequently, the proposed pool, pool house and pedestrian bridge are located within areas designated as having a potential for liquefaction. Groundwater was encountered during site exploration in borings B1 (North Campus) and B12 (southern portion of the Main Campus) at depths of approximately 32 feet and 14½ feet beneath the existing ground surface, respectively.

7.4.1 North Campus Liquefaction Potential

The North Campus is underlain by artificial fill, potentially liquefiable alluvium, further underlain by Monterey formation bedrock. The depth of the bedrock ranges from 12 feet on the west portion of the property, to 42 feet on the east side of the property.

It is anticipated that the proposed pedestrian bridge structure can be founded on relatively shallow bedrock using deepened foundations (piles) extending through the potentially liquefiable materials. Since structures will be supported on bedrock, it is our opinion that the potential for liquefaction and associated ground deformations to impact structures is considered very low.

Due to the depth of bedrock on the east side of the North Campus, deepened foundations are not considered economically feasible for the construction of the North Campus pool house improvements. Therefore, a liquefaction analysis was performed to determine the feasibility of a shallow foundation system.

Liquefaction analysis of the soils underlying the site was performed using an updated version of the spreadsheet template LIQ2_30.WQ1 developed by Thomas F. Blake (1996). This program utilizes the 1996 NCEER method of analysis. This semi-empirical method is based on a correlation between values of Standard Penetration Test (SPT) resistance and field performance data.

Screening criteria developed by Bray and Sancio (2006) characterize fine-grained soils which are not susceptible to liquefaction as soils with a plasticity index (PI) that is greater than 18 or with a saturated moisture content that is less than 80 percent of the liquid limit. In order to apply the screening criteria, laboratory testing was performed to evaluate the Atterberg Limits and saturated moisture content of select soil samples. Laboratory test results used for the screening criteria are presented as Figures B16 and B17.

The liquefaction analysis was performed for a Design Earthquake level by using a high groundwater table of 10 feet below the ground surface, a magnitude 6.58 earthquake, and a peak horizontal acceleration of 0.431g ($⅔PGA_M$). The enclosed liquefaction analyses included herein for borings B1 indicate that the alluvial soils below the proposed foundation level would be prone to approximately 2.2 inches of liquefaction settlement during a Design Earthquake ground motion (see enclosed calculation sheets, Figures 5 and 6). The resulting differential settlement at the foundation level is anticipated to be approximately 1½ inches over a distance of 20 feet.

It is our understanding that the intent of the Building Code is to maintain “Life Safety” during Maximum Considered Earthquake level events. Therefore, additional analysis was performed to evaluate the potential for liquefaction during a MCE event. The structural engineer should evaluate the proposed structure for the anticipated MCE liquefaction induced settlements and verify that anticipated deformations would not cause the foundation system to lose the ability to support the gravity loads and/or cause collapse of the structure.

The liquefaction analysis was also performed for Maximum Considered Earthquake levels by using a historic high groundwater table of 10 feet below the ground surface, a magnitude 6.66 earthquake, and a peak horizontal acceleration of 0.646g (PGA_M). The enclosed liquefaction analysis, included herein for boring B1 indicates that the alluvial soils below the proposed foundation would be prone to approximately 2½ inches of liquefaction settlement during a Maximum Considered Earthquake ground motion (see enclosed calculation sheets, Figures 7 and 8). The resulting differential settlement at the foundation level is anticipated to be approximately 1¼ inches over a distance of 20 feet.

7.4.2 Main Campus Liquefaction Potential

Based on the anticipated configurations of the proposed improvements, all proposed foundations will be underlain by Monterey formation bedrock. It is recommended that building foundations be founded on bedrock. Based on these considerations, it is our opinion that the potential for liquefaction and associated ground deformations to impact the proposed structure is considered very low.

Once the configuration of the proposed improvements are finalized, additional analysis should be performed as necessary to address liquefaction potential.

7.5 Slope Stability

The topography at the site slopes to the south with 42 feet of elevation difference, and the topography in the immediate site vicinity slopes gently to the southeast. The site is located within a City of Los Angeles Hillside Grading Area but is not located within a city-designated Hillside Ordinance Area (City of Los Angeles, 2022). The County of Los Angeles Safety Element (Leighton, 1990) indicates that the site is within a hillside area. According to the California Geological Survey (CDMG, 1998), the site is not located within an area identified as having a potential for seismic slope instability. There are no known landslides near the site, nor is the site in the path of any known or potential landslides. Based on these considerations, the potential for slope stability hazards to impact the proposed development is considered low.

The planned excavation for the proposed administration building will expose bedrock in the majority of the excavation (see Figure 2E). As previously indicated, bedding in the Monterey Formation bedrock was observed in the prior borings and test pits to strike N20W to N70E and dip 10 degrees northeast and 12 to 30 degrees southeast (Geotechnologies, 2009; 2010). If this bedding orientation is consistent across the site, day-lighted (adverse) bedding will be exposed along the west (east- and southeast-facing) and north (south-facing) excavation walls for the proposed administration building. However, due to the limited bedding information collected at the site and the inconsistency of the observed bedding orientations, the bedding orientation at the site should be verified during excavation.

7.6 Earthquake-Induced Flooding

Earthquake-induced flooding is inundation caused by failure of dams or other water-retaining structures due to earthquakes. Based on a review of the County of Los Angeles Safety Element (Leighton, 1990), the site is not located within a potential inundation area for an earthquake-induced dam failure. Therefore, the potential for inundation at the site as a result of an earthquake-induced dam failure is considered low.

7.7 Tsunamis, Seiches, and Flooding

The site is not located within a coastal area. Therefore, tsunamis, are not considered a significant hazard at the site.

Seiches are large waves generated in enclosed bodies of water in response to ground shaking. No major water-retaining structures are located immediately up gradient from the project site. Therefore, flooding from a seismically induced seiche is considered unlikely.

The site is within an area of minimal flooding (Zone X) as defined by the Federal Emergency Management Agency (FEMA, 2022; LACDPW, 2022).

7.8 Oil Fields & Methane Potential

Based on a review of the California Geologic Energy Management Division (CalGEM) Well Finder Website, the site is not located within an oil field and there are no oil or gas wells documented at the site or within ½-mile of the site (CalGEM, 2022). However, due to the voluntary nature of record reporting by the oil well drilling companies, wells may be improperly located or not shown on the location map and undocumented wells could be encountered during construction. Any wells encountered will need to be properly abandoned in accordance with the current requirements of the CalGEM.

The site is not located within a City of Los Angeles Methane Zone or Methane Buffer Zone (City of Los Angeles, 2022). Since the site is not located within the boundaries of a known oil field, the potential for the presence of methane or other volatile gases at the site is considered low. However, should it be determined that a methane study is required for the proposed development it is recommended that a qualified methane consultant be retained to perform the study and provide mitigation measures as necessary.

7.9 Subsidence

Subsidence occurs when a large portion of land is displaced vertically, usually due to the withdrawal of groundwater, oil, or natural gas. Soils that are particularly subject to subsidence include those with high silt or clay content. The majority of the site is underlain by shallow bedrock that is not susceptible to subsidence. No large-scale extraction of groundwater, gas, oil, or geothermal energy is occurring or planned at the site. There appears to be little or no potential for ground subsidence due to withdrawal of fluids or gases at the site.

8. CONCLUSIONS AND RECOMMENDATIONS

8.1 General

8.1.1 It is our opinion that neither soil nor geologic conditions were encountered during the investigation that would preclude the construction of the proposed development provided the recommendations presented herein are followed and implemented during design and construction.

8.1.2 Up to 6 feet of existing artificial fill was encountered during the site investigation. The existing fill encountered is believed to be the result of past grading and construction activities at the site. Deeper fill may exist in other areas of the site that were not directly explored. Demolition of the existing structures that occupy the site is anticipated to disturb the upper few feet of existing site soils. It is our opinion that the existing fill, in its present condition, is not suitable for direct support of proposed foundations or slabs. The existing fill and site soils are suitable for re-use as engineered fill provided the recommendations in the Grading section of this report are followed (see Section 8.4).

8.1.3 The proposed North Campus pool house (see Figure 2C) is located within a liquefaction hazard zone and underlain by potentially liquefiable soils further underlain by Monterey Formation Bedrock at a depth of 42 feet (see B1). The liquefaction analysis included herein indicates that the alluvial soils below the historic high groundwater level could be prone to approximately 2.2 inches of total settlement as a result of the Design Earthquake peak ground acceleration ($⅔PGA_M$). The resulting differential settlement at the ground surface is anticipated to be approximately 1½ inches over a distance of 20 feet. Based on these considerations it is recommended that a reinforced concrete mat foundation system deriving support in newly placed engineered fill may be utilized for support of the proposed North Campus pool house.

8.1.4 The proposed pedestrian bridge is underlain by artificial fill and moderately compressible alluvial soils further underlain by bedrock at a depth between approximately 12 and 15 feet below the existing ground surface based on current boring data (see Borings B3 and B4). It is recommended that a deepened foundation system (piles) deriving support in bedrock be utilized to support the proposed pedestrian bridge.

8.1.5 The proposed Main Campus administration building will be directly underlain by exposed Monterey Formation Bedrock. The bedrock at this location is considered suitable for direct support of the proposed structure. Based on these considerations a conventional spread foundation system and slab-on-grade is considered suitable for the proposed structure.

8.1.6 The grading and foundation recommendations presented herein are intended to minimize the effects of settlement on proposed improvements.

8.1.7 A Summary of the recommended foundation systems for the proposed structures is provided in the table below.

Recommended Foundation Systems

Campus Location	Structure Name	Recommended Foundation Type	Recommended Slab	Recommended Bearing Material
Main Campus	New Administration Building	Conventional Spread Foundations[1]	Conventional Slab-on-Grade	Bedrock
North/Main Campus	Bridge	Deepened Foundations (Piles)[2]	NA	Bedrock
North Campus	Pool House	Mat Foundation[3]	Mat Foundation[3]	Engineered Fill

1. See Section 8.7 and 8.9 for Conventional Foundation Recommendations
2. See Sections 8.10 through 8.12 for Deepened Foundations Recommendations
3. See Section 8.8 and 8.9 for Mat Foundation Recommendations

8.1.8 Groundwater was encountered during site exploration in borings B1 and B12 at depths of approximately 32 feet and 14½ feet beneath the existing ground surface, respectively. Previously, groundwater seepage was encountered within the bedrock at a depth of approximately 18 feet in boring B7 (Geotechnologies, 2010). It is anticipated that the current static groundwater table is sufficiently deep that it will not be encountered during shallow construction excavations, with the exception of a deep drilled excavation such as piles or elevator pistons. However, local seepage could develop and should be expected on top of the bedrock or within the joints and fractures in the bedrock, especially if conducted during the rainy season.

8.1.9 The bedrock encountered in our investigation is slightly to highly weathered and should be rippable with conventional equipment; however, concretions or well cemented layers may be encountered in the bedrock which could make excavation or drilling conditions difficult. Coring or jack-hammering may be required if concretions are encountered and the contractor should be prepared for these conditions.

8.1.10 Excavations on the order of 14 feet in vertical height are anticipated for construction of the proposed administration structure, including foundation depths. Based on the prior explorations at the site, bedding in the Monterey Formation bedrock was observed in the prior borings and test pits to strike N20W to N70E and dip 10 degrees northeast and 12 to 30 degrees southeast (Geotechnologies, 2009; 2010). Unfavorably oriented (adverse) bedding is anticipated to be exposed along the west (east- and southeast-facing) and north (south-facing) excavation walls for the proposed administration building. As shown on the cross sections, excavations for proposed retaining walls along the north and east sides of the property are anticipated to expose bedrock orientations that are favorable with respect to stability of the excavation.

8.1.11 Due to the depth of the excavations and the proximity to the property lines, city streets, and adjacent on-site structures, excavation for the proposed retaining walls will require sloping and/or shoring measures in order to provide a stable excavation. Where shoring is required, it is recommended that a soldier pile shoring system be utilized. Where excavation depths exceed 12 feet or surcharges are imposed on the shoring system, raker braces or tie-back anchors may be required in conjunction with the soldier piles. The need for lateral bracing and the acceptable shoring deflection should be determined by the project shoring engineer.

8.1.12 The recommendations for shoring and retaining wall design presented herein incorporate the anticipated surcharge loads generated by out-of-slope bedding.

8.1.13 Excavations must be conducted in a manner that maintains stability and must be observed and approved by the Project Geologist (a representative of Geocon West, Inc.). A geologist should periodically observe the excavation to confirm that the orientation of the exposed bedrock is consistent with the conditions observed during our investigation.

8.1.14 Due to the nature of the proposed design and intent for a partial subterranean level, waterproofing of subterranean walls and slabs is suggested. Particular care should be taken in the design and installation of waterproofing to avoid moisture problems, or actual water seepage into the structure through any normal shrinkage cracks which may develop in the concrete walls, floor slab, foundations and/or construction joints. The design and inspection of the waterproofing is not the responsibility of the geotechnical engineer. A waterproofing consultant should be retained in order to recommend a product or method, which would provide protection to subterranean walls, floor slabs and foundations.

8.1.15 Where new paving is to be placed, it is recommended that all existing fill soils and soft soils be excavated and properly compacted for paving support. The client should be aware that excavation and compaction of all existing fill and soft soils in the area of new paving is not required, however, paving constructed over existing uncertified fill or unsuitable soils may experience increased settlement and/or cracking, and may therefore have a shorter design life and increased maintenance costs. As a minimum, the upper 12 inches of soil should be scarified and properly compacted. Paving recommendations are provided in the *Preliminary Pavement Recommendations* section of this report (see Section 8.15).

8.1.16 Based on the results of the percolation testing performed at the site, a stormwater infiltration system is not considered feasible for this project. A discussion of the test results is provided in the *Stormwater Infiltration* section of this report (see Section 8.23).

8.1.17 Once the design and foundation loading configurations for the proposed structure proceeds to a more finalized plan, the recommendations within this report should be reviewed and revised, if necessary. Based on the final foundation loading configurations, the potential for settlement should be reevaluated by this office.

8.1.18 Any changes in the design, location or elevation, as outlined in this report, should be reviewed by this office. Geocon should be contacted to determine the necessity for review and possible revision of this report.

8.2 Soil and Excavation Characteristics

8.2.1 The in-situ soils can be excavated with moderate effort using conventional excavation equipment. Some caving should be anticipated in unshored excavations, especially if granular fill soils are encountered. The surficial bedrock is moderately to highly weathered and should be rippable with conventional equipment; however, concretions or well cemented layers may be encountered in the bedrock which could make excavation or drilling conditions difficult. Coring or jack-hammering may be required if concretions are encountered and the contractor should be prepared for these conditions.

8.2.2 It is the responsibility of the contractor to ensure that all excavations and trenches are properly shored and maintained in accordance with applicable OSHA rules and regulations to maintain safety and maintain the stability of existing adjacent improvements.

8.2.3 All onsite excavations must be conducted in such a manner that potential surcharges from existing structures, construction equipment, and vehicle loads are resisted. The surcharge area may be defined by a 1:1 projection down and away from the bottom of an existing foundation or vehicle load. Penetrations below this 1:1 projection will require special excavation measures such as sloping or shoring. Excavation recommendations are provided in the *Temporary Excavations* section of this report (see Section 8.21).

8.2.4 The existing site soils encountered during the field investigation near the ground surface are considered to have a “low” to “medium” (EI = 21, 57 and 63) expansive potential and are classified as “expansive” in accordance with the 2022 California Building Code (CBC) Section 1803.5.3. The recommendations presented herein assume that the proposed foundations and slabs will derive support in the “expansive” soils.

8.3 Minimum Resistivity, pH, and Water-Soluble Sulfate

8.3.1 Potential of Hydrogen (pH) and resistivity testing as well as chloride content testing were performed on representative samples of soil to generally evaluate the corrosion potential to surface utilities. The tests were performed in accordance with California Test Method Nos. 643 and 422 and indicate that the soils encountered at foundation depths are considered "moderately corrosive" to "corrosive" with respect to corrosion of buried ferrous metals on site. The results are presented in Appendix B (Figures B26 and B27) and should be considered for design of underground structures. Due to the corrosive potential of the soils, it is recommended that PVC, ABS or other approve plastic piping be utilized in lieu of cast-iron when in direct contact with the site soils.

8.3.2 Laboratory tests were performed on representative samples of the site soils to measure the percentage of water-soluble sulfate content. Results from the laboratory water-soluble sulfate tests are presented in Appendix B (Figures B26 and B27) and indicate that the on-site materials possess "S0" sulfate exposure to concrete structures as defined by 2022 CBC Section 1904 and ACI 318 Table 19.3.1.1.

8.3.3 Geocon West, Inc. does not practice in the field of corrosion engineering and mitigation. If corrosion sensitive improvements are planned, it is recommended that a corrosion engineer be retained to evaluate corrosion test results and incorporate the necessary precautions to avoid premature corrosion of buried metal pipes and concrete structures in direct contact with the soils.

8.4 Grading

8.4.1 Grading is anticipated to include excavation of site soils for foundations, foundations of small outlying structures, and utility trenches, as well as placement of backfill for walls, ramps, and trenches.

8.4.2 A preconstruction conference should be held at the site prior to the beginning of grading operations with the owner, contractor, civil engineer, geotechnical engineer, and building official in attendance. Special soil handling requirements can be discussed at that time.

8.4.3 Earthwork should be observed, and compacted fill tested by representatives of Geocon West, Inc. The existing fill and alluvium encountered during exploration are suitable for re-use as engineered fill, provided any encountered oversize material (greater than 6 inches) and any encountered deleterious debris are removed.

8.4.4 Grading should commence with the removal of all existing vegetation and existing improvements from the area to be graded. Deleterious debris such as wood and root structures should be exported from the site and should not be mixed with the fill soils. Concrete should not be mixed with the fill soils unless approved by the Geotechnical Engineer; in accordance with City policy, concrete and asphalt is not permitted to be mixed into structural fill. All existing underground improvements planned for removal should be completely excavated and the resulting depressions properly backfilled in accordance with the procedures described herein. Once a clean excavation bottom has been established it must be observed and approved in writing by the Geotechnical Engineer (a representative of Geocon West, Inc.) and the City of Los Angeles Inspector.

8.4.5 At a minimum, it is recommended that the upper 5 feet of existing earth materials within the proposed North Campus pool house footprint area be excavated and properly compacted for support of the reinforced concrete mat foundation system. Deeper excavations should be conducted as necessary to remove any existing deeper artificial fill or soft alluvial soil at the direction of the Geotechnical Engineer (a representative of Geocon). The excavation should extend laterally a minimum distance of 3 feet beyond the building footprint area, including building appurtenances, or a distance equal to the depth of fill below the foundation, whichever is greater. The limits of existing fill and/or soft alluvial soils removal will be verified by the Geocon representative during site grading activities.

8.4.6 It is recommended that foundations for the proposed Main Campus administrative building and pedestrian bridge penetrate through the existing artificial fill and alluvial soils in order to derive support exclusively in the underlying competent bedrock. All excavation bottoms must be observed and approved in writing by the Geotechnical Engineer (a representative of Geocon West, Inc.) prior to the placement of engineered fill. If the existing artificial fills and site soils are not properly compacted for slab support, then a structural slab, that derives all support from the pile foundation system, will be required.

8.4.7 It is anticipated that bedrock will be exposed throughout the Main Campus administration building footprint area at the excavation bottom, and the bedrock is considered suitable for support of the foundations and concrete slab-on-grade. Any bedrock that is unintentionally disturbed should be compacted for slab support. At the ground floor level, it is recommended that all existing artificial fill and/or soft colluvium be excavated and properly compacted for slab support. The limits of existing fill and/or soft colluvium removal will be confirmed by the Geocon representative during site grading activities.

8.4.8 All imported fill shall be observed, tested and approved by Geocon West, Inc. prior to bringing soil to the site. Rocks larger than 6 inches in diameter shall not be used in the fill. Imported soils should have an expansion index less than 50 and soils corrosivity properties that are equally or less detrimental to that of the existing onsite soils (see Figure B26 and B27).

8.4.9 The City of Los Angeles Department of Building and Safety requires a minimum compactive effort of 95 percent of the laboratory maximum dry density in accordance with ASTM D 1557 (latest edition) where the soils to be utilized in the fill have less than 15 percent finer than 0.005 millimeters. Soils with more than 15 percent finer than 0.005 millimeters may be compacted to 90 percent of the laboratory maximum dry density in accordance with ASTM D 1557 (latest edition). All fill and backfill soils should be placed in horizontal loose layers approximately 6 to 8 inches thick, moisture conditioned to near optimum moisture content, and properly compacted to the required degree of compaction in accordance with ASTM D 1557 (latest edition). Soils should be moisture conditioned to two percent above optimum moisture content.

8.4.10 Where new paving is to be placed, it is recommended that all existing fill and soft alluvial soils be excavated and properly compacted for paving support. The client should be aware that excavation and compaction of all existing fill and soft soils in the area of new paving is not required; however, paving constructed over existing uncertified fill or unsuitable alluvial soil may experience increased settlement and/or cracking, and may therefore have a shorter design life and increased maintenance costs. As a minimum, the upper 12 inches of soil should be scarified, moisture conditioned to at least 2 percent above optimum moisture content, and compacted to at least 92 percent relative compaction for paving support. Paving recommendations are provided in *Preliminary Pavement Recommendations* section of this report (see Section 8.15).

8.4.11 Foundations for small outlying structures, such as block walls up to 6 feet in height, planter walls or trash enclosures, which will not be tied to the proposed to the main structures, may be supported on conventional foundations deriving support on a minimum of 12 inches of newly placed engineered fill which extends laterally at least 12 inches beyond the foundation area. Where excavation and compaction cannot be performed, foundations may derive support directly in the competent undisturbed alluvium, and should be deepened as necessary to maintain a minimum 12-inch embedment into the recommended bearing materials. If the soils exposed in the excavation bottom are soft or loose, compaction of the soils will be required prior to placing steel or concrete. Compaction of the foundation excavation bottom is typically accomplished with a compaction wheel or mechanical whacker and must be observed and approved by a Geocon representative.

8.4.12 Utility trenches should be properly backfilled in accordance with the following requirements. The pipe should be bedded with clean sands (Sand Equivalent greater than 30) to a depth of at least 1 foot over the pipe, and the bedding material must be inspected and approved in writing by the Geotechnical Engineer (a representative of Geocon). The use of gravel is not acceptable unless used in conjunction with filter fabric to prevent the gravel from having direct contact with soil. If gravel is used for trench bedding and shading (typical when seepage is present) it must be 3/16-inch rounded birds-eye rock in accordance with the City of LA plumbing department requirements. The remainder of the trench backfill may be derived from onsite soil or approved import soil, compacted as necessary, until the required compaction is obtained. The use of minimum 2-sack slurry is also acceptable as backfill (see Section 8.5). Prior to placing any bedding materials or pipes, the excavation bottom must be observed and approved in writing by the Geotechnical Engineer (a representative of Geocon).

8.4.13 All trench and foundation excavation bottoms must be observed and approved in writing by the Geotechnical Engineer (a representative of Geocon), prior to placing bedding materials, fill, steel, gravel, or concrete.

8.5 Controlled Low Strength Material (CLSM)

8.5.1 Controlled Low Strength Material (CLSM) may be utilized in lieu of compacted soil as engineered fill where approved in writing by the Geotechnical Engineer. Where utilized within the City of Los Angeles use of CLSM is subject to the following requirements:

Standard Requirements

1. CLSM shall be ready-mixed by a City of Los Angeles approved batch plant;
2. CLSM shall not be placed on uncertified fill, on incompetent natural soil, nor below water;
3. CLSM shall not be placed on a sloping surface with a gradient steeper than 5:1 (horizontal to vertical);
4. Placement of the CLSM shall be under the continuous inspection of a concrete deputy inspector;
5. The excavation bottom shall be accepted by the soil engineer and the City Inspector prior to placing CLSM.

Requirements for CLSM that will be used for support of footings

1. The cement content of the CLSM shall not be less than 188 pounds per cubic yard (min. 2 sacks);

2. The excavation bottom must be level, cleaned of loose soils and approved in writing by Geocon prior to placement of the CLSM;

3. The ultimate compressive strength of the CLSM shall be no less than 100 psi when tested on the 28th day per ASTM D4832 (latest edition), Standard Test Method for Preparation and Testing of Controlled Low Strength Material Test Cylinders. Compression testing will be performed in accordance with ASTM C39 and City of Los Angeles requirements;

4. Samples of the CLSM will be collected during placement, a minimum of one test (two cylinders) for each 50 cubic yards or fraction thereof;

5. Overexcavation for CLSM placement shall extend laterally beyond the footprint of any proposed footings as required for placement of compacted fill, unless justified otherwise by the soil engineer that footings will have adequate vertical and horizontal bearing capacity.

8.6 Foundation Design – General

8.6.1 A Summary of the recommended foundation systems for the proposed structures is provided in the table on the following page.

Recommended Foundation Systems

Campus Location	Structure Name	Recommended Foundation Type	Recommended Slab	Recommended Bearing Material
Main Campus	New Administration Building	Conventional Spread Foundations[1]	Conventional Slab-on-Grade	Bedrock
North/Main Campus	Bridge	Deepened Foundations (Piles)[2]	NA	Bedrock
North Campus	Pool House	Mat Foundation[3]	Mat Foundation[3]	Engineered Fill

1. See Section 8.7 and 8.9 for Conventional Foundation Recommendations
2. See Sections 8.10 through 8.12 for Deepened Foundations Recommendations
3. See Section 8.8 and 8.9 for Mat Foundation Recommendations

8.6.2 Foundation excavations should be observed and approved in writing by the Geotechnical Engineer (a representative of Geocon West, Inc.), prior to the placement of reinforcing steel and concrete to verify that the excavations and exposed soil conditions are consistent with those anticipated. If unanticipated soil conditions are encountered, foundation modifications may be required.

8.6.3 This office should be provided a copy of the final construction plans so that the excavation recommendations presented herein could be properly reviewed and revised if necessary.

8.6.4 Once the design and foundation loading configurations for the proposed structures proceeds to a more finalized plan, the estimated settlements presented in this report should be reviewed and revised, if necessary. If the final foundation loading configurations are greater than the assumed loading conditions, the potential for settlement should be reevaluated by this office.

8.7 Conventional Foundation Design

8.7.1 Where a conventional foundation system is utilized, foundations should derive support in the competent bedrock. Foundations should penetrate through the existing artificial fill, alluvium or colluvium and any soft or highly weathered bedrock, in order to derive support exclusively in competent bedrock. Foundation's excavations must be observed and approved in writing by the Geotechnical Engineer (a representative of Geocon West, Inc.).

8.7.2 Continuous footings may be designed for an allowable bearing capacity of 4,500 pounds per square foot (psf), and should be a minimum of 12 inches in width, 18 inches in depth below the lowest adjacent grade, and 12 inches into the recommended bearing material.

8.7.3 Isolated spread foundations may be designed for an allowable bearing capacity of 5,000 psf, and should be a minimum of 24 inches in width, 18 inches in depth below the lowest adjacent grade, and 12 inches into the recommended bearing material.

8.7.4 The allowable soil bearing pressure above may be increased by 300 psf and 700 psf for each additional foot of foundation width and depth, respectively, up to a maximum allowable soil bearing pressure of 7,000 psf.

8.7.5 The allowable bearing pressures may be increased by one-third for transient loads due to wind or seismic forces.

8.7.6 If depth increases are utilized for the perimeter foundations, this office should be provided a copy of the final construction plans so that the excavation recommendations presented herein could be properly reviewed and revised if necessary.

8.7.7 Continuous footings should be reinforced with four No. 4 steel reinforcing bars, two placed near the top of the footing and two near the bottom. Reinforcement for spread footings should be designed by the project structural engineer.

8.7.8 The above foundation dimensions and minimum reinforcement recommendations are based on soil conditions and building code requirements only, and are not intended to be used in lieu of those required for structural purposes.

8.7.9 Provided the foundation excavations and the concrete slab-on-grade subgrade exposes undisturbed bedrock, no special subgrade presaturation is required prior to placement of concrete. However, the slab and foundation subgrade should be sprinkled as necessary to maintain a moist condition as would be expected in any concrete placement. Where engineered fill is placed as subgrade soils, due to the expansive nature of the soils, the moisture content in the slab and foundation subgrade should be maintained at 2 percent above optimum moisture content prior to and at the time of concrete placement.

8.7.10 Foundation excavations should be observed and approved in writing by the Geotechnical Engineer (a representative of Geocon West, Inc.), prior to the placement of reinforcing steel and concrete to verify that the excavation and exposed soil conditions are consistent with those anticipated. If unanticipated conditions are encountered, foundation modifications may be required.

8.7.11 This office should be provided a copy of the final construction plans so that the excavation recommendations presented herein could be properly reviewed and revised if necessary.

8.8 Mat Foundation Design

8.8.1 Once the recommended grading has been completed, the proposed pool house structure may be supported by a reinforced mat foundation system deriving support in newly placed engineered fill. The mat foundation system allows for more efficient construction and is better at distributing loads to minimize the effect of potential settlement.

8.8.2 The recommended allowable bearing pressure is 3,000 pounds per square foot (psf). The allowable bearing pressure may be increased by up to one-third for transient loads due to wind or seismic forces.

8.8.3 It is recommended that a modulus of subgrade reaction of 100 pounds per cubic inch (pci) be utilized for the design of the mat foundation bearing in the undisturbed bedrock. The modulus should be reduced in accordance with the following equation when used with larger foundations:

$$K_R = K\left[\frac{B+1}{2B}\right]^2$$

where: K_R = reduced subgrade modulus
K = unit subgrade modulus
B = foundation width (in feet)

8.8.4 The thickness of and reinforcement for the mat foundation should be designed by the project structural engineer.

8.8.5 For seismic design purposes, a coefficient of friction of 0.40 may be utilized between the concrete mat and bedrock without a moisture barrier, and 0.15 for slabs underlain by a moisture barrier.

8.8.6 Foundation excavations should be observed and approved in writing by the Geotechnical Engineer (a representative of Geocon West, Inc.), prior to the placement of reinforcing steel and concrete to verify that the exposed soil conditions are consistent with those anticipated. If unanticipated soil conditions are encountered, foundation modifications may be required.

8.8.7 Waterproofing of the building slab is suggested for this project. Particular care should be taken in the design and installation of waterproofing to avoid moisture problems, or actual water seepage into the structure through any normal shrinkage cracks which may develop in the concrete walls, floor slab, foundations and/or construction joints. The design and inspection of the waterproofing is not the responsibility of the geotechnical engineer.

8.8.8 This office should be provided a copy of the final construction plans so that the recommendations presented herein could be properly reviewed and revised if necessary.

8.9 Foundation Settlement

8.9.1 The enclosed liquefaction settlement analyses indicate that the alluvial soils underlying the North Campus could be susceptible to approximately 2.2 inches of total settlement as a result of the Design Earthquake peak ground acceleration (⅔PGA_M). The differential settlement at the foundation level is anticipated to be less than 1½ inches over a distance of 20 feet. These settlements are in addition to the static settlements indicated below and must be considered in the structural design.

8.9.2 Where conventional foundations will be utilized, the footings will be underlain by bedrock which is not prone to liquefaction. Therefore, settlement will be limited to static settlement resulting from the building load. The maximum anticipated static settlement for a conventional foundation system designed with the maximum allowable bearing value of 7,000 psf and deriving support in undisturbed bedrock is expected to be less than ½ inch and occur below the heaviest loaded structural element. Differential settlement is not expected to exceed ¼ inch over a distance of 20 feet or between adjacent bedrock-supported foundations.

8.9.3 The North Campus pool house may be supported by a mat foundation system deriving support in newly placed engineered fill. The maximum static settlement for a reinforced mat foundation system deriving support in the newly placed engineered fill with a maximum allowable bearing value of 3,000 psf is expected to be less than 1 inch and occur below the heaviest loaded structural element. Static differential settlement over a distance of 20 feet, is expected to be less than ½ inch. Based on seismic considerations, the proposed North Campus pool house structure should be designed for a combined static and seismically induced differential settlement of 2.0 inches over a distance of 20 feet.

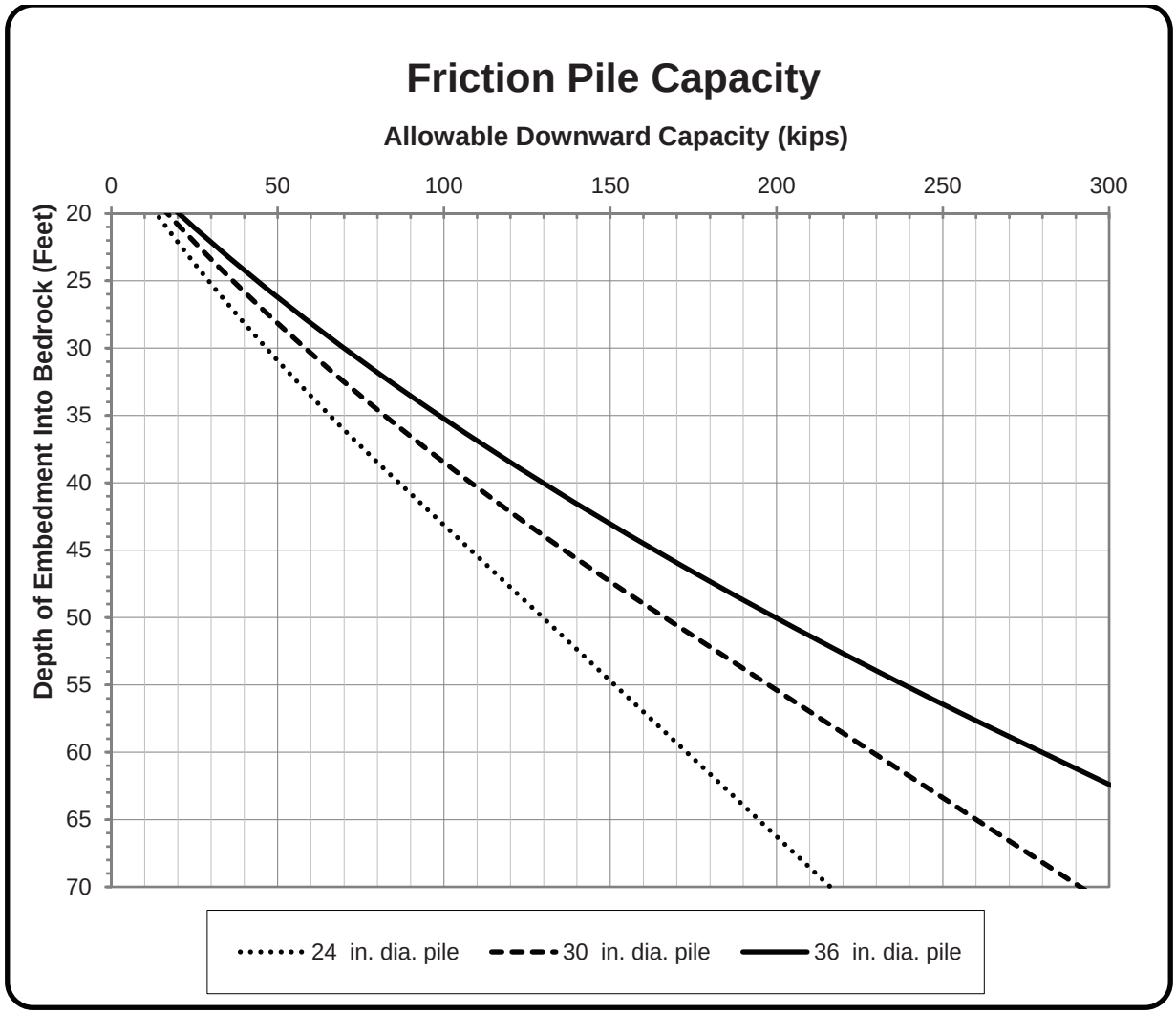
8.9.4 Once the design and foundation loading configuration for the proposed structure proceeds to a more finalized plan, the estimated settlements presented in this report should be reviewed and revised, if necessary. If the final foundation loading configurations are greater than the assumed loading conditions, the potential for settlement should be reevaluated by this office.

8.10 Friction Pile Design

8.10.1 For preliminary design purposes 24-, 30-, and 36-inch diameter drilled cast-in-place friction piles have been evaluated. Friction piles should be embedded a minimum of 20 feet into bedrock. The allowable axial capacities for pile embedment into the competent alluvial soils are provided in the charts below. The axial capacities are based on skin friction; end-bearing capacity is not being considered. The axial capacities also include consideration of down drag forces due to consolidation of the overlying compressible soils as well as down drag from liquefiable soils. An average down drag load of 16 kips, 20 kips, and 24 kips was applied for 24-, 30-, and 36-inch diameter piles respectively.

8.10.2 Once the proposed building configuration proceeds to a more finalized stage, the estimated Downdrag forces should be revised.

8.10.3 Friction piles supporting the proposed on-grade structure at may use the capacities presented in the chart below.



8.10.4 All drilled pile excavations should be continuously observed by personnel of this firm to verify adequate penetration into the recommended bearing materials. The capacity presented is based on the ultimate strength of the bedrock. The compressive and tensile strength of the pile sections should be checked to verify the structural capacity of the piles.

8.10.5 Single pile uplift capacity can be taken as 60 percent of the allowable downward capacity.

8.10.6 The allowable downward capacity and allowable uplift capacity may be increased by one-third when considering transient wind or seismic loads.

8.10.7 The maximum expected static settlement for the structure supported on friction piles is estimated to be less than ½ inch. Differential settlement between adjacent pile foundations is not expected to exceed ½ inch. The majority of the foundation settlement is expected to occur on initial application of loading and during construction.

8.10.8 For increased resistance to differential foundation movement and lateral drift, the pile tops should be interconnected in two horizontal directions with grade beams or tied with a structural slab. The project structural engineer should provide slab and grade beam design, reinforcement and spacing dependent on anticipated loading. However, for grade beams we recommend a minimum embedment depth below lowest adjacent pad grade of 24 inches and a minimum width of 12 inches. In addition, minimum reinforcement should consist of four No. 4 steel reinforcing bars; two placed near the top of the grade beam and two near the bottom.

8.10.9 If pile spacing is at least three times the maximum dimension of the pile, no reduction in axial capacity is considered necessary for group effects. If pile spacing is closer than three pile diameters, an evaluation for group effects including appropriate reductions should be performed by Geocon based on pile dimension and spacing. This will be addressed under separate cover, if necessary, as the design progresses.

8.11 End-Bearing Caissons

8.11.1 Drilled, cast-in-placed end-bearing caissons may also be used to support proposed improvements provided the foundations derive support in bedrock. Drilled, cast-in-place end-bearing concrete caissons should be a minimum of 24 inches in diameter. For preliminary design purposes 24, 36, and 48-inch diameter drilled cast-in-place end-bearing caissons have been evaluated. Caissons should be embedded a minimum of 5 feet into the bedrock to be considered fixed. The allowable axial capacities for end-bearing caissons embedded into the competent alluvial soils are provided in the table on the following page. The axial capacities also include consideration of downdrag forces due to liquefaction and or consolidation of the overlying alluvial soils.

8.11.2 End-bearing caissons supporting the proposed structures may use the capacities presented in the following table.

Caisson Diameter (inches)	Depth Embedded into Bedrock (ft)	Axial Capacity* (kips)
24	5	18
	10	27
36	5	58
	10	79
48	5	116
	10	154

*Capacities have been reduced for Buoyancy

8.11.3 All drilled excavations should be continuously observed by personnel of this firm to verify adequate penetration into the recommended bearing materials. The capacity presented is based on the ultimate strength of the bedrock. The compressive and tensile strength of the caisson sections should be checked to verify the structural capacity of the caissons.

8.11.4 The allowable downward capacity and allowable uplift capacity may be increased by one-third when considering transient wind or seismic loads.

8.11.5 Single caisson uplift capacity may be determined using a frictional resistance of 250 pounds per square foot.

8.11.6 The maximum expected static settlement for the structure supported on end-bearing caissons is estimated to be less than ¾ inch. Differential settlement between adjacent caissons foundations and/or spread foundations in bedrock is not expected to exceed ½ inch. The majority of the foundation settlement is expected to occur on initial application of loading and during construction.

8.11.7 For increased resistance to differential foundation movement and lateral drift, the caisson tops should be interconnected in two horizontal directions with grade beams or tied with a structural slab. The project structural engineer should provide slab and grade beam design, reinforcement and spacing dependent on anticipated loading. However, for grade beams we recommend a minimum embedment depth below lowest adjacent pad grade of 24 inches and a minimum width of 12 inches. In addition, minimum reinforcement should consist of four No. 4 steel reinforcing bars; two placed near the top of the grade beam and two near the bottom.

8.11.8 If caisson spacing is at least three times the maximum dimension of the caisson, no reduction in axial capacity is considered necessary for group effects. If caisson spacing is closer than three diameters, an evaluation for group effects including appropriate reductions should be performed by Geocon based on caisson dimension and spacing.

8.11.9 All loose soils must be completely removed from the bottom of all end-bearing foundation excavations and approved in writing by the Geotechnical Engineer (a representative of Geocon West, Inc.).

8.12 Deepened Foundation Installation

8.12.1 Casing may be required if caving occurs in the granular soil layers during deep drilled excavation. The contractor should have casing available and should be prepared to use it. If casing is used, extreme care should be employed so that the pile is not pulled apart as the casing is withdrawn. At no time should the distance between the surface of the concrete and the bottom of the casing be less than 5 feet. Continuous observation of the drilling and pouring of the piles by the Geotechnical Engineer (a representative of Geocon West, Inc.), is required.

8.12.2 Friction piles do not require the complete removal of all loose earth materials from the bottom of the excavation since the end-bearing capacity is not being considered for design; however, a clean out of the excavation bottom will be required. Where end-bearing caissons are used, all loose soils must be completely removed. Foundation excavations must be observed and approved in writing by the Geotechnical Engineer (a representative of Geocon West, Inc.), prior to the placement of reinforcing steel and concrete.

8.12.3 Groundwater was encountered at the time of exploration in Borings B1 and B12. Therefore, the contractor should be prepared for groundwater during pile installation if it is encountered. Piles placed below the water level require the use of a tremie to place the concrete into the bottom of the hole. A tremie should consist of a rigid, water-tight tube having a diameter of not less than 6 inches with a hopper at the top. The tube should be equipped with a device that will close the discharge end and prevent water from entering the tube while it is being charged with concrete. The tremie should be supported so as to permit free movement of the discharge end over the entire top surface of the work and to permit rapid lowering when necessary to retard or stop the flow of concrete. The discharge end should be closed at the start of the work to prevent water entering the tube and should be entirely sealed at all times, except when the concrete is being placed. The tremie tube should be kept full of concrete. The flow should be continuous until the work is completed and the resulting concrete seal should be monolithic and homogeneous. The tip of the tremie tube should always be kept about 5 feet below the surface of the concrete and definite steps and safeguards should be taken to insure that the tip of the tremie tube is never raised above the surface of the concrete.

8.12.4 A special concrete mix should be used for concrete to be placed below water. The design shall provide for concrete with a strength of 1,000 psi over the initial job specification. An admixture that reduces the problem of segregation of paste/aggregates and dilution of paste shall be included. The slump shall be commensurate to any research report for the admixture, provided that it shall also be the minimum for a reasonable consistency for placing when water is present. Extreme care should be employed so that the pile is not pulled apart as the casing is withdrawn. At no time should the distance between the surface of the concrete and the bottom of the casing be less than 5 feet. Continuous observation of the drilling and pouring of the piles by a representative of this firm is required.

8.12.5 Closely spaced piles should be drilled and filled alternately, with the concrete permitted to set at least eight hours before drilling an adjacent hole. Pile excavations should be filled with concrete as soon after drilling and inspection as possible; the holes should not be left open overnight.

8.13 Lateral Design

8.13.1 Resistance to lateral loading may be provided by friction acting at the base of foundations, slabs and by passive earth pressure. An allowable coefficient of friction of 0.40 may be used with the dead load forces in the undisturbed alluvial soils, bedrock, or properly compacted engineered fill.

8.13.2 Passive earth pressure for the sides of foundations and slabs poured against competent bedrock may be computed as an equivalent fluid having a density of 500 pounds per cubic foot (pcf), with an increase of 200 psf for each additional foot of embedment, up to a maximum earth pressure of 2,700 pcf. Passive earth pressure for the sides of foundations poured against properly compacted engineered fill or undisturbed alluvium may be computed as an equivalent fluid having a density of 230 pounds per cubic foot with a maximum earth pressure of 2,300 pounds per square foot. When combining passive and friction for lateral resistance, the passive component should be reduced by one-third.

8.13.3 Ultimate lateral capacities for ¼ inch deflection of fixed and free-head drilled cast-in place piles are presented in the table below. No factors of safety have been applied to the lateral load values calculated to induce ¼-inch lateral deflection. Lateral capacities provided are for 24-, 30-, and 36-inch diameter drilled cast-in-place concrete piles, penetrating the earth materials encountered during the course of this investigation. Assumed as part of these lateral capacity calculations are a concrete modulus of elasticity of at least 3,000,000 psi.

LATERAL LOAD CAPACITIES OF DRILLED CAST-IN-PLACE PILES

FIXED HEAD (NO HEAD ROTATION)

PILE NUMBER	PILE DIAMETER (INCHES)	Lateral Load Capacity "P" (KIPS)	Maximum Positive Moment "Mp" (LAT FORCE =P)	Maximum Negative Moment "Mp" (LAT FORCE =P)	Depth to Max Pos. Moment (Feet)	Depth to Zero Moment (Feet)	Depth to Inflection Point (Feet)	MINIMUM PILE LENGTH FOR APPLICABILITY OF LATERAL DESIGN DATA (FEET)
1	24	**43**	**1.4** P	**-5.1** P	**12**	**25**	**6.4**	**25**
2	30	**61**	**1.7** P	**-6.1** P	**15**	**30**	**7.6**	**30**
3	36	**81**	**1.9** P	**-7.1** P	**17**	**35**	**8.8**	**35**

FREE HEAD (HINGED)

PILE NUMBER	PILE DIAMETER (INCHES)	Lateral Load Capacity "P" (KIPS)	Maximum Moment "Mp" (LAT FORCE =P)	Depth to Zero Moment (Feet)	Depth to Maximum Moment (Feet)
1	24	**17**	**4.3** P	**23**	**7**
2	30	**25**	**5.2** P	**27**	**9**
3	36	**33**	**6.0** P	**31**	**10**

Lateral capacities are based on 1/4-inch deflection.
Moment magnitudes are presented as a function of the applied lateral load “P”.
"P" is entered in units of kips and the moment magnitude will be in units of kip-feet.
The maximum negative moment is at the rigid, pile to pile cap or grade beam connection at the top of the pile.

8.13.4 Once the project design proceeds to a more finalized state and the foundation system has been selected, an LPile analysis of lateral pile capacity can be performed, if necessary. If piles are spaced at least at least 8 diameters on-center when loaded in-line and at least 3 diameters on-center when loaded in parallel, no reduction in lateral capacity is considered necessary for group effects. If pile spacing is closer, an evaluation for group effects including appropriate reductions should be incorporated into the pile design based on pile dimension, spacing, and the direction of loading. This will be addressed under separate cover if necessary, as the design progresses.

8.14 Concrete Slabs-on-Grade

8.14.1 Concrete slabs-on-grade for structures, not subject to vehicle loading, should be a minimum of 4 inches of concrete reinforced with No. 4 steel reinforcing bars placed 16 inches on center in both horizontal directions and positioned vertically near the slab midpoint. The concrete slab-on-grade should derive support on either undisturbed bedrock or newly placed engineered fill subsequent to the recommended grading.

8.14.2 Slabs-on-grade that may receive moisture-sensitive floor coverings or may be used to store moisture-sensitive materials should be underlain by a vapor retarder placed directly beneath the slab. The vapor retarder and acceptable permeance should be specified by the project architect or developer based on the type of floor covering that will be installed. The vapor retarder selection and design should be consistent with the guidelines presented in Section 9.3 of the American Concrete Institute's (ACI) Guide for Concrete Slabs that Receive Moisture-Sensitive Flooring Materials (ACI 302.2R-06) as well as ASTM E1745 and should be installed in general conformance with ASTM E 1643 (latest edition) and the manufacturer's recommendations. A minimum thickness of 15 mils extruded polyolefin plastic is recommended; vapor retarders which contain recycled content or woven materials are not recommended. The vapor retarder should have a permeance of less than 0.01 perms demonstrated by testing before and after mandatory conditioning. The vapor retarder should be installed in direct contact with the concrete slab with proper perimeter seal. If the California Green Building Code requirements apply to this project, the vapor retarder should be underlain by 4 inches of clean aggregate. It is important that the vapor retarder be puncture resistant since it will be in direct contact with angular gravel. As an alternative to the clean aggregate suggested in the Green Building Code, it is our opinion that the concrete slab-on-grade may be underlain by a vapor retarder over 4-inches of clean sand (sand equivalent greater than 30), since the sand will serve a capillary break and will minimize the potential for punctures and damage to the vapor barrier.

8.14.3 For seismic design purposes, an allowable coefficient of friction of 0.40 may be utilized between concrete slabs and subgrade soils; and 0.15 for slabs underlain by a vapor retarder.

8.14.4 Exterior slabs, not subject to traffic loads, should be at least 4 inches thick and reinforced with No. 3 steel reinforcing bars placed 18 inches on center in both horizontal directions, positioned near the slab midpoint. Prior to construction of slabs, the upper 12 inches of subgrade should be moisture conditioned to at least 2 percent above optimum moisture content and properly compacted to at least 92 percent relative compaction, as determined by ASTM Test Method D 1557 (latest edition). Crack control joints should be spaced at intervals not greater than 10 feet and should be constructed using saw-cuts or other methods as soon as practical following concrete placement. Crack control joints should extend a minimum depth of one-fourth the slab thickness. The project structural engineer should design construction joints as necessary.

8.14.5 The recommendations of this report are intended to reduce the potential for cracking of slabs due to minor soil movements. However, even with the incorporation of the recommendations presented herein, foundations, stucco walls, and slabs-on-grade may exhibit some cracking due to minor soil movement and/or concrete shrinkage. The occurrence of concrete shrinkage cracks is independent of the supporting soil characteristics. Their occurrence may be reduced and/or controlled by limiting the slump of the concrete, proper concrete placement and curing, and by the placement of crack control joints at periodic intervals, in particular, where re-entrant slab corners occur.

8.15 Preliminary Pavement Recommendations

8.15.1 Where new paving is to be placed, it is recommended that all existing fill and soft alluvium materials be excavated and properly compacted for paving support. The client should be aware that excavation and compaction of all existing artificial fill and soft alluvium in the area of new paving is not required; however, paving constructed over existing uncertified fill or unsuitable alluvium material may experience increased settlement and/or cracking, and may therefore have a shorter design life and increased maintenance costs. As a minimum, the upper 12 inches of paving subgrade should be scarified, moisture conditioned to at least two percent above optimum moisture content, and properly compacted to at least 92 percent relative compaction, as determined by ASTM Test Method D 1557 (latest edition).

8.15.2 The following pavement sections are based on an assumed R-Value of 20. Once site grading activities are complete an R-Value should be obtained by laboratory testing to confirm the properties of the soils serving as paving subgrade, prior to placing pavement.

8.15.3 The Traffic Indices listed below are estimates. Geocon does not practice in the field of traffic engineering. The actual Traffic Index for each area should be determined by the project civil engineer. If pavement sections for Traffic Indices other than those listed below are required, Geocon should be contacted to provide additional recommendations. Pavement thicknesses were determined following procedures outlined in the *California Highway Design Manual* (Caltrans). It is anticipated that the majority of traffic will consist of automobile and large truck traffic.

PRELIMINARY PAVEMENT DESIGN SECTIONS

Location	Estimated Traffic Index (TI)	Asphalt Concrete (inches)	Class 2 Aggregate Base (inches)
Automobile Parking and Driveways	4.0	3.0	4.0
Trash Truck & Fire Lanes	7.0	4.0	12.0

8.15.4 Asphalt concrete should conform to Section 203-6 of the "*Standard Specifications for Public Works Construction"* (Green Book). Class 2 aggregate base materials should conform to Section 26-1.02A of the "*Standard Specifications of the State of California, Department of Transportation"* (Caltrans). The use of Crushed Miscellaneous Base (CMB) in lieu of Class 2 aggregate base is acceptable. Crushed Miscellaneous Base should conform to Section 200-2.4 of the "*Standard Specifications for Public Works Construction"* (Green Book).

8.15.5 Unless specifically designed and evaluated by the project structural engineer, where exterior concrete paving will be utilized for support of vehicles, it is recommended that the concrete be a minimum of 6 inches of concrete reinforced with No. 3 steel reinforcing bars placed 18 inches on center in both horizontal directions. Concrete paving supporting vehicular traffic should be underlain by a minimum of 4 inches of aggregate base and a properly compacted subgrade. The subgrade and base material should be compacted to 92 and 95 percent relative compaction, respectively. as determined by ASTM Test Method D 1557 (latest edition).

8.15.6 The performance of pavements is highly dependent upon providing positive surface drainage away from the edge of pavements. Ponding of water on or adjacent to the pavement will likely result in saturation of the subgrade materials and subsequent cracking, subsidence and pavement distress. If planters are planned adjacent to paving, it is recommended that the perimeter curb be extended at least 12 inches below the bottom of the aggregate base to minimize the introduction of water beneath the paving.

8.16 Retaining Wall Design

8.16.1 The recommendations presented below are generally applicable to the design of rigid concrete or masonry retaining walls having a maximum height of 14 feet. In the event that walls significantly higher than 14 feet are planned, Geocon should be contacted for additional recommendations.

8.16.2 Retaining wall foundations may be designed in accordance with the recommendations provided in the *Foundation Design* sections of this report (see Sections 8.6).

8.16.3 Based on the orientation of the proposed excavations with respect to the strike and dip of the bedrock, Adverse bedding conditions are expected for south and east facing excavations. The retaining wall recommendations presented below include consideration of the surcharge due to out-of-slope bedding on the south and east retaining walls. Excavations into bedrock should be observed and approved in writing by the Project Geologist (a representative of Geocon West, Inc.) during excavation to check for the presence of jointing or bedding which may require revised retaining wall recommendations.

8.16.4 Retaining walls with a level backfill surface that are not restrained at the top should be designed utilizing a triangular distribution of pressure (active pressure). Restrained walls are those that are not allowed to rotate more than 0.001H (where H equals the height of the retaining portion of the wall in feet) at the top of the wall. Where walls are restrained from movement at the top, walls may be designed utilizing a triangular distribution of pressure (at-rest pressure). The table below presents recommended pressures to be used in retaining wall design, assuming that proper drainage will be maintained. Calculation of the recommended wall pressures are provided on Figures 9 through 11.

RETAINING WALL WITH LEVEL BACKFILL SURFACE
(North and West Facing Retaining Walls – Favorable Bedding)

HEIGHT OF RETAINING WALL (Feet)	ACTIVE PRESSURE EQUIVALENT FLUID PRESSURE (Pounds Per Cubic Foot)	AT-REST PRESSURE EQUIVALENT FLUID PRESSURE (Pounds Per Cubic Foot)
Up to 12	30	54

RETAINING WALL WITH SURCHARGE FROM JOINTING OR BEDDING
(East and South Facing Retaining Walls – Adverse Bedding)

HEIGHT OF RETAINING WALL (FEET)	EQUIVALENT FLUID PRESSURE (Pounds Per Cubic Foot) (ACTIVE PRESSURE)	EQUIVALENT FLUID PRESSURE (Pounds Per Cubic Foot) (AT-REST PRESSURE)
Up to 12	69	95

RETAINING WALL WITH LEVEL BACKFILL SURFACE
(Walls Supporting Alluvial Soils or Engineered Fill)

HEIGHT OF RETAINING WALL (FEET)	EQUIVALENT FLUID PRESSURE (Pounds Per Cubic Foot) (ACTIVE PRESSURE)	EQUIVALENT FLUID PRESSURE (Pounds Per Cubic Foot) (AT-REST PRESSURE)
Up to 12	46	63

8.16.5 The wall pressures provided above assume that the retaining wall will be properly drained preventing the buildup of hydrostatic pressure. If retaining wall drainage is not implemented, the equivalent fluid pressure to be used in design of undrained walls is 110 pcf. The value includes hydrostatic pressures plus buoyant lateral earth pressures.

8.16.6 Additional active pressure should be added for a surcharge condition due to sloping ground, vehicular traffic, or adjacent structures. Recommendations for the incorporation of surcharges are provided in section 8.24 of this report. Once the design becomes more finalized, an addendum letter can be prepared revising recommendations and addressing specific surcharge conditions throughout the project, if necessary.

8.16.7 In addition to the recommended earth pressure, the upper 10 feet of the retaining wall adjacent to the street or driveway areas should be designed to resist a uniform lateral pressure of 100 psf, acting as a result of an assumed 300 psf surcharge behind the wall due to normal street traffic. If the traffic is kept back at least 10 feet from the wall, the traffic surcharge may be neglected.

8.16.8 Seismic lateral forces should be incorporated into the design as necessary, and recommendations for seismic lateral forces are presented below.

8.17 Dynamic (Seismic) Lateral Forces

8.17.1 The structural engineer should determine the seismic design category for the project in accordance with Section 1613 of the CBC. If the project possesses a seismic design category of D, E, or F, proposed retaining walls in excess of 6 feet in height should be designed with seismic lateral pressure (Section 1803.5.12 of the 2022 CBC).

8.17.2 A seismic load of 10 pcf should be used for design of walls that support more than 6 feet of backfill in accordance with Section 1803.5.12 of the 2022 CBC. The seismic load is applied as an equivalent fluid pressure along the height of the wall and the calculated loads result in a maximum load exerted at the base of the wall and zero at the top of the wall. This seismic load should be applied in addition to the active earth pressure. The earth pressure is based on half of two-thirds of PGA_M calculated from ASCE 7-16 Section 11.8.3.

8.18 Retaining Wall Drainage

8.18.1 Retaining walls not designed for hydrostatic pressures should be provided with a drainage system. At the base of the drain system, a subdrain covered with a minimum of 12 inches of gravel should be installed, and a compacted fill blanket or other seal placed at the surface (see Figure 12). The clean bottom and subdrain pipe, behind a retaining wall, should be observed by the Geotechnical Engineer (a representative of Geocon), prior to placement of gravel or compacting backfill.

8.18.2 As an alternative, a plastic drainage composite such as Miradrain or equivalent may be installed in continuous, 4-foot wide columns along the entire back face of the wall, at 8 feet on center. The top of these drainage composite columns should terminate approximately 18 inches below the ground surface, where either hardscape or a minimum of 18 inches of relatively cohesive material should be placed as a cap (see Figure 13). These vertical columns of drainage material would then be connected at the bottom of the wall to a collection panel or a 1-cubic-foot rock pocket drained by a 4-inch subdrain pipe.

8.18.3 Subdrainage pipes at the base of the retaining wall drainage system should outlet to an acceptable location via controlled drainage structures.

8.18.4 Moisture affecting below grade walls is one of the most common post-construction complaints. Poorly applied or omitted waterproofing can lead to efflorescence or standing water. Particular care should be taken in the design and installation of waterproofing to avoid moisture problems, or actual water seepage into the structure through any normal shrinkage cracks which may develop in the concrete walls, floor slab, foundations and/or construction joints. The design and inspection of the waterproofing is not the responsibility of the geotechnical engineer. A waterproofing consultant should be retained in order to recommend a product or method, which would provide protection to subterranean walls, floor slabs and foundations.

8.19 Elevator Pit Design

8.19.1 The elevator pit slab and retaining wall should be designed by the project structural engineer. Elevator pits may be designed in accordance with the recommendations in the *Foundation Design* and *Retaining Wall Design* sections of this report (see Sections 8.6 and 8.16).

8.19.2 Additional active pressure should be added for a surcharge condition due to sloping ground, vehicular traffic, or adjacent foundations and should be designed for each condition as the project progresses.

8.19.3 If retaining wall drainage is to be provided, the drainage system should be designed in accordance with the *Retaining Wall Drainage* section of this report (see Section 8.18).

8.19.4 It is suggested that the exterior walls and slab be waterproofed to prevent excessive moisture inside of the elevator pit. Waterproofing design and installation is not the responsibility of the geotechnical engineer.

8.20 Elevator Piston

8.20.1 If a plunger-type elevator piston is installed for this project, a deep drilled excavation will be required. It is important to verify that the drilled excavation is not situated immediately adjacent to a foundation or shoring pile, or the drilled excavation could compromise the existing foundation or pile support, especially if the drilling is performed subsequent to the foundation or pile construction.

8.20.2 Groundwater should be expected and casing may be required if caving is experienced in the drilled excavation. The contractor should be prepared to use casing and should have it readily available at the commencement of drilling activities. Continuous observation of the drilling and installation of the elevator piston by the Geotechnical Engineer (a representative of Geocon West, Inc.) is required.

8.20.3 The annular space between the piston casing and drilled excavation wall should be filled with a minimum of 1½-sack slurry pumped from the bottom up. As an alternative, pea gravel may be utilized. The use of soil to backfill the annular space is not acceptable.

8.21 Temporary Excavations

8.21.1 Excavations up to 14 feet in height are anticipated for excavation and construction of the proposed administration structure, including foundation system. The excavations are expected to expose artificial fill, alluvium, colluvium and bedrock which are considered stable for vertical excavations up to 5 feet in height where loose soils or caving sands are not present, where adverse bedding conditions are not present and where not surcharged by adjacent traffic or structures.

8.21.2 Excavations into bedrock should be observed by the Project Geologist (a representative of Geocon West, Inc.) during excavation to check for the presence of jointing or bedding which may require special recommendations for sloping and/or shoring. Any recommendations deemed necessary will be provided at that time.

8.21.3 Vertical excavations greater than the permissible heights outlined above will require sloping and/or shoring measures in order to provide a stable excavation. Where sufficient space is available, temporary unsurcharged embankments could be sloped back at a uniform 1.5:1 (H:V) slope gradient or flatter up to a maximum height of 10 feet. Temporary unsurcharged embankments may also be sloped back at a uniform 2:1 (H:V) slope gradient or flatter up to a maximum height of 15 feet. A uniform slope does not have a vertical portion. Where space is limited, shoring measures will be required. Shoring recommendations are provided in Section 8.22 of this report.

8.21.4 Where sloped embankments are utilized, the top of the slope should be barricaded to prevent vehicles and storage loads at the top of the slope within a horizontal distance equal to the height of the slope. If the temporary construction embankments are to be maintained during the rainy season, berms are suggested along the tops of the slopes where necessary to prevent runoff water from entering the excavation and eroding the slope faces. The soils exposed in the cut slopes should be inspected during excavation by our personnel so that modifications of the slopes can be made if variations in the soil conditions occur. All excavations should be stabilized within 30 days of initial excavation.

8.22 Shoring – Soldier Pile Design and Installation

8.22.1 The following information on the design and installation of shoring is preliminary. Review of the final shoring plans and specifications should be made by this office prior to bidding or negotiating with a shoring contractor.

8.22.2 Installation of shoring on a sloping ground surface requires careful consideration of excavation sequencing. Prior to installation of shoring, grading to create a relatively flat pad for equipment access may be required. Excavation of unsupported vertical cuts into a sloping ground surface would remove support from the ascending portion of the slope and create a potentially unstable condition. Unsupported vertical excavation into a slope is not permitted. Equipment access can be created by placement of additional fill to build up a temporary equipment pad against the existing slope.

8.22.3 One method of shoring would consist of steel soldier piles, placed in drilled holes and backfilled with concrete. Installation of shoring piles by vibration is not recommended at this site due to the dense nature of the underlying bedrock. Where maximum excavation heights are less than 12 feet the soldier piles are typically designed as cantilevers. Where excavations exceed 12 feet or are surcharged, soldier piles may require lateral bracing utilizing drilled tie-back anchors or raker braces to maintain an economical steel beam size and prevent excessive deflection. The size of the steel beam, the need for lateral bracing, and the acceptable shoring deflection should be determined by the project shoring engineer. Should it be determined that temporary tiebacks or rakers are necessary, additional recommendations can be provided under separate cover.

8.22.4 The design embedment of the shoring pile toes must be maintained during excavation activities. The toes of the perimeter shoring piles should be deepened to take into account any required excavations necessary for grading activities, foundations, and/or adjacent drainage systems.

8.22.5 The proposed soldier piles may also be designed as permanent piles. The required pile depth, dimension, spacing should be determined and designed by the project structural and shoring engineers. All piles utilized for shoring can also be incorporated into a permanent retaining wall system (shotcrete wall) and should be designed in accordance with the earth pressure provided in the *Retaining Walls* section of this report (see Section 8.16).

8.22.6 Drilled cast-in-place soldier piles should be placed no closer than three diameters on center. The minimum diameter of the piles is 18 inches. Structural concrete should be used for the soldier piles below the excavation; lean-mix concrete may be employed above that level. As an alternative, lean-mix concrete may be used throughout the pile where the reinforcing consists of a wideflange section. The slurry must be of sufficient strength to impart the lateral bearing pressure developed by the wideflange section to the soil. For design purposes, an allowable passive value for the bedrock below the bottom plane of excavation may be assumed to be 500 pcf, with an increase of 200 psf for each additional foot of embedment. The allowable passive value may be doubled for isolated piles, spaced a minimum of 3 times the pile diameter. To develop the full lateral value, provisions should be implemented to assure firm contact between the soldier piles and the undisturbed bedrock.

8.22.7 Casing may be required if caving is experienced in the drilled excavation and the contractor should be prepared to use casing and should have it readily available at the commencement of drilling activities. If casing is used, extreme care should be employed so that the pile is not pulled apart as the casing is withdrawn. At no time should the distance between the surface of the concrete and the bottom of the casing be less than 5 feet. Continuous observation of the drilling and pouring of the piles by the Geotechnical Engineer (a representative of Geocon West, Inc.), is required.

8.22.8 The contractor should be aware that some difficult drilling conditions could be encountered in the bedrock which could require coring and jack-hammering. The contractor should be prepared for these conditions prior to commencement of drilling activities.

8.22.9 Groundwater seepage was encountered during this site exploration and in past explorations. Therefore, the contractor should be prepared for groundwater during pile installation should the need arise. Piles placed below the water level require the use of a tremie to place the concrete into the bottom of the hole. A tremie should consist of a rigid, water-tight tube having a diameter of not less than 6 inches with a hopper at the top. The tube should be equipped with a device that will close the discharge end and prevent water from entering the tube while it is being charged with concrete. The tremie should be supported so as to permit free movement of the discharge end over the entire top surface of the work and to permit rapid lowering when necessary to retard or stop the flow of concrete. The discharge end should be closed at the start of the work to prevent water entering the tube and should be entirely sealed at all times, except when the concrete is being placed. The tremie tube should be kept full of concrete. The flow should be continuous until the work is completed and the resulting concrete seal should be monolithic and homogeneous. The tip of the tremie tube should always be kept about 5 feet below the surface of the concrete and definite steps and safeguards should be taken to insure that the tip of the tremie tube is never raised above the surface of the concrete.

8.22.10 A special concrete mix should be used for concrete to be placed below water. The design should provide for concrete with an unconfined compressive strength psi of 1,000 pounds per square inch (psi) over the initial job specification. An admixture that reduces the problem of segregation of paste/aggregates and dilution of paste should be included. The slump should be commensurate to any research report for the admixture, provided that it should also be the minimum for a reasonable consistency for placing when water is present.

8.22.11 The frictional resistance between the soldier piles and retained soil may be used to resist the vertical component of the anchor load. The coefficient of friction may be taken as 0.40 based on uniform contact between the steel beam and retained earth. The portion of soldier piles below the plane of excavation may also be employed to resist the downward loads. The downward capacity may be determined using a frictional resistance of 340 pounds per square foot.

8.22.12 Due to the nature of the site soils, it is expected that continuous lagging between soldier piles will be required. However, it is recommended that the exposed soils be observed by the Geotechnical Engineer (a representative of Geocon West, Inc.), to verify the presence of any cohesive soils and the areas where lagging may be omitted.

8.22.13 The time between lagging excavation and lagging placement should be as short as possible. Soldier piles should be designed for the full-anticipated pressures. Due to arching in the soils, the pressure on the lagging will be less. It is recommended that the lagging be designed for the full design pressure but be limited to a maximum of 400 pounds per square foot.

8.22.14 For the design of shoring, it is recommended that an equivalent fluid pressure based on the following tables, be utilized for design. A trapezoidal distribution of lateral earth pressure may be used where shoring will be restrained at the top by bracing or tie backs. The recommended active and trapezoidal pressure are provided in the following tables. A diagram depicting the trapezoidal pressure distribution of lateral earth pressure is provided below the table. Calculation of the recommended shoring pressures are provided on Figures 14 and 15.

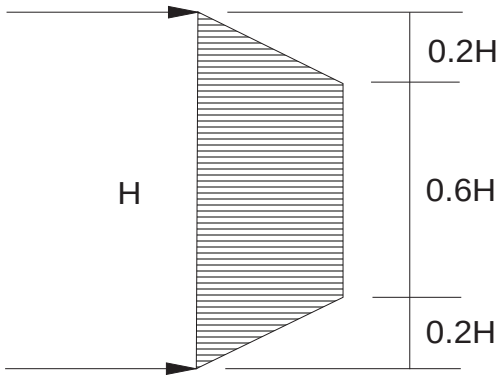
SHORING WALL WITH LEVEL BACKFILL SURFACE
(North and West Facing Shoring Walls – Favorable Bedding)

HEIGHT OF SHORING (FEET)	EQUIVALENT FLUID PRESSURE (Pounds Per Cubic Foot) (ACTIVE PRESSURE) Triangular	EQUIVALENT FLUID PRESSURE (Pounds Per Square Foot per Foot) Trapezoidal (Where H is the height of the shoring in feet)
Up to 14	25	16H

SHORING WALL WITH LEVEL BACKFILL SURFACE
(South and East facing Shoring Walls – Adverse Bedding)

HEIGHT OF SHORING (FEET)	EQUIVALENT FLUID PRESSURE (Pounds Per Cubic Foot) (ACTIVE PRESSURE) Triangular	EQUIVALENT FLUID PRESSURE (Pounds Per Square Foot per Foot) Trapezoidal (Where H is the height of the shoring in feet)
Up to 14	63	40H

Trapezoidal Distribution of Pressure



8.22.15 Where a combination of sloped embankment and shoring is utilized, the pressure will be greater and must be determined for each combination. Additional active pressure should be added for a surcharge condition due to sloping ground, vehicular traffic, or adjacent structures and must be determined for each combination.

8.23 Stormwater Infiltration

8.23.1 During the April 18 and April 19, 2022 site exploration, borings B4 and B7 were utilized to perform percolation testing. The borings were backfilled to the proposed invert elevation with a bentonite seal placed at the bottom of the excavation. Slotted casing was placed in the boring, and the annular space between the casing and excavation was filled with filter pack. The boring was then filled with water to pre-saturate the soils. On April 19, 2022, the casings were refilled with water and percolation test readings were performed after repeated flooding of the cased excavation. Based on the test results, the measured percolation rate and design infiltration rate, for the earth materials encountered, are provided in the following table. These values have been calculated in accordance with the Boring Percolation Test Procedure in the County of Los Angeles Department of Public Works GMED *Guidelines for Geotechnical Investigation and Reporting, Low Impact Development Stormwater Infiltration* (June 2021). Percolation test field data and calculation of the measured percolation rate and design infiltration rate are provided on Figures 16 and 17.

Boring	Soil Type	Infiltration Depth (ft)	Measured Percolation Rate (in / hour)	Design Infiltration Rate (in / hour)
B4	SM	4-8	0.12	0.04
B7	CL	2-5	0.04	0.01

8.23.2 The results of the percolation testing indicate that the soils are not conducive to infiltration of stormwater. The design infiltration rate is below the minimum infiltration rate of 0.3 inch per hour recommended in the County guidelines. It is recommended that stormwater be retained, filtered, and discharged in accordance with the requirements of the local governing agency.

8.24 Surcharge from Adjacent Structures and Improvements

8.24.1 Additional pressure should be added for a surcharge condition due to sloping ground, vehicular traffic or adjacent structures and should be designed for each condition as the project progresses.

8.24.2 It is recommended that line-load surcharges from adjacent wall footings, use horizontal pressures generated from NAV-FAC DM 7.2. The governing equations are:

$$For\ {}^{x}/_{H} \leq 0.4$$

$$\sigma_H(z) = \frac{0.20 \times \left(\frac{z}{H}\right)}{\left[0.16 + \left(\frac{z}{H}\right)^2\right]^2} \times \frac{Q_L}{H}$$

and

$$For\ {}^{x}/_{H} > 0.4$$

$$\sigma_H(z) = \frac{1.28 \times \left(\frac{x}{H}\right)^2 \times \left(\frac{z}{H}\right)}{\left[\left(\frac{x}{H}\right)^2 + \left(\frac{z}{H}\right)^2\right]^2} \times \frac{Q_L}{H}$$

where x is the distance from the face of the excavation or wall to the vertical line-load, H is the distance from the bottom of the footing to the bottom of excavation or wall, z is the depth at which the horizontal pressure is desired, Q_L is the vertical line-load and $\sigma_H(z)$ is the horizontal pressure at depth z.

8.24.3 It is recommended that vertical point-loads, from construction equipment outriggers or adjacent building columns use horizontal pressures generated from NAV-FAC DM 7.2. The governing equations are:

$$For\ {}^{x}/_{H} \leq 0.4$$

$$\sigma_H(z) = \frac{0.28 \times \left(\frac{z}{H}\right)^2}{\left[0.16 + \left(\frac{z}{H}\right)^2\right]^3} \times \frac{Q_P}{H^2}$$

and

$$For\ {}^{x}/_{H} > 0.4$$

$$\sigma_H(z) = \frac{1.77 \times \left(\frac{x}{H}\right)^2 \times \left(\frac{z}{H}\right)^2}{\left[\left(\frac{x}{H}\right)^2 + \left(\frac{z}{H}\right)^2\right]^3} \times \frac{Q_P}{H^2}$$

then

$$\sigma'_H(z) = \sigma_H(z) cos^2(1.1\theta)$$

where x is the distance from the face of the excavation/wall to the vertical point-load, H is distance from the outrigger/bottom of column footing to the bottom of excavation, z is the depth at which the horizontal pressure is desired, Q_p is the vertical point-load, $\sigma_H(z)$ is the horizontal pressure at depth z, θ is the angle between a line perpendicular to the excavation/wall and a line from the point-load to location on the excavation/wall where the surcharge is being evaluated, and $\sigma_H(z)$ is the horizontal pressure at depth z.

8.25 Surface Drainage

8.25.1 Proper surface drainage is critical to the future performance of the project. Uncontrolled infiltration of irrigation excess and storm runoff into the soils can adversely affect the performance of the planned improvements. Saturation of a soil can cause it to lose internal shear strength and increase its compressibility, resulting in a change in the original designed engineering properties. Proper drainage should be maintained at all times.

8.25.2 All site drainage should be collected and controlled in non-erosive drainage devices. Drainage should not be allowed to pond anywhere on the site, and especially not against any foundation or retaining wall. The site should be graded and maintained such that surface drainage is directed away from structures in accordance with 2022 CBC 1804.4 or other applicable standards. In addition, drainage should not be allowed to flow uncontrolled over any descending slope. Discharge from downspouts, roof drains and scuppers are not recommended onto unprotected soils within 5 feet of the building perimeter. Planters which are located adjacent to foundations should be sealed to prevent moisture intrusion into the soils providing foundation support. Landscape irrigation is not recommended within 5 feet of the building perimeter footings except when enclosed in protected planters.

8.25.3 Positive site drainage should be provided away from structures, pavement, and the tops of slopes to swales or other controlled drainage structures. The building pad and pavement areas should be fine graded such that water is not allowed to pond.

8.25.4 Landscaping planters immediately adjacent to paved areas are not recommended due to the potential for surface or irrigation water to infiltrate the pavement's subgrade and base course. Either a subdrain, which collects excess irrigation water and transmits it to drainage structures, or impervious above-grade planter boxes should be used. In addition, where landscaping is planned adjacent to the pavement, it is recommended that consideration be given to providing a cutoff wall along the edge of the pavement that extends at least 12 inches below the base material.

8.26 Plan Review

8.26.1 Grading, foundation, and shoring plans should be reviewed by the Geotechnical Engineer (a representative of Geocon West, Inc.), prior to finalization to verify that the plans have been prepared in substantial conformance with the recommendations of this report and to provide additional analyses or recommendations.

LIMITATIONS AND UNIFORMITY OF CONDITIONS

1. The recommendations of this report pertain only to the site investigated and are based upon the assumption that the soil conditions do not deviate from those disclosed in the investigation. If any variations or undesirable conditions are encountered during construction, or if the proposed construction will differ from that anticipated herein, Geocon West, Inc. should be notified so that supplemental recommendations can be given. The evaluation or identification of the potential presence of hazardous or corrosive materials was not part of the scope of services provided by Geocon West, Inc.

2. This report is issued with the understanding that it is the responsibility of the owner, or of his representative, to ensure that the information and recommendations contained herein are brought to the attention of the architect and engineer for the project and incorporated into the plans, and the necessary steps are taken to see that the contractor and subcontractors carry out such recommendations in the field.

3. The findings of this report are valid as of the date of this report. However, changes in the conditions of a property can occur with the passage of time, whether they are due to natural processes or the works of man on this or adjacent properties. In addition, changes in applicable or appropriate standards may occur, whether they result from legislation or the broadening of knowledge. Accordingly, the findings of this report may be invalidated wholly or partially by changes outside our control. Therefore, this report is subject to review and should not be relied upon after a period of three years.

4. The firm that performed the geotechnical investigation for the project should be retained to provide testing and observation services during construction to provide continuity of geotechnical interpretation and to check that the recommendations presented for geotechnical aspects of site development are incorporated during site grading, construction of improvements, and excavation of foundations. If another geotechnical firm is selected to perform the testing and observation services during construction operations, that firm should prepare a letter indicating their intent to assume the responsibilities of project Geotechnical Engineer of Record. A copy of the letter should be provided to the regulatory agency for their records. In addition, that firm should provide revised recommendations concerning the geotechnical aspects of the proposed development, or a written acknowledgement of their concurrence with the recommendations presented in our report. They should also perform additional analyses deemed necessary to assume the role of Geotechnical Engineer of Record.

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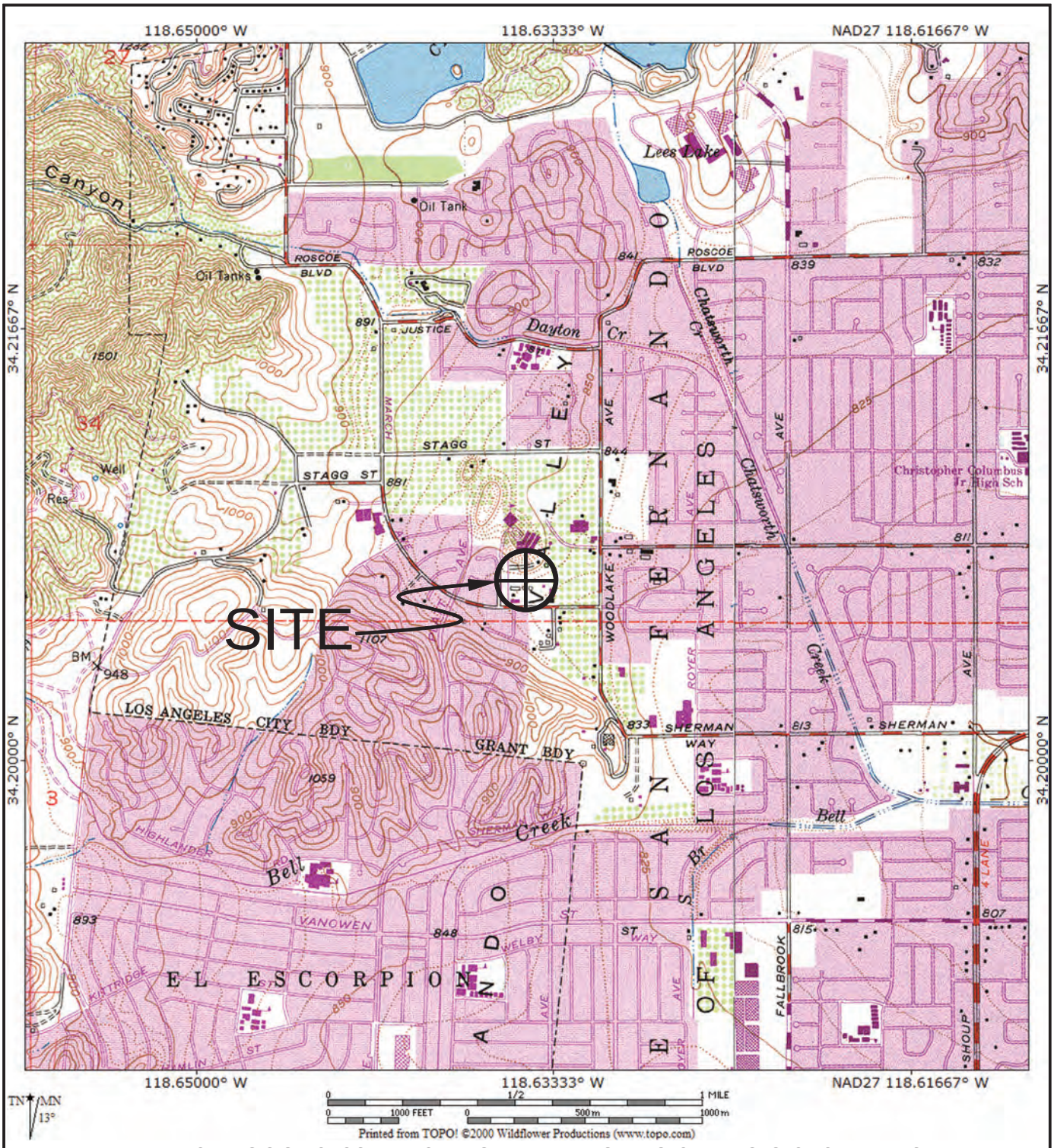
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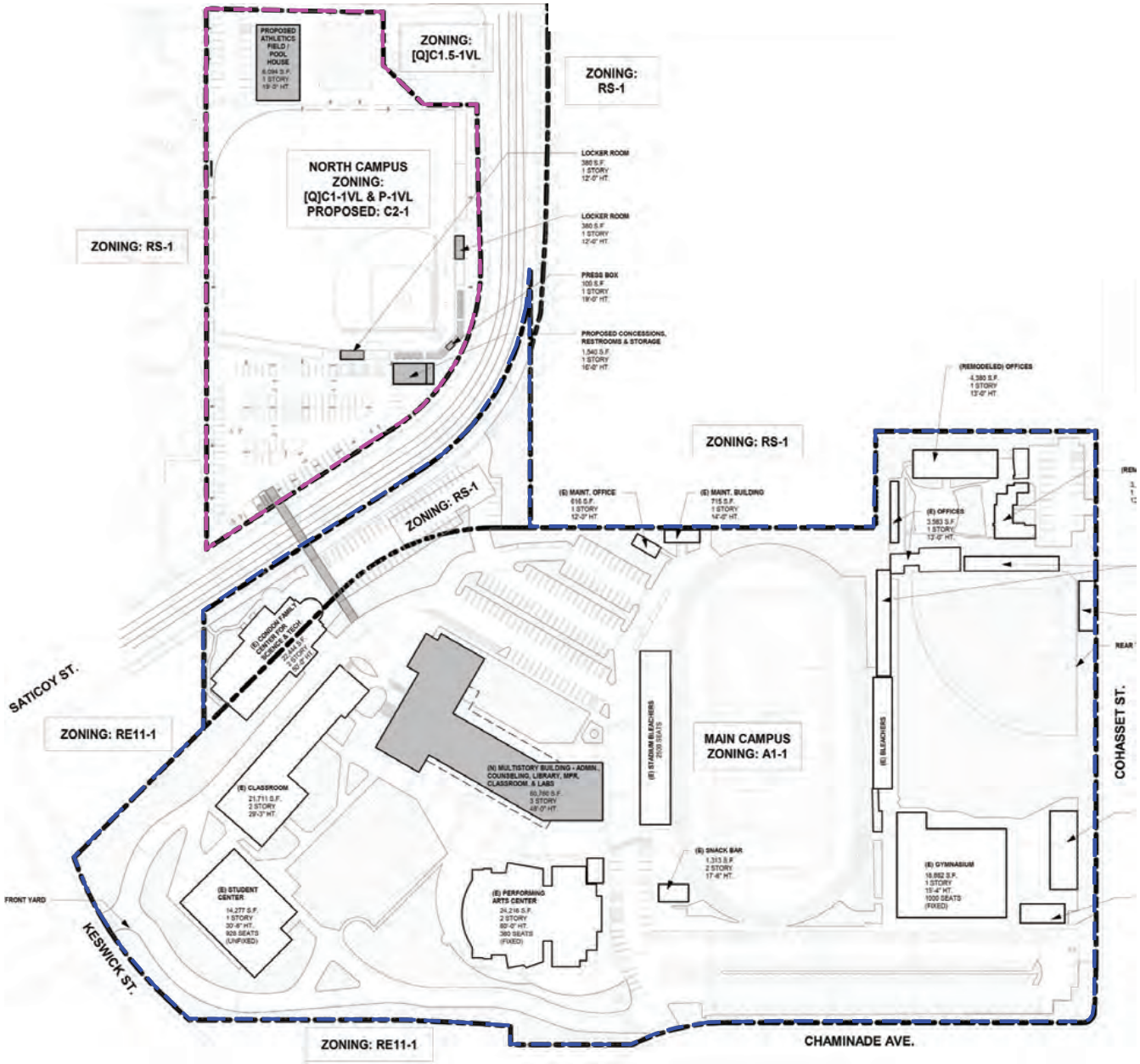
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DRAFTED BY: RA | CHECKED BY: SFK

VICINITY MAP

CHAMINADE HIGH SCHOOL
7500 CHAMINADE AVENUE
WEST HILLS CALIFORNIA

JAN. 2023 | PROJECT NO. W1547-06-01 | FIG. 1



LEGEND

NORTH CAMPUS LIMITS

MAIN CAMPUS LIMITS

0 150' 300'

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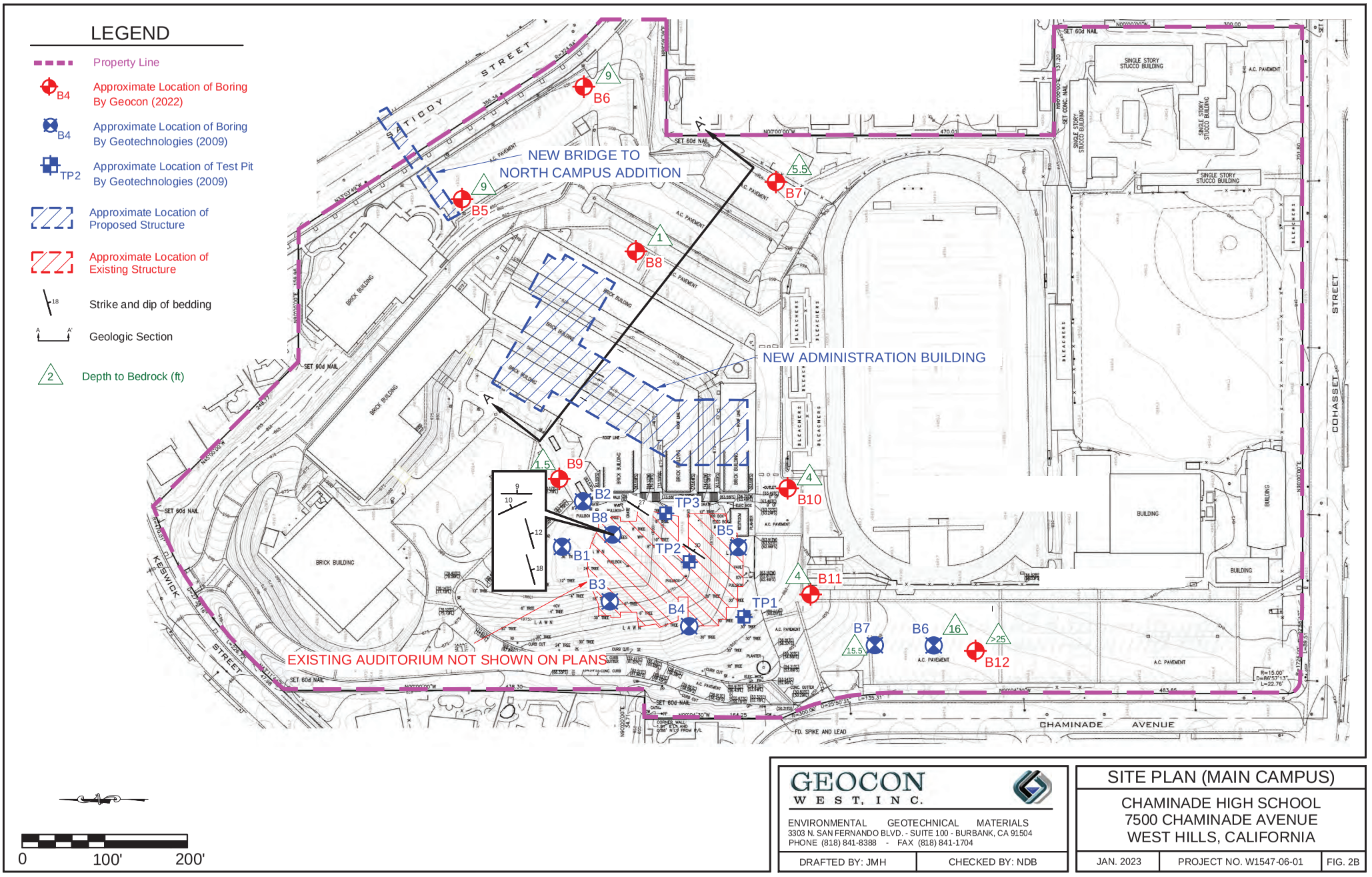
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SITE PLAN

CHAMINADE HIGH SCHOOL
7500 CHAMINADE AVENUE
WEST HILLS, CALIFORNIA

JAN. 2023 | PROJECT NO. W1547-06-01 | FIG. 2A



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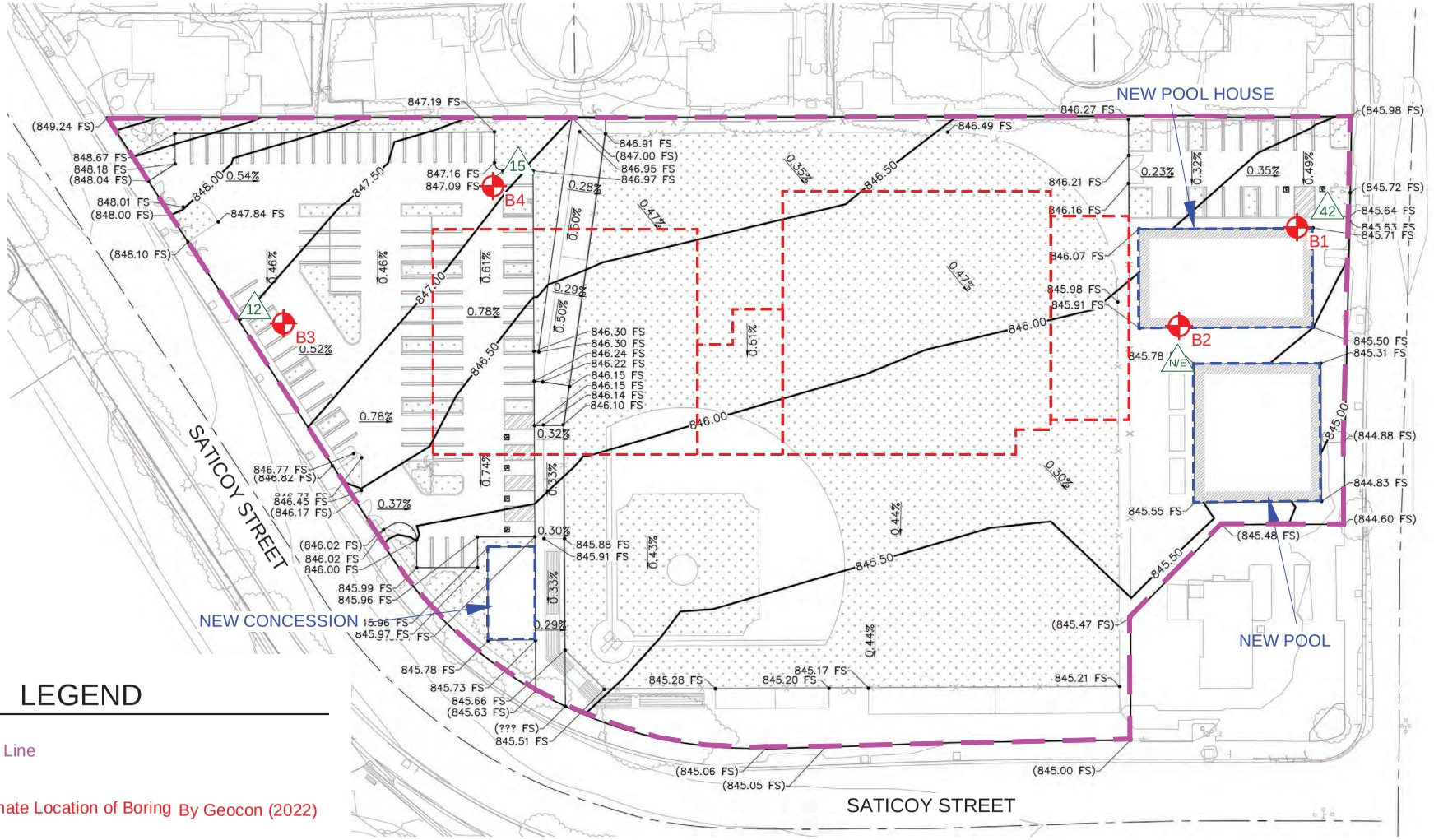
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SITE PLAN (MAIN CAMPUS)

CHAMINADE HIGH SCHOOL
7500 CHAMINADE AVENUE
WEST HILLS, CALIFORNIA

JAN. 2023 | PROJECT NO. W1547-06-01 | FIG. 2B



LEGEND

- Property Line
- B4 — Approximate Location of Boring By Geocon (2022)
- Approximate Location of Proposed Structure
- Limits of Existing Structures To Be Demolished
- 2 — Depth to Bedrock (ft)

0 60' 120'

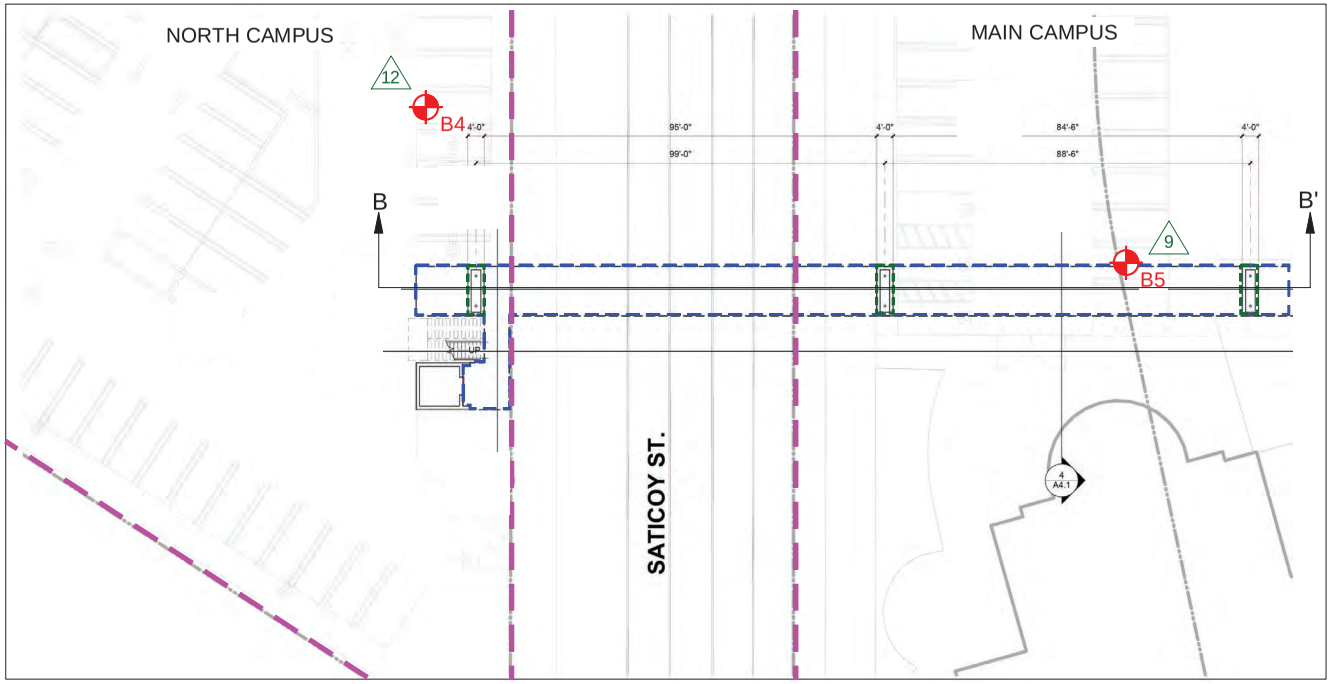
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SITE PLAN (NORTH CAMPUS)

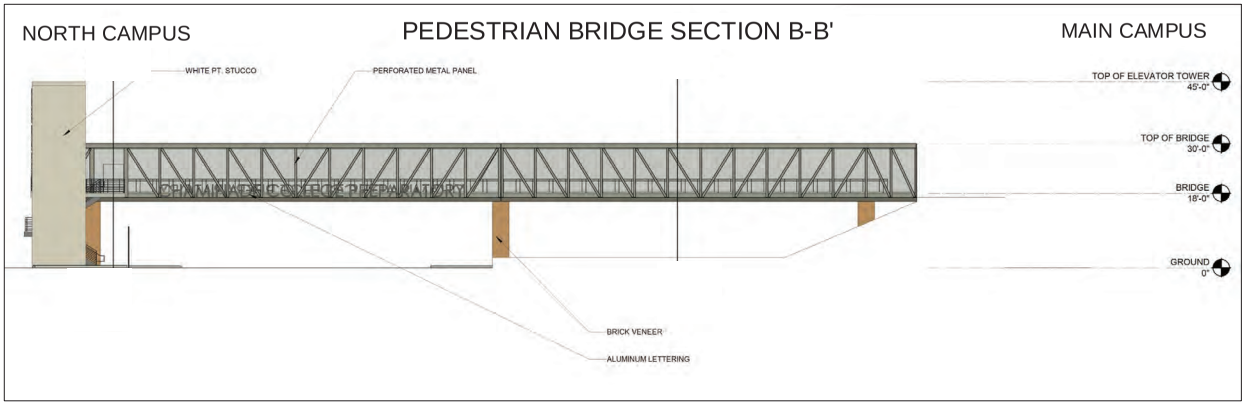
CHAMINADE HIGH SCHOOL
7500 CHAMINADE AVENUE
WEST HILLS, CALIFORNIA

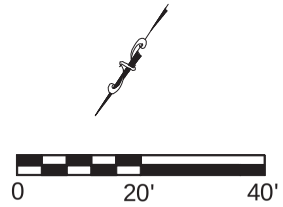
JAN. 2023 | PROJECT NO. W1547-06-01 | FIG. 2C



LEGEND

- Property Line
- B4 — Approximate Location of Boring By Geocon (2022)
- Limits of Proposed Pedestrian Bridge
- Limits of Proposed Foundation
- 12 — Depth to Bedrock (ft)





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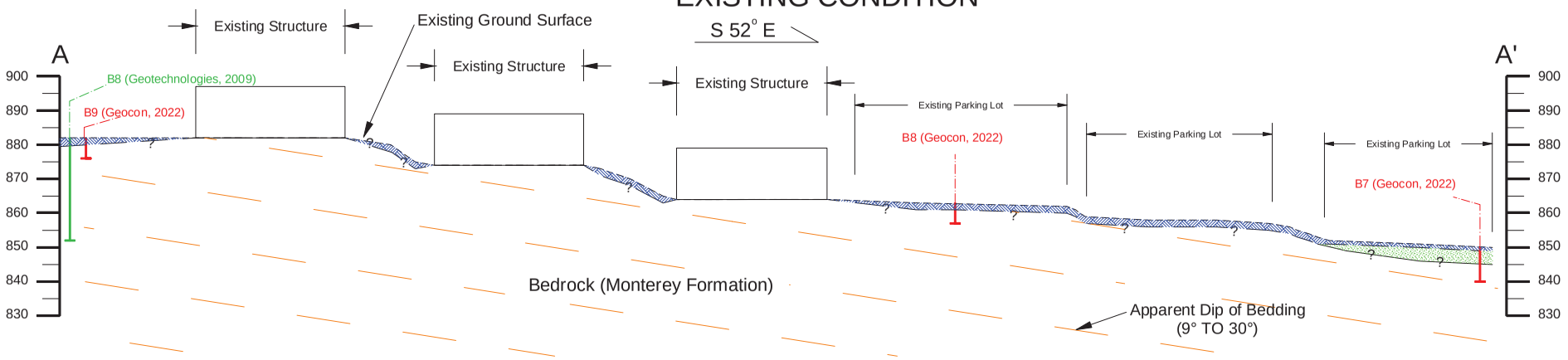
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SITE PLAN (PEDESTRIAN BRIDGE)

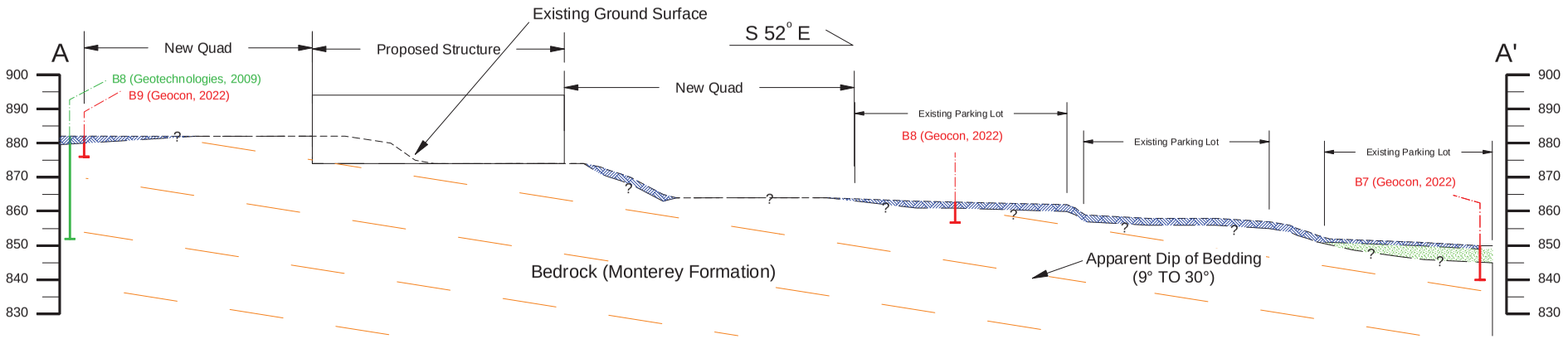
CHAMINADE HIGH SCHOOL
7500 CHAMINADE AVENUE
WEST HILLS, CALIFORNIA

JAN. 2023 | PROJECT NO. W1547-06-01 | FIG. 2D

EXISTING CONDITION



PROPOSED CONDITION



Fill

Colluvium/Alluvium

Bedrock (Monterey Formation)

0 30' 60'

NOT FOR CONSTRUCTION; FOR ILLUSTRATION PURPOSES ONLY

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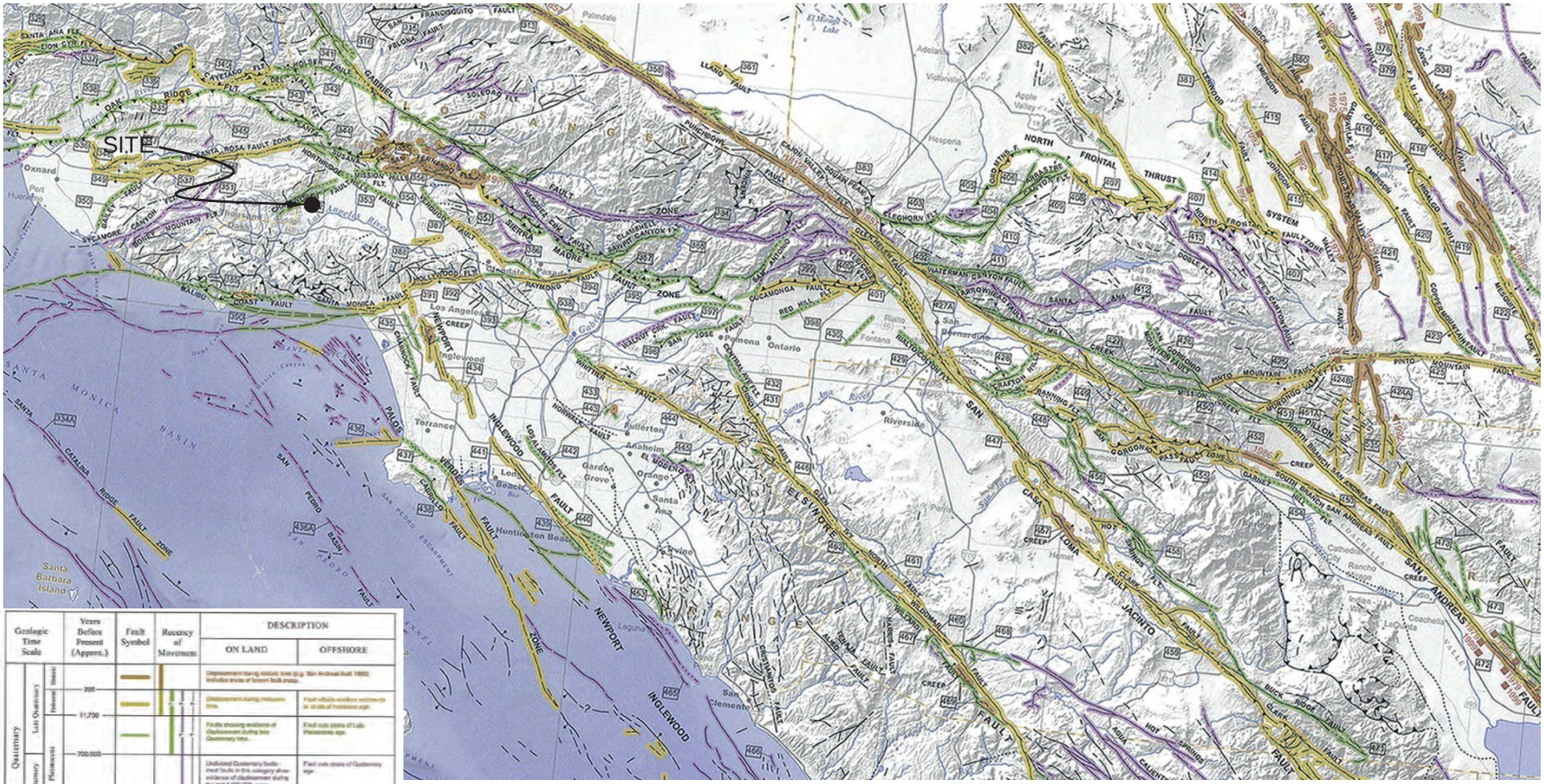
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CROSS SECTIONS

CHAMINADE HIGH SCHOOL
7500 CHAMINADE AVENUE
WEST HILLS, CALIFORNIA

JAN. 2023 | PROJECT NO. W1547-06-01 | FIG. 2E

Reference: Jennings, C.W. and Bryant, W. A., 2010, Fault Activity Map of California, California Geological Survey Geologic Data Map No. 6.



Geologic Time Scale			Years Before Present (Approx.)	Fault Symbol	Recency of Movement	DESCRIPTION	
						ON LAND	OFFSHORE
Quaternary	Late Quaternary	Holocene	200			Displacement during historic time (e.g. San Andreas fault 1906) includes areas of known fault creep.	
			11,700			Displacement during Holocene time.	Fault offsets seafloor sediments at or near seafloor age.
		Pleistocene				Faults showing evidence of displacement during late Quaternary time.	Fault cuts strata of Late Pleistocene age.
	Early Quaternary		700,000			Undivided Quaternary faults - most faults in this category show evidence of displacement during the last 1,600,000 years; possible exceptions are faults which displace rocks of undifferentiated Pliocene-Holocene age.	Fault cuts strata of Quaternary age.
			1,600,000				
Pre-Quaternary			4.5 billion (Age of Earth)			Faults without recognized Quaternary displacement or showing evidence of no displacement during Quaternary time. Not necessarily inactive.	Fault cuts strata of Pliocene or older age.

* Quaternary now recognized as extending to 2.6 Ma (Walker and Geissman, 2009). Quaternary faults in this map sheet predominant using the previous 1.6 Ma criterion.

0 12 24 Miles

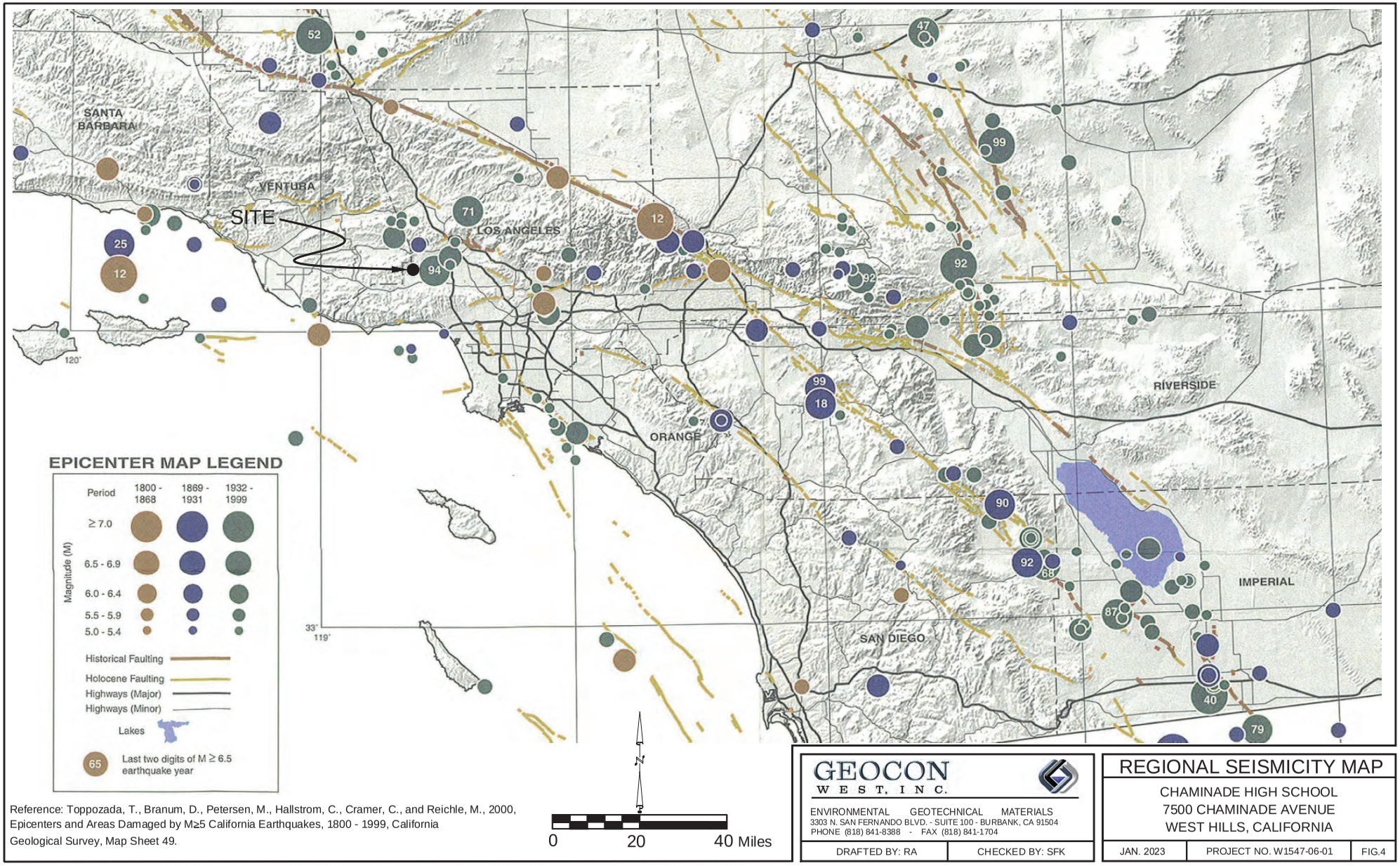
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REGIONAL FAULT MAP

CHAMINADE HIGH SCHOOL
7500 CHAMINADE AVENUE
WEST HILLS, CALIFORNIA

JAN. 2023 | PROJECT NO. W1547-06-01 | FIG. 3



Reference: Toppozada, T., Branum, D., Petersen, M., Hallstrom, C., Cramer, C., and Reichle, M., 2000, Epicenters and Areas Damaged by M≥5 California Earthquakes, 1800 - 1999, California Geological Survey, Map Sheet 49.

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REGIONAL SEISMICITY MAP

CHAMINADE HIGH SCHOOL
7500 CHAMINADE AVENUE
WEST HILLS, CALIFORNIA

JAN. 2023 | PROJECT NO. W1547-06-01 | FIG.4

GEOCON

Project: Chaminade N Campus Extensior
File No. : W1547-06-01
Boring : B1

EMPIRICAL ESTIMATION OF LIQUEFACTION POTENTIAL
DESIGN EARTHQUAKE

NCEER (1996) METHOD
EARTHQUAKE INFORMATION:

Earthquake Magnitude:	6.58
Peak Horiz. Acceleration PGA_M (g):	0.646
2/3 PGA_M (g):	0.431
Calculated Mag.Wtg.Factor:	0.719
Historic High Groundwater:	10.0
Groundwater Depth During Exploration:	32.0

By Thomas F. Blake (1994-1996)
ENERGY & ROD CORRECTIONS:

Energy Correction (CE) for N60:	1.29
Rod Len.Corr.(CR)(0-no or 1-yes):	1.0
Bore Dia. Corr. (CB):	1.00
Sampler Corr. (CS):	1.20
Use Ksigma (0 or 1):	1.0

LIQUEFACTION CALCULATIONS:

Unit Wt. Water (pcf): 62.4

Depth to Base (ft)	Total Unit Wt. (pcf)	Water (0 or 1)	FIELD SPT (N)	Depth of SPT (ft)	Liq.Sus. (0 or 1)	-200 (%)	Est. Dr (%)	CN Factor	Corrected (N1)60	Eff. Unit Wt. (psf)	Resist. CRR	rd Factor	Induced CSR	Liquefac. Safe.Fact.
1.0	120.0	0	2.0	5.0	1	30	31	1.700	9.8	120.0	0.108	0.998	0.201	--
2.0	120.0	0	2.0	5.0	1	30	31	1.700	9.8	120.0	0.108	0.993	0.200	--
3.0	120.0	0	2.0	5.0	1	30	31	1.700	9.8	120.0	0.108	0.989	0.199	--
4.0	120.0	0	2.0	5.0	1	30	31	1.700	9.8	120.0	0.108	0.984	0.198	--
5.0	120.0	0	2.0	5.0	1	30	31	1.700	9.8	120.0	0.108	0.979	0.197	--
6.0	120.0	0	2.0	5.0	1	30	31	1.700	9.8	120.0	0.108	0.975	0.196	--
7.0	120.0	0	2.0	5.0	1	30	31	1.636	9.7	120.0	0.106	0.970	0.195	--
8.0	120.0	0	2.0	5.0	1	30	31	1.523	9.4	120.0	0.104	0.966	0.194	--
9.0	120.0	0	2.0	5.0	1	30	31	1.431	9.2	120.0	0.101	0.961	0.193	--
10.0	120.0	0	2.0	5.0	1	30	31	1.353	9.0	120.0	0.100	0.957	0.193	--
11.0	120.0	1	4.0	10.0	0	79		1.287	13.0	57.6	~	0.952	0.197	~
12.0	120.0	1	4.0	10.0	0	79		1.230	12.7	57.6	~	0.947	0.205	~
13.0	120.0	1	7.0	15.0	0	56		1.180	17.3	57.6	~	0.943	0.212	~
14.0	120.0	1	7.0	15.0	0	56		1.135	16.9	57.6	~	0.938	0.218	~
15.0	120.0	1	7.0	15.0	0	56		1.095	16.6	57.6	~	0.934	0.224	~
16.0	120.0	1	7.0	15.0	0	56		1.060	16.3	57.6	~	0.929	0.229	~
17.0	120.0	1	7.0	15.0	0	56		1.027	16.0	57.6	~	0.925	0.234	~
18.0	120.0	1	7.0	15.0	0	56		0.997	15.7	57.6	~	0.920	0.238	~
19.0	120.0	1	7.0	15.0	0	56		0.970	15.5	57.6	~	0.915	0.242	~
20.0	120.0	1	14.0	20.0	1	38	68	0.945	25.3	57.6	0.291	0.911	0.246	1.18
21.0	120.0	1	14.0	20.0	1	38	68	0.921	24.9	57.6	0.283	0.906	0.249	1.14
22.0	120.0	1	10.0	25.0	1	57	56	0.900	20.3	57.6	0.222	0.902	0.251	0.88
23.0	120.0	1	10.0	25.0	1	57	56	0.879	20.0	57.6	0.218	0.897	0.254	0.86
24.0	120.0	1	10.0	25.0	1	57	56	0.860	19.7	57.6	0.215	0.893	0.256	0.84
25.0	120.0	1	10.0	25.0	1	57	56	0.843	19.5	57.6	0.212	0.888	0.258	0.82
26.0	120.0	1	10.0	25.0	1	57	56	0.826	19.2	57.6	0.209	0.883	0.260	0.81
27.0	120.0	1	10.0	25.0	1	57	56	0.810	19.0	57.6	0.207	0.879	0.262	0.79
28.0	120.0	1	10.0	25.0	1	57	56	0.795	18.8	57.6	0.204	0.874	0.263	0.78
29.0	120.0	1	10.0	25.0	1	57	56	0.781	18.6	57.6	0.202	0.870	0.264	0.76
30.0	120.0	1	11.0	30.0	0	86		0.768	20.1	57.6	~	0.865	0.265	~
31.0	120.0	1	11.0	30.0	0	86		0.755	19.9	57.6	~	0.861	0.266	~
32.0	120.0	1	11.0	30.0	0	86		0.746	19.7	57.6	~	0.856	0.267	~
33.0	120.0	1	22.0	32.5	1	0	78	0.741	25.2	57.6	0.283	0.851	0.268	1.06
34.0	120.0	1	22.0	32.5	1	0	78	0.735	25.0	57.6	0.280	0.847	0.268	1.04
35.0	120.0	1	8.0	35.0	0	93		0.730	16.0	57.6	~	0.842	0.269	~
36.0	120.0	1	8.0	35.0	0	93		0.724	16.0	57.6	~	0.838	0.269	~
37.0	120.0	1	8.0	35.0	0	93		0.719	15.9	57.6	~	0.833	0.269	~
38.0	120.0	1	19.0	37.5	1	0	70	0.714	21.0	57.6	0.221	0.829	0.270	0.82
39.0	120.0	1	19.0	37.5	1	0	70	0.709	20.9	57.6	0.219	0.824	0.270	0.81
40.0	120.0	1	19.0	37.5	1	0	70	0.704	20.7	57.6	0.218	0.819	0.270	0.81
41.0	120.0	1	12.0	40.0	0	62		0.700	20.0	57.6	~	0.815	0.270	~
42.0	120.0	1	12.0	40.0	0	62		0.695	19.9	57.6	~	0.810	0.269	~
43.0	120.0	1	31.0	45.0	0	73		0.690	40.1	57.6	~	0.806	0.269	~
44.0	120.0	1	31.0	45.0	0	73		0.686	39.9	57.6	~	0.801	0.269	~
45.0	120.0	1	31.0	45.0	0	73		0.681	39.7	57.6	~	0.797	0.269	~
46.0	120.0	1	31.0	45.0	0	73		0.677	39.5	57.6	~	0.792	0.268	~
47.0	120.0	1	31.0	50.0	0	73		0.673	39.3	57.6	~	0.787	0.268	~
48.0	120.0	1	31.0	50.0	0	73		0.669	39.1	57.6	~	0.783	0.267	~
49.0	120.0	1	31.0	50.0	0	73		0.665	38.9	57.6	~	0.778	0.267	~
50.0	120.0	1	31.0	50.0	0	73		0.661	38.7	57.6	~	0.774	0.266	~

GEOCON

Project: Chaminade N Campus Extens
File No. : W1547-06-01
Boring : B1

LIQUEFACTION SETTLEMENT ANALYSIS
DESIGN EARTHQUAKE

(SATURATED SAND AT INITIAL LIQUEFACTION CONDITION)

NCEER (1996) METHOD
EARTHQUAKE INFORMATION:

Earthquake Magnitude:	6.58
PGAM (g):	0.646
2/3 PGAM (g):	0.43
Calculated Mag.Wtg.Factor:	0.719
Historic High Groundwater:	10.0
Groundwater @ Exploration:	32.0

DEPTH TO BASE	BLOW COUNT N	WET DENSITY (PCF)	TOTAL STRESS O (TSF)	EFFECT STRESS O' (TSF)	REL. DEN. Dr (%)	ADJUST BLOWS (N1)60	Tav/σ'$_o$	LIQUEFACTION SAFETY FACTOR	Volumetric Strain [e_{15}} (%)	EQ. SETTLE. Pe (in.)
1.0	2	120.0	0.030	0.030	31	10	0.280	--	0.00	0.00
2.0	2	120.0	0.090	0.090	31	10	0.280	--	0.00	0.00
3.0	2	120.0	0.150	0.150	31	10	0.280	--	0.00	0.00
4.0	2	120.0	0.210	0.210	31	10	0.280	--	0.00	0.00
5.0	2	120.0	0.270	0.270	31	10	0.280	--	0.00	0.00
6.0	2	120.0	0.330	0.330	31	10	0.280	--	0.00	0.00
7.0	2	120.0	0.390	0.390	31	10	0.280	--	0.00	0.00
8.0	2	120.0	0.450	0.450	31	9	0.280	--	0.00	0.00
9.0	2	120.0	0.510	0.510	31	9	0.280	--	0.00	0.00
10.0	2	120.0	0.570	0.570	31	9	0.280	--	0.00	0.00
11.0	4	120.0	0.630	0.614		13	0.287	~	0.00	0.00
12.0	4	120.0	0.690	0.643		13	0.300	~	0.00	0.00
13.0	7	120.0	0.750	0.672		17	0.313	~	0.00	0.00
14.0	7	120.0	0.810	0.701		17	0.324	~	0.00	0.00
15.0	7	120.0	0.870	0.730		17	0.334	~	0.00	0.00
16.0	7	120.0	0.930	0.758		16	0.343	~	0.00	0.00
17.0	7	120.0	0.990	0.787		16	0.352	~	0.00	0.00
18.0	7	120.0	1.050	0.816		16	0.360	~	0.00	0.00
19.0	7	120.0	1.110	0.845		15	0.368	~	0.00	0.00
20.0	14	120.0	1.170	0.874	68	25	0.375	1.18	0.00	0.00
21.0	14	120.0	1.230	0.902	68	25	0.382	1.14	0.00	0.00
22.0	10	120.0	1.290	0.931	56	20	0.388	0.88	1.40	0.17
23.0	10	120.0	1.350	0.960	56	20	0.394	0.86	1.40	0.17
24.0	10	120.0	1.410	0.989	56	20	0.399	0.84	1.60	0.19
25.0	10	120.0	1.470	1.018	56	19	0.405	0.82	1.60	0.19
26.0	10	120.0	1.530	1.046	56	19	0.410	0.81	1.60	0.19
27.0	10	120.0	1.590	1.075	56	19	0.414	0.79	1.60	0.19
28.0	10	120.0	1.650	1.104	56	19	0.419	0.78	1.60	0.19
29.0	10	120.0	1.710	1.133	56	19	0.423	0.76	1.60	0.19
30.0	11	120.0	1.770	1.162		20	0.427	~	0.00	0.00
31.0	11	120.0	1.830	1.190		20	0.431	~	0.00	0.00
32.0	11	120.0	1.890	1.219		20	0.434	~	0.00	0.00
33.0	22	120.0	1.950	1.248	78	25	0.438	1.06	1.00	0.12
34.0	22	120.0	2.010	1.277	78	25	0.441	1.04	1.00	0.12
35.0	8	120.0	2.070	1.306		16	0.444	~	0.00	0.00
36.0	8	120.0	2.130	1.334		16	0.447	~	0.00	0.00
37.0	8	120.0	2.190	1.363		16	0.450	~	0.00	0.00
38.0	19	120.0	2.250	1.392	70	21	0.453	0.82	1.40	0.17
39.0	19	120.0	2.310	1.421	70	21	0.455	0.81	1.40	0.17
40.0	19	120.0	2.370	1.450	70	21	0.458	0.81	1.40	0.17
41.0	12	120.0	2.430	1.478		20	0.460	~	0.00	0.00
42.0	12	120.0	2.490	1.507		20	0.463	~	0.00	0.00
43.0	31	120.0	2.550	1.536		40	0.465	~	0.00	0.00
44.0	31	120.0	2.610	1.565		40	0.467	~	0.00	0.00
45.0	31	120.0	2.670	1.594		40	0.469	~	0.00	0.00
46.0	31	120.0	2.730	1.622		39	0.471	~	0.00	0.00
47.0	31	120.0	2.790	1.651		39	0.473	~	0.00	0.00
48.0	31	120.0	2.850	1.680		39	0.475	~	0.00	0.00
49.0	31	120.0	2.910	1.709		39	0.477	~	0.00	0.00
50.0	31	120.0	2.970	1.738		39	0.479	~	0.00	0.00

TOTAL SETTLEMENT = 2.2 INCHES

Figure 6

GEOCON

Project: Chaminade N Campus Extensior
File No. : W1547-06-01
Boring : B1

EMPIRICAL ESTIMATION OF LIQUEFACTION POTENTIAL
MAXIMUM CONSIDERED EARTHQUAKE

NCEER (1996) METHOD
EARTHQUAKE INFORMATION:

Earthquake Magnitude:	6.66
Peak Horiz. Acceleration PGA_M (g):	0.646
Calculated Mag.Wtg.Factor:	0.741
Historic High Groundwater:	10.0
Groundwater Depth During Exploration:	32.0

By Thomas F. Blake (1994-1996)
ENERGY & ROD CORRECTIONS:

Energy Correction (CE) for N60:	1.29
Rod Len.Corr.(CR)(0-no or 1-yes):	1.0
Bore Dia. Corr. (CB):	1.00
Sampler Corr. (CS):	1.20
Use Ksigma (0 or 1):	1.0

LIQUEFACTION CALCULATIONS:

Unit Wt. Water (pcf): 62.4

P200 Values are preliminary

Depth to Base (ft)	Total Unit Wt. (pcf)	Water (0 or 1)	FIELD SPT (N)	Depth of SPT (ft)	Liq.Sus. (0 or 1)	-200 (%)	Est. Dr (%)	CN Factor	Corrected (N1)60	Eff. Unit Wt. (psf)	Resist. CRR	rd Factor	Induced CSR	Liquefac. Safe.Fact.
1.0	120.0	0	2.0	5.0	1	30	31	1.700	9.8	120.0	0.108	0.998	0.311	--
2.0	120.0	0	2.0	5.0	1	30	31	1.700	9.8	120.0	0.108	0.993	0.309	--
3.0	120.0	0	2.0	5.0	1	30	31	1.700	9.8	120.0	0.108	0.989	0.308	--
4.0	120.0	0	2.0	5.0	1	30	31	1.700	9.8	120.0	0.108	0.984	0.306	--
5.0	120.0	0	2.0	5.0	1	30	31	1.700	9.8	120.0	0.108	0.979	0.305	--
6.0	120.0	0	2.0	5.0	1	30	31	1.700	9.8	120.0	0.108	0.975	0.303	--
7.0	120.0	0	2.0	5.0	1	30	31	1.636	9.7	120.0	0.106	0.970	0.302	--
8.0	120.0	0	2.0	5.0	1	30	31	1.523	9.4	120.0	0.104	0.966	0.301	--
9.0	120.0	0	2.0	5.0	1	30	31	1.431	9.2	120.0	0.101	0.961	0.299	--
10.0	120.0	0	2.0	5.0	1	30	31	1.353	9.0	120.0	0.100	0.957	0.298	--
11.0	120.0	1	4.0	10.0	0	79		1.287	13.0	57.6	~	0.952	0.304	~
12.0	120.0	1	4.0	10.0	0	79		1.230	12.7	57.6	~	0.947	0.316	~
13.0	120.0	1	7.0	15.0	0	56		1.180	17.3	57.6	~	0.943	0.328	~
14.0	120.0	1	7.0	15.0	0	56		1.135	16.9	57.6	~	0.938	0.338	~
15.0	120.0	1	7.0	15.0	0	56		1.095	16.6	57.6	~	0.934	0.347	~
16.0	120.0	1	7.0	15.0	0	56		1.060	16.3	57.6	~	0.929	0.355	~
17.0	120.0	1	7.0	15.0	0	56		1.027	16.0	57.6	~	0.925	0.362	~
18.0	120.0	1	7.0	15.0	0	56		0.997	15.7	57.6	~	0.920	0.369	~
19.0	120.0	1	7.0	15.0	0	56		0.970	15.5	57.6	~	0.915	0.374	~
20.0	120.0	1	14.0	20.0	1	38	68	0.945	25.3	57.6	0.291	0.911	0.380	0.77
21.0	120.0	1	14.0	20.0	1	38	68	0.921	24.9	57.6	0.283	0.906	0.385	0.74
22.0	120.0	1	10.0	25.0	1	57	56	0.900	20.3	57.6	0.222	0.902	0.389	0.57
23.0	120.0	1	10.0	25.0	1	57	56	0.879	20.0	57.6	0.218	0.897	0.393	0.56
24.0	120.0	1	10.0	25.0	1	57	56	0.860	19.7	57.6	0.215	0.893	0.396	0.54
25.0	120.0	1	10.0	25.0	1	57	56	0.843	19.5	57.6	0.212	0.888	0.399	0.53
26.0	120.0	1	10.0	25.0	1	57	56	0.826	19.2	57.6	0.209	0.883	0.402	0.52
27.0	120.0	1	10.0	25.0	1	57	56	0.810	19.0	57.6	0.207	0.879	0.405	0.51
28.0	120.0	1	10.0	25.0	1	57	56	0.795	18.8	57.6	0.204	0.874	0.407	0.50
29.0	120.0	1	10.0	25.0	1	57	56	0.781	18.6	57.6	0.202	0.870	0.409	0.49
30.0	120.0	1	11.0	30.0	0	86		0.768	20.1	57.6	~	0.865	0.410	~
31.0	120.0	1	11.0	30.0	0	86		0.755	19.9	57.6	~	0.861	0.412	~
32.0	120.0	1	11.0	30.0	0	86		0.746	19.7	57.6	~	0.856	0.413	~
33.0	120.0	1	22.0	32.5	1	0	78	0.741	25.2	57.6	0.283	0.851	0.414	0.68
34.0	120.0	1	22.0	32.5	1	0	78	0.735	25.0	57.6	0.280	0.847	0.415	0.67
35.0	120.0	1	8.0	35.0	0	93		0.730	16.0	57.6	~	0.842	0.416	~
36.0	120.0	1	8.0	35.0	0	93		0.724	16.0	57.6	~	0.838	0.416	~
37.0	120.0	1	8.0	35.0	0	93		0.719	15.9	57.6	~	0.833	0.417	~
38.0	120.0	1	19.0	37.5	1	0	70	0.714	21.0	57.6	0.221	0.829	0.417	0.53
39.0	120.0	1	19.0	37.5	1	0	70	0.709	20.9	57.6	0.219	0.824	0.417	0.53
40.0	120.0	1	19.0	37.5	1	0	70	0.704	20.7	57.6	0.218	0.819	0.417	0.52
41.0	120.0	1	12.0	40.0	0	62		0.700	20.0	57.6	~	0.815	0.417	~
42.0	120.0	1	12.0	40.0	0	62		0.695	19.9	57.6	~	0.810	0.417	~
43.0	120.0	1	31.0	45.0	0	73		0.690	40.1	57.6	~	0.806	0.416	~
44.0	120.0	1	31.0	45.0	0	73		0.686	39.9	57.6	~	0.801	0.416	~
45.0	120.0	1	31.0	45.0	0	73		0.681	39.7	57.6	~	0.797	0.415	~
46.0	120.0	1	31.0	45.0	0	73		0.677	39.5	57.6	~	0.792	0.415	~
47.0	120.0	1	31.0	50.0	0	73		0.673	39.3	57.6	~	0.787	0.414	~
48.0	120.0	1	31.0	50.0	0	73		0.669	39.1	57.6	~	0.783	0.413	~
49.0	120.0	1	31.0	50.0	0	73		0.665	38.9	57.6	~	0.778	0.413	~
50.0	120.0	1	31.0	50.0	0	73		0.661	38.7	57.6	~	0.774	0.412	~

GEOCON

Project: Chaminade N Campus Extensi
File No. : W1547-06-01
Boring : B1

LIQUEFACTION SETTLEMENT ANALYSIS
MAXIMUM CONSIDERED EARTHQUAKE

(SATURATED SAND AT INITIAL LIQUEFACTION CONDITION)

NCEER (1996) METHOD
EARTHQUAKE INFORMATION:

Earthquake Magnitude:	6.66
PGA_M (g):	0.646
Calculated Mag.Wtg.Factor:	0.741
Historic High Groundwater:	10.0
Groundwater @ Exploration:	100.0

DEPTH TO BASE	BLOW COUNT N	WET DENSITY (PCF)	TOTAL STRESS O (TSF)	EFFECT STRESS O' (TSF)	REL. DEN. Dr (%)	ADJUST BLOWS (N1)60	Tav/σ'_o	LIQUEFACTION SAFETY FACTOR	Volumetric Strain [e_{15}} (%)	EQ. SETTLE. Pe (in.)
1.0	2	120.0	0.030	0.030	31	10	0.420	--	0.00	0.00
2.0	2	120.0	0.090	0.090	31	10	0.420	--	0.00	0.00
3.0	2	120.0	0.150	0.150	31	10	0.420	--	0.00	0.00
4.0	2	120.0	0.210	0.210	31	10	0.420	--	0.00	0.00
5.0	2	120.0	0.270	0.270	31	10	0.420	--	0.00	0.00
6.0	2	120.0	0.330	0.330	31	10	0.420	--	0.00	0.00
7.0	2	120.0	0.390	0.390	31	10	0.420	--	0.00	0.00
8.0	2	120.0	0.450	0.450	31	9	0.420	--	0.00	0.00
9.0	2	120.0	0.510	0.510	31	9	0.420	--	0.00	0.00
10.0	2	120.0	0.570	0.570	31	9	0.420	--	0.00	0.00
11.0	4	120.0	0.630	0.614		13	0.431	~	0.00	0.00
12.0	4	120.0	0.690	0.643		13	0.450	~	0.00	0.00
13.0	7	120.0	0.750	0.672		17	0.469	~	0.00	0.00
14.0	7	120.0	0.810	0.701		17	0.485	~	0.00	0.00
15.0	7	120.0	0.870	0.730		17	0.501	~	0.00	0.00
16.0	7	120.0	0.930	0.758		16	0.515	~	0.00	0.00
17.0	7	120.0	0.990	0.787		16	0.528	~	0.00	0.00
18.0	7	120.0	1.050	0.816		16	0.540	~	0.00	0.00
19.0	7	120.0	1.110	0.845		15	0.552	~	0.00	0.00
20.0	14	120.0	1.170	0.874	68	25	0.562	0.77	1.10	0.13
21.0	14	120.0	1.230	0.902	68	25	0.572	0.74	1.30	0.16
22.0	10	120.0	1.290	0.931	56	20	0.582	0.57	1.40	0.17
23.0	10	120.0	1.350	0.960	56	20	0.590	0.56	1.40	0.17
24.0	10	120.0	1.410	0.989	56	20	0.599	0.54	1.60	0.19
25.0	10	120.0	1.470	1.018	56	19	0.607	0.53	1.60	0.19
26.0	10	120.0	1.530	1.046	56	19	0.614	0.52	1.60	0.19
27.0	10	120.0	1.590	1.075	56	19	0.621	0.51	1.60	0.19
28.0	10	120.0	1.650	1.104	56	19	0.628	0.50	1.60	0.19
29.0	10	120.0	1.710	1.133	56	19	0.634	0.49	1.60	0.19
30.0	11	120.0	1.770	1.162		20	0.640	~	0.00	0.00
31.0	11	120.0	1.830	1.190		20	0.646	~	0.00	0.00
32.0	11	120.0	1.890	1.219		20	0.651	~	0.00	0.00
33.0	22	120.0	1.950	1.248	78	25	0.656	0.68	1.10	0.13
34.0	22	120.0	2.010	1.277	78	25	0.661	0.67	1.10	0.13
35.0	8	120.0	2.070	1.306		16	0.666	~	0.00	0.00
36.0	8	120.0	2.130	1.334		16	0.670	~	0.00	0.00
37.0	8	120.0	2.190	1.363		16	0.675	~	0.00	0.00
38.0	19	120.0	2.250	1.392	70	21	0.679	0.53	1.40	0.17
39.0	19	120.0	2.310	1.421	70	21	0.683	0.53	1.40	0.17
40.0	19	120.0	2.370	1.450	70	21	0.687	0.52	1.40	0.17
41.0	12	120.0	2.430	1.478		20	0.690	~	0.00	0.00
42.0	12	120.0	2.490	1.507		20	0.694	~	0.00	0.00
43.0	31	120.0	2.550	1.536		40	0.697	~	0.00	0.00
44.0	31	120.0	2.610	1.565		40	0.700	~	0.00	0.00
45.0	31	120.0	2.670	1.594		40	0.704	~	0.00	0.00
46.0	31	120.0	2.730	1.622		39	0.707	~	0.00	0.00
47.0	31	120.0	2.790	1.651		39	0.709	~	0.00	0.00
48.0	31	120.0	2.850	1.680		39	0.712	~	0.00	0.00
49.0	31	120.0	2.910	1.709		39	0.715	~	0.00	0.00
50.0	31	120.0	2.970	1.738		39	0.718	~	0.00	0.00

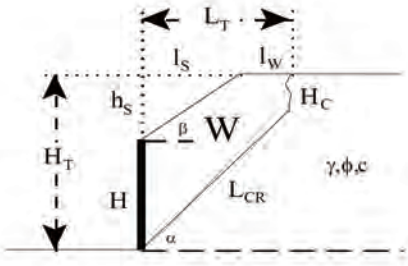
TOTAL SETTLEMENT = 2.5 INCHES

Figure 8

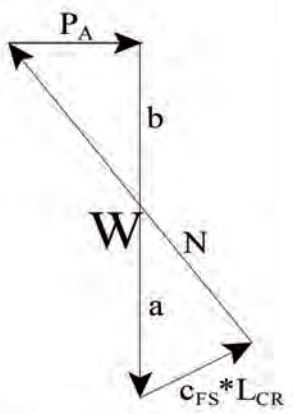
Retaining Wall Design with Transitioned Backfill
(Retaining Favorable Bedding Conditions)
(Vector Analysis)

Input:

Retaining Wall Height	(H)	12.00	feet
Slope Angle of Backfill	(b)	0.0	degrees
Height of Slope above Wall	(h_s)	0.0	feet
Horizontal Length of Slope	(l_s)	0.0	feet
Total Height (Wall + Slope)	(H_T)	12.0	feet
Unit Weight of Retained Soils	(g)	125.0	pcf
Friction Angle of Retained Soils	(f)	34.8	degrees
Cohesion of Retained Soils	(c)	234.0	psf
Factor of Safety	(FS)	1.50	
Factored Parameters:	(f_{FS})	24.9	degrees
	(c_{FS})	156.0	psf



Failure Angle (a) degrees	Height of Tension Crack (H_C) feet	Area of Wedge (A) $feet^2$	Weight of Wedge (W) lbs/lineal foot	Length of Failure Plane (L_{CR}) feet	a lbs/lineal foot	b lbs/lineal foot	Active Pressure (P_A) lbs/lineal foot
45	4.7	61	7648.0	10.4	4272.5	3375.5	1237.9
46	4.5	60	7458.1	10.4	4081.2	3376.9	1305.7
47	4.4	58	7261.4	10.4	3900.0	3361.3	1367.6
48	4.3	56	7060.0	10.4	3729.0	3331.1	1423.5
49	4.2	55	6855.8	10.3	3567.7	3288.2	1473.6
50	4.1	53	6650.1	10.3	3415.7	3234.4	1517.8
51	4.1	52	6443.8	10.2	3272.5	3171.3	1556.3
52	4.0	50	6237.7	10.1	3137.6	3100.2	1589.1
53	4.0	48	6032.4	10.0	3010.3	3022.1	1616.3
54	4.0	47	5828.1	9.9	2890.1	2938.0	1637.9
55	3.9	45	5625.3	9.8	2776.6	2848.8	1654.0
56	3.9	43	5424.2	9.8	2669.1	2755.1	1664.6
57	3.9	42	5224.7	9.6	2567.1	2657.6	1669.7
58	3.9	40	5027.1	9.5	2470.3	2556.8	1669.3
59	3.9	39	4831.4	9.4	2378.2	2453.2	1663.4
60	3.9	37	4637.5	9.3	2290.2	2347.2	1652.1
61	4.0	36	4445.4	9.2	2206.2	2239.2	1635.3
62	4.0	34	4255.0	9.1	2125.5	2129.5	1612.9
63	4.0	33	4066.3	8.9	2047.9	2018.4	1584.9
64	4.1	31	3879.1	8.8	1972.9	1906.2	1551.3
65	4.2	30	3693.3	8.7	1900.3	1793.1	1512.0
66	4.2	28	3508.8	8.5	1829.5	1679.3	1467.0
67	4.3	27	3325.3	8.3	1760.3	1565.0	1416.1
68	4.4	25	3142.8	8.2	1692.2	1450.6	1359.3
69	4.5	24	2960.9	8.0	1624.7	1336.2	1296.6
70	4.7	22	2779.5	7.8	1557.5	1222.0	1227.9



Design Equations (Vector Analysis):

$a = c_{FS} * L_{CR} * \sin(90+f_{FS}) / \sin(a-f_{FS})$

$b = W-a$

$P_A = b * \tan(a-f_{FS})$

$EFP = 2*P_A/H^2$

Maximum Active Pressure Resultant

$P_{A,\ max}$ 1669.7 lbs/lineal foot

Equivalent Fluid Pressure (per lineal foot of wall)

$EFP = 2*P_A/H^2$

At-Rest= $\gamma*(1-\sin(\phi))$

EFP	23.2 pcf	53.7 pcf
Design Wall for an Equivalent Fluid Pressure:	**30 pcf**	**54 pcf**

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3303 N. SAN FERNANDO BLVD. - SUITE 100 - BURBANK, CA 91504
PHONE (818) 841-8388 - FAX (818) 841-1704

DRAFTED BY: JMH | CHECKED BY: NDB

RETAINING WALL CALCULATION

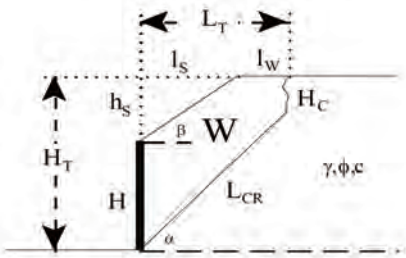
CHAMINADE HIGH SCHOOL
7500 CHAMINADE AVENUE
WEST HILLS, CALIFORNIA

JAN. 2023 | PROJECT NO. W1547-06-01 | FIG. 9

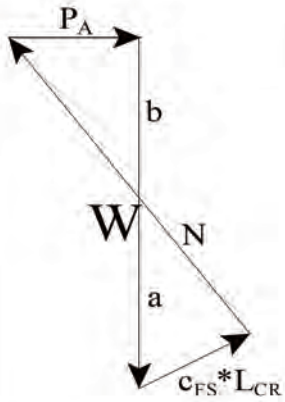
Retaining Wall Design with Transitioned Backfill
(Retaining Adverse Bedding Conditions)
(Vector Analysis)

Input:

Retaining Wall Height	(H)	12.00	feet
Slope Angle of Backfill	(b)	0.0	degrees
Height of Slope above Wall	(h_s)	0.0	feet
Horizontal Length of Slope	(l_s)	0.0	feet
Total Height (Wall + Slope)	(H_T)	12.0	feet
Unit Weight of Retained Soils	(g)	125.0	pcf
Friction Angle of Retained Soils	(f)	14.0	degrees
Cohesion of Retained Soils	(c)	120.0	psf
Factor of Safety	(FS)	1.50	
Factored Parameters:	(f_{FS})	9.4	degrees
	(c_{FS})	80.0	psf



Failure Angle (a) degrees	Height of Tension Crack (H_C) feet	Area of Wedge (A) $feet^2$	Weight of Wedge (W) lbs/lineal foot	Length of Failure Plane (L_{CR}) feet	a lbs/lineal foot	b lbs/lineal foot	Active Pressure (P_A) lbs/lineal foot
45	1.5	71	8852.7	14.8	2008.2	6844.5	4893.5
46	1.5	68	8550.7	14.6	1929.0	6621.7	4911.0
47	1.5	66	8258.2	14.3	1855.3	6403.0	4924.3
48	1.5	64	7974.7	14.1	1786.4	6188.3	4933.5
49	1.5	62	7699.6	13.9	1722.0	5977.5	4938.5
50	1.5	59	7432.3	13.7	1661.8	5770.5	4939.4
51	1.5	57	7172.3	13.5	1605.3	5567.0	4936.2
52	1.5	55	6919.3	13.3	1552.3	5367.1	4928.8
53	1.5	53	6672.9	13.1	1502.4	5170.5	4917.4
54	1.5	51	6432.5	12.9	1455.4	4977.1	4901.7
55	1.5	50	6197.9	12.8	1411.1	4786.7	4881.7
56	1.6	48	5968.7	12.6	1369.3	4599.4	4857.3
57	1.6	46	5744.5	12.4	1329.8	4414.8	4828.5
58	1.6	44	5525.2	12.3	1292.3	4232.9	4795.0
59	1.6	42	5310.3	12.1	1256.7	4053.6	4756.7
60	1.6	41	5099.7	12.0	1223.0	3876.7	4713.3
61	1.7	39	4893.0	11.8	1190.8	3702.2	4664.8
62	1.7	38	4690.1	11.7	1160.1	3529.9	4610.7
63	1.7	36	4490.6	11.5	1130.8	3359.8	4550.9
64	1.8	34	4294.3	11.4	1102.7	3191.6	4484.9
65	1.8	33	4101.2	11.2	1075.7	3025.4	4412.4
66	1.9	31	3910.8	11.1	1049.7	2861.1	4332.9
67	1.9	30	3723.0	11.0	1024.5	2698.5	4246.1
68	2.0	28	3537.7	10.8	1000.0	2537.7	4151.3
69	2.0	27	3354.6	10.7	976.2	2378.4	4047.9
70	2.1	25	3173.5	10.5	952.8	2220.7	3935.2



Design Equations (Vector Analysis):

$a = c_{FS}*L_{CR}*\sin(90+f_{FS})/\sin(a-f_{FS})$

$b = W-a$

$P_A = b*\tan(a-f_{FS})$

$EFP = 2*P_A/H^2$

Maximum Active Pressure Resultant

$P_{A,\,max}$ 4939.4 lbs/lineal foot

Equivalent Fluid Pressure (per lineal foot of wall) At-Rest= $\gamma*(1-\sin(\phi))$

$EFP = 2*P_A/H^2$

EFP 68.6 pcf 94.8 pcf

Design Wall for an Equivalent Fluid Pressure: **69 pcf** **95 pcf**

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RETAINING WALL CALCULATION

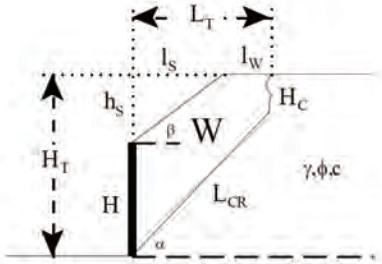
CHAMINADE HIGH SCHOOL
7500 CHAMINADE AVENUE
WEST HILLS, CALIFORNIA

DRAFTED BY: JMH	CHECKED BY: NDB	JAN. 2023	PROJECT NO. W1547-06-01	FIG. 10

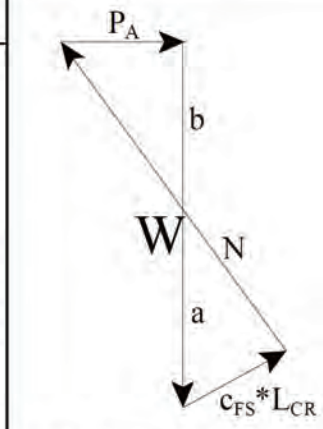
Retaining Wall Design with Transitioned Backfill
(Retaining Alluvium or Engineered Fill)
(Vector Analysis)

Input:

Retaining Wall Height	(H)	12.00 feet
Slope Angle of Backfill	(b)	0.0 degrees
Height of Slope above Wall	(h_s)	0.0 feet
Horizontal Length of Slope	(l_s)	0.0 feet
Total Height (Wall + Slope)	(H_T)	12.0 feet
Unit Weight of Retained Soils	(g)	125.0 pcf
Friction Angle of Retained Soils	(f)	29.8 degrees
Cohesion of Retained Soils	(c)	92.0 psf
Factor of Safety	(FS)	1.50
Factored Parameters:	(f_{FS})	20.9 degrees
	(c_{FS})	61.3 psf



Failure Angle (a) degrees	Height of Tension Crack (H_C) feet	Area of Wedge (A) $feet^2$	Weight of Wedge (W) lbs/lineal foot	Length of Failure Plane (L_{CR}) feet	a lbs/lineal foot	b lbs/lineal foot	Active Pressure (P_A) lbs/lineal foot
45	1.6	71	8842.5	14.7	2066.1	6776.4	3031.6
46	1.6	68	8545.2	14.5	1961.0	6584.1	3084.7
47	1.5	66	8256.6	14.3	1864.8	6391.9	3131.7
48	1.5	64	7976.4	14.1	1776.4	6200.0	3173.1
49	1.5	62	7704.0	13.9	1695.0	6009.0	3208.9
50	1.5	60	7439.2	13.8	1620.0	5819.2	3239.3
51	1.5	57	7181.3	13.6	1550.5	5630.8	3264.4
52	1.4	55	6930.1	13.4	1486.2	5443.9	3284.3
53	1.4	53	6685.2	13.2	1426.5	5258.7	3299.2
54	1.4	52	6446.3	13.1	1371.0	5075.3	3308.9
55	1.4	50	6213.0	12.9	1319.3	4893.7	3313.6
56	1.4	48	5984.9	12.8	1270.9	4714.0	3313.4
57	1.4	46	5761.9	12.6	1225.8	4536.1	3308.1
58	1.4	44	5543.5	12.5	1183.4	4360.1	3297.9
59	1.4	43	5329.6	12.3	1143.7	4185.9	3282.5
60	1.5	41	5119.9	12.2	1106.3	4013.6	3262.1
61	1.5	39	4914.1	12.0	1071.2	3843.0	3236.4
62	1.5	38	4712.1	11.9	1037.9	3674.1	3205.5
63	1.5	36	4513.5	11.8	1006.5	3507.0	3169.1
64	1.5	35	4318.2	11.6	976.8	3341.4	3127.2
65	1.6	33	4126.0	11.5	948.5	3177.4	3079.5
66	1.6	31	3936.6	11.4	921.6	3015.0	3025.8
67	1.6	30	3750.0	11.3	896.0	2854.0	2966.0
68	1.7	29	3565.8	11.1	871.4	2694.4	2899.8
69	1.7	27	3383.9	11.0	847.8	2536.2	2826.9
70	1.8	26	3204.2	10.9	825.0	2379.2	2746.9



Design Equations (Vector Analysis):

$a = c_{FS}*L_{CR}*\sin(90+f_{FS})/\sin(a-f_{FS})$

$b = W-a$

$P_A = b*\tan(a-f_{FS})$

$EFP = 2*P_A/H^2$

Maximum Active Pressure Resultant

$P_{A,\,max}$ 3313.6 lbs/lineal foot

Equivalent Fluid Pressure (per lineal foot of wall) At-Rest= $\gamma*(1-\sin(\phi))$

$EFP = 2*P_A/H^2$

EFP 46.0 pcf 62.9 pcf

Design Wall for an Equivalent Fluid Pressure: **46 pcf** **63 pcf**

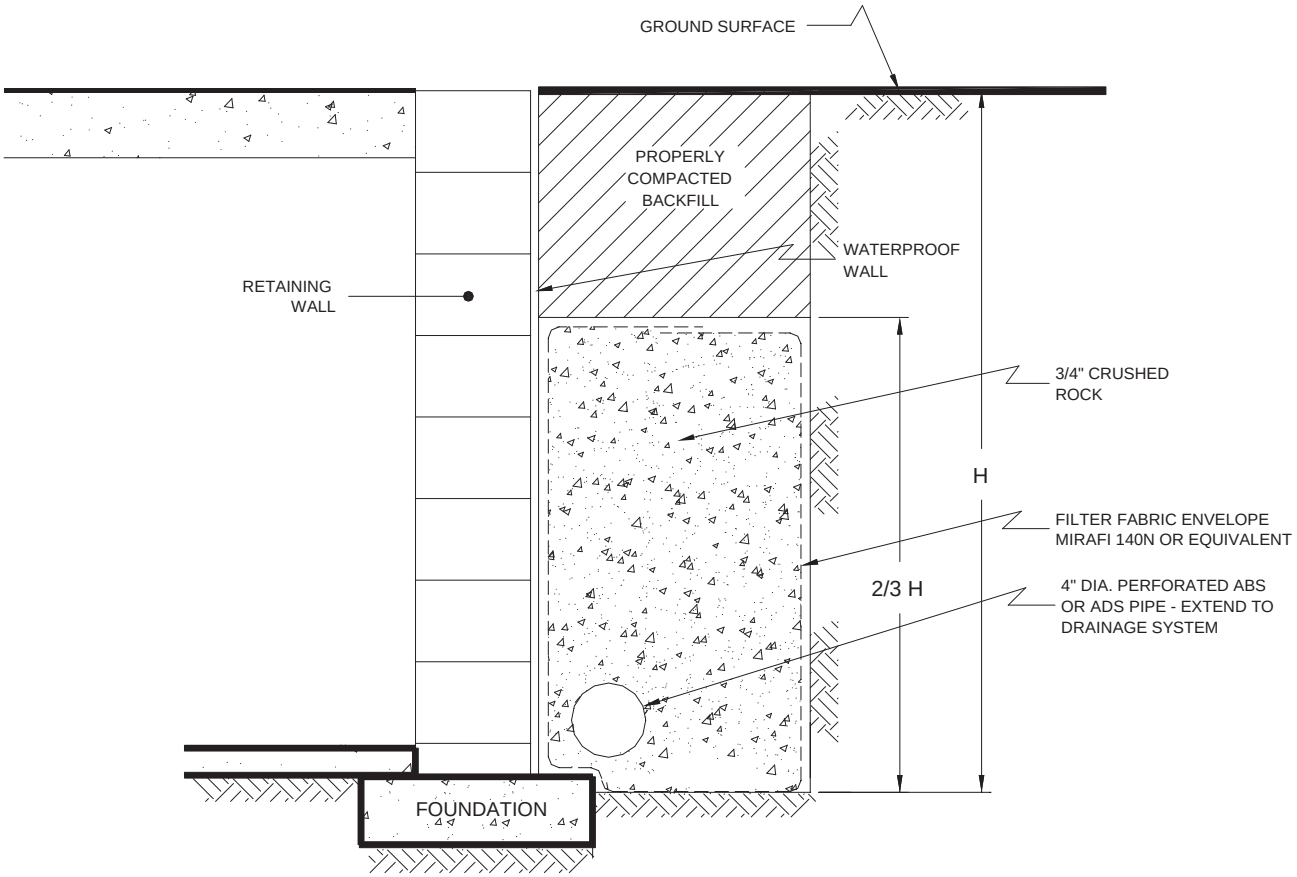
GEOCON WEST, INC.

ENVIRONMENTAL GEOTECHNICAL MATERIALS
3303 N. SAN FERNANDO BLVD. - SUITE 100 - BURBANK, CA 91504
PHONE (818) 841-8388 - FAX (818) 841-1704

RETAINING WALL CALCULATION

CHAMINADE HIGH SCHOOL
7500 CHAMINADE AVENUE
WEST HILLS, CALIFORNIA

DRAFTED BY: JMH	CHECKED BY: NDB	JAN. 2023	PROJECT NO. W1547-06-01	FIG. 11



NO SCALE

GEOCON WEST, INC.

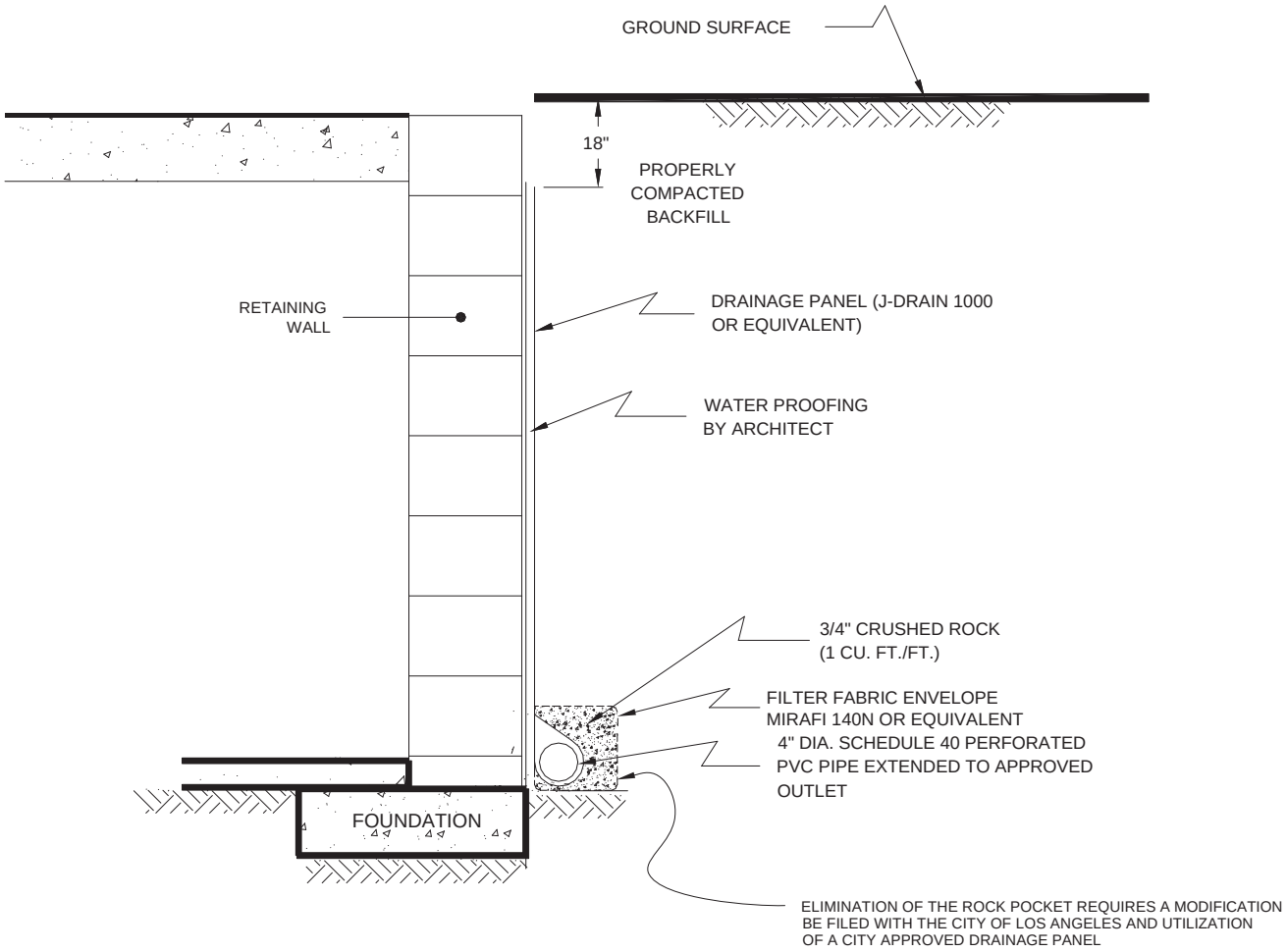
ENVIRONMENTAL GEOTECHNICAL MATERIALS
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RETAINING WALL DRAIN DETAIL

CHAMINADE HIGH SCHOOL
7500 CHAMINADE AVENUE
WEST HILLS, CALIFORNIA

JAN. 2023	PROJECT NO. W1547-06-01	FIG. 12



NO SCALE

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DRAFTED BY: JMH	CHECKED BY: NDB

RETAINING WALL DRAIN DETAIL

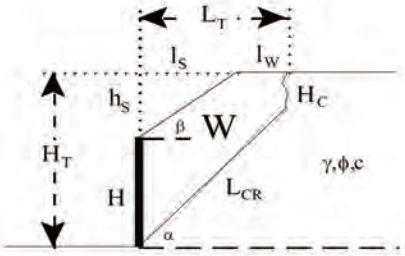
CHAMINADE HIGH SCHOOL
7500 CHAMINADE AVENUE
WEST HILLS, CALIFORNIA

JAN. 2023	PROJECT NO. W1547-06-01	FIG. 13

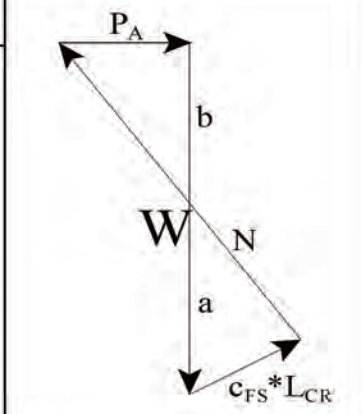
Shoring Design with Transitioned Backfill
(Retaining Favorable Bedding Conditions)
(Vector Analysis)

Input:

Shoring Height	(H)	14.00	feet
Slope Angle of Backfill	(b)	0.0	degrees
Height of Slope above Shoring	(h_s)	0.0	feet
Horizontal Length of Slope	(l_s)	0.0	feet
Total Height (Shoring + Slope)	(H_T)	14.0	feet
Unit Weight of Retained Soils	(g)	125.0	pcf
Friction Angle of Retained Soils	(f)	34.8	degrees
Cohesion of Retained Soils	(c)	234.0	psf
Factor of Safety	(FS)	1.25	
Factored Parameters:	(f_{FS})	29.1	degrees
	(c_{FS})	187.2	psf



Failure Angle (a) degrees	Height of Tension Crack (H_C) feet	Area of Wedge (A) $feet^2$	Weight of Wedge (W) lbs/lineal foot	Length of Failure Plane (L_{CR}) feet	a lbs/lineal foot	b lbs/lineal foot	Active Pressure (P_A) lbs/lineal foot
45	6.7	75	9405.6	10.3	6116.9	3288.6	938.4
46	6.5	74	9301.4	10.5	5881.2	3420.2	1040.8
47	6.2	73	9157.1	10.6	5643.6	3513.6	1136.6
48	6.0	72	8983.0	10.7	5409.3	3573.7	1225.3
49	5.9	70	8786.8	10.8	5181.7	3605.1	1306.8
50	5.7	69	8574.2	10.8	4962.6	3611.6	1381.0
51	5.6	67	8349.6	10.8	4752.9	3596.7	1447.7
52	5.5	65	8116.2	10.8	4553.1	3563.1	1507.0
53	5.4	63	7876.5	10.8	4363.1	3513.4	1558.8
54	5.3	61	7632.4	10.8	4182.6	3449.8	1603.2
55	5.2	59	7385.3	10.7	4011.3	3374.0	1640.2
56	5.2	57	7136.4	10.7	3848.7	3287.7	1669.8
57	5.1	55	6886.4	10.6	3694.2	3192.2	1692.0
58	5.1	53	6636.2	10.5	3547.3	3088.8	1706.9
59	5.1	51	6386.0	10.4	3407.5	2978.5	1714.5
60	5.1	49	6136.3	10.3	3274.0	2862.3	1714.8
61	5.1	47	5887.3	10.2	3146.4	2740.9	1707.7
62	5.1	45	5639.1	10.0	3024.1	2615.0	1693.4
63	5.2	43	5391.9	9.9	2906.6	2485.3	1671.7
64	5.2	41	5145.6	9.8	2793.2	2352.4	1642.6
65	5.3	39	4900.2	9.6	2683.4	2216.8	1606.2
66	5.4	37	4655.7	9.5	2576.7	2079.0	1562.4
67	5.5	35	4411.8	9.3	2472.5	1939.3	1511.1
68	5.6	33	4168.4	9.1	2370.1	1798.3	1452.4
69	5.7	31	3925.3	8.9	2268.9	1656.4	1386.2
70	5.8	29	3682.3	8.7	2168.3	1514.0	1312.6



Design Equations (Vector Analysis):

$a = c_{FS}*L_{CR}*\sin(90+f_{FS})/\sin(a-f_{FS})$

$b = W-a$

$P_A = b*\tan(a-f_{FS})$

$EFP = 2*P_A/H^2$

Maximum Active Pressure Resultant

$P_{A,\,max}$ 1714.8 lbs/lineal foot

Equivalent Fluid Pressure (per lineal foot of shoring)

$EFP = 2*P_A/H^2$

EFP 17.5 pcf

Design Shoring for an Equivalent Fluid Pressure: **25 pcf**

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DRAFTED BY: JMH | CHECKED BY: NDB

SHORING WALL CALCULATION

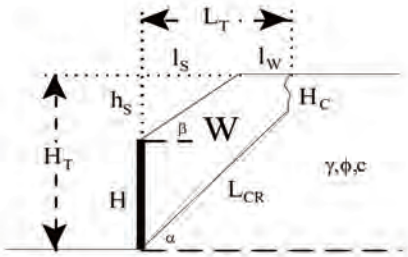
CHAMINADE HIGH SCHOOL
7500 CHAMINADE AVENUE
WEST HILLS, CALIFORNIA

JAN. 2023 | PROJECT NO. W1547-06-01 | FIG. 14

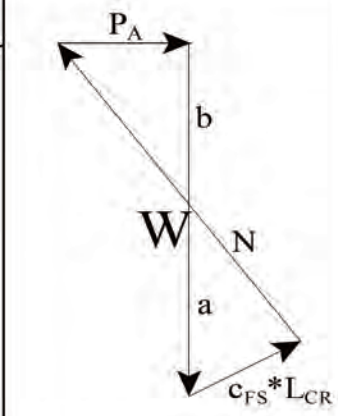
Shoring Design with Transitioned Backfill
(Retaining Adverse Bedding Conditions)
(Vector Analysis)

Input:

Shoring Height	(H)	14.00 feet
Slope Angle of Backfill	(b)	0.0 degrees
Height of Slope above Shoring	(h_s)	0.0 feet
Horizontal Length of Slope	(l_s)	0.0 feet
Total Height (Shoring + Slope)	(H_T)	14.0 feet
Unit Weight of Retained Soils	(g)	125.0 pcf
Friction Angle of Retained Soils	(f)	14.0 degrees
Cohesion of Retained Soils	(c)	120.0 psf
Factor of Safety	(FS)	1.25
Factored Parameters:	(f_{FS})	11.3 degrees
	(c_{FS})	96.0 psf



Failure Angle (a) degrees	Height of Tension Crack (H_C) feet	Area of Wedge (A) $feet^2$	Weight of Wedge (W) lbs/lineal foot	Length of Failure Plane (L_{CR}) feet	a lbs/lineal foot	b lbs/lineal foot	Active Pressure (P_A) lbs/lineal foot
45	1.9	96	12019.9	17.1	2897.6	9122.3	6088.4
46	1.9	93	11611.0	16.8	2779.6	8831.4	6119.6
47	1.9	90	11214.8	16.6	2669.8	8545.0	6144.6
48	1.9	87	10830.5	16.3	2567.5	8263.0	6163.5
49	1.9	84	10457.5	16.1	2472.0	7985.5	6176.3
50	1.9	81	10094.9	15.8	2382.6	7712.3	6183.1
51	1.9	78	9742.3	15.6	2299.0	7443.4	6183.9
52	1.9	75	9399.0	15.4	2220.5	7178.5	6178.8
53	1.9	73	9064.5	15.2	2146.8	6917.7	6167.7
54	1.9	70	8738.2	15.0	2077.5	6660.7	6150.5
55	1.9	67	8419.6	14.8	2012.2	6407.4	6127.3
56	1.9	65	8108.3	14.6	1950.5	6157.7	6097.8
57	1.9	62	7803.8	14.4	1892.3	5911.5	6061.9
58	2.0	60	7505.8	14.2	1837.2	5668.6	6019.6
59	2.0	58	7213.8	14.0	1784.9	5428.9	5970.4
60	2.0	55	6927.6	13.9	1735.3	5192.3	5914.4
61	2.0	53	6646.6	13.7	1688.0	4958.6	5851.0
62	2.1	51	6370.7	13.5	1643.0	4727.7	5780.2
63	2.1	49	6099.5	13.3	1600.0	4499.5	5701.4
64	2.2	47	5832.6	13.2	1558.8	4273.8	5614.2
65	2.2	45	5569.8	13.0	1519.2	4050.7	5518.3
66	2.3	42	5310.9	12.8	1481.0	3829.9	5413.0
67	2.3	40	5055.4	12.7	1444.1	3611.3	5297.9
68	2.4	38	4803.3	12.5	1408.3	3394.9	5172.2
69	2.5	36	4554.1	12.3	1373.4	3180.7	5035.2
70	2.6	34	4307.6	12.2	1339.1	2968.5	4886.1



Design Equations (Vector Analysis):

$a = c_{FS}*L_{CR}*\sin(90+f_{FS})/\sin(a-f_{FS})$

$b = W-a$

$P_A = b*\tan(a-f_{FS})$

$EFP = 2*P_A/H^2$

Maximum Active Pressure Resultant

$P_{A,\,max}$ 6183.9 lbs/lineal foot

Equivalent Fluid Pressure (per lineal foot of shoring)

$EFP = 2*P_A/H^2$

EFP 63.1 pcf

Design Shoring for an Equivalent Fluid Pressure: **63 pcf**

GEOCON WEST, INC.

ENVIRONMENTAL GEOTECHNICAL MATERIALS
3303 N. SAN FERNANDO BLVD. - SUITE 100 - BURBANK, CA 91504
PHONE (818) 841-8388 - FAX (818) 841-1704

DRAFTED BY: JMH | CHECKED BY: NDB

SHORING WALL CALCULATION

CHAMINADE HIGH SCHOOL
7500 CHAMINADE AVENUE
WEST HILLS, CALIFORNIA

JAN. 2023 | PROJECT NO. W1547-06-01 | FIG. 15

BORING PERCOLATION TEST FIELD LOG

Date:	Tuesday, April 19, 2022	**Boring/Test Number:**	Boring 4 / Test 1
Project Number:	W1547-06-01	**Diameter of Boring:**	8 inches
Project Location:	Chaminade HS	**Diameter of Casing:**	2 inches
Earth Description:	SM	**Depth of Boring:**	8 feet
Tested By:	Name	**Depth to Invert of BMP:**	4 feet
Liquid Description:	Water	**Depth to Water Table:**	30 feet
Measurement Method:	Sounder	**Depth to Initial Water Depth (d_1):**	48 inches
Start Time for Pre-Soak:	9:30 AM	**Water Remaining in Boring (Y/N):**	Yes
Start Time for Standard:	10:30 AM	**Standard Time Interval Between Readings:**	30 min

Reading Number	Time Start (hh:mm)	Time End (hh:mm)	Elapsed Time Δtime (min)	Water Drop During Standard Time Interval, Δd (in)	Soil Description Notes Comments
1	10:30 AM	11:00 AM	30	4.2	
2	11:00 AM	11:30 AM	30	3.7	
3	11:30 AM	12:00 PM	30	2.6	
4	12:00 PM	12:30 PM	30	1.8	
5	12:30 PM	1:00 PM	30	1.4	
6	1:00 PM	1:30 PM	30	1.6	Stabilized Readings
7	1:30 PM	2:00 PM	30	1.4	Achieved with Readings
8	2:00 PM	2:30 PM	30	1.4	6, 7, and 8

MEASURED PERCOLATION RATE & DESIGN INFILTRATION RATE CALCULATIONS*

* Calculations Below Based on Stabilized Readings Only

Boring Radius, r: 4 inches

Test Section Height, h: 48.0 inches

$$Test\ Section\ Surface\ Area, A = 2\pi rh + \pi r^2$$

A = **1257** in^2

$$Discharged\ Water\ Volume, V = \pi r^2 \Delta d$$

$$Percolation\ Rate = \left(\frac{V/A}{\Delta T}\right)$$

Reading 6	V =	**78**	in^3	Percolation Rate =	**0.12**	inches/hour
Reading 7	V =	**72**	in^3	Percolation Rate =	**0.12**	inches/hour
Reading 8	V =	**72**	in^3	Percolation Rate =	**0.12**	inches/hour

Measured Percolation Rate = **0.12** inches/hour

Reduction Factors

Boring Percolation Test, RF_t = 1

Site Variability, RF_v = 1

Long Term Siltation, RF_s = 1

$$Total\ Reduction\ Factor, RF = RF_t + RF_v + RF_s$$

Total Reduction Factor = 3

Design Infiltration Rate

$$Design\ Infiltration\ Rate = Measured\ Percolation\ Rate\ /RF$$

Design Infiltration Rate = **0.04** inches/hour

FIGURE 16

BORING PERCOLATION TEST FIELD LOG

Date:	Tuesday, April 19, 2022	**Boring/Test Number:**	Boring 7 / Test 1
Project Number:	W1547-06-01	**Diameter of Boring:**	8 inches
Project Location:	Chaminade HS	**Diameter of Casing:**	2 inches
Earth Description:	CL	**Depth of Boring:**	5 feet
Tested By:	Name	**Depth to Invert of BMP:**	2 feet
Liquid Description:	Water	**Depth to Water Table:**	30 feet
Measurement Method:	Sounder	**Depth to Initial Water Depth (d_1):**	24 inches
Start Time for Pre-Soak:	9:30 AM	**Water Remaining in Boring (Y/N):**	Yes
Start Time for Standard:	10:30 AM	**Standard Time Interval Between Readings:**	30 min

Reading Number	Time Start (hh:mm)	Time End (hh:mm)	Elapsed Time Δtime (min)	Water Drop During Standard Time Interval, Δd (in)	Soil Description Notes Comments
1	10:30 AM	11:00 AM	30	0.6	
2	11:00 AM	11:30 AM	30	0.4	
3	11:30 AM	12:00 PM	30	0.4	
4	12:00 PM	12:30 PM	30	0.4	
5	12:30 PM	1:00 PM	30	0.4	
6	1:00 PM	1:30 PM	30	0.4	Stabilized Readings
7	1:30 PM	2:00 PM	30	0.4	Achieved with Readings
8	2:00 PM	2:30 PM	30	0.4	6, 7, and 8

MEASURED PERCOLATION RATE & DESIGN INFILTRATION RATE CALCULATIONS*

* Calculations Below Based on Stabilized Readings Only

Boring Radius, r: 4 inches

Test Section Height, h: 36.0 inches

$$Test\ Section\ Surface\ Area, A = 2\pi rh + \pi r^2$$

A = **955** in^2

$$Discharged\ Water\ Volume, V = \pi r^2 \Delta d$$

$$Percolation\ Rate = \left(\frac{V/A}{\Delta T}\right)$$

Reading 6	V =	**18**	in^3	Percolation Rate =	**0.04**	inches/hour
Reading 7	V =	**18**	in^3	Percolation Rate =	**0.04**	inches/hour
Reading 8	V =	**18**	in^3	Percolation Rate =	**0.04**	inches/hour

Measured Percolation Rate = **0.04** inches/hour

Reduction Factors

Boring Percolation Test, RF_t = 1

Site Variability, RF_v = 1

Long Term Siltation, RF_s = 1

$$Total\ Reduction\ Factor, RF = RF_t + RF_v + RF_s$$

Total Reduction Factor = 3

Design Infiltration Rate

$$Design\ Infiltration\ Rate = Measured\ Percolation\ Rate\ /RF$$

Design Infiltration Rate = **0.01** inches/hour

FIGURE 17

APPENDIX A

APPENDIX A

FIELD INVESTIGATION

The site was explored on April 18, 2022, and April 19, 2022 by excavating twelve 7-inch diameter borings to depths ranging between approximately 6½ feet to 51 feet below the existing ground surface using a truck-mounted hollow-stem auger drilling machine. Representative and relatively undisturbed samples were obtained by driving a 3-inch, O. D., California Modified Sampler into the "undisturbed" soil mass with blows from a 140-pound auto-hammer falling 30 inches. The California Modified Sampler was equipped with 1-inch high by 2$^{3}/_{8}$-inch diameter brass sampler rings to facilitate soil removal and testing. Bulk samples were obtained from the borings and Standard Penetration Tests (SPTs) were performed in borings B1, B3 and B5.

The soil conditions encountered in the borings were visually examined, classified and logged in general accordance with the Unified Soil Classification System (USCS). The logs of the borings are presented on Figures A1 and A12. The logs depict the soil and geologic conditions encountered and the depth at which samples were obtained. The logs also include our interpretation of the conditions between sampling intervals. Therefore, the logs contain both observed and interpreted data. We determined the lines designating the interface between soil materials on the logs using visual observations, penetration rates, excavation characteristics and other factors. The transition between materials may be abrupt or gradual. Where applicable, the logs were revised based on subsequent laboratory testing. The locations of the borings are shown on Figures 2B through 2D.

PROJECT NO. W1547-06-01

BORING 1

ELEV. (MSL.) _____ DATE COMPLETED **04/18/2022**

EQUIPMENT **HOLLOW STEM AUGER** BY: **JMH**

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT*)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0	BULK 0-5'				**AC: 3.5" BASE: 3.5"** **ARTIFICIAL FILL** Silty Sand, poorly graded, loose, blackish brown, slightly moist, fine-grained, some medium-grained.			
2	B1@2.5'			ML	**ALLUVIUM** Sandy Silt, soft, moist, brown to dark brown.	9	107.9	11.2
4					Silty Sand, poorly graded, very loose, dry, brown, fine-grained.			
6	B1@5'			SM		2		
8	B1@7.5'				- loose	14	88.5	7.9
10	B1@10'			CL	Sandy Clay, soft, brown, moist. - increase in silt	4		
12	B1@12.5'				Clay with Sand, firm, moist, brown, fine-grained.	20	105.6	13.7
14								
16	B1@15'			CL	- loose	7		
18	B1@17.5'				- medium dense, dark brown	20		
20	B1@20'			SM	Silty Sand, poorly graded, medium dense, slightly moist, brown, fine-grained, some medium-grained.	14		
22	B1@22.5'				Sandy Silt, stiff, slightly moist to moist, olive brown with oxidation.	34	110.9	16.7
24				ML				
26	B1@25'				- firm, slightly moist, dark brown, fine-grained	10		
28	B1@27.5'					21		
				CL	Sandy Clay, firm, moist, olive brown, some oxidation.			

W1547-06-01 BORING LOGS.GPJ

Figure A1,
Log of Boring 1, Page 1 of 2

SAMPLE SYMBOLS

- ☐ ... SAMPLING UNSUCCESSFUL
- ◧ ... STANDARD PENETRATION TEST
- ■ ... DRIVE SAMPLE (UNDISTURBED)
- ⊠ ... DISTURBED OR BAG SAMPLE
- ◪ ... CHUNK SAMPLE
- ▼ ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

GEOCON

PROJECT NO. W1547-06-01

BORING 1

ELEV. (MSL.) _____ DATE COMPLETED **04/18/2022**

EQUIPMENT **HOLLOW STEM AUGER** BY: **JMH**

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT*)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
30	B1@30'		▼	CL		11		
32	B1@32.5'			SP	Sand, poorly graded, medium dense, saturated, brown, fine- to medium-grained, some coarse-grained.	40	107.8	19.8
34					Clay, soft, wet, olive brown.			
36	B1@35'			CL		8		
38	B1@37.5'			SP	Sand, poorly graded, medium dense, saturated, brown with dark brown mottles, some sandstone clasts.	35	117.6	15.2
40	B1@40'			CL	Sandy Clay, firm, wet, olive brown.	12		
42	B1@42.5'				**MONTEREY FORMATION** Siltstone, poorly bedded, highly weathered, olive brown with oxidation mottles, soft.	50 (4")		
44								
46	B1@45'					31		
48	B1@47.5'					61	104.3	23.0
50	B1@50'					31		
					Total depth of boring: 51 feet Fill to 2 feet. Groundwater encountered at 32 feet. Backfilled with soil cuttings and tamped. *Penetration resistance for 140-pound hammer falling 30 inches by auto-hammer. NOTE: The stratification lines presented herein represent the approximate boundary between earth types; the transitions may be gradual.			

W1547-06-01 BORING LOGS.GPJ

Figure A1,
Log of Boring 1, Page 2 of 2

SAMPLE SYMBOLS

- ☐ ... SAMPLING UNSUCCESSFUL
- ◧ ... STANDARD PENETRATION TEST
- ■ ... DRIVE SAMPLE (UNDISTURBED)
- ⊠ ... DISTURBED OR BAG SAMPLE
- ◪ ... CHUNK SAMPLE
- ▼ ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

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PROJECT NO. W1547-06-01

BORING 2

ELEV. (MSL.) _____ DATE COMPLETED **04/18/2022**

EQUIPMENT **HOLLOW STEM AUGER** BY: **JMH**

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT*)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0					**AC: 6" BASE: NONE**			
					ARTIFICIAL FILL			
2					Sandy Silt, soft, slightly moist, dark brown, gravel throughout.			
	B2@3'					8	89.8	12.3
4								
					ALLUVIUM			
6	B2@6'				Silty Sand, poorly graded, loose, slightly moist, brown, fine-grained.	9	110.8	4.9
				SM				
8					- decrease in silt content			
	B2@9'					10	119.8	13.0
10					Sandy Silt, soft, moist, brown.			
12	B2@12'			ML		11	100.5	15.0
14								
	B2@15'					13	109.3	13.3
					Total depth of boring: 15.5 feet Fill to 5 feet. No groundwater encountered. Backfilled with soil cuttings and tamped. *Penetration resistance for 140-pound hammer falling 30 inches by auto-hammer. NOTE: The stratification lines presented herein represent the approximate boundary between earth types; the transitions may be gradual.			

W1547-06-01 BORING LOGS.GPJ

Figure A2,
Log of Boring 2, Page 1 of 1

SAMPLE SYMBOLS

- ☐ ... SAMPLING UNSUCCESSFUL
- ◧ ... STANDARD PENETRATION TEST
- ■ ... DRIVE SAMPLE (UNDISTURBED)
- ⊠ ... DISTURBED OR BAG SAMPLE
- ◪ ... CHUNK SAMPLE
- ▼ ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

GEOCON

PROJECT NO. W1547-06-01

BORING 3

ELEV. (MSL.) _____ DATE COMPLETED **04/18/2022**

EQUIPMENT **HOLLOW STEM AUGER** BY: **JMH**

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT*)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0					**AC: 5" BASE: NONE**			
					ARTIFICIAL FILL			
					Sandy Clay, soft, moist, dark brown.			
2	B3@2.5'			ML	**ALLUVIUM** Sandy Silt, soft, moist, brown.	8	111.3	14.0
4					Sand with Silt, poorly graded, loose, slightly moist, brown, fine-grained.			
6	B3@5'			SP-SM		4		
8	B3@7.5'			SC	Clayey Sand, poorly graded, loose, slightly moist, brown, fine-grained.	14	115.3	14.4
10	B3@10'			SP-SM	Sand with Silt, poorly graded, loose, slightly moist, brown, fine-grained.	4		
12	B3@12.5'				**MONTEREY FORMATION** Silty Sandstone, poorly bedded, highly weathered, dark grayish brown, dry.	55		
14								
16	B3@15'					30		
18	B3@17.5'				- reddish brown	50 (4")	124.5	15.1
20	B3@20'					30		
					Total depth of boring: 21 feet Fill to 1.5 feet. No groundwater encountered. Backfilled with soil cuttings and tamped. *Penetration resistance for 140-pound hammer falling 30 inches by auto-hammer. NOTE: The stratification lines presented herein represent the approximate boundary between earth types; the transitions may be gradual.			

W1547-06-01 BORING LOGS.GPJ

Figure A3,
Log of Boring 3, Page 1 of 1

SAMPLE SYMBOLS

- ☐ ... SAMPLING UNSUCCESSFUL
- ◧ ... STANDARD PENETRATION TEST
- ■ ... DRIVE SAMPLE (UNDISTURBED)
- ⊠ ... DISTURBED OR BAG SAMPLE
- ◪ ... CHUNK SAMPLE
- ▼ ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

GEOCON

PROJECT NO. W1547-06-01

BORING 4

ELEV. (MSL.) _____ DATE COMPLETED **04/18/2022**

EQUIPMENT **HOLLOW STEM AUGER** BY: **JMH**

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT*)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0	BULK 0-4'				**AC: 4" BASE: NONE** **ARTIFICIAL FILL** Sandy Silt, soft, moist, dark brown, some gravel.			
2	B4@3'					11	101.2	10.6
4					**ALLUVIUM** Silty Sand, poorly graded, loose, slightly moist, brown, fine-grained, some medium-grained.			
6	B4@6'			SM		12	98.7	9.2
8					Silt with Sand, firm, moist, dark brown, fine-grained.			
10	B4@9'			ML		19	113.6	16.5
12	B4@12'					15	104.9	13.1
14								
	B4@15'				**MONTEREY FORMATION** Siltstone, poorly bedded, highly weathered, dark grayish brown, soft, dry.	46	119.4	13.0

Total depth of boring: 15.5 feet
Fill to 3.5 feet.
No groundwater encountered.
Backfilled with soil cuttings and tamped.

*Penetration resistance for 140-pound hammer falling 30 inches by auto-hammer.
NOTE: The stratification lines presented herein represent the approximate boundary between earth types; the transitions may be gradual.

W1547-06-01 BORING LOGS.GPJ

Figure A4,
Log of Boring 4, Page 1 of 1

SAMPLE SYMBOLS

- ☐ ... SAMPLING UNSUCCESSFUL
- ◧ ... STANDARD PENETRATION TEST
- ■ ... DRIVE SAMPLE (UNDISTURBED)
- ⊠ ... DISTURBED OR BAG SAMPLE
- ◪ ... CHUNK SAMPLE
- ▼ ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

GEOCON

PROJECT NO. W1547-06-01

BORING 5

ELEV. (MSL.) _____ DATE COMPLETED **04/18/2022**

EQUIPMENT **HOLLOW STEM AUGER** BY: **JMH**

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT*)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0	BULK 0-5'				**ARTIFICIAL FILL** Silty Sand, poorly graded, medium dense, brown, slightly moist, fine- to medium-grained, gravel.			
2	B5@2.5'				**ALLUVIUM** Sandy Clay, stiff, slightly moist, dark gray, bedrock fragments.	39	97.3	25.5
4								
6	B5@5'			CL	- tree roots	21		
8	B5@7.5'					29	94.5	17.0
10	B5@10'				**MONTEREY FORMATION** Sandstone, poorly bedded, highly weathered, dark grayish brown, hard, dry.	50 (2")		
12	B5@12.5'				- reddish brown	50 (6")	118.5	13.4
14								
16	B5@15'					46		
					Total depth of boring: 16 feet Fill to 2 feet. No groundwater encountered. Backfilled with soil cuttings and tamped. *Penetration resistance for 140-pound hammer falling 30 inches by auto-hammer. NOTE: The stratification lines presented herein represent the approximate boundary between earth types; the transitions may be gradual.			

Figure A5,
Log of Boring 5, Page 1 of 1

W1547-06-01 BORING LOGS.GPJ

SAMPLE SYMBOLS

- ☐ ... SAMPLING UNSUCCESSFUL
- ◧ ... STANDARD PENETRATION TEST
- ■ ... DRIVE SAMPLE (UNDISTURBED)
- ⊠ ... DISTURBED OR BAG SAMPLE
- ◪ ... CHUNK SAMPLE
- ▼ ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

GEOCON

PROJECT NO. W1547-06-01

BORING 6

ELEV. (MSL.) _____ DATE COMPLETED **04/18/2022**

EQUIPMENT **HOLLOW STEM AUGER** BY: **JMH**

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT*)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0					**AC: 3" BASE: 10"**			
					ARTIFICIAL FILL			
2	B6@2'				Silty Sand, poorly graded, medium dense, dry, grayish brown, fine- to medium-grained, gravel.	36	116.6	15.1
					Sandy Clay, hard, moist, bluish gray and dark gray, some gravel.			
4								
	B6@5'				- dark gray	60	111.6	12.6
6					**ALLUVIUM**			
	B6@7'			SM	Silty Sand, poorly graded, loose, slightly moist, brown, fine-grained.	16	101.8	5.7
8								
					MONTEREY FORMATION			
10	B6@10'				Siltstone, poorly bedded, highly weathered, dark grayish brown, soft, dry.	44	109.2	15.1
12	B6@12'				Sandstone, poorly bedded, highly weathered, reddish brown, hard, dry.	50 (6")	105.6	12.4
14	B6@14'					50 (6")	102.7	15.9

Total depth of boring: 14.5 feet
Fill to 6 feet.
No groundwater encountered.
Backfilled with soil cuttings and tamped.

*Penetration resistance for 140-pound hammer falling 30 inches by auto-hammer.
NOTE: The stratification lines presented herein represent the approximate boundary between earth types; the transitions may be gradual.

W1547-06-01 BORING LOGS.GPJ

Figure A6,
Log of Boring 6, Page 1 of 1

SAMPLE SYMBOLS

- ☐ ... SAMPLING UNSUCCESSFUL
- ◧ ... STANDARD PENETRATION TEST
- ■ ... DRIVE SAMPLE (UNDISTURBED)
- ⊠ ... DISTURBED OR BAG SAMPLE
- ◪ ... CHUNK SAMPLE
- ▼ ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

GEOCON

PROJECT NO. W1547-06-01

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	**BORING 7** ELEV. (MSL.) _____ DATE COMPLETED **04/19/2022** EQUIPMENT **HOLLOW STEM AUGER** BY: **JMH**	PENETRATION RESISTANCE (BLOWS/FT*)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
					MATERIAL DESCRIPTION			
0					**ARTIFICIAL FILL** Silty Sand, poorly graded, medium dense, slightly moist, brown to dark brown, fine-grained, some gravel.			
2	B7@2.5'			CL	**ALLUVIUM** Sandy Clay, stiff, moist, blackish brown, some bedrock fragments throughout.	34	108.8	19.5
4								
6	B7@5'				**MONTEREY FORMATION** Sandstone, thinly bedded, slightly weathered, olive brown, some oxidation, hard, dry.	50 (5")	100.4	23.3
8								
10	B7@10'					75	73.4	44.7
					Total depth of boring: 10.5 feet Fill to 1.5 feet. No groundwater encountered. Backfilled with soil cuttings and tamped. *Penetration resistance for 140-pound hammer falling 30 inches by auto-hammer. NOTE: The stratification lines presented herein represent the approximate boundary between earth types; the transitions may be gradual.			

W1547-06-01 BORING LOGS.GPJ

Figure A7,
Log of Boring 7, Page 1 of 1

SAMPLE SYMBOLS

- ☐ ... SAMPLING UNSUCCESSFUL
- ◧ ... STANDARD PENETRATION TEST
- ■ ... DRIVE SAMPLE (UNDISTURBED)
- ⊠ ... DISTURBED OR BAG SAMPLE
- ◪ ... CHUNK SAMPLE
- ▼ ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

GEOCON

PROJECT NO. W1547-06-01

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	**BORING 8** ELEV. (MSL.) _____ DATE COMPLETED **04/19/2022** EQUIPMENT **HOLLOW STEM AUGER** BY: **JMH**	PENETRATION RESISTANCE (BLOWS/FT*)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
					MATERIAL DESCRIPTION			
0	BULK 0-5'				**AC: 5.5" BASE: NONE** **ARTIFICIAL FILL** Silty Sand, poorly graded, medium dense, slightly moist, brown, fine-grained, some medium-grained.			
2								
4	B8@3'				**MONTEREY FORMATION** Sandstone, thinly bedded, slightly weathered, light olive brown, dry, hard, some oxidation striping.	63		
6	B8@6'					87	86.0	16.1
					Total depth of boring: 6.5 feet Fill to 1 foot. No groundwater encountered. Backfilled with soil cuttings and tamped. Concrete patched. *Penetration resistance for 140-pound hammer falling 30 inches by auto-hammer. NOTE: The stratification lines presented herein represent the approximate boundary between earth types; the transitions may be gradual.			

W1547-06-01 BORING LOGS.GPJ

Figure A8,
Log of Boring 8, Page 1 of 1

SAMPLE SYMBOLS

☐ ... SAMPLING UNSUCCESSFUL
◧ ... STANDARD PENETRATION TEST
■ ... DRIVE SAMPLE (UNDISTURBED)
⊠ ... DISTURBED OR BAG SAMPLE
◪ ... CHUNK SAMPLE
▼ ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

GEOCON

PROJECT NO. W1547-06-01

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	BORING 9 ELEV. (MSL.) _____ DATE COMPLETED **04/19/2022** EQUIPMENT **HOLLOW STEM AUGER** BY: **JMH**	PENETRATION RESISTANCE (BLOWS/FT*)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
					MATERIAL DESCRIPTION			
0					**AC: 4.5" BASE: 4.5"** **ARTIFICIAL FILL** Sandy Silt, firm, moist, dark brown.			
2	B9@2'				**MONTEREY FORMATION** Sandstone with Siltstone Interbeds, thinly bedded, slighty weathered, light olive brown, dry, hard.	50 (4")	78.9	43.9
4								
6	B9@6'				Siltstone with Sandstone Interbeds, poorly bedded to thinly bedded, slightly weathered, olive brown with oxidation mottles.	40	82.1	40.3
					Total depth of boring: 6.5 feet Fill to 1.5 feet. No groundwater encountered. Backfilled with soil cuttings and tamped. Concrete patched with black dye. *Penetration resistance for 140-pound hammer falling 30 inches by auto-hammer. NOTE: The stratification lines presented herein represent the approximate boundary between earth types; the transitions may be gradual.			

W1547-06-01 BORING LOGS.GPJ

Figure A9,
Log of Boring 9, Page 1 of 1

SAMPLE SYMBOLS

☐ ... SAMPLING UNSUCCESSFUL
◧ ... STANDARD PENETRATION TEST
■ ... DRIVE SAMPLE (UNDISTURBED)
⊠ ... DISTURBED OR BAG SAMPLE
◪ ... CHUNK SAMPLE
▼ ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

PROJECT NO. W1547-06-01

BORING 10

ELEV. (MSL.) _____ DATE COMPLETED **04/19/2022**

EQUIPMENT **HOLLOW STEM AUGER** BY: **JMH**

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT*)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0					**AC: 5" BASE: 6"**			
					ARTIFICIAL FILL			
2				ML	Silty Sand, poorly graded, medium dense, slightly moist, brown, fine- to medium-grained.			
	B10@3'				**COLLUVIUM** Sandy Silt, hard, moist, olive brown, sandstone clasts throughout.	48		
4					**MONTEREY FORMATION** Siltstone, thinly bedded, slightly weathered, light olive brown, dry, hard.			
6	B10@6'					40	81.5	39.2
8					- Sandstone Interbeds and oxidation striping			
	B10@9'					52	78.6	42.7

Total depth of boring: 9.5 feet
Fill to 1 foot.
No groundwater encountered.
Backfilled with soil cuttings and tamped.
Concrete patched with black dye.

*Penetration resistance for 140-pound hammer falling 30 inches by auto-hammer.
NOTE: The stratification lines presented herein represent the approximate boundary between earth types; the transitions may be gradual.

W1547-06-01 BORING LOGS.GPJ

Figure A10,
Log of Boring 10, Page 1 of 1

SAMPLE SYMBOLS

- ☐ ... SAMPLING UNSUCCESSFUL
- ◧ ... STANDARD PENETRATION TEST
- ■ ... DRIVE SAMPLE (UNDISTURBED)
- ⊠ ... DISTURBED OR BAG SAMPLE
- ◪ ... CHUNK SAMPLE
- ▼ ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

GEOCON

PROJECT NO. W1547-06-01

BORING 11

ELEV. (MSL.) _____ DATE COMPLETED **04/19/2022**

EQUIPMENT **HOLLOW STEM AUGER** BY: **JMH**

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT*)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0	BULK 0-10'				**AC: 6" BASE: 3"** **ARTIFICIAL FILL** Sandy Silt, firm, slightly moist, dark brown, some gravel.			
2	B11@3'			CL	**COLLUVIUM** Sandy Clay, stiff, slightly moist, dark brown with olive brown mottles.	40		
4	B11@6'				**MONTEREY FORMATION** Siltstone, poorly bedded, highly weathered, olive brown with oxidation striping, slightly moist, soft.	59	85.8	34.6
8	B11@9'				Sandstone, thinly bedded, slightly weathered, light gray to olive brown, dry, hard.	66	74.3	29.5
10					Total depth of boring: 10 feet Fill to 2 feet. No groundwater encountered. Backfilled with soil cuttings and tamped. Concrete patched with black dye. *Penetration resistance for 140-pound hammer falling 30 inches by auto-hammer. NOTE: The stratification lines presented herein represent the approximate boundary between earth types; the transitions may be gradual.			

W1547-06-01 BORING LOGS.GPJ

Figure A11,
Log of Boring 11, Page 1 of 1

SAMPLE SYMBOLS

- ☐ ... SAMPLING UNSUCCESSFUL
- ◧ ... STANDARD PENETRATION TEST
- ■ ... DRIVE SAMPLE (UNDISTURBED)
- ⊠ ... DISTURBED OR BAG SAMPLE
- ◪ ... CHUNK SAMPLE
- ▼ ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

GEOCON

PROJECT NO. W1547-06-01

BORING 12

ELEV. (MSL.) _____ DATE COMPLETED **04/19/2022**

EQUIPMENT **HOLLOW STEM AUGER** BY: **JMH**

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT*)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0					**AC: 5.5" BASE: NONE**			
					ARTIFICIAL FILL			
2					Sandy Silt, soft, moist, olive brown with dark brown mottles, some gravel and bedrock fragments.			
	B12@3'					14	89.2	32.2
4					**ALLUVIUM**			
					Sandy Silt, firm, moist, brown.			
6	B12@6'			ML	- dark brown to brown	10		
8								
	B12@9'				- increase in sand content	19	92.1	8.3
10					Clay, hard, moist, dark brown, trace sand, calcium stringers throughout.			
	B12@12'					44	105.3	21.8
14			▼	CL				
	B12@15'					20	98.5	22.9
16								
18								
					Clayey Sand, poorly graded, medium dense, moist, olive brown, fine-grained.			
20	B12@20'				- bluish green	39	106.1	19.1
				SC				
22								
					Sand, poorly graded, dense, saturated, dark gray, fine- to medium-grained, some silt.			
24				SP				
	B12@25'				- strong sulfur odor	62	104.4	20.7
					Total depth of boring: 25.5 feet Fill to 3.5 feet. Groundwater encountered at 14.6 feet. Backfilled with soil cuttings and tamped. Concrete patched with black dye.			
					*Penetration resistance for 140-pound hammer falling 30 inches by			

W1547-06-01 BORING LOGS.GPJ

Figure A12,
Log of Boring 12, Page 1 of 2

SAMPLE SYMBOLS

- ☐ ... SAMPLING UNSUCCESSFUL
- ◧ ... STANDARD PENETRATION TEST
- ■ ... DRIVE SAMPLE (UNDISTURBED)
- ⊠ ... DISTURBED OR BAG SAMPLE
- ◥ ... CHUNK SAMPLE
- ▼ ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

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DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	**BORING 12** ELEV. (MSL.) _____ DATE COMPLETED **04/19/2022** EQUIPMENT **HOLLOW STEM AUGER** BY: **JMH**	PENETRATION RESISTANCE (BLOWS/FT*)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
					MATERIAL DESCRIPTION			
					auto-hammer. NOTE: The stratification lines presented herein represent the approximate boundary between earth types; the transitions may be gradual.			

Figure A12,
Log of Boring 12, Page 2 of 2

W1547-06-01 BORING LOGS.GPJ

SAMPLE SYMBOLS

- ☐ ... SAMPLING UNSUCCESSFUL
- ◧ ... STANDARD PENETRATION TEST
- ■ ... DRIVE SAMPLE (UNDISTURBED)
- ⊠ ... DISTURBED OR BAG SAMPLE
- ◹ ... CHUNK SAMPLE
- ▼ ... WATER TABLE OR SEEPAGE

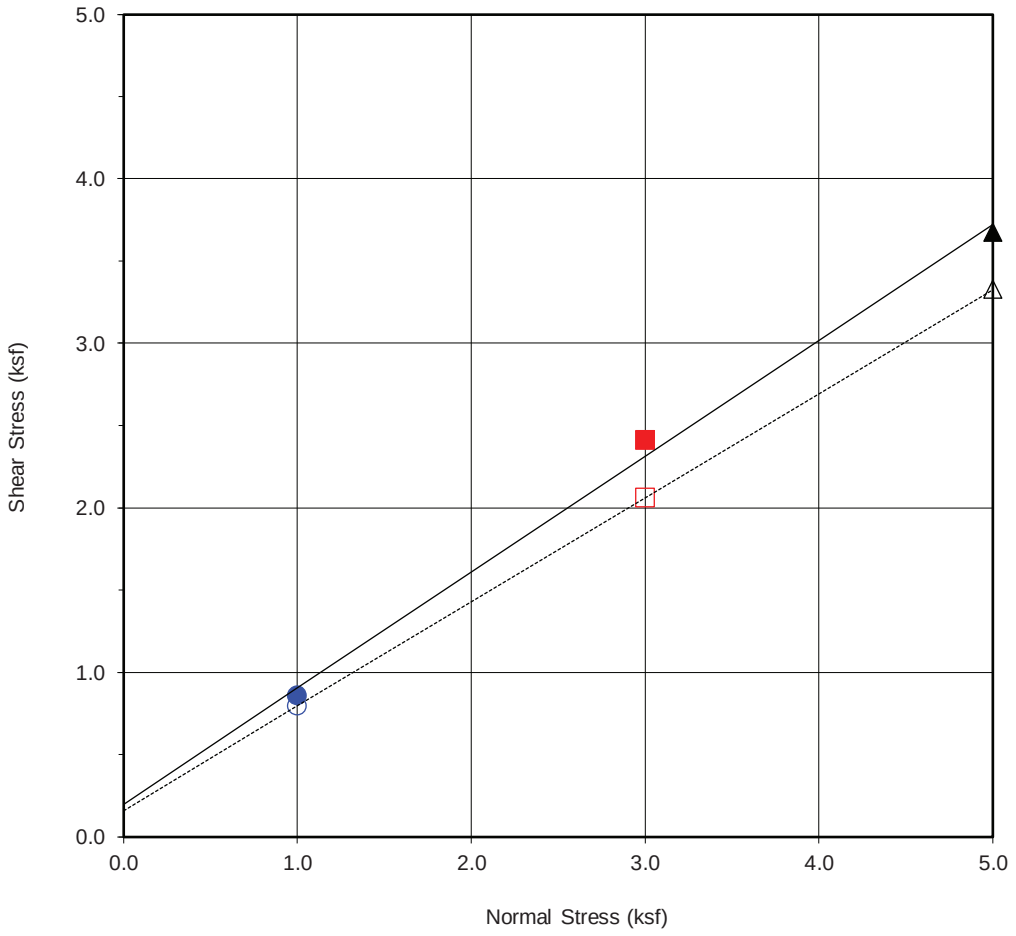
NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

APPENDIX B

APPENDIX B

LABORATORY TESTING

Laboratory tests were performed in accordance with generally accepted test methods of the "American Society for Testing and Materials (ASTM)", or other suggested procedures. Selected samples were tested for direct shear strength, consolidation characteristics, Atterburg limits, grain size, corrosivity, and in-place dry density and moisture content. The results of the laboratory tests are summarized in Figures B1 through B27. The in-place dry density and moisture content of the samples tested are presented on the boring logs, Appendix A.



Boring No.	**B1**
Sample No.	**B1@2.5'**
Depth (ft)	**2.5**
Sample Type:	Ring

Soil Identification:		
Sandy Silt (ML)		
Strength Parameters		
	C (psf)	ϕ (^{o})
Peak	200	35.2
Ultimate	162	32.3

Normal Strest (kip/ft2)	1	3	5
Peak Shear Stress (kip/ft²)	● 0.86	■ 2.41	▲ 3.68
Shear Stress @ End of Test (ksf)	○ 0.80	□ 2.06	△ 3.33
Deformation Rate (in./min.)	0.05	0.05	0.05
Initial Sample Height (in.)	1.0	1.0	1.0
Ring Inside Diameter (in.)	2.375	2.375	2.375
Initial Moisture Content (%)	12.5	12.1	13.6
Initial Dry Density (pcf)	109.0	110.7	111.2
Initial Degree of Saturation (%)	61.6	62.6	71.2
Soil Height Before Shearing (in.)	1.2	1.2	1.2
Final Moisture Content (%)	16.7	14.8	14.1

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DIRECT SHEAR TEST RESULTS

Consolidated Drained ASTM D-3080

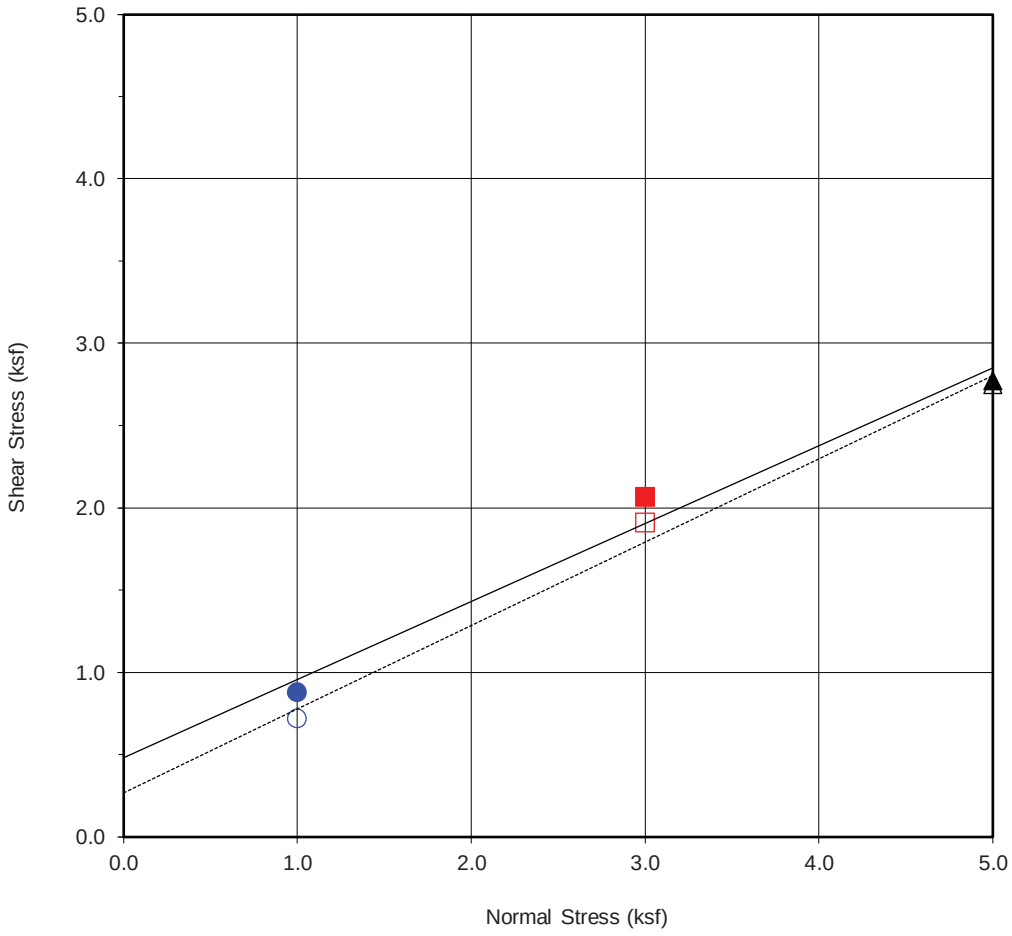
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Figure B1



Boring No.	**B1**
Sample No.	**B1@17.5'**
Depth (ft)	**17.5'**
Sample Type:	Ring

Soil Identification:

Clay with Sand (CL)

Strength Parameters

	C (psf)	ϕ (^{o})
Peak	482	25.4
Ultimate	271	26.9

Normal Strest (kip/ft2)	1	3	5
Peak Shear Stress (kip/ft²)	● 0.88	■ 2.06	▲ 2.77
Shear Stress @ End of Test (ksf)	○ 0.72	□ 1.91	△ 2.75
Deformation Rate (in./min.)	0.05	0.05	0.05
Initial Sample Height (in.)	1.0	1.0	1.0
Ring Inside Diameter (in.)	2.375	2.375	2.375
Initial Moisture Content (%)	16.1	17.0	19.0
Initial Dry Density (pcf)	116.0	110.3	107.3
Initial Degree of Saturation (%)	95.7	87.0	89.7
Soil Height Before Shearing (in.)	1.2	1.2	1.2
Final Moisture Content (%)	18.1	17.8	17.3

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DIRECT SHEAR TEST RESULTS

Consolidated Drained ASTM D-3080

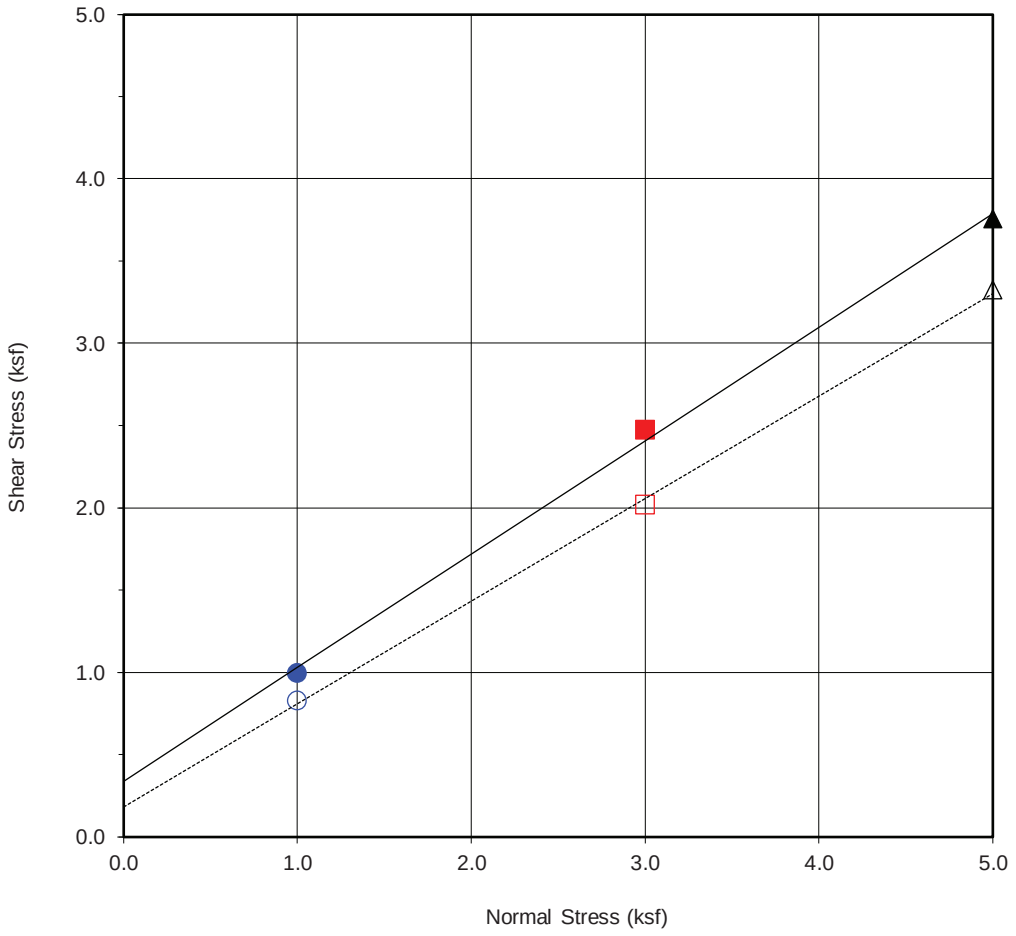
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Figure B2



Boring No.	B1
Sample No.	B1@27.5'
Depth (ft)	27.5'
Sample Type:	Ring

Soil Identification:
Sandy Silt (ML)

Strength Parameters

	C (psf)	ϕ (^{o})
Peak	338	34.6
Ultimate	184	32.0

Normal Strest (kip/ft2)	1	3	5
Peak Shear Stress (kip/ft²)	● 1.00	■ 2.47	▲ 3.76
Shear Stress @ End of Test (ksf)	○ 0.83	□ 2.02	△ 3.32
Deformation Rate (in./min.)	0.05	0.05	0.05
Initial Sample Height (in.)	1.0	1.0	1.0
Ring Inside Diameter (in.)	2.375	2.375	2.375
Initial Moisture Content (%)	19.6	20.6	20.6
Initial Dry Density (pcf)	106.3	104.0	105.0
Initial Degree of Saturation (%)	90.3	89.6	91.9
Soil Height Before Shearing (in.)	1.2	1.2	1.2
Final Moisture Content (%)	21.0	20.9	20.0

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DIRECT SHEAR TEST RESULTS

Consolidated Drained ASTM D-3080

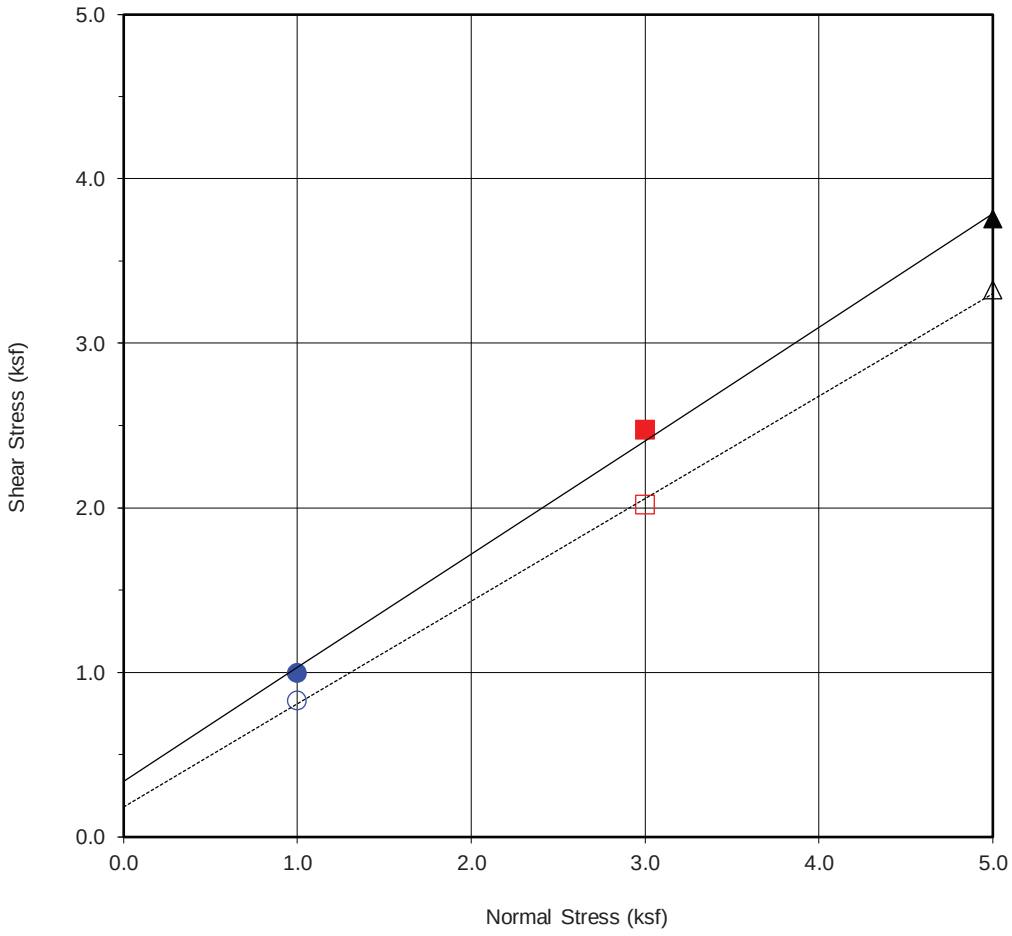
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Figure B3



Boring No.	B1
Sample No.	B1@42.5'
Depth (ft)	42.5'
Sample Type:	Ring

Soil Identification:
Siltstone

Strength Parameters		
	C (psf)	ϕ (^{o})
Peak	338	34.6
Ultimate	184	32.0

Normal Strest (kip/ft2)	1	3	5
Peak Shear Stress (kip/ft²)	● 1.00	■ 2.47	▲ 3.76
Shear Stress @ End of Test (ksf)	○ 0.83	□ 2.02	△ 3.32
Deformation Rate (in./min.)	0.05	0.05	0.05
Initial Sample Height (in.)	1.0	1.0	1.0
Ring Inside Diameter (in.)	2.375	2.375	2.375
Initial Moisture Content (%)	16.9	22.6	16.7
Initial Dry Density (pcf)	115.0	113.8	116.7
Initial Degree of Saturation (%)	98.0	126.7	101.9
Soil Height Before Shearing (in.)	1.2	1.2	1.2
Final Moisture Content (%)	18.1	18.5	16.3

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DIRECT SHEAR TEST RESULTS

Consolidated Drained ASTM D-3080

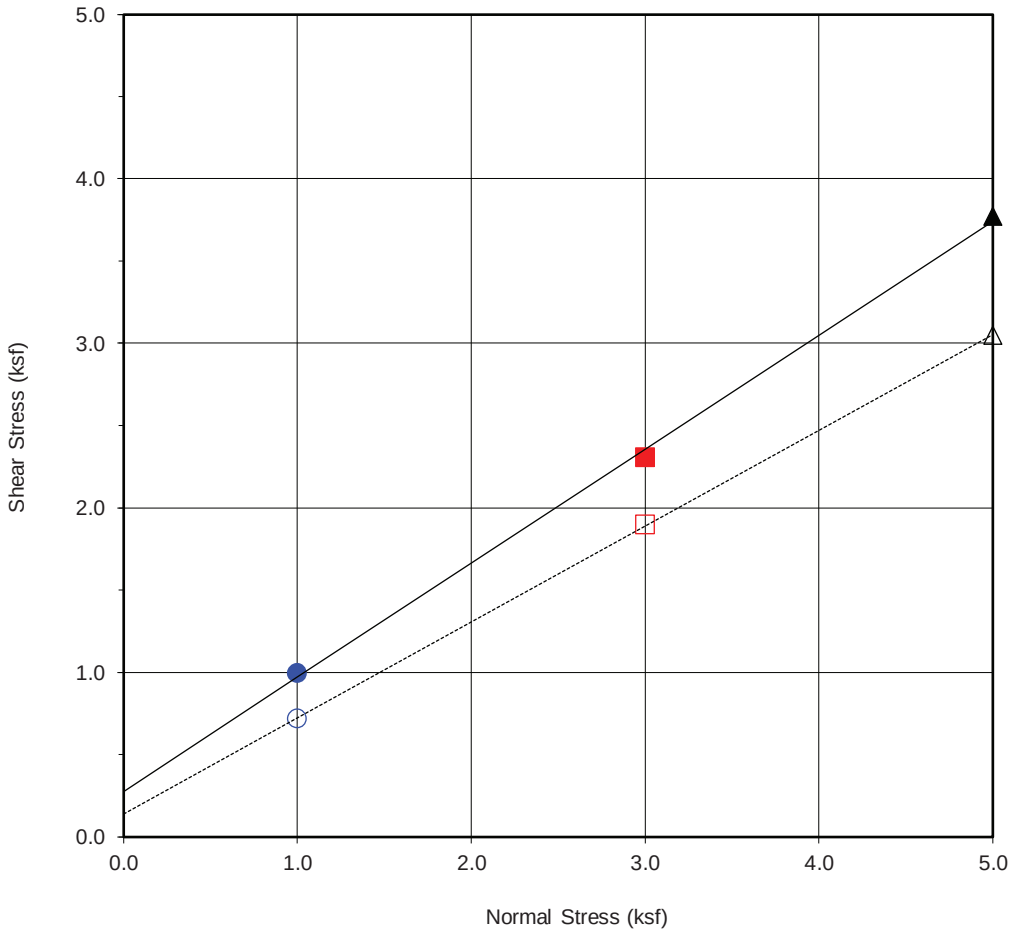
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Figure B4



Boring No.	**B3**
Sample No.	**B3@12.5'**
Depth (ft)	**12.5'**
Sample Type:	Ring

Soil Identification:		
Silty Sandstone		
Strength Parameters		
	C (psf)	ϕ (^{o})
Peak	276	34.7
Ultimate	141	30.2

Normal Strest (kip/ft2)	1	3	5
Peak Shear Stress (kip/ft²)	● 1.00	■ 2.30	▲ 3.77
Shear Stress @ End of Test (ksf)	○ 0.72	□ 1.90	△ 3.05
Deformation Rate (in./min.)	0.05	0.05	0.05
Initial Sample Height (in.)	1.0	1.0	1.0
Ring Inside Diameter (in.)	2.375	2.375	2.375
Initial Moisture Content (%)	14.1	16.9	15.3
Initial Dry Density (pcf)	115.1	115.5	114.1
Initial Degree of Saturation (%)	81.9	99.2	86.7
Soil Height Before Shearing (in.)	1.2	1.2	1.2
Final Moisture Content (%)	17.9	18.4	16.3

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DIRECT SHEAR TEST RESULTS

Consolidated Drained ASTM D-3080

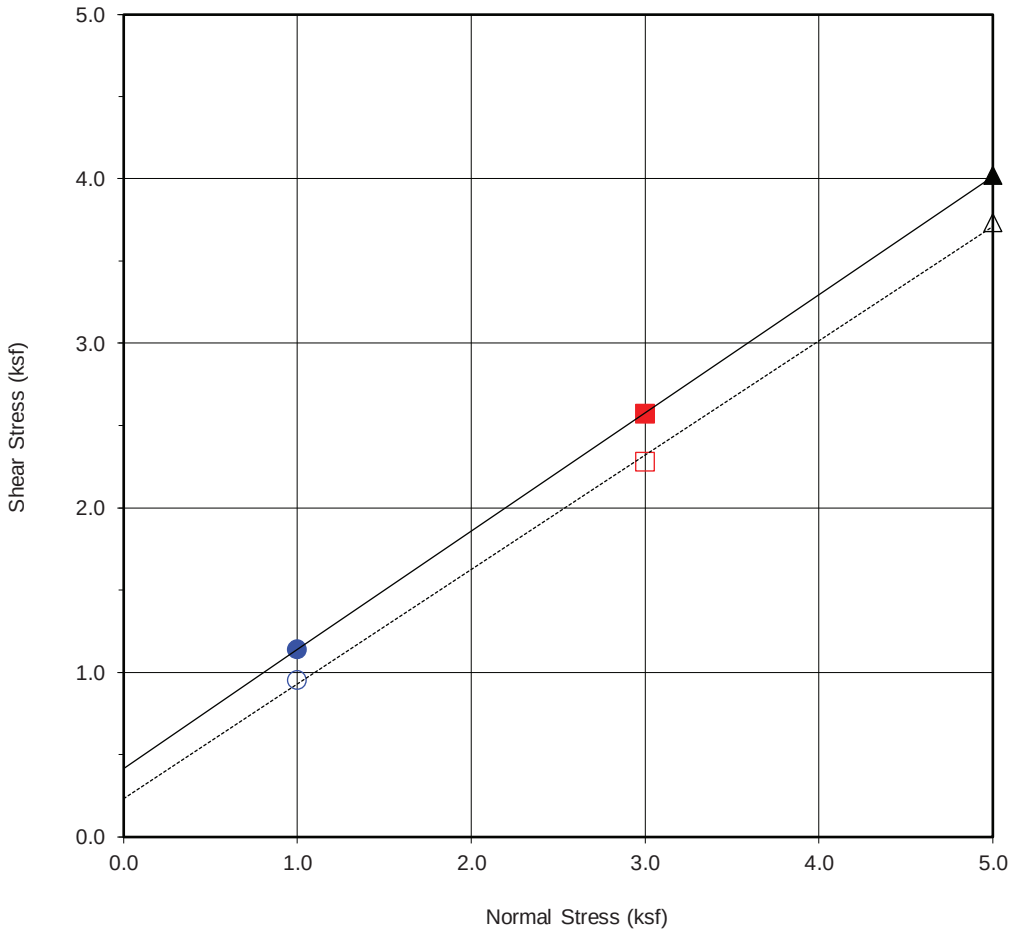
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Figure B5



Boring No.	B8
Sample No.	B8@3'
Depth (ft)	3'
Sample Type:	Ring

Soil Identification:
Sandstone

Strength Parameters		
	C (psf)	ϕ (^{o})
Peak	417	35.8
Ultimate	234	34.8

Normal Strest (kip/ft2)	1	3	5
Peak Shear Stress (kip/ft²)	● 1.14	■ 2.57	▲ 4.02
Shear Stress @ End of Test (ksf)	○ 0.95	□ 2.28	△ 3.73
Deformation Rate (in./min.)	0.05	0.05	0.05
Initial Sample Height (in.)	1.0	1.0	1.0
Ring Inside Diameter (in.)	2.375	2.375	2.375
Initial Moisture Content (%)	43.9	31.5	36.1
Initial Dry Density (pcf)	76.2	88.9	82.7
Initial Degree of Saturation (%)	98.0	94.9	93.9
Soil Height Before Shearing (in.)	1.2	1.2	1.2
Final Moisture Content (%)	50.5	36.0	39.9

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DIRECT SHEAR TEST RESULTS

Consolidated Drained ASTM D-3080

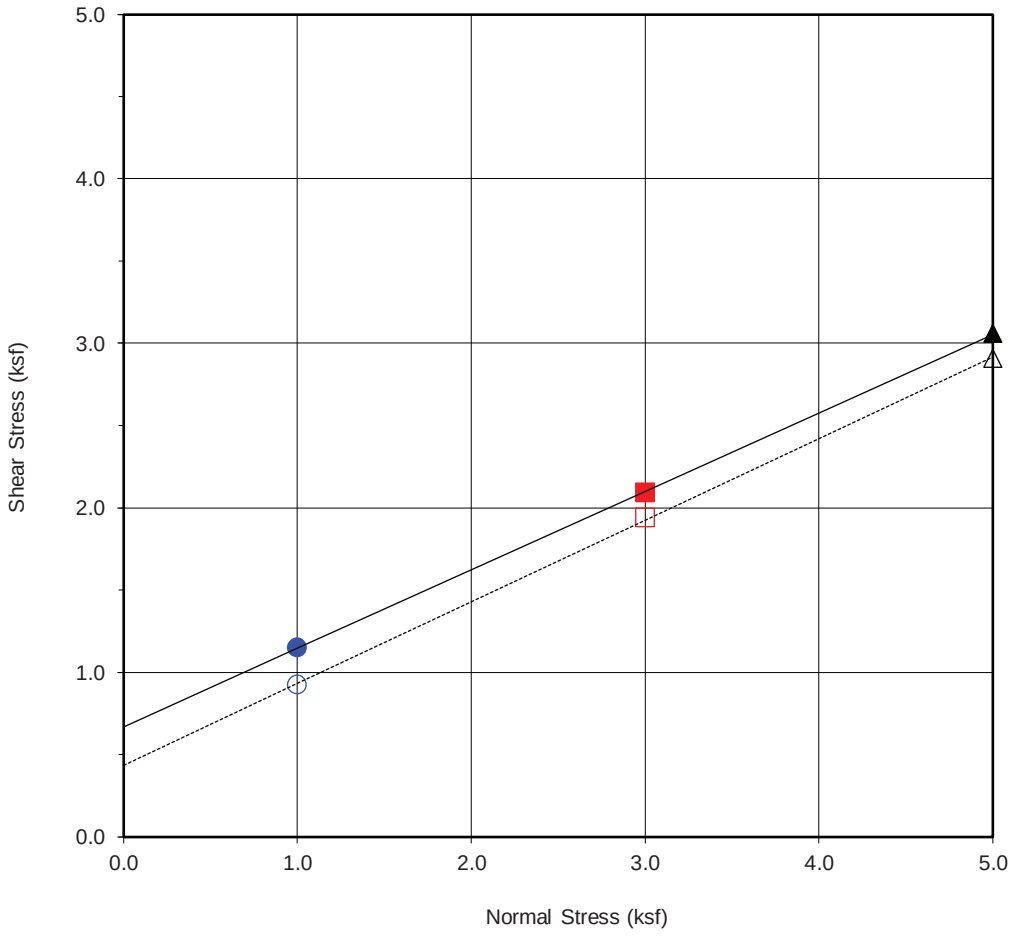
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Figure B6



Boring No.	B11
Sample No.	B11@3'
Depth (ft)	3'
Sample Type:	Ring

Soil Identification:		
Sandy Clay (CL)		
Strength Parameters		
	C (psf)	ϕ (^{o})
Peak	670	25.5
Ultimate	435	26.4

Normal Strest (kip/ft2)	1	3	5
Peak Shear Stress (kip/ft²)	● 1.15	■ 2.09	▲ 3.06
Shear Stress @ End of Test (ksf)	○ 0.92	□ 1.94	△ 2.91
Deformation Rate (in./min.)	0.05	0.05	0.05
Initial Sample Height (in.)	1.0	1.0	1.0
Ring Inside Diameter (in.)	2.375	2.375	2.375
Initial Moisture Content (%)	27.1	26.4	25.8
Initial Dry Density (pcf)	93.3	91.9	94.1
Initial Degree of Saturation (%)	90.5	85.4	87.8
Soil Height Before Shearing (in.)	1.2	1.2	1.2
Final Moisture Content (%)	30.6	31.3	28.2

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DIRECT SHEAR TEST RESULTS

Consolidated Drained ASTM D-3080

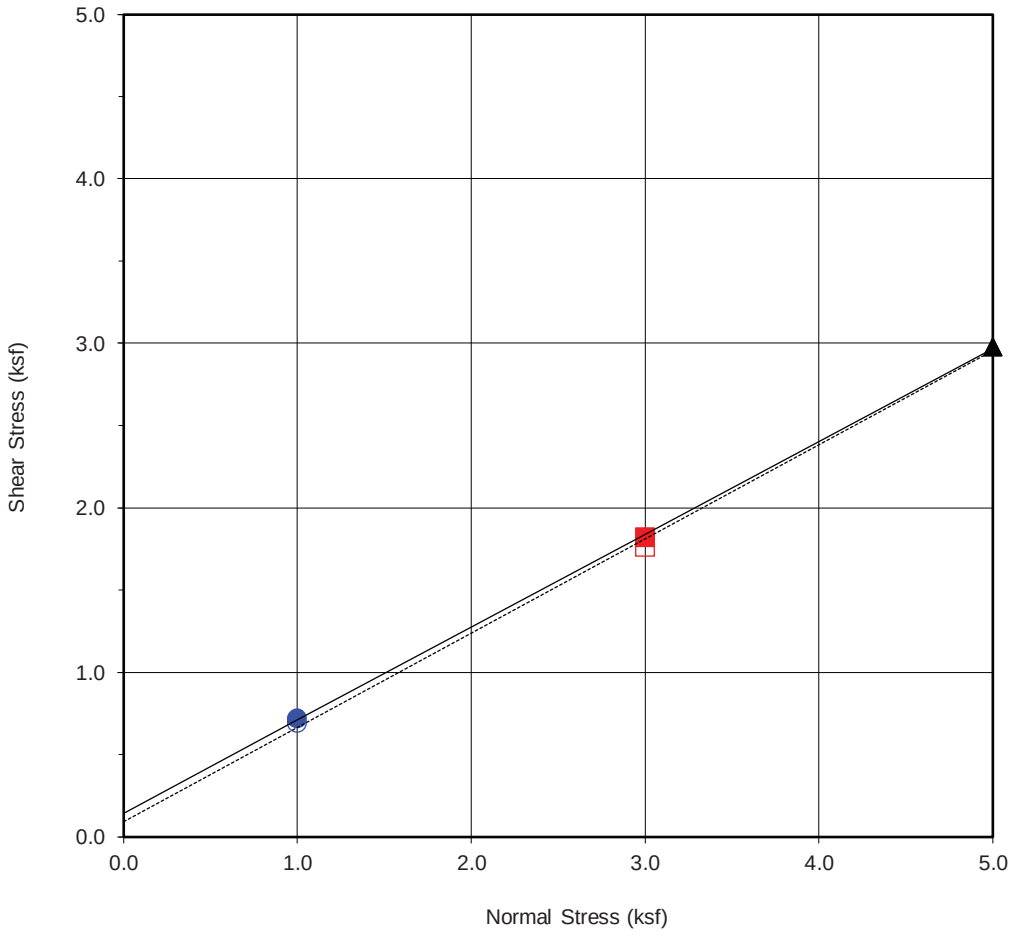
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Figure B7



Boring No.	B12
Sample No.	B12@6'
Depth (ft)	6'
Sample Type:	Ring

Soil Identification:
Sandy Silt (ML)

Strength Parameters

	C (psf)	ϕ (^{o})
Peak	145	29.5
Ultimate	92	29.8

Normal Strest (kip/ft2)	1	3	5
Peak Shear Stress (kip/ft²)	● 0.72	■ 1.82	▲ 2.98
Shear Stress @ End of Test (ksf)	○ 0.69	□ 1.76	△ 2.98
Deformation Rate (in./min.)	0.05	0.05	0.05
Initial Sample Height (in.)	1.0	1.0	1.0
Ring Inside Diameter (in.)	2.375	2.375	2.375
Initial Moisture Content (%)	67.8	20.2	16.7
Initial Dry Density (pcf)	101.6	95.5	107.6
Initial Degree of Saturation (%)	277.7	71.3	79.4
Soil Height Before Shearing (in.)	1.2	1.2	1.2
Final Moisture Content (%)	23.3	20.4	17.9

GEOCON

DIRECT SHEAR TEST RESULTS

Consolidated Drained ASTM D-3080

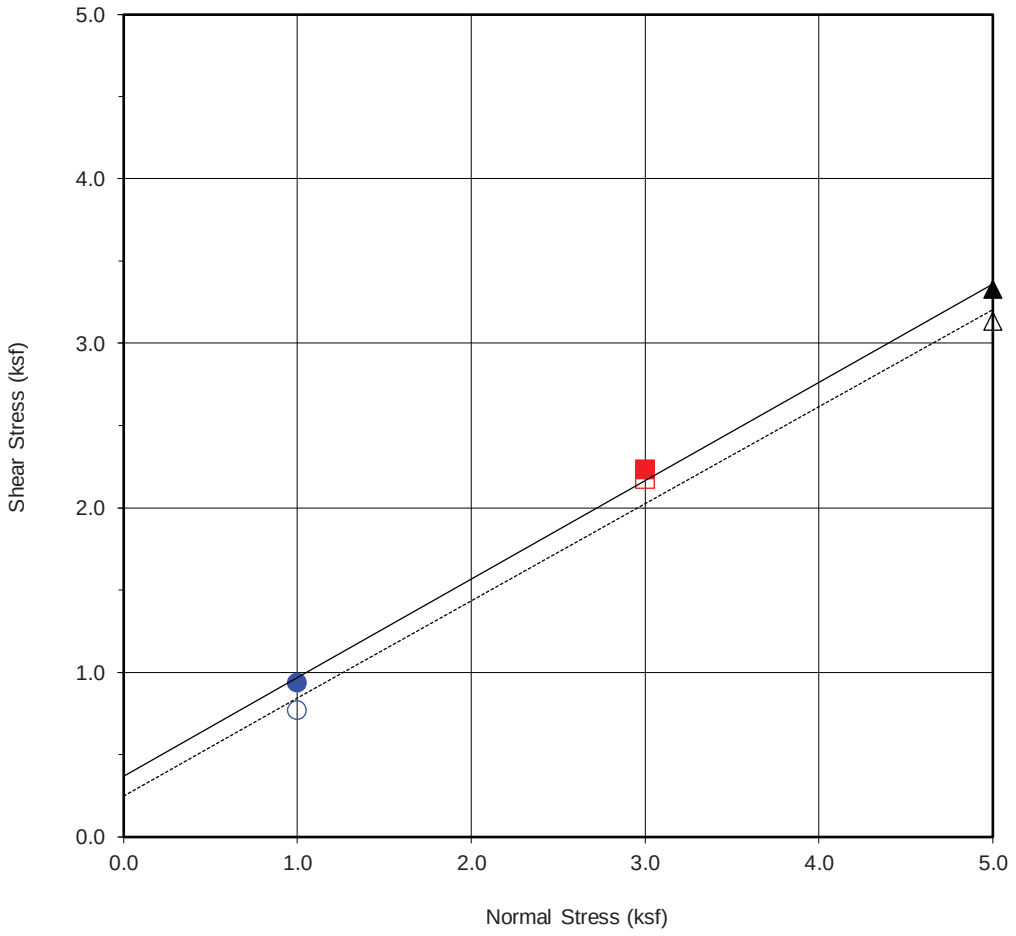
Checked by: JMH

Project No.: W1547-06-01

CHAMINADE HIGH SCHOOL
7500 CHAMINADE AVENUE
WEST HILLS CALIFORNIA

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Figure B8



Boring No.	**B11**
Sample No.	**B11@0-10'**
Depth (ft)	**0-10'**
Sample Type:	Bulk

Soil Identification:

Sandy Silt with some Bedrock Fragments (ML)

Strength Parameters

	C (psf)	ϕ (^{o})
Peak	371	30.9
Ultimate	251	30.6

Normal Strest (kip/ft2)	1	3	5
Peak Shear Stress (kip/ft²)	● 0.94	■ 2.23	▲ 3.33
Shear Stress @ End of Test (ksf)	○ 0.77	□ 2.17	△ 3.13
Deformation Rate (in./min.)	0.05	0.05	0.05
Initial Sample Height (in.)	1.0	1.0	1.0
Ring Inside Diameter (in.)	2.375	2.375	2.375
Initial Moisture Content (%)	17.5	17.3	17.4
Initial Dry Density (pcf)	90.0	90.0	90.0
Initial Degree of Saturation (%)	54.1	53.7	53.8
Soil Height Before Shearing (in.)	1.2	1.2	1.2
Final Moisture Content (%)	32.5	31.6	30.8

GEOCON

DIRECT SHEAR TEST RESULTS

Consolidated Drained ASTM D-3080

Checked by: JMH

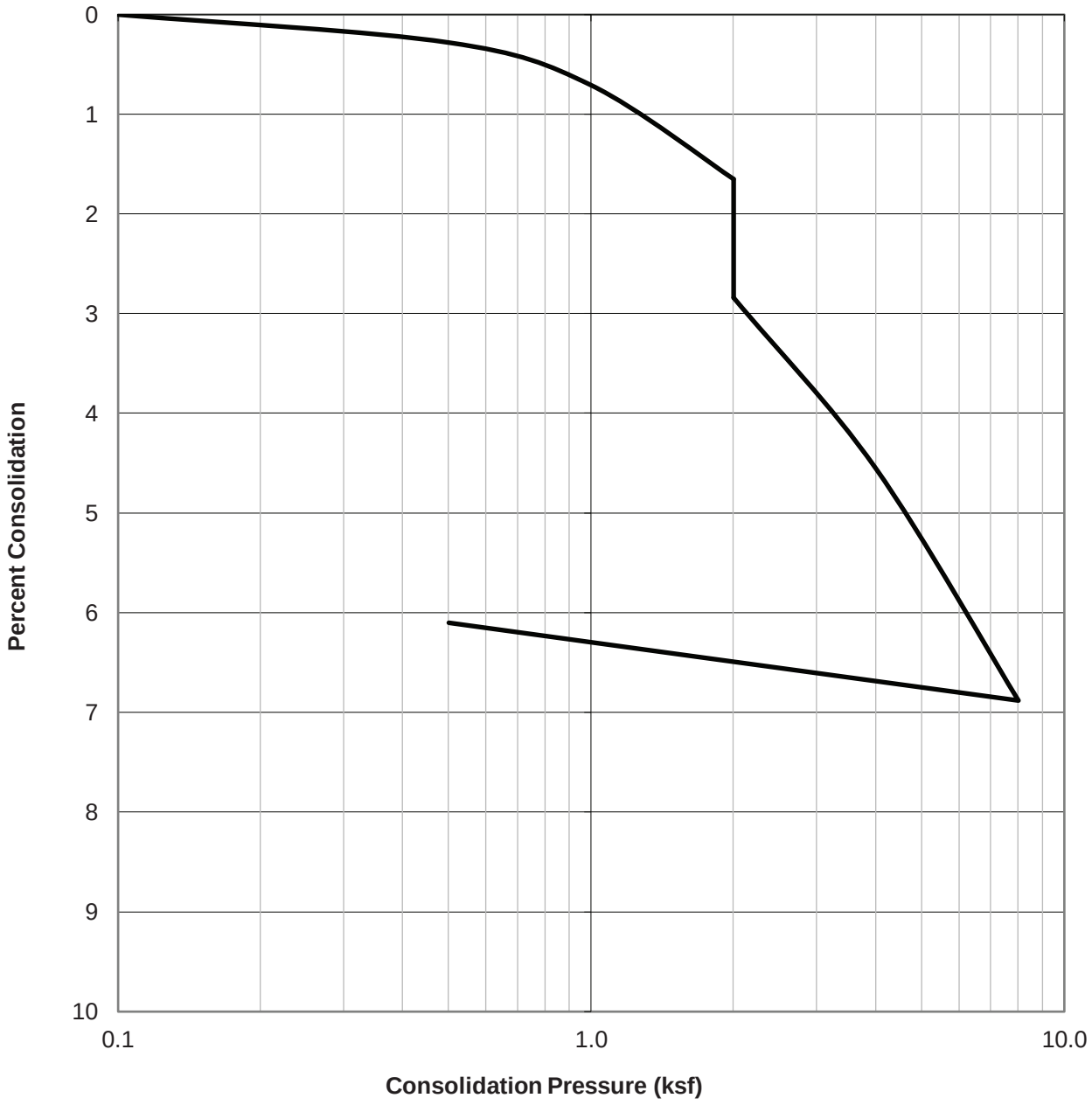
Project No.: W1547-06-01

CHAMINADE HIGH SCHOOL
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Figure B9

WATER ADDED AT 2.0 KSF



SAMPLE ID.	SOIL TYPE	DRY DENSITY (PCF)	INITIAL MOISTURE (%)	FINAL MOISTURE (%)
B1@2.5	Sandy Silt (ML)	105.0	11.2	15.2

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CONSOLIDATION TEST RESULTS

ASTM D-2435

Checked by: JMH

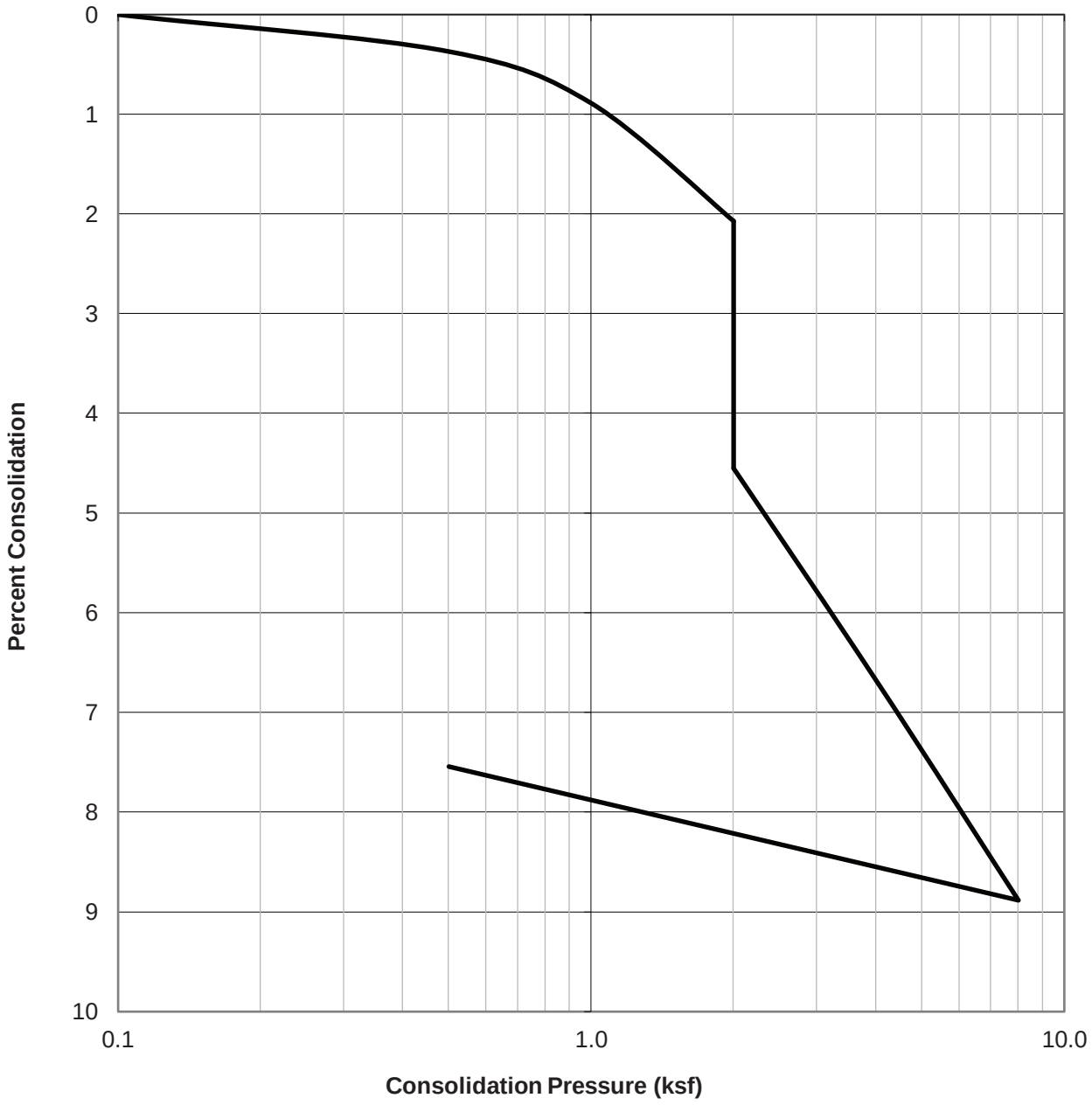
Project No.: W1547-06-01

CHAMINADE HIGH SCHOOL
7500 CHAMINADE AVENUE
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Figure B10

WATER ADDED AT 2.0 KSF



SAMPLE ID.	SOIL TYPE	DRY DENSITY (PCF)	INITIAL MOISTURE (%)	FINAL MOISTURE (%)
B1@7.5	Silty Sand (SM)	89.9	7.9	16.3

GEOCON

CONSOLIDATION TEST RESULTS

ASTM D-2435

Checked by: JMH

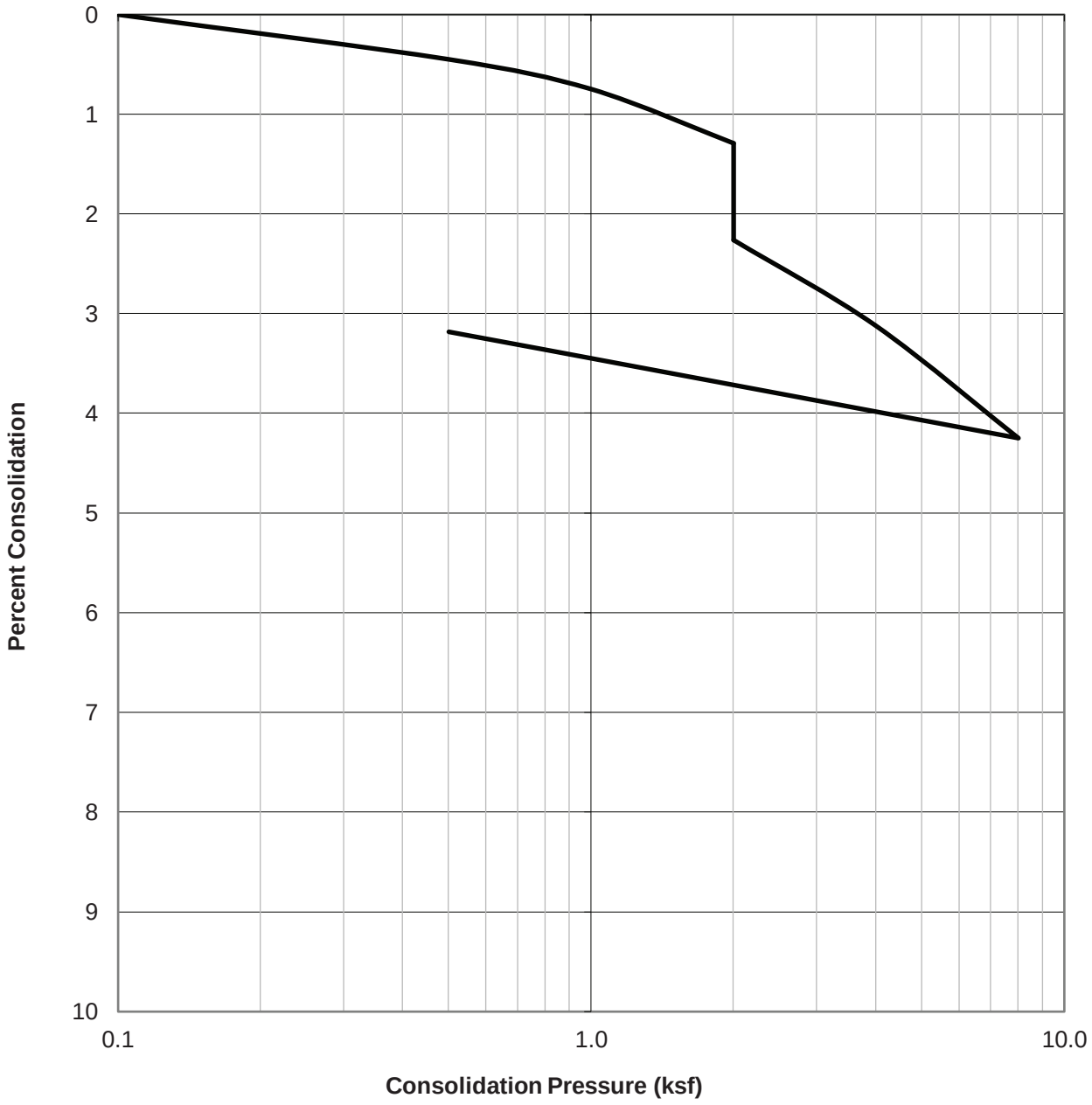
Project No.: W1547-06-01

CHAMINADE HIGH SCHOOL
7500 CHAMINADE AVENUE
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Figure B11

WATER ADDED AT 2.0 KSF



SAMPLE ID.	SOIL TYPE	DRY DENSITY (PCF)	INITIAL MOISTURE (%)	FINAL MOISTURE (%)
B1@12.5	Clay with Sand (CL)	104.5	13.7	17.9

GEOCON

CONSOLIDATION TEST RESULTS

ASTM D-2435

Checked by: JMH

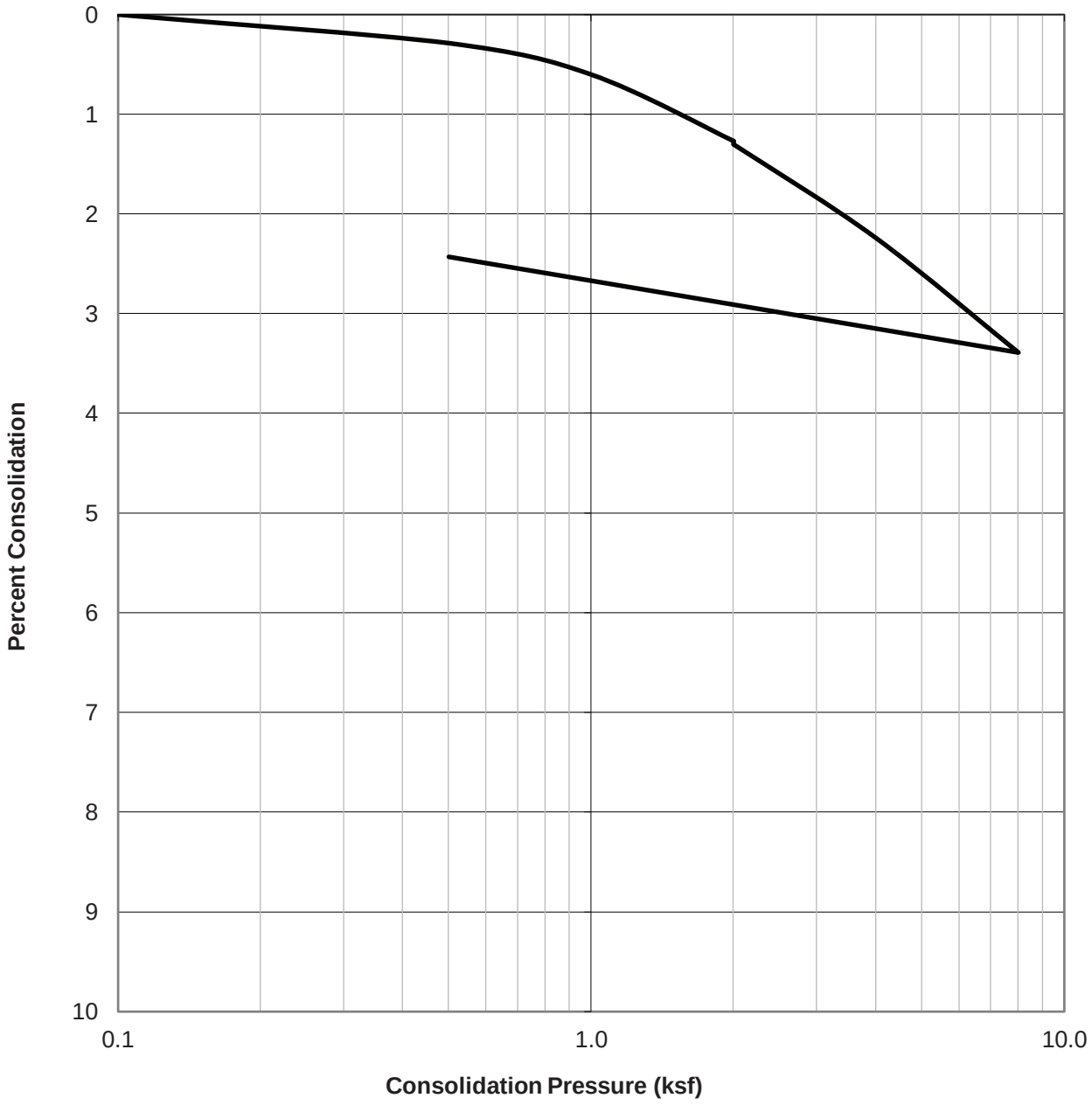
Project No.: W1547-06-01

CHAMINADE HIGH SCHOOL
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Figure B12

WATER ADDED AT 2.0 KSF



SAMPLE ID.	SOIL TYPE	DRY DENSITY (PCF)	INITIAL MOISTURE (%)	FINAL MOISTURE (%)
B1@22.5	Sandy Silt (ML)	111.5	16.7	17.2

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CONSOLIDATION TEST RESULTS

ASTM D-2435

Checked by: JMH

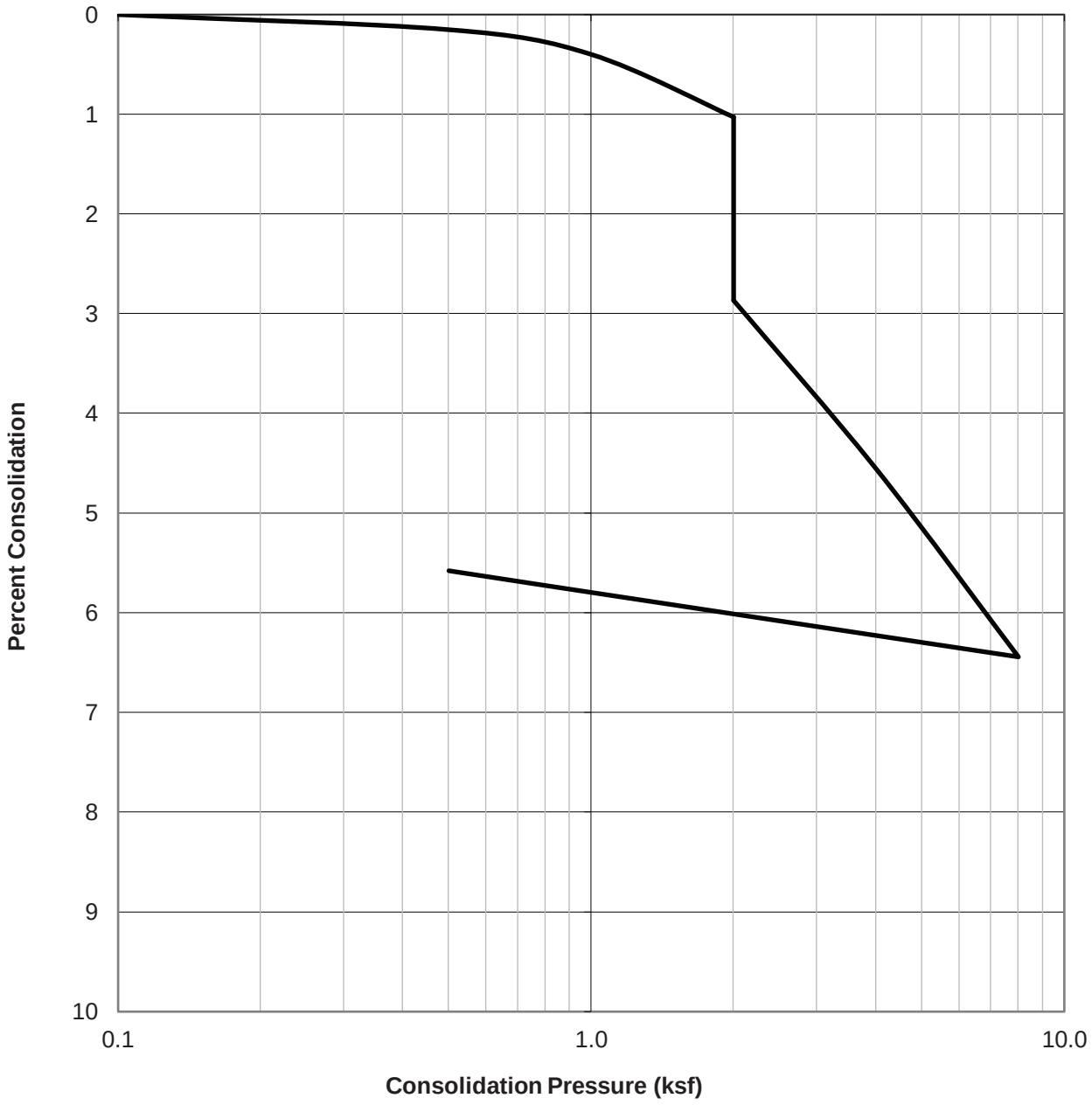
Project No.: W1547-06-01

CHAMINADE HIGH SCHOOL
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Figure B13

WATER ADDED AT 2.0 KSF



SAMPLE ID.	SOIL TYPE	DRY DENSITY (PCF)	INITIAL MOISTURE (%)	FINAL MOISTURE (%)
B2@6	Silty Sand (SM)	101.0	4.9	17.2

GEOCON

CONSOLIDATION TEST RESULTS

ASTM D-2435

Checked by: JMH

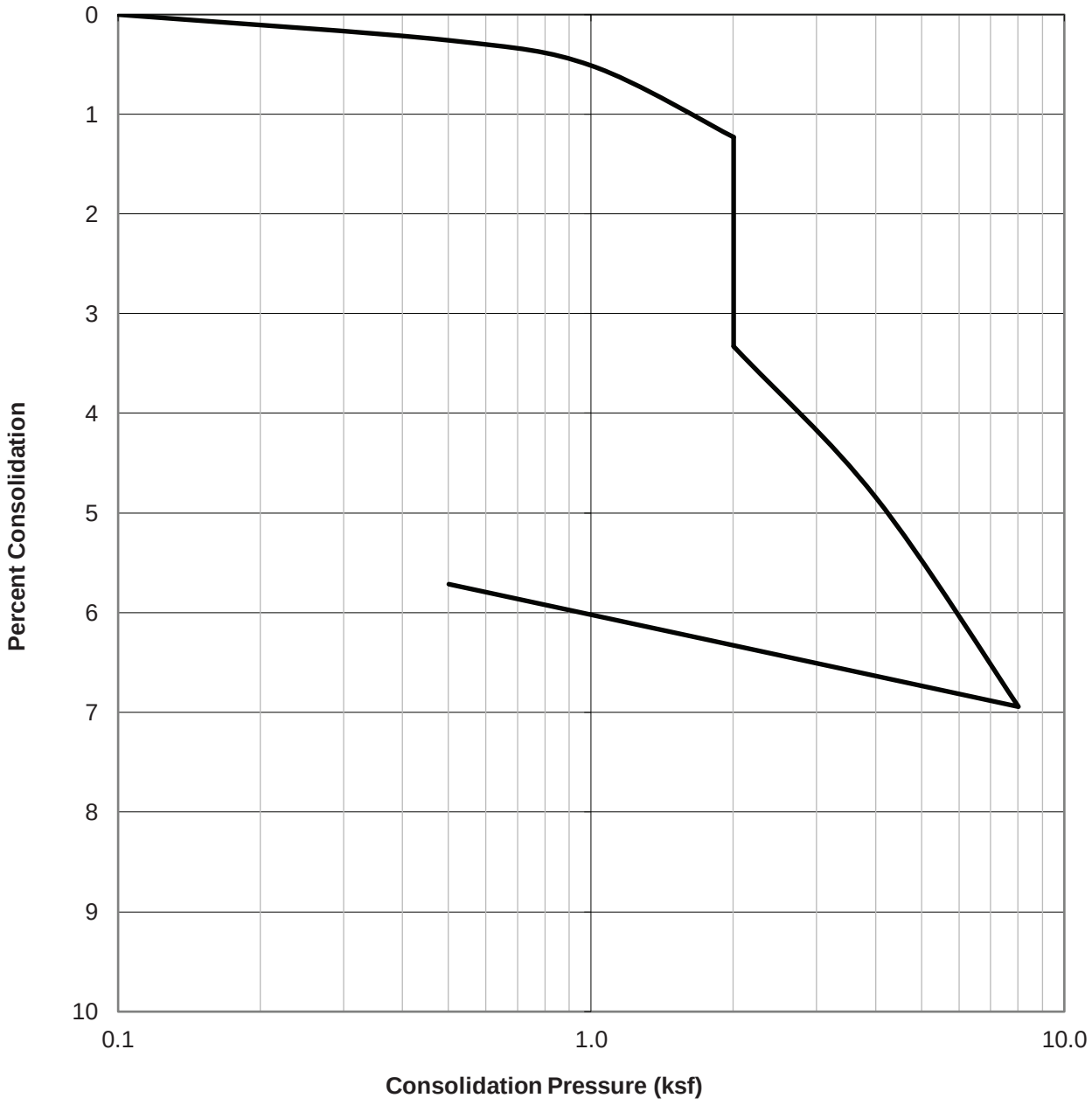
Project No.: W1547-06-01

CHAMINADE HIGH SCHOOL
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Figure B14

WATER ADDED AT 2.0 KSF



SAMPLE ID.	SOIL TYPE	DRY DENSITY (PCF)	INITIAL MOISTURE (%)	FINAL MOISTURE (%)
B2@9	Silty Sand (SM)	103.6	15.0	18.0

GEOCON

CONSOLIDATION TEST RESULTS

ASTM D-2435

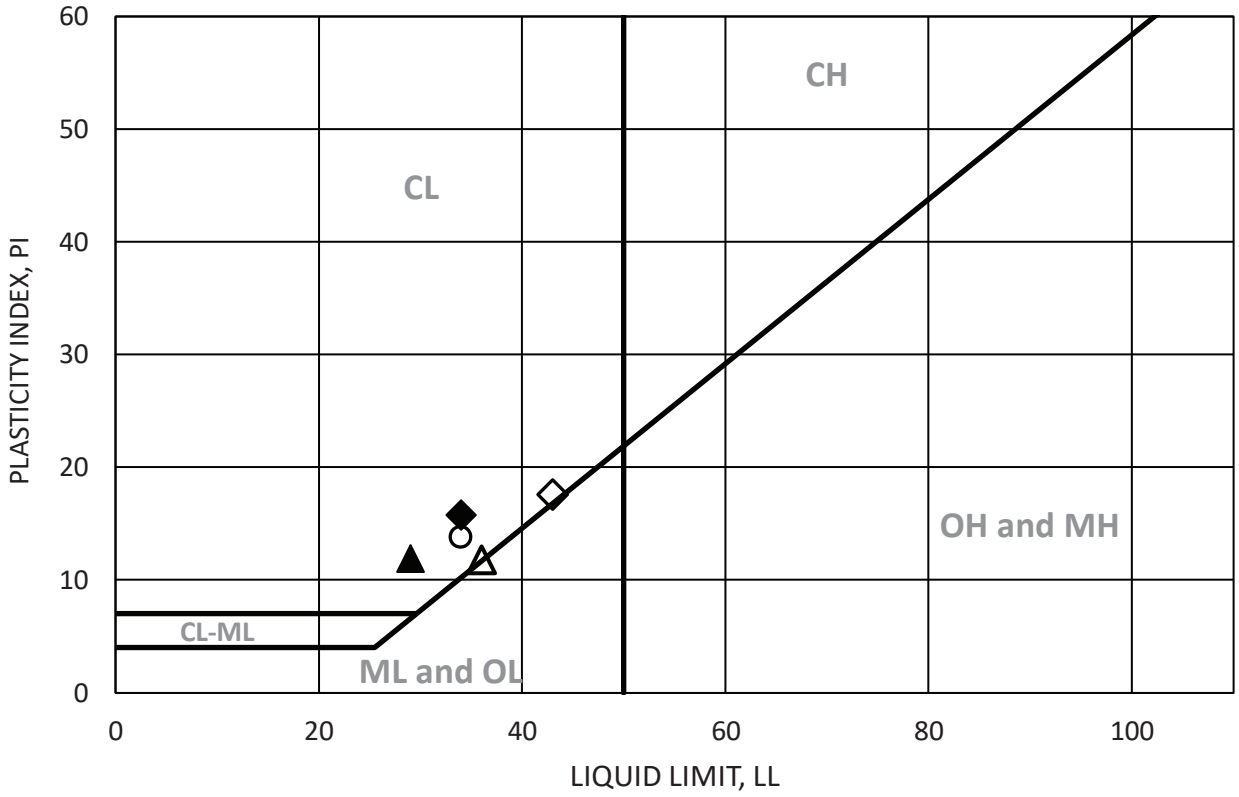
Checked by: JMH

Project No.: W1547-06-01

CHAMINADE HIGH SCHOOL
7500 CHAMINADE AVENUE
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Figure B15



SYMBOL	BORING	DEPTH (ft)	LL	PL	PI	MOISTURE CONTENT AT SATURATION	SOIL BEHAVIOR
■	B1	5'	N/P	N/P	N/P		
◆	B1	10'	34	18	16	26	CL
▲	B1	15'	29	17	12	22	CL
●	B1	20'	N/P	N/P	N/P		
□	B1	25'	N/P	N/P	N/P		
◇	B1	30'	43	25	18		CL
△	B1	35'	36	24	12	23	CL-ML
○	B1	40'	34	20	14	22	CL

N/P = Non-Plastic

GEOCON

ATTERBERG LIMITS

ASTM D-4318

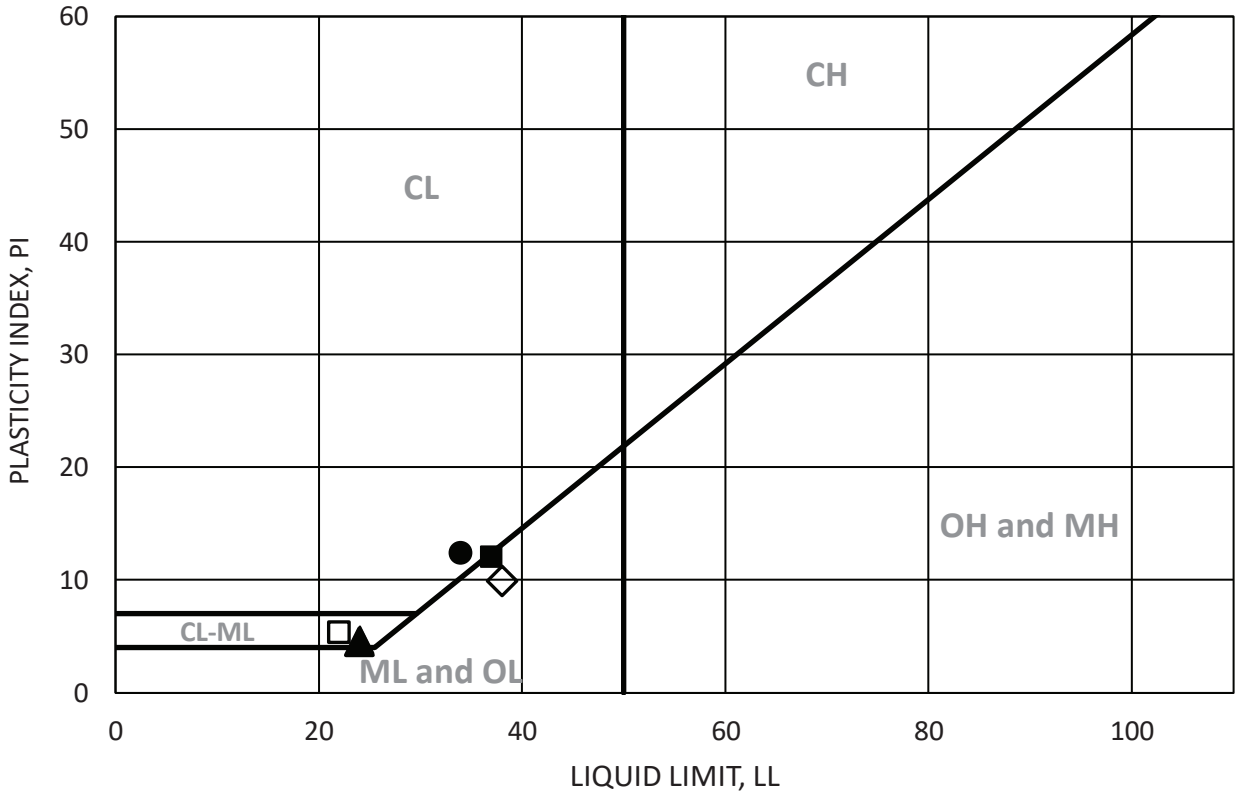
Checked by: JMH

Project No.: W1547-06-01

CHAMINADE HIGH SCHOOL
7500 CHAMINADE AVENUE
WEST HILLS CALIFORNIA

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Figure B16



SYMBOL	BORING	DEPTH (ft)	LL	PL	PI	MOISTURE CONTENT AT SATURATION	SOIL BEHAVIOR
■	B1	45'	37	25	12		ML
◆	B3	5'	N/P	N/P	N/P		
▲	B3	10'	24	19	5		ML
●							
□							
◇							
△							
○							

N/P = Non-Plastic

GEOCON

ATTERBERG LIMITS

ASTM D-4318

Checked by: JMH

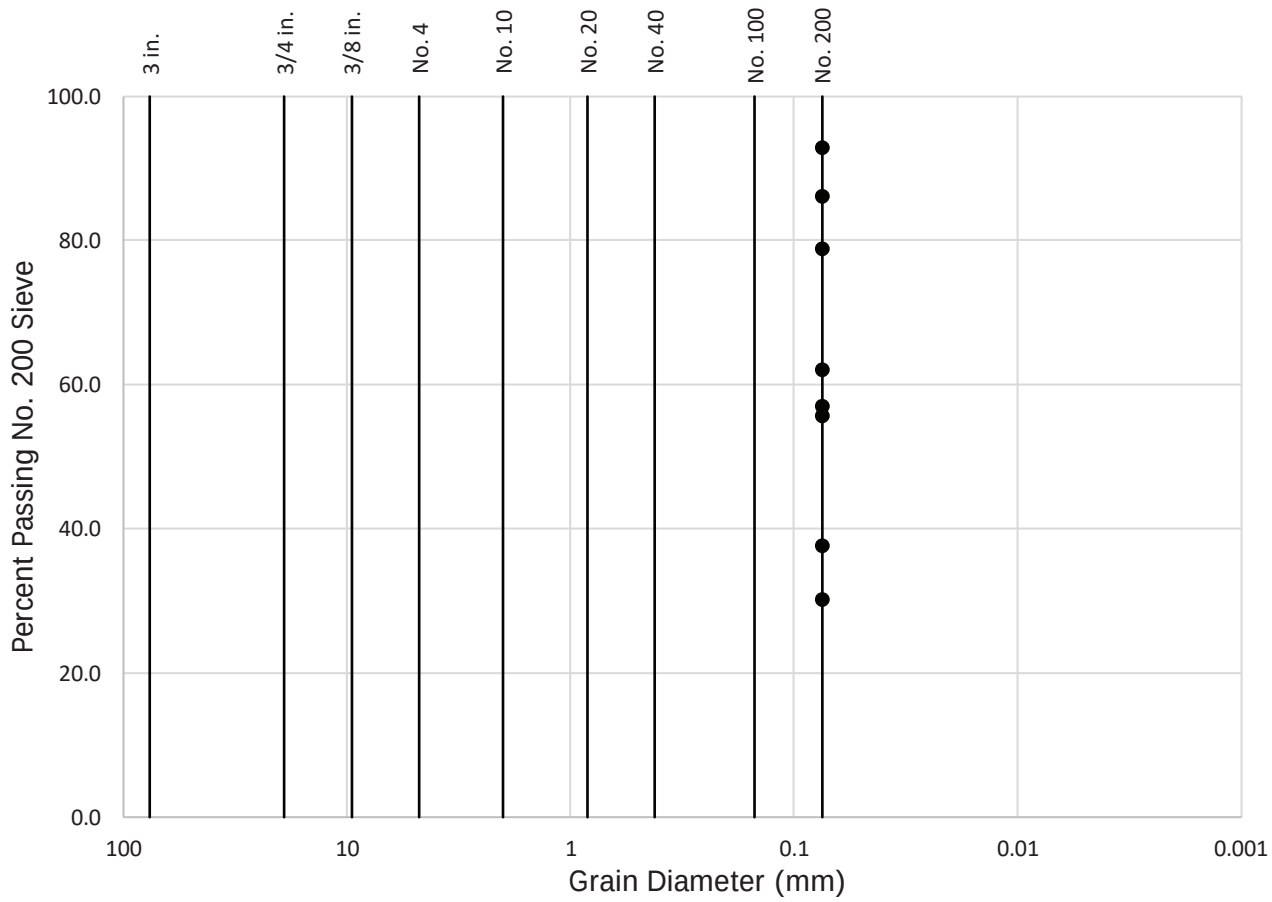
Project No.: W1547-06-01

CHAMINADE HIGH SCHOOL
7500 CHAMINADE AVENUE
WEST HILLS CALIFORNIA

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Figure B17

GRAVEL		SAND			SILT AND CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	



Sample No.	Percent Passing No. 200 Sieve
B1 @ 5'	30.2
B1 @ 10'	78.9
B1 @ 15'	55.7
B1 @ 20'	37.6
B1 @ 25'	57.0
B1 @ 30'	86.1
B1 @ 35'	92.9
B1 @ 40'	62.1

GEOCON

GRAIN SIZE ANALYSIS

ASTM D-1140

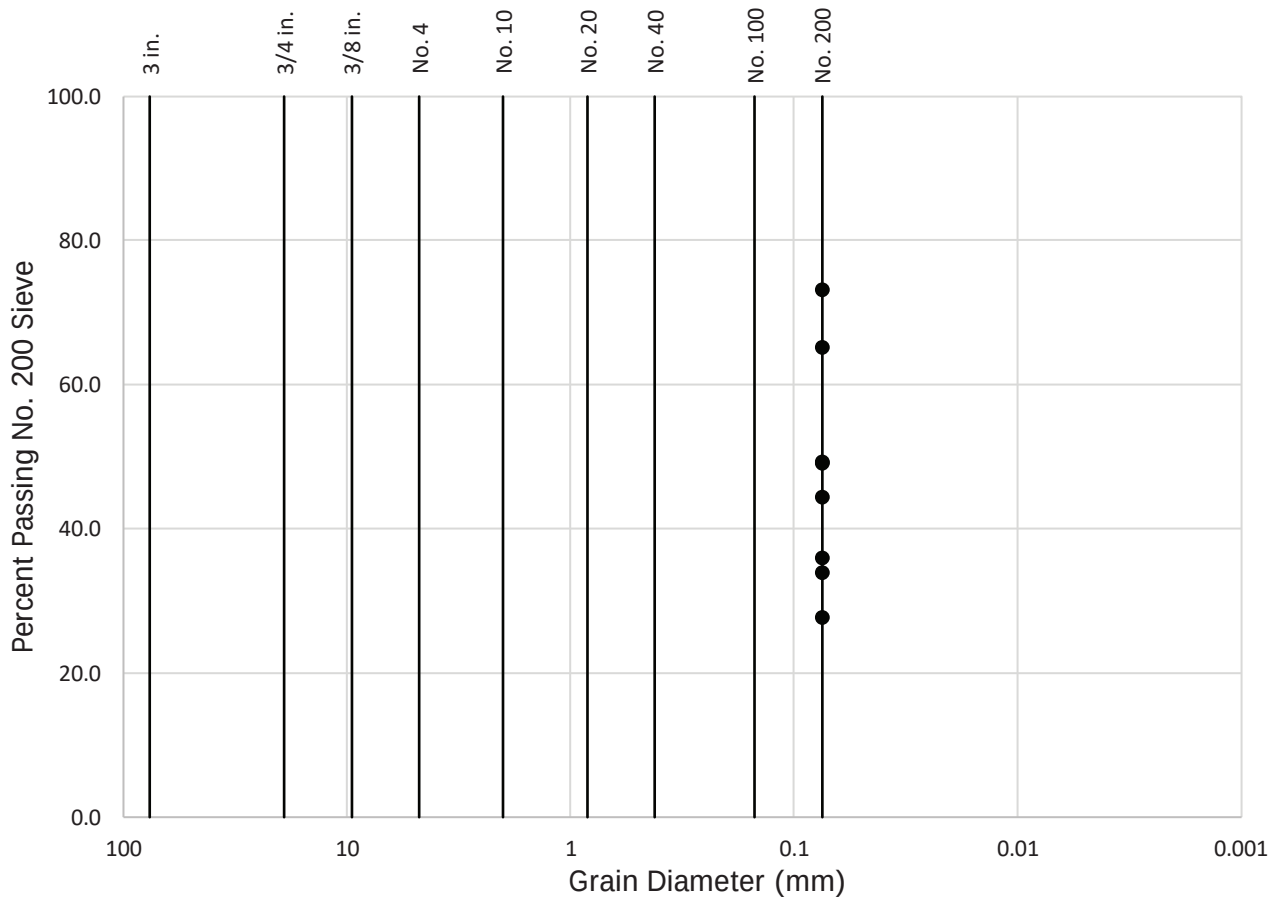
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CHAMINADE HIGH SCHOOL
7500 CHAMINADE AVENUE
WEST HILLS CALIFORNIA

JAN. 23 Figure B18

GRAVEL		SAND			SILT AND CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	



Sample No.	Percent Passing No. 200 Sieve
B1 @ 45'	73.2
B3 @ 5'	49.3
B3 @ 10'	49.1
B3 @ 15'	44.4
B3 @ 20'	33.9
B5 @ 5'	65.1
B5 @ 10'	27.7
B6 @ 14'	36.0

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GRAIN SIZE ANALYSIS

ASTM D-1140

Checked by: JMH

Project No.: W1547-06-01

CHAMINADE HIGH SCHOOL
7500 CHAMINADE AVENUE
WEST HILLS CALIFORNIA

JAN. 23 Figure B19

B4@0-5'

MOLDED SPECIMEN		BEFORE TEST	AFTER TEST
Specimen Diameter	(in.)	4.0	4.0
Specimen Height	(in.)	1.0	1.0
Wt. Comp. Soil + Mold	(gm)	782.9	801.2
Wt. of Mold	(gm)	367.6	367.6
Specific Gravity	(Assumed)	2.7	2.7
Wet Wt. of Soil + Cont.	(gm)	487.4	801.2
Dry Wt. of Soil + Cont.	(gm)	463.9	382.8
Wt. of Container	(gm)	187.4	367.6
Moisture Content	(%)	8.5	13.3
Wet Density	(pcf)	125.3	130.6
Dry Density	(pcf)	115.5	115.3
Void Ratio		0.5	0.5
Total Porosity		0.3	0.3
Pore Volume	(cc)	65.2	69.6
Degree of Saturation	(%) [S_{meas}]	50.3	73.1

Date	Time	Pressure (psi)	Elapsed Time (min)	Dial Readings (in.)
5/11/2022	10:00	1.0	0	0.3005
5/11/2022	10:10	1.0	10	0.2965
Add Distilled Water to the Specimen				
5/12/2022	10:00	1.0	1430	0.3175
5/12/2022	11:00	1.0	1490	0.3175

Expansion Index (EI meas) =	21
Expansion Index (Report) =	**21**

Expansion Index, EI_{50}	CBC CLASSIFICATION *	UBC CLASSIFICATION **
0-20	Non-Expansive	Very Low
21-50	Expansive	Low
51-90	Expansive	Medium
91-130	Expansive	High
>130	Expansive	Very High

* Reference: 2019 California Building Code, Section 1803.5.3

** Reference: 1997 Uniform Building Code, Table 18-I-B.

GEOCON

EXPANSION INDEX TEST RESULTS

ASTM D-4829

Checked by: JMH

Project No.: W1547-06-01

CHAMINADE HIGH SCHOOL
7500 CHAMINADE AVENUE
WEST HILLS CALIFORNIA

JAN. 23 Figure B20

B1@0-5'

MOLDED SPECIMEN		BEFORE TEST	AFTER TEST
Specimen Diameter	(in.)	4.0	4.0
Specimen Height	(in.)	1.0	1.1
Wt. Comp. Soil + Mold	(gm)	726.3	759.8
Wt. of Mold	(gm)	367.8	367.8
Specific Gravity	(Assumed)	2.7	2.7
Wet Wt. of Soil + Cont.	(gm)	487.4	759.8
Dry Wt. of Soil + Cont.	(gm)	448.3	311.7
Wt. of Container	(gm)	187.4	367.8
Moisture Content	(%)	15.0	25.7
Wet Density	(pcf)	108.1	118.1
Dry Density	(pcf)	94.0	93.9
Void Ratio		0.8	0.9
Total Porosity		0.4	0.5
Pore Volume	(cc)	91.5	103.3
Degree of Saturation	(%) [S_{meas}]	51.5	77.7

Date	Time	Pressure (psi)	Elapsed Time (min)	Dial Readings (in.)
5/11/2022	10:00	1.0	0	0.3055
5/11/2022	10:10	1.0	10	0.3045
Add Distilled Water to the Specimen				
5/12/2022	10:00	1.0	1430	0.3615
5/12/2022	11:00	1.0	1490	0.3615

Expansion Index (EI meas) =	57
Expansion Index (Report) =	**57**

Expansion Index, EI_{50}	CBC CLASSIFICATION *	UBC CLASSIFICATION **
0-20	Non-Expansive	Very Low
21-50	Expansive	Low
51-90	Expansive	Medium
91-130	Expansive	High
>130	Expansive	Very High

* Reference: 2019 California Building Code, Section 1803.5.3

** Reference: 1997 Uniform Building Code, Table 18-I-B.

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EXPANSION INDEX TEST RESULTS

ASTM D-4829

Checked by: JMH

Project No.: W1547-06-01

CHAMINADE HIGH SCHOOL
7500 CHAMINADE AVENUE
WEST HILLS CALIFORNIA

JAN. 23

Figure B21

B11@0-10'

MOLDED SPECIMEN		BEFORE TEST	AFTER TEST
Specimen Diameter	(in.)	4.0	4.0
Specimen Height	(in.)	1.0	1.1
Wt. Comp. Soil + Mold	(gm)	708.7	749.5
Wt. of Mold	(gm)	367.6	367.6
Specific Gravity	(Assumed)	2.7	2.7
Wet Wt. of Soil + Cont.	(gm)	487.4	749.5
Dry Wt. of Soil + Cont.	(gm)	442.5	290.1
Wt. of Container	(gm)	187.4	367.6
Moisture Content	(%)	17.6	31.7
Wet Density	(pcf)	102.9	115.1
Dry Density	(pcf)	87.5	87.4
Void Ratio		0.9	1.0
Total Porosity		0.5	0.5
Pore Volume	(cc)	99.6	112.5
Degree of Saturation	(%) [S_{meas}]	51.7	81.6

Date	Time	Pressure (psi)	Elapsed Time (min)	Dial Readings (in.)
5/11/2022	10:00	1.0	0	0.2935
5/11/2022	10:10	1.0	10	0.293
Add Distilled Water to the Specimen				
5/12/2022	10:00	1.0	1430	0.3555
5/12/2022	11:00	1.0	1490	0.3555

Expansion Index (EI meas) =	62.5
Expansion Index (Report) =	**63**

Expansion Index, EI_{50}	CBC CLASSIFICATION *	UBC CLASSIFICATION **
0-20	Non-Expansive	Very Low
21-50	Expansive	Low
51-90	Expansive	Medium
91-130	Expansive	High
>130	Expansive	Very High

* Reference: 2019 California Building Code, Section 1803.5.3

** Reference: 1997 Uniform Building Code, Table 18-I-B.

GEOCON

EXPANSION INDEX TEST RESULTS

ASTM D-4829

Checked by: JMH

Project No.: W1547-06-01

CHAMINADE HIGH SCHOOL
7500 CHAMINADE AVENUE
WEST HILLS CALIFORNIA

JAN. 23

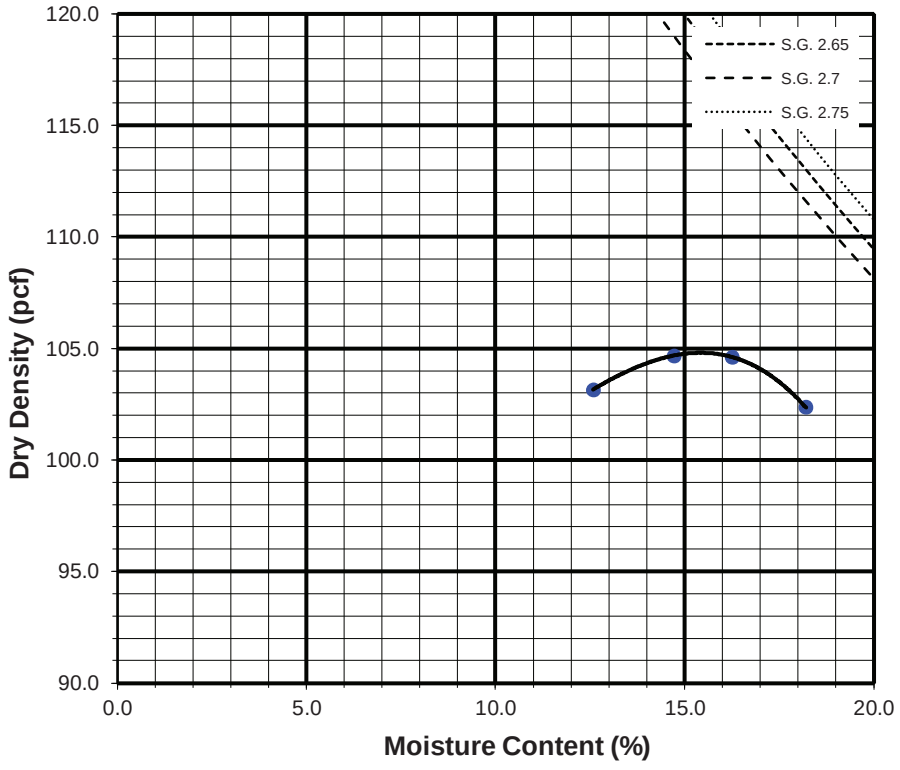
Figure B22

Sample No:

B1@0-5'	Dark Brown Sandy Silt (ML)

TEST NO.		1	2	3	4	5	6
Wt. Compacted Soil + Mold	(g)	5857	5917	5940	5930		
Weight of Mold	(g)	4103	4103	4103	4103		
Net Weight of Soil	(g)	1754	1814	1837	1828		
Wet Weight of Soil + Cont.	(g)	656.9	624.1	660.7	659.3		
Dry Weight of Soil + Cont.	(g)	597.5	561.5	587.0	580.5		
Weight of Container	(g)	125.3	136.2	133.5	147.5		
Moisture Content	(%)	12.6	14.7	16.3	18.2		
Wet Density	(pcf)	116.1	120.1	121.6	121.0		
Dry Density	(pcf)	103.2	104.7	104.6	102.4		

Maximum Dry Density (pcf)	**105.0**	**Optimum Moisture Content (%)**	**15.5**



Preparation Method: A

GEOCON

COMPACTION CHARACTERISTICS USING MODIFIED EFFORT TEST RESULTS

ASTM D-1557

Checked by: JMH

Project No.: W1547-06-01

CHAMINADE HIGH SCHOOL
7500 CHAMINADE AVENUE
WEST HILLS CALIFORNIA

JAN. 23 Figure B23

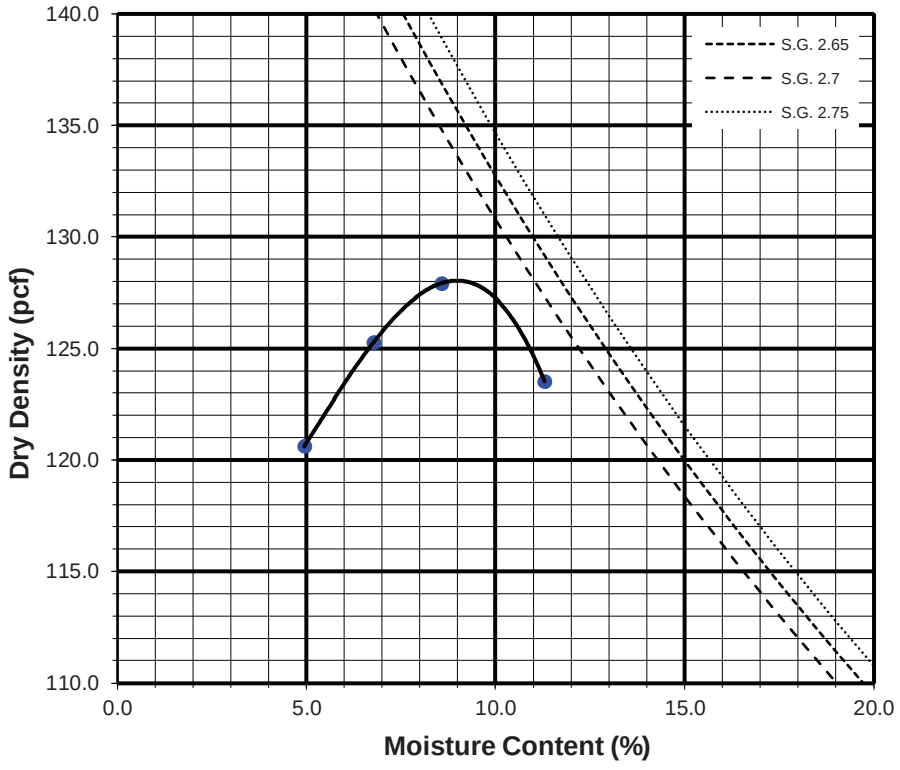
Sample No:

B4@0-3'	Dark Brown Sandy Silt with some Gravel (ML)

TEST NO.		1	2	3	4	5	6
Wt. Compacted Soil + Mold	(g)	6015	6123	6201	6179		
Weight of Mold	(g)	4103	4103	4103	4103		
Net Weight of Soil	(g)	1912	2021	2098	2077		
Wet Weight of Soil + Cont.	(g)	625.8	762.6	748.1	675.1		
Dry Weight of Soil + Cont.	(g)	602.6	723.6	699.7	621.4		
Weight of Container	(g)	133.7	148.5	135.3	145.9		
Moisture Content	(%)	4.9	6.8	8.6	11.3		
Wet Density	(pcf)	126.6	133.8	138.9	137.5		
Dry Density	(pcf)	120.6	125.3	127.9	123.5		

Maximum Dry Density (pcf)	**128.0**

Optimum Moisture Content (%)	**8.5**



Preparation Method: A

GEOCON

COMPACTION CHARACTERISTICS USING MODIFIED EFFORT TEST RESULTS

ASTM D-1557

Checked by: JMH

Project No.: W1547-06-01

CHAMINADE HIGH SCHOOL
7500 CHAMINADE AVENUE
WEST HILLS CALIFORNIA

JAN. 23 Figure B24

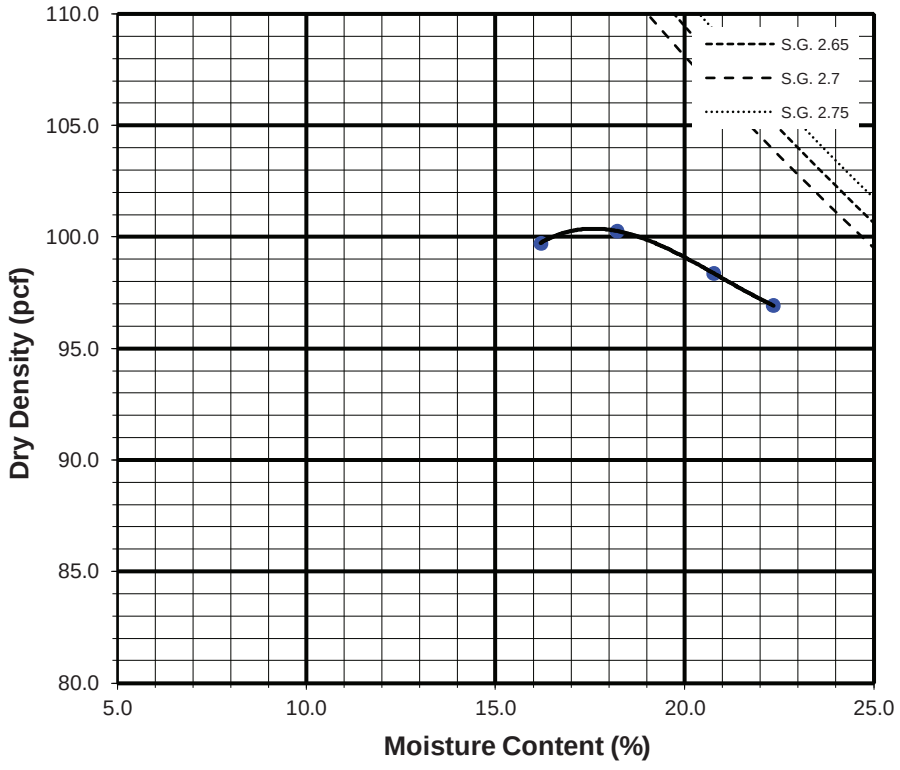
Sample No:

B11@0-10'	Sandy Silt with Siltstone (ML)

TEST NO.		1	2	3	4	5	6
Wt. Compacted Soil + Mold	(g)	5853	5893	5897	5894		
Weight of Mold	(g)	4103	4103	4103	4103		
Net Weight of Soil	(g)	1750	1790	1795	1791		
Wet Weight of Soil + Cont.	(g)	691.4	676.2	633.2	626.5		
Dry Weight of Soil + Cont.	(g)	615.6	594.8	549.6	535.0		
Weight of Container	(g)	147.3	147.8	146.8	125.4		
Moisture Content	(%)	16.2	18.2	20.8	22.3		
Wet Density	(pcf)	115.9	118.5	118.8	118.6		
Dry Density	(pcf)	99.7	100.3	98.4	96.9		

Maximum Dry Density (pcf)	**100.0**

Optimum Moisture Content (%)	**18.0**



Preparation Method: A

GEOCON

COMPACTION CHARACTERISTICS USING MODIFIED EFFORT TEST RESULTS

ASTM D-1557

Checked by: JMH

Project No.: W1547-06-01

CHAMINADE HIGH SCHOOL
7500 CHAMINADE AVENUE
WEST HILLS CALIFORNIA

JAN. 23 Figure B25

SUMMARY OF LABORATORY POTENTIAL
OF HYDROGEN (pH) AND RESISTIVITY TEST RESULTS
CALIFORNIA TEST NO. 643

Sample No.	pH	Resistivity (ohm centimeters)
B1 @ 0-5'	8.1	1500 (Corrosive)
B4 @ 0-3-	8.6	2500 (Moderately Corrosive)
B5 @ 0-5'	8.6	4000 (Moderately Corrosive)

SUMMARY OF LABORATORY CHLORIDE CONTENT TEST RESULTS
EPA NO. 325.3

Sample No.	Chloride Ion Content (%)
B1@0-5'	0.027
B4@0-3'	0.009
B5@0-5'	0.012

SUMMARY OF LABORATORY WATER SOLUBLE SULFATE TEST RESULTS
CALIFORNIA TEST NO. 417

Sample No.	Water Soluble Sulfate (% SO_4)	Sulfate Exposure*
B1@0-5'	0.000	S0
B4@0-3'	0.000	S0
B5@0-5'	0.000	S0

GEOCON

CORROSIVITY TEST RESULTS

Checked by: JMH

Project No.: W1547-06-01

CHAMINADE HIGH SCHOOL
7500 CHAMINADE AVENUE
WEST HILLS CALIFORNIA

JAN. 23 Figure B26

SUMMARY OF LABORATORY POTENTIAL
OF HYDROGEN (pH) AND RESISTIVITY TEST RESULTS
CALIFORNIA TEST NO. 643

Sample No.	pH	Resistivity (ohm centimeters)
B8 @ 0-5'	8.3	3000 (Moderately Corrosive)
B11 @ 0-10'	8.5	1600 (Corrosive)

SUMMARY OF LABORATORY CHLORIDE CONTENT TEST RESULTS
EPA NO. 325.3

Sample No.	Chloride Ion Content (%)
B8@0-5'	0.008
B11@0-10'	0.008

SUMMARY OF LABORATORY WATER SOLUBLE SULFATE TEST RESULTS
CALIFORNIA TEST NO. 417

Sample No.	Water Soluble Sulfate (% SO_4)	Sulfate Exposure*
B8@0-5'	0.000	S0
B11@0-10'	0.000	S0

GEOCON

CORROSIVITY TEST RESULTS

Checked by: JMH

Project No.: W1547-06-01

CHAMINADE HIGH SCHOOL
7500 CHAMINADE AVENUE
WEST HILLS CALIFORNIA

JAN. 23 Figure B27

APPENDIX C

APPENDIX C

PREVIOUS REPORTS

(USB Only)

Project No. W1547-06-01
Revised May 8, 2023

Chaminade College Preparatory
7500 Chaminade Avenue
West Hills, CA 91304

Attention: Mr. Chris Landon

Subject: RESPONSE TO SOILS REPORT REVIEW LETTER
PROPOSED CHAMINADE HIGH SCHOOL IMPROVEMENTS
7500 N. CHAMINADE AVENUE, 23241 W. COHASSET STREET,
23260, 23217 & 23229-23255 W. SATICOY STREET,
7619-7621 & 7625-7629 N. WOODLAKE AVENUE
WEST HILLS NEIGHBORHOOD OF LOS ANGELES, CALIFORNIA
TRACT: 2607; LOT: LT1;
TRACT: 2500; LOT: 19 & 35;
TRACT: 25733; LOT: LT1 (ARBS 2,3, & 4)

References: *Geotechnical Investigation,* prepared by Geocon West, Inc., dated January 12, 2023;

City of Los Angeles Geology and Soils Report Review Letter, Log No. 124921, dated February 24, 2023.

Dear Mr. Landon:

This letter has been prepared in response to the referenced Geology and Soils Report Review Letter prepared by the City of Los Angeles, consisting of ten comments, dated February 24, 2023. A copy of the review letter is appended herein.

Based on discussions with the client and review of the conceptual project plans, the project scope has been revised and no longer includes the Main Campus gymnasium nor the North Campus parking structure. A revised project description is included below.

It is our understanding that the proposed improvements will include :

- Constructing a pedestrian bridge over Saticoy Street connecting the Main and North Campus
- North Campus:
    - Demolish the existing commercial structures and remove the existing paving.
    - Construct a new outdoor pool and pool house.
    - Construct new sports fields with associated ancillary structures.
    - Construct an on-grade parking lot.

- Main Campus:
    - Demolish 6 of the existing administrative and classroom structures.
    - Construct a new 3-Story Main administrative/classroom structure.
    - Repave and remodel existing surface parking areas and outdoor quad.

The locations of the proposed improvements are shown on the updated site plan (see Figure 1). The recommendations of the January 12, 2023, report remain applicable to the project as presently proposed. Where differing, recommendations in this response letter supersede those presented in the referenced report and should be utilized for design and construction.

Comment 1: *Verify the current legal description and addresses (for all lots part of the project site) with the Address Section of the Bureau of Engineering located on the Third Floor of the 201 N. Figueroa Street, City of Los Angeles offices.*

Response 1: Acknowledged. A part of the North Campus address was not included in the project description. Revised legal addresses of the Main Campus and North Campus are provided below.

Main Campus: 7500 N. Chaminade Ave, 23241 W. Cohasset Street and 23260 W. Saticoy Street
TRACT: 26072; LOT: FR LT 1
TRACT: 2500; LOT: FR 19 & FR 35

North Campus: 23217 & 23229-23255 W. Saticoy Street, 7619-7621 & 7625-7629 N. Woodlake Avenue
TRACT: 25773; LOT: LT 1
ARB: 2, 3, 4

Comment 2: *Provide a geologic map that is based upon conceptual grading or site development plans, to illustrate all proposed and existing contours relative to the planned grading and/or construction, along with all off-site slopes and conditions that could adversely affect the stability or safety of the site (7006.3.2).*

Response 2: A Geologic Map of the Main and North Campus is provided on Figures 2A and 2B, respectively. Artificial fill is the surface material at the site and is underlain by either Holocene age alluvium or Tertiary age bedrock of the Monterey Formation. The geologic units are designated as artificial fill over alluvium (af/Qa) or artificial fill over shallow Monterey Formation (af/Tm).

Comment 3: *Show the location and height of all proposed retaining walls.*

Response 3: The Geologic Maps use the conceptual site grading plans as a background which indicate the proposed retaining wall locations and heights. The only proposed retaining wall will be the basement walls of the proposed Administration/Classroom Building where the northwest (southeast-facing excavation) may expose unsupported bedding in the lower 5 feet of the building excavation (see Figure 2). Temporary shoring and retaining wall recommendations to support adverse bedding conditions are provided in the January 12, 2023 report.

Comment 4: *Verify the location of the borings on the maps and cross sections, and revise accordingly.*

Response 4: Boring Locations have been reviewed and are correctly located on the Geologic maps and cross sections (see Figures 2A, 2B and 3).

Comment 5: *Provide slope stability analyses for all slopes steeper than 2H:1V to remain by the proposed improvements, such as the proposed bridge and administration building.*

Response 5: Based on correspondence with the project civil engineer and review of the conceptual grading plan, no slopes steeper than a 2H:1V are planned or will remain.

Comment 6: *In areas where the depth of bedrock exceeds 10 feet, submit justification in accordance with ASCE/SEI 7-16 (Chapter 20) and code section 1613.2.2 of the 2020 Los Angeles Building Code for the use of a Site Class C. Otherwise, the Site Class shall be D in those areas, and updated seismic design parameters shall be provided.*

<u>Note</u>: The use of the Site Class C in the report does not appear justified due to the presence of up to 40 feet of fill and alluvium (North Campus), lack of shear wave velocities, SPT blow counts, or undrained shear strengths of the upper 100 fee of the site profile.

Response 6: Acknowledged. Site Class C seismic design criteria provided in the report may be used for the proposed Main Campus structure. Design of the North Campus structures should use the Site Class D design criteria provided below.

The following table summarizes the site-specific design criteria obtained from the 2022 California Building Code (CBC; Based on the 2021 International Building Code [IBC] and ASCE 7-16), Chapter 16 Structural Design, Section 1613 Earthquake Loads. The data was calculated using the online application *U.S. Seismic Design Maps*, provided by the Structural Engineers Association of California (SEAOC). The short spectral response uses a period of 0.2 second. We evaluated the Site Class based on the discussion in Section 1613.2.2 of the 2022 CBC and Table 20.3-1 of ASCE 7-16. The values presented below are for the risk-targeted maximum considered earthquake (MCE_R).

2022 CBC SEISMIC DESIGN PARAMETERS

Parameter	Value	2019 CBC Reference
Site Class	D	Section 1613.2.2
MCE_R Ground Motion Spectral Response Acceleration – Class B (short), S_S	1.5g	Figure 1613.2.1(1)
MCE_R Ground Motion Spectral Response Acceleration – Class B (1 sec), S_1	0.6g	Figure 1613.2.1(3)
Site Coefficient, F_A	1.0	Table 1613.2.3(1)
Site Coefficient, F_V	1.7	Table 1613.2.3(2)
Site Class Modified MCE_R Spectral Response Acceleration (short), S_{MS}	1.5g	Section 1613.2.3 (Eqn 16-20)
Site Class Modified MCE_R Spectral Response Acceleration – (1 sec), S_{M1}	1.02g*	Section 1613.2.3 (Eqn 16-21)
5% Damped Design Spectral Response Acceleration (short), S_{DS}	1.0g	Section 1613.2.4 (Eqn 16-22)
5% Damped Design Spectral Response Acceleration (1 sec), S_{D1}	0.68g*	Section 1613.2.4 (Eqn 16-23)
*Per Supplement 3 of ASCE 7-16, a ground motion hazard analysis (GMHA) shall be performed for projects on Site Class "D" sites with 1-second spectral acceleration (S_1) greater than or equal to 0.2g, which is true for this site. However, Supplement 3 of ASCE 7-16 provides an exception stating that that the GMHA may be waived provided that the parameter S_{M1} is increased by 50% for all applications of S_{M1}. The values for parameters S_{M1} and S_{D1} presented above have **not** been increased in accordance with Supplement 3 of ASCE 7-16.		

The table below presents the mapped maximum considered geometric mean (MCE_G) seismic design parameters for projects located in Seismic Design Categories of D through F in accordance with ASCE 7-16.

ASCE 7-16 PEAK GROUND ACCELERATION (NORTH CAMPUS - SITE CLASS D)

Parameter	Value	ASCE 7-16 Reference
Mapped MCE_G Peak Ground Acceleration, PGA	0.544g	Figure 22-9
Site Coefficient, F_{PGA}	1.1	Table 11.8-1
Site Class Modified MCE_G Peak Ground Acceleration, PGA_M	0.598g	Section 11.8.3 (Eqn 11.8-1)

Comment 7: *Historic High Groundwater is mapped as less than 10 feet bgs in the areas of the pool house, pool, and generally in the areas outside of the proposed administration building. As such, revise the liquefaction analyses using a historic high groundwater level of less than 10 feet.*

Response 7: We agree that the historic high groundwater level is mapped as less than 10 feet in areas outside of the proposed administration building (CDMG, 1997; revised 2001).

To determine the appropriate historic high groundwater level depth for the liquefaction analysis, we reviewed available groundwater monitoring well data from the County of Los Angeles Department of Public Works. There are two active and five inactive groundwater monitoring wells within one mile of the site that provide groundwater level data for the time period between 1956 and 2022. Based on the monitoring data, the shallowest depth to groundwater documented in these wells was at a depth of 8.9 feet below the ground surface for the period between 1956 and 2022.

The North Campus is underlain by artificial fill, potentially liquefiable alluvium, further underlain by Monterey Formation bedrock. The depth of the bedrock ranges from 12 feet on the west portion of the property, to 42 feet on the east side of the property. It is anticipated that the proposed bridge and Main Campus structures can be founded on relatively shallow bedrock using deepened foundations extending through the potentially liquefiable materials. Since structures will be supported on bedrock, it is our opinion that the potential for liquefaction and associated ground deformations to impact the bridge and Main Campus structures is considered very low.

A revised liquefaction analysis for the North Campus structures has been performed using Site Class D seismic design criteria and a revised historic high groundwater level. The liquefaction analysis was performed for boring B1 to represent the worst-case liquefaction potential, and boring B3 to represent the lowest liquefaction potential for the North Campus.

The liquefaction analysis was performed for a Design Earthquake level by using a high groundwater table of 8 feet below the ground surface, a magnitude 6.58 earthquake, and a peak horizontal acceleration of 0.399g ($\frac{2}{3}PGA_M$). The groundwater level of 8 feet is considered conservative considering the shallowest groundwater level in nearby wells is 8.9 feet over the last 66 years. The enclosed liquefaction analyses included herein for borings B1 and B3 indicate that the alluvial soils below the proposed foundation level would be prone to approximately 2.9 and 0.4 inches of liquefaction settlement during a Design Earthquake ground motion (see enclosed calculation sheets, Figures 4 through 7). The resulting differential settlement at the foundation level is anticipated to be approximately 1½ inches over a distance of 20 feet.

It is our understanding that the intent of the Building Code is to maintain “Life Safety” during Maximum Considered Earthquake level events. Therefore, additional analysis was performed to evaluate the potential for liquefaction during a MCE event. The structural engineer should evaluate the proposed structure for the anticipated MCE liquefaction induced settlements and verify that anticipated deformations would not cause the foundation system to lose the ability to support the gravity loads and/or cause collapse of the structure.

The liquefaction analysis was also performed for Maximum Considered Earthquake levels by using a historic high groundwater table of 8 feet below the ground surface, a magnitude 6.66 earthquake, and a peak horizontal acceleration of 0.598g (PGA_M). The enclosed liquefaction analysis, included herein for borings B1 and B3 indicates that the alluvial soils below the proposed foundation would be prone to approximately 3.1 and 0.4 inches of liquefaction settlement during a Maximum Considered Earthquake ground motion (see enclosed calculation sheets, Figures 8 and 11). The resulting differential settlement at the foundation level is anticipated to be approximately 1½ inches over a distance of 20 feet.

Comment 8: *For other than the Pool House, provide foundation recommendations for the proposed structures within the "North Campus" as shown on FIG. 2A, and for any proposed structures within the southern portion of the "Main Campus" (see FIG. 2A). Note: The foundation recommendations shall comply with the settlement thresholds for liquefaction based on P/BC 2020-151.*

Response 8: A summary of the proposed structures, recommended foundation system and recommended bearing materials is provided in the table below. Revised recommendations for the North Campus structures based on the results of the revised liquefaction analysis are also provided below.

Campus Location	Structure Name	Recommended Foundation Type	Recommended Slab	Recommended Bearing Material
Main Campus	New Administration/Classroom Building	Conventional Spread Foundations[1]	Conventional Slab-on-Grade	Bedrock
North/Main Campus	Pedestrian Bridge	Deepened Foundations (Piles)[2]	NA	Bedrock
North Campus	Pool House	Mat Foundation[3]	Mat Foundation[3]	Engineered Fill
North Campus	Miscellaneous accessory structures (Locker rooms, concessions stand, etc.)	Mat Foundation[3]	Mat Foundation[3]	Engineered Fill

1. See Section 8.7 and 8.9 of January 12, 2023 report for Conventional Foundation Recommendations
2. See Sections 8.10 through 8.12 of January 12, 2023 report for Deepened Foundations Recommendations
3. See below for Mat Foundation Recommendations

At a minimum, it is recommended that the upper 5 feet of existing earth materials within the proposed structures footprint be excavated and properly compacted for support of a reinforced concrete mat foundation system. Deeper excavations should be conducted as necessary to remove any existing deeper artificial fill or soft alluvial soil at the direction of the Geotechnical Engineer (a representative of Geocon). The excavation should extend laterally a minimum distance of 3 feet beyond the building footprint area, including building appurtenances, or a distance equal to the depth of fill below the foundation, whichever is greater. The limits of existing fill and/or soft alluvial soils removal will be verified by the Geocon representative during site grading activities.

Prior to placement of new engineered fill, all building pad excavation bottoms shall be proof rolled with heavy equipment in the presence of the Geotechnical Engineer.

Once the recommended grading has been completed, the proposed North Campus structures may be supported by a reinforced mat foundation system deriving support in newly placed engineered fill. The mat foundation system allows for more efficient construction and is better at distributing loads to minimize the effect of potential settlement.

The recommended allowable bearing pressure is 3,000 pounds per square foot (psf). The allowable bearing pressure may be increased by up to one-third for transient loads due to wind or seismic forces.

It is recommended that a modulus of subgrade reaction of 100 pounds per cubic inch (pci) be utilized for the design of the mat foundation bearing in the engineered fill. The modulus should be reduced in accordance with the following equation when used with larger foundations:

$$K_R = K\left[\frac{B+1}{2B}\right]^2$$

where: K_R = reduced subgrade modulus
K = unit subgrade modulus
B = foundation width (in feet)

The thickness of and reinforcement for the mat foundation should be designed by the project structural engineer.

For seismic design purposes, a coefficient of friction of 0.40 may be utilized between the concrete mat and bedrock without a moisture barrier, and 0.15 for slabs underlain by a moisture barrier.

Foundation excavations should be observed and approved in writing by the Geotechnical Engineer (a representative of Geocon West, Inc.), prior to the placement of reinforcing steel and concrete to verify that the exposed soil conditions are consistent with those anticipated. If unanticipated soil conditions are encountered, foundation modifications may be required.

This office should be provided a copy of the final construction plans so that the recommendations presented herein could be properly reviewed and revised if necessary.

The maximum static settlement for a reinforced mat foundation system deriving support in the newly placed engineered fill with a maximum allowable bearing value of 3,000 psf is expected to be less than 1 inch and occur below the heaviest loaded structural element. Static differential settlement over a distance of 20 feet, is expected to be less than ½ inch. Based on seismic considerations, the proposed North Campus structures should be designed for a combined static and seismically induced differential settlement of 2 inches over a distance of 20 feet.

Comment 9: *Provide recommendations for the proposed swimming pool.*

Response 9: Acknowledged. Swimming pool recommendations are provided below.

The proposed North Campus swimming pool should be designed as a free-standing structure deriving support in newly placed engineered fill and/or competent alluvial soils found at or below a depth of 5 feet. If the alluvial soils exposed in the excavation bottom are soft or loose, compaction of the soils will be required prior to placing steel or concrete. Compaction of the excavation bottom is typically accomplished with a compaction wheel or mechanical whacker and must be observed and approved by a Geocon representative. Swimming pool foundations and walls may be designed in accordance with the Mat Foundation Design and Retaining Wall Design sections of the referenced January 12, 2023 report.

The proposed pool should be constructed utilizing an expansive soils design, and a hydrostatic relief valve should be considered as part of the swimming pool design unless a gravity drain system can be placed beneath the pool shell.

Comment 10: *Revise the recommendations in the report based on the above items.*

Response 10: Acknowledged. Revised recommendations have been provided in response to the comments above.

If you have any questions regarding this letter, or if we may be of further service, please contact the undersigned.

Very truly yours,

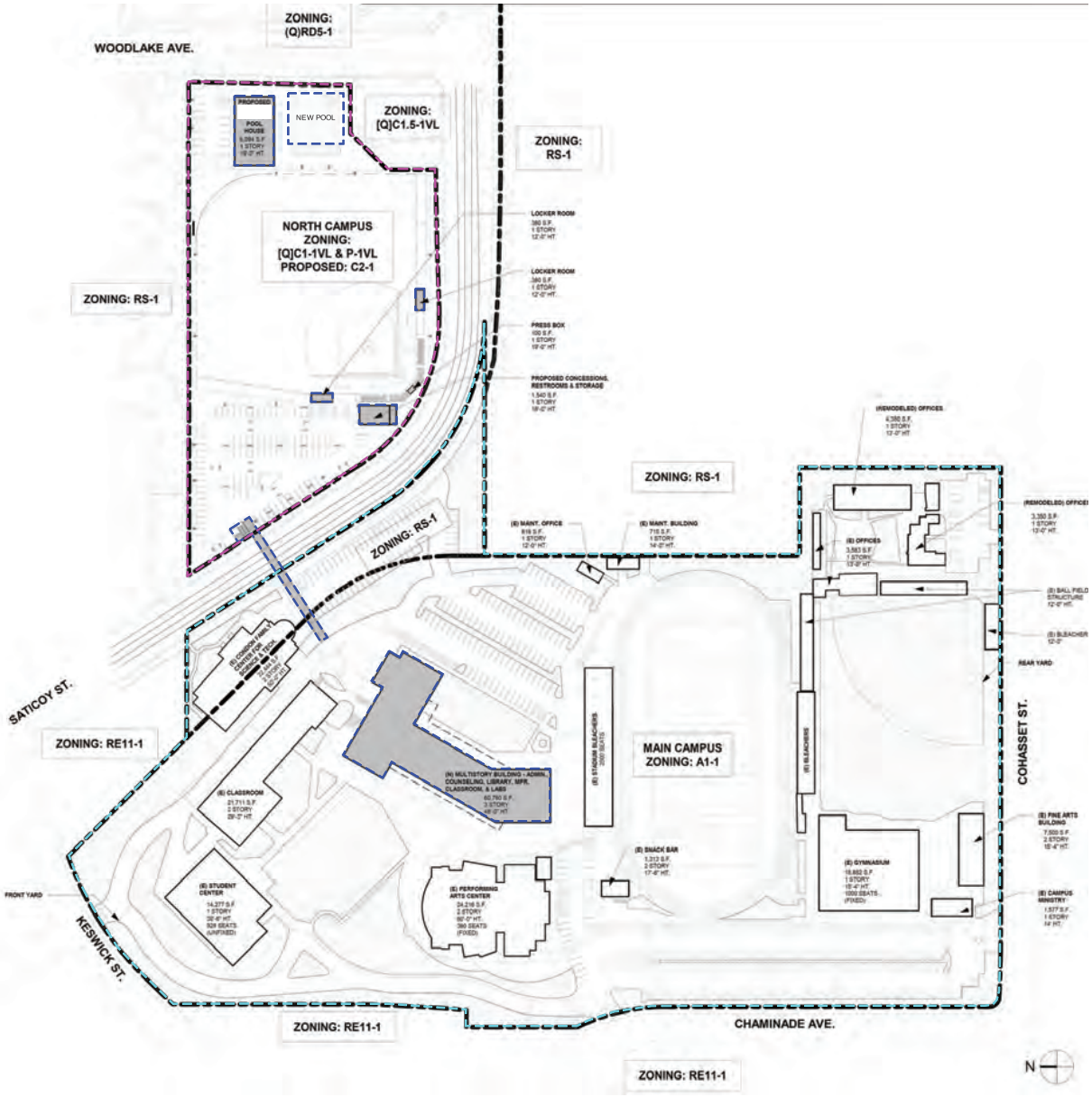
GEOCON WEST, INC.



Joe Hicks, M.S.	Neal D. Berliner	Susan F. Kirkgard
PE 93183	GE 2576	CEG 1754

Enclosures: Figure 1, Site Plan
Figures 2A and 2B, Geologic Maps
Figure 3, Geologic Section
Figures 4 through 7, Liquefaction Analysis (DE Ground Motion)
Figures 8 through 11, Liquefaction Analysis (MCE Ground Motion)

Copy of Soils Report Correction Letter



LEGEND

- Limits of Main Campus
- Limits of North Campus Addition
- Location of Proposed Structure

N

0 80' 160'

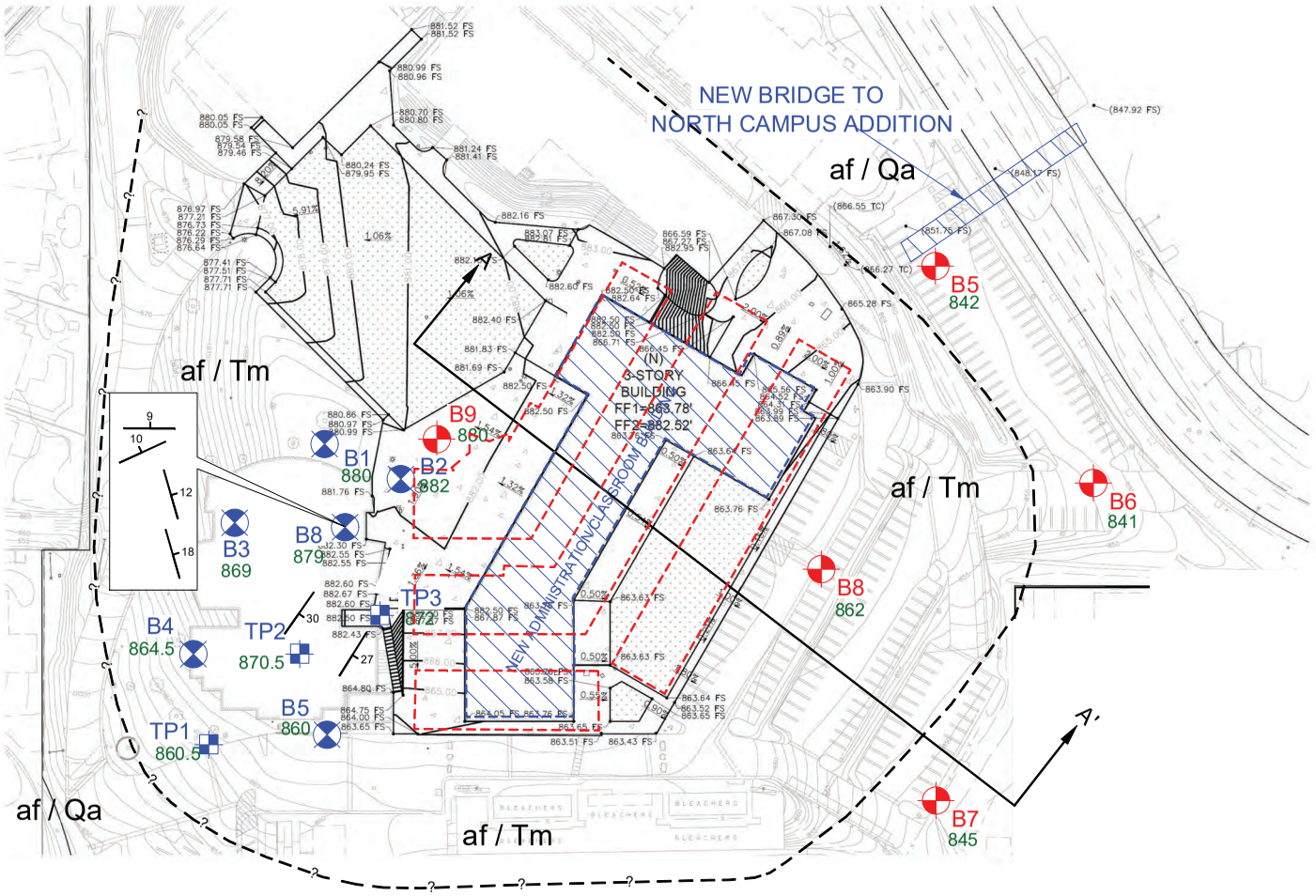
GEOCON WEST, INC.
ENVIRONMENTAL GEOTECHNICAL MATERIALS
3303 N. SAN FERNANDO BLVD - SUITE 100 - BURBANK, CA 91504
PHONE (818) 841-8388 - FAX (818) 845-1784

DRAFTED BY: CB | CHECKED BY: SFK

SITE PLAN (OVERALL)

CHAMINADE HIGH SCHOOL
7500 CHAMINADE AVENUE
WEST HILLS, CALIFORNIA

APR. 2023 | PROJECT NO. W1547-06-01 | FIGURE 1



LEGEND

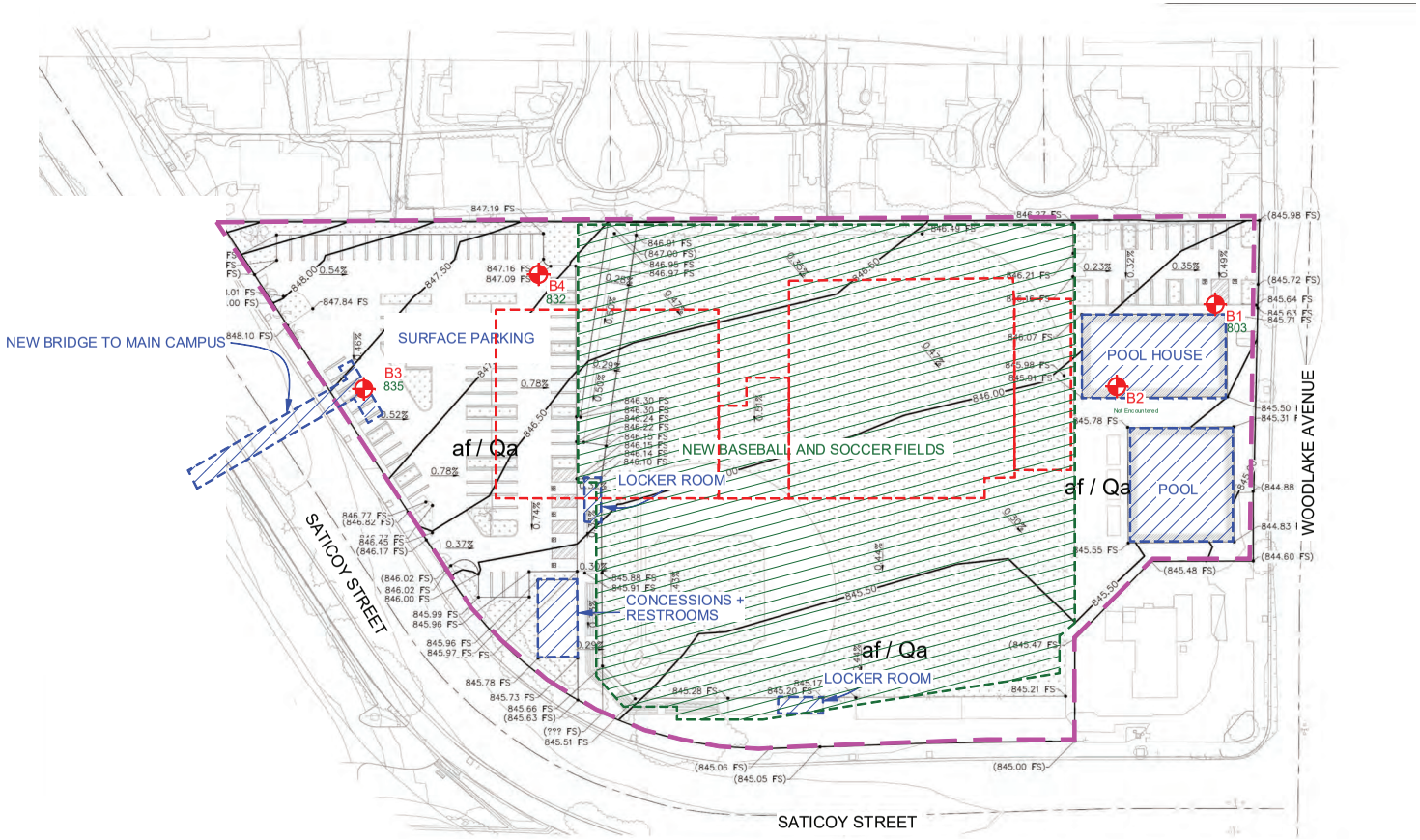
- B9 — Approximate Location of Boring (Geocon, 2022)
- B8 — Approximate Location of Boring (Geotechnologies, 2009)
- TP3 — Approximate Location of Test Pit (Geotechnologies, 2009)
- Approximate Location of Proposed Structure
- Approximate Location of Existing Structure (To Be Demolished)
- A — A' — Geologic Section
- 862 — Bedrock Elevation
- af / Qa — Artificial Fill over Alluvium
- af / Tm — Artificial Fill over shallow Montery Formation
- ? — ? — Geologic Contact (Dashed where approximate, Queried where uncertain)
- 18 — Strike and Dip of Bedding

NORTH

0 40' 80'

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GEOLOGIC MAP (MAIN CAMPUS)
CHAMINADE HIGH SCHOOL
7500 CHAMINADE AVENUE
WEST HILLS, CALIFORNIA
APR. 2023 | PROJECT NO. W1547-06-01 | FIGURE 2A



LEGEND

B4	Approximate Location of Boring By Geocon (2022)
	Approximate Location of Proposed Structure
	Approximate Location of Proposed Athletics Fields
	Approximate Location of Existing Structure (To be demolished)
835	Bedrock Elevation
af / Qa	Artificial Fill / Alluvium

NORTH

0 40' 80'

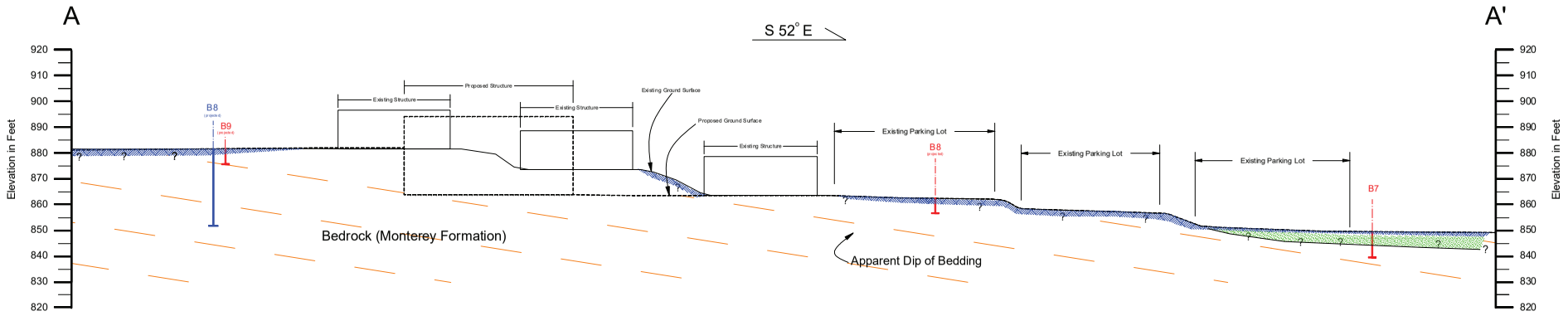
GEOCON WEST, INC.
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2323 N. BUENAVENTURA BLVD. - SUITE 100 - BURBANK, CA 91504
PHONE: (818) 841-8388 - FAX: (818) 841-1704

DRAFTED BY: CB | CHECKED BY: SFK

GEOLOGIC MAP (NORTH CAMPUS)

CHAMINADE HIGH SCHOOL
7500 CHAMINADE AVENUE
WEST HILLS, CALIFORNIA

APR. 2023 | PROJECT NO. W1947-06-01 | FIG. 2B



Fill

Colluvium/Alluvium

Bedrock (Monterey Formation)

0 40' 80'

NOT FOR CONSTRUCTION; FOR ILLUSTRATION PURPOSES ONLY

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ENVIRONMENTAL GEOTECHNICAL MATERIALS
3303 N. SAN FERNANDO BLVD. - SUITE 100 - BURBANK, CA 91504
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DRAFTED BY: CB | CHECKED BY: SFK

CROSS SECTION

CHAMINADE HIGH SCHOOL
7500 CHAMINADE AVENUE
WEST HILLS, CALIFORNIA

APR. 2023 | PROJECT NO. W1547-06-01 | FIG. 3

GEOCON

Project: Chaminade N Campus Extensior
File No. : W1547-06-01
Boring : B1

EMPIRICAL ESTIMATION OF LIQUEFACTION POTENTIAL
DESIGN EARTHQUAKE

NCEER (1996) METHOD
EARTHQUAKE INFORMATION:

Earthquake Magnitude:	6.58
Peak Horiz. Acceleration PGA_M (g):	0.598
2/3 PGA_M (g):	0.399
Calculated Mag.Wtg.Factor:	0.719
Historic High Groundwater:	8.0
Groundwater Depth During Exploration:	32.0

By Thomas F. Blake (1994-1996)
ENERGY & ROD CORRECTIONS:

Energy Correction (CE) for N60:	1.29
Rod Len.Corr.(CR)(0-no or 1-yes):	1.0
Bore Dia. Corr. (CB):	1.00
Sampler Corr. (CS):	1.20
Use Ksigma (0 or 1):	1.0

LIQUEFACTION CALCULATIONS:

Unit Wt. Water (pcf): 62.4

Depth to Base (ft)	Total Unit Wt. (pcf)	Water (0 or 1)	FIELD SPT (N)	Depth of SPT (ft)	Liq.Sus. (0 or 1)	-200 (%)	Est. Dr (%)	CN Factor	Corrected (N1)60	Eff. Unit Wt. (psf)	Resist. CRR	rd Factor	Induced CSR	Liquefac. Safe.Fact.
1.0	120.0	0	2.0	5.0	1	30	31	1.700	9.8	120.0	0.108	0.998	0.186	--
2.0	120.0	0	2.0	5.0	1	30	31	1.700	9.8	120.0	0.108	0.993	0.185	--
3.0	120.0	0	2.0	5.0	1	30	31	1.700	9.8	120.0	0.108	0.989	0.184	--
4.0	120.0	0	2.0	5.0	1	30	31	1.700	9.8	120.0	0.108	0.984	0.183	--
5.0	95.5	0	2.0	5.0	1	30	31	1.700	9.8	95.5	0.108	0.979	0.183	--
6.0	95.5	0	2.0	5.0	1	30	31	1.700	9.8	95.5	0.108	0.975	0.182	--
7.0	95.5	0	2.0	5.0	1	30	31	1.700	9.8	95.5	0.108	0.970	0.181	--
8.0	95.5	0	2.0	5.0	1	30	31	1.601	9.6	95.5	0.105	0.966	0.180	--
9.0	95.5	1	2.0	5.0	1	30	31	1.515	9.4	33.1	0.103	0.961	0.185	0.56
10.0	95.5	1	2.0	5.0	1	30	31	1.441	9.2	33.1	0.102	0.957	0.197	0.52
11.0	95.5	1	4.0	10.0	0	79		1.377	13.4	33.1	~	0.952	0.207	~
12.0	95.5	1	4.0	10.0	0	79		1.321	13.1	33.1	~	0.947	0.216	~
13.0	120.1	1	7.0	15.0	0	56		1.265	18.1	57.7	~	0.943	0.224	~
14.0	120.1	1	7.0	15.0	0	56		1.211	17.6	57.7	~	0.938	0.230	~
15.0	120.1	1	7.0	15.0	0	56		1.163	17.2	57.7	~	0.934	0.236	~
16.0	120.1	1	7.0	15.0	0	56		1.120	16.8	57.7	~	0.929	0.241	~
17.0	120.1	1	7.0	15.0	0	56		1.082	16.5	57.7	~	0.925	0.245	~
18.0	120.1	1	7.0	15.0	0	56		1.047	16.2	57.7	~	0.920	0.249	~
19.0	120.1	1	7.0	15.0	0	56		1.016	15.9	57.7	~	0.915	0.252	~
20.0	129.4	1	14.0	20.0	1	38	71	0.986	26.1	67.0	0.306	0.911	0.255	1.20
21.0	129.4	1	14.0	20.0	1	38	71	0.957	25.6	67.0	0.295	0.906	0.257	1.15
22.0	129.4	1	10.0	25.0	1	57	58	0.931	20.8	67.0	0.227	0.902	0.258	0.88
23.0	129.4	1	10.0	25.0	1	57	58	0.907	20.4	67.0	0.223	0.897	0.260	0.86
24.0	129.4	1	10.0	25.0	1	57	58	0.885	20.1	67.0	0.219	0.893	0.261	0.84
25.0	129.4	1	10.0	25.0	1	57	58	0.864	19.8	67.0	0.215	0.888	0.262	0.82
26.0	129.4	1	10.0	25.0	1	57	58	0.845	19.5	67.0	0.212	0.883	0.263	0.81
27.0	129.4	1	10.0	25.0	1	57	58	0.827	19.2	67.0	0.209	0.879	0.263	0.79
28.0	129.4	1	10.0	25.0	1	57	58	0.810	19.0	67.0	0.206	0.874	0.264	0.78
29.0	129.4	1	10.0	25.0	1	57	58	0.794	18.7	67.0	0.204	0.870	0.264	0.77
30.0	129.1	1	11.0	30.0	0	86		0.779	20.3	66.7	~	0.865	0.264	~
31.0	129.1	1	11.0	30.0	0	86		0.765	20.0	66.7	~	0.861	0.264	~
32.0	129.1	1	11.0	30.0	0	86		0.754	19.8	66.7	~	0.856	0.264	~
33.0	129.1	1	22.0	32.5	1		80	0.747	25.5	66.7	0.290	0.851	0.264	1.10
34.0	129.1	1	22.0	32.5	1		80	0.741	25.2	66.7	0.286	0.847	0.264	1.08
35.0	129.1	1	8.0	35.0	0	93		0.734	16.1	66.7	~	0.842	0.264	~
36.0	129.1	1	8.0	35.0	0	93		0.728	16.0	66.7	~	0.838	0.263	~
37.0	129.1	1	8.0	35.0	0	93		0.722	15.9	66.7	~	0.833	0.263	~
38.0	135.5	1	19.0	37.5	1		71	0.716	21.1	73.1	0.223	0.829	0.262	0.85
39.0	135.5	1	19.0	37.5	1		71	0.710	20.9	73.1	0.221	0.824	0.261	0.85
40.0	135.5	1	19.0	37.5	1		71	0.703	20.7	73.1	0.219	0.819	0.260	0.84
41.0	128.3	1	12.0	40.0	0	62		0.698	20.0	65.9	~	0.815	0.260	~
42.0	128.3	1	12.0	40.0	0	62		0.692	19.9	65.9	~	0.810	0.259	~
43.0	128.3	1	31.0	45.0	0	73		0.687	40.0	65.9	~	0.806	0.258	~
44.0	128.3	1	31.0	45.0	0	73		0.682	39.7	65.9	~	0.801	0.258	~
45.0	128.3	1	31.0	45.0	0	73		0.677	39.5	65.9	~	0.797	0.257	~
46.0	128.3	1	31.0	45.0	0	73		0.672	39.3	65.9	~	0.792	0.256	~
47.0	128.3	1	31.0	50.0	0	73		0.668	39.0	65.9	~	0.787	0.255	~
48.0	128.3	1	31.0	50.0	0	73		0.663	38.8	65.9	~	0.783	0.254	~
49.0	128.3	1	31.0	50.0	0	73		0.658	38.6	65.9	~	0.778	0.253	~
50.0	128.3	1	31.0	50.0	0	73		0.654	38.4	65.9	~	0.774	0.252	~

GEOCON

Project: Chaminade N Campus Extens
File No. : W1547-06-01
Boring : B1

LIQUEFACTION SETTLEMENT ANALYSIS
DESIGN EARTHQUAKE

(SATURATED SAND AT INITIAL LIQUEFACTION CONDITION)

NCEER (1996) METHOD
EARTHQUAKE INFORMATION:

Earthquake Magnitude:	6.58
PGAM (g):	0.598
2/3 PGAM (g):	0.40
Calculated Mag.Wtg.Factor:	0.719
Historic High Groundwater:	8.0
Groundwater @ Exploration:	32.0

DEPTH TO BASE	BLOW COUNT N	WET DENSITY (PCF)	TOTAL STRESS O (TSF)	EFFECT STRESS O' (TSF)	REL. DEN. Dr (%)	ADJUST BLOWS (N1)60	Tav/σ'$_o$	LIQUEFACTION SAFETY FACTOR	Volumetric Strain [e_{15}} (%)	EQ. SETTLE. Pe (in.)
1.0	2	120.0	0.030	0.030	31	10	0.259	--	0.00	Grading
2.0	2	120.0	0.090	0.090	31	10	0.259	--	0.00	Grading
3.0	2	120.0	0.150	0.150	31	10	0.259	--	0.00	Grading
4.0	2	120.0	0.210	0.210	31	10	0.259	--	0.00	Grading
5.0	2	95.5	0.264	0.264	31	10	0.259	--	0.00	Grading
6.0	2	95.5	0.312	0.312	31	10	0.259	--	0.00	0.00
7.0	2	95.5	0.359	0.359	31	10	0.259	--	0.00	0.00
8.0	2	95.5	0.407	0.407	31	10	0.259	--	0.00	0.00
9.0	2	95.5	0.455	0.439	31	9	0.268	0.56	2.70	0.32
10.0	2	95.5	0.503	0.456	31	9	0.286	0.52	2.70	0.32
11.0	4	95.5	0.550	0.472		13	0.302	~	0.00	0.00
12.0	4	95.5	0.598	0.489		13	0.317	~	0.00	0.00
13.0	7	120.1	0.652	0.512		18	0.330	~	0.00	0.00
14.0	7	120.1	0.712	0.540		18	0.342	~	0.00	0.00
15.0	7	120.1	0.772	0.569		17	0.352	~	0.00	0.00
16.0	7	120.1	0.832	0.598		17	0.361	~	0.00	0.00
17.0	7	120.1	0.892	0.627		16	0.369	~	0.00	0.00
18.0	7	120.1	0.952	0.656		16	0.376	~	0.00	0.00
19.0	7	120.1	1.012	0.685		16	0.383	~	0.00	0.00
20.0	14	129.4	1.075	0.716	71	26	0.389	1.20	0.00	0.00
21.0	14	129.4	1.139	0.749	71	26	0.394	1.15	0.00	0.00
22.0	10	129.4	1.204	0.783	58	21	0.399	0.88	1.40	0.17
23.0	10	129.4	1.269	0.816	58	20	0.403	0.86	1.40	0.17
24.0	10	129.4	1.334	0.850	58	20	0.407	0.84	1.40	0.17
25.0	10	129.4	1.398	0.883	58	20	0.410	0.82	1.60	0.19
26.0	10	129.4	1.463	0.917	58	19	0.414	0.81	1.60	0.19
27.0	10	129.4	1.528	0.950	58	19	0.417	0.79	1.60	0.19
28.0	10	129.4	1.592	0.984	58	19	0.420	0.78	1.60	0.19
29.0	10	129.4	1.657	1.017	58	19	0.422	0.77	1.60	0.19
30.0	11	129.1	1.722	1.051		20	0.425	~	0.00	0.00
31.0	11	129.1	1.786	1.084		20	0.427	~	0.00	0.00
32.0	11	129.1	1.851	1.118		20	0.429	~	0.00	0.00
33.0	22	129.1	1.915	1.151	80	25	0.431	1.10	1.00	0.12
34.0	22	129.1	1.980	1.184	80	25	0.433	1.08	1.00	0.12
35.0	8	129.1	2.044	1.218		16	0.435	~	0.00	0.00
36.0	8	129.1	2.109	1.251		16	0.437	~	0.00	0.00
37.0	8	129.1	2.173	1.284		16	0.439	~	0.00	0.00
38.0	19	135.5	2.240	1.319	71	21	0.440	0.85	1.40	0.17
39.0	19	135.5	2.307	1.356	71	21	0.441	0.85	1.40	0.17
40.0	19	135.5	2.375	1.392	71	21	0.442	0.84	1.40	0.17
41.0	12	128.3	2.441	1.427		20	0.443	~	0.00	0.00
42.0	12	128.3	2.505	1.460		20	0.445	~	0.00	0.00
43.0	31	128.3	2.569	1.493		40	0.446	~	0.00	0.00
44.0	31	128.3	2.634	1.526		40	0.447	~	0.00	0.00
45.0	31	128.3	2.698	1.559		39	0.449	~	0.00	0.00
46.0	31	128.3	2.762	1.592		39	0.450	~	0.00	0.00
47.0	31	128.3	2.826	1.625		39	0.451	~	0.00	0.00
48.0	31	128.3	2.890	1.658		39	0.452	~	0.00	0.00
49.0	31	128.3	2.954	1.691		39	0.453	~	0.00	0.00
50.0	31	128.3	3.018	1.724		38	0.454	~	0.00	0.00

TOTAL SETTLEMENT = 2.9 INCHES

Figure 5

GEOCON

Project: Chaminade N Campus Extensior
File No. : W1547-06-01
Boring : B3

EMPIRICAL ESTIMATION OF LIQUEFACTION POTENTIAL
DESIGN EARTHQUAKE

NCEER (1996) METHOD
EARTHQUAKE INFORMATION:

Earthquake Magnitude:	6.58
Peak Horiz. Acceleration PGA_M (g):	0.598
2/3 PGA_M (g):	0.399
Calculated Mag.Wtg.Factor:	0.719
Historic High Groundwater:	8.0
Groundwater Depth During Exploration:	100.0

By Thomas F. Blake (1994-1996)
ENERGY & ROD CORRECTIONS:

Energy Correction (CE) for N60:	1.29
Rod Len.Corr.(CR)(0-no or 1-yes):	1.0
Bore Dia. Corr. (CB):	1.00
Sampler Corr. (CS):	1.20
Use Ksigma (0 or 1):	1.0

LIQUEFACTION CALCULATIONS:

Unit Wt. Water (pcf): 62.4

Depth to Base (ft)	Total Unit Wt. (pcf)	Water (0 or 1)	FIELD SPT (N)	Depth of SPT (ft)	Liq.Sus. (0 or 1)	-200 (%)	Est. Dr (%)	CN Factor	Corrected (N1)60	Eff. Unit Wt. (psf)	Resist. CRR	rd Factor	Induced CSR	Liquefac. Safe.Fact.
1.0	126.8	0	4.0	5.0	1	49	44	1.700	14.9	126.8	0.162	0.998	0.186	--
2.0	126.8	0	4.0	5.0	1	49	44	1.700	14.9	126.8	0.162	0.993	0.185	--
3.0	126.8	0	4.0	5.0	1	49	44	1.700	14.9	126.8	0.162	0.989	0.184	--
4.0	126.8	0	4.0	5.0	1	49	44	1.700	14.9	126.8	0.162	0.984	0.183	--
5.0	126.8	0	4.0	5.0	1	49	44	1.700	14.9	126.8	0.162	0.979	0.183	--
6.0	126.8	0	4.0	5.0	1	49	44	1.700	14.9	126.8	0.162	0.975	0.182	--
7.0	126.8	0	4.0	5.0	1	49	44	1.592	14.4	126.8	0.157	0.970	0.181	--
8.0	131.9	0	8.0	7.5	0	49		1.480	20.7	131.9	~	0.966	0.180	~
9.0	131.9	1	8.0	7.5	0	49		1.387	19.9	69.5	~	0.961	0.184	~
10.0	131.9	1	8.0	7.5	0	49		1.310	19.2	69.5	~	0.957	0.193	~
11.0	131.9	1	4.0	10.0	1	49	40	1.244	12.8	69.5	0.140	0.952	0.201	0.70
12.0	131.9	1	4.0	10.0	1	49	40	1.187	12.5	69.5	0.137	0.947	0.207	0.66
13.0	130.0	1	30.0	15.0	0	44		1.138	49.6	67.6	~	0.943	0.213	~
14.0	130.0	1	30.0	15.0	0	44		1.095	48.0	67.6	~	0.938	0.218	~
15.0	130.0	1	30.0	15.0	0	44		1.056	46.6	67.6	~	0.934	0.222	~
16.0	130.0	1	30.0	15.0	0	44		1.021	45.3	67.6	~	0.929	0.226	~
17.0	130.0	1	30.0	15.0	0	44		0.990	44.1	67.6	~	0.925	0.229	~
18.0	130.0	1	30.0	15.0	0	44		0.961	43.0	67.6	~	0.920	0.232	~
19.0	130.0	1	30.0	15.0	0	44		0.934	42.0	67.6	~	0.915	0.235	~
20.0	130.0	1	30.0	20.0	1	34	99	0.910	44.6	67.6	Infin.	0.911	0.237	Non-Liq.
21.0	130.0	1	30.0	20.0	1	34	99	0.887	43.6	67.6	Infin.	0.906	0.239	Non-Liq.
22.0	130.0	1	30.0	20.0	1	34	99	0.866	42.7	67.6	Infin.	0.902	0.241	Non-Liq.
23.0	130.0	1	30.0	20.0	1	34	99	0.847	41.9	67.6	Infin.	0.897	0.243	Non-Liq.
24.0	130.0	1	30.0	20.0	1	34	99	0.828	41.2	67.6	Infin.	0.893	0.244	Non-Liq.
25.0	130.0	1	30.0	20.0	1	34	99	0.811	40.5	67.6	Infin.	0.888	0.245	Non-Liq.
26.0	130.0	1	30.0	20.0	1	34	99	0.795	39.8	67.6	Infin.	0.883	0.246	Non-Liq.
27.0	130.0	1	30.0	20.0	1	34	99	0.780	39.2	67.6	Infin.	0.879	0.247	Non-Liq.
28.0	130.0	1	30.0	20.0	1	34	99	0.766	38.6	67.6	Infin.	0.874	0.247	Non-Liq.
29.0	130.0	1	30.0	20.0	1	34	99	0.752	38.0	67.6	Infin.	0.870	0.248	Non-Liq.
30.0	130.0	1	30.0	20.0	1	34	99	0.739	37.5	67.6	Infin.	0.865	0.248	Non-Liq.
31.0	130.0	1	30.0	20.0	1	34	99	0.727	37.0	67.6	Infin.	0.861	0.249	Non-Liq.
32.0	130.0	1	30.0	20.0	1	34	99	0.715	36.5	67.6	Infin.	0.856	0.249	Non-Liq.
33.0	130.0	1	30.0	20.0	1	34	99	0.704	36.0	67.6	Infin.	0.851	0.249	Non-Liq.
34.0	130.0	1	30.0	20.0	1	34	99	0.693	35.6	67.6	Infin.	0.847	0.249	Non-Liq.
35.0	130.0	1	30.0	20.0	1	34	99	0.683	35.1	67.6	Infin.	0.842	0.249	Non-Liq.
36.0	130.0	1	30.0	20.0	1	34	99	0.674	34.7	67.6	Infin.	0.838	0.249	Non-Liq.
37.0	130.0	1	30.0	20.0	1	34	99	0.664	34.4	67.6	Infin.	0.833	0.249	Non-Liq.
38.0	130.0	1	30.0	20.0	1	34	99	0.655	34.0	67.6	Infin.	0.829	0.248	Non-Liq.
39.0	130.0	1	30.0	20.0	1	34	99	0.647	33.6	67.6	Infin.	0.824	0.248	Non-Liq.
40.0	130.0	1	30.0	20.0	1	34	99	0.638	33.3	67.6	Infin.	0.819	0.248	Non-Liq.
41.0	130.0	1	30.0	20.0	1	34	99	0.631	32.9	67.6	Infin.	0.815	0.247	Non-Liq.
42.0	130.0	1	30.0	20.0	1	34	99	0.623	32.6	67.6	Infin.	0.810	0.247	Non-Liq.
43.0	130.0	1	30.0	20.0	1	34	99	0.615	32.3	67.6	Infin.	0.806	0.246	Non-Liq.
44.0	130.0	1	30.0	20.0	1	34	99	0.608	32.0	67.6	Infin.	0.801	0.246	Non-Liq.
45.0	130.0	1	30.0	20.0	1	34	99	0.601	31.7	67.6	Infin.	0.797	0.245	Non-Liq.
46.0	130.0	1	30.0	20.0	1	34	99	0.595	31.5	67.6	Infin.	0.792	0.245	Non-Liq.
47.0	130.0	1	30.0	20.0	1	34	99	0.588	31.2	67.6	Infin.	0.787	0.244	Non-Liq.
48.0	130.0	1	30.0	20.0	1	34	99	0.582	30.9	67.6	Infin.	0.783	0.243	Non-Liq.
49.0	130.0	1	30.0	20.0	1	34	99	0.576	30.7	67.6	Infin.	0.778	0.242	Non-Liq.
50.0	130.0	1	30.0	20.0	1	34	99	0.570	30.4	67.6	Infin.	0.774	0.242	Non-Liq.

Figure 6

GEOCON

Project: Chaminade N Campus Extens
File No. : W1547-06-01
Boring : B3

LIQUEFACTION SETTLEMENT ANALYSIS
DESIGN EARTHQUAKE

(SATURATED SAND AT INITIAL LIQUEFACTION CONDITION)

NCEER (1996) METHOD
EARTHQUAKE INFORMATION:

Earthquake Magnitude:	6.58
PGAM (g):	0.598
2/3 PGAM (g):	0.40
Calculated Mag.Wtg.Factor:	0.719
Historic High Groundwater:	8.0
Groundwater @ Exploration:	100.0

DEPTH TO BASE	BLOW COUNT N	WET DENSITY (PCF)	TOTAL STRESS O (TSF)	EFFECT STRESS O' (TSF)	REL. DEN. Dr (%)	ADJUST BLOWS (N1)60	Tav/σ'$_o$	LIQUEFACTION SAFETY FACTOR	Volumetric Strain [e_{15}] (%)	EQ. SETTLE. Pe (in.)
1.0	4	126.8	0.032	0.032	44	15	0.259	--	0.00	Grading
2.0	4	126.8	0.095	0.095	44	15	0.259	--	0.00	Grading
3.0	4	126.8	0.159	0.159	44	15	0.259	--	0.00	Grading
4.0	4	126.8	0.222	0.222	44	15	0.259	--	0.00	Grading
5.0	4	126.8	0.285	0.285	44	15	0.259	--	0.00	Grading
6.0	4	126.8	0.349	0.349	44	15	0.259	--	0.00	0.00
7.0	4	126.8	0.412	0.412	44	14	0.259	--	0.00	0.00
8.0	8	131.9	0.477	0.477		21	0.259	~	0.00	0.00
9.0	8	131.9	0.543	0.527		20	0.267	~	0.00	0.00
10.0	8	131.9	0.609	0.562		19	0.281	~	0.00	0.00
11.0	4	131.9	0.675	0.597	40	13	0.293	0.70	1.80	0.22
12.0	4	131.9	0.741	0.631	40	13	0.304	0.66	1.80	0.22
13.0	30	130.0	0.806	0.666		50	0.314	~	0.00	0.00
14.0	30	130.0	0.871	0.699		48	0.323	~	0.00	0.00
15.0	30	130.0	0.936	0.733		47	0.331	~	0.00	0.00
16.0	30	130.0	1.001	0.767		45	0.338	~	0.00	0.00
17.0	30	130.0	1.066	0.801		44	0.345	~	0.00	0.00
18.0	30	130.0	1.131	0.835		43	0.351	~	0.00	0.00
19.0	30	130.0	1.196	0.868		42	0.357	~	0.00	0.00
20.0	30	130.0	1.261	0.902	99	45	0.362	Non-Liq.	0.00	0.00
21.0	30	130.0	1.326	0.936	99	44	0.367	Non-Liq.	0.00	0.00
22.0	30	130.0	1.391	0.970	99	43	0.372	Non-Liq.	0.00	0.00
23.0	30	130.0	1.456	1.004	99	42	0.376	Non-Liq.	0.00	0.00
24.0	30	130.0	1.521	1.037	99	41	0.380	Non-Liq.	0.00	0.00
25.0	30	130.0	1.586	1.071	99	40	0.384	Non-Liq.	0.00	0.00
26.0	30	130.0	1.651	1.105	99	40	0.387	Non-Liq.	0.00	0.00
27.0	30	130.0	1.716	1.139	99	39	0.391	Non-Liq.	0.00	0.00
28.0	30	130.0	1.781	1.173	99	39	0.394	Non-Liq.	0.00	0.00
29.0	30	130.0	1.846	1.206	99	38	0.397	Non-Liq.	0.00	0.00
30.0	30	130.0	1.911	1.240	99	37	0.399	Non-Liq.	0.00	0.00
31.0	30	130.0	1.976	1.274	99	37	0.402	Non-Liq.	0.00	0.00
32.0	30	130.0	2.041	1.308	99	36	0.405	Non-Liq.	0.00	0.00
33.0	30	130.0	2.106	1.342	99	36	0.407	Non-Liq.	0.00	0.00
34.0	30	130.0	2.171	1.375	99	36	0.409	Non-Liq.	0.00	0.00
35.0	30	130.0	2.236	1.409	99	35	0.411	Non-Liq.	0.00	0.00
36.0	30	130.0	2.301	1.443	99	35	0.413	Non-Liq.	0.00	0.00
37.0	30	130.0	2.366	1.477	99	34	0.415	Non-Liq.	0.00	0.00
38.0	30	130.0	2.431	1.511	99	34	0.417	Non-Liq.	0.00	0.00
39.0	30	130.0	2.496	1.544	99	34	0.419	Non-Liq.	0.00	0.00
40.0	30	130.0	2.561	1.578	99	33	0.421	Non-Liq.	0.00	0.00
41.0	30	130.0	2.626	1.612	99	33	0.422	Non-Liq.	0.00	0.00
42.0	30	130.0	2.691	1.646	99	33	0.424	Non-Liq.	0.00	0.00
43.0	30	130.0	2.756	1.680	99	32	0.425	Non-Liq.	0.00	0.00
44.0	30	130.0	2.821	1.713	99	32	0.427	Non-Liq.	0.00	0.00
45.0	30	130.0	2.886	1.747	99	32	0.428	Non-Liq.	0.00	0.00
46.0	30	130.0	2.951	1.781	99	31	0.430	Non-Liq.	0.00	0.00
47.0	30	130.0	3.016	1.815	99	31	0.431	Non-Liq.	0.00	0.00
48.0	30	130.0	3.081	1.849	99	31	0.432	Non-Liq.	0.00	0.00
49.0	30	130.0	3.146	1.882	99	31	0.433	Non-Liq.	0.00	0.00
50.0	30	130.0	3.211	1.916	99	30	0.434	Non-Liq.	0.00	0.00

TOTAL SETTLEMENT = 0.4 INCHES

Figure 7

GEOCON

Project: Chaminade N Campus Extensior
File No. : W1547-06-01
Boring : B1

EMPIRICAL ESTIMATION OF LIQUEFACTION POTENTIAL
MAXIMUM CONSIDERED EARTHQUAKE

NCEER (1996) METHOD
EARTHQUAKE INFORMATION:

Earthquake Magnitude:	6.66
Peak Horiz. Acceleration PGA_M (g):	0.598
Calculated Mag.Wtg.Factor:	0.741
Historic High Groundwater:	8.0
Groundwater Depth During Exploration:	32.0

By Thomas F. Blake (1994-1996)
ENERGY & ROD CORRECTIONS:

Energy Correction (CE) for N60:	1.29
Rod Len.Corr.(CR)(0-no or 1-yes):	1.0
Bore Dia. Corr. (CB):	1.00
Sampler Corr. (CS):	1.20
Use Ksigma (0 or 1):	1.0

LIQUEFACTION CALCULATIONS:

Unit Wt. Water (pcf): 62.4

P200 Values are preliminary

Depth to Base (ft)	Total Unit Wt. (pcf)	Water (0 or 1)	FIELD SPT (N)	Depth of SPT (ft)	Liq.Sus. (0 or 1)	-200 (%)	Est. Dr (%)	CN Factor	Corrected (N1)60	Eff. Unit Wt. (psf)	Resist. CRR	rd Factor	Induced CSR	Liquefac. Safe.Fact.
1.0	120.0	0	2.0	5.0	1	30	31	1.700	9.8	120.0	0.108	0.998	0.288	--
2.0	120.0	0	2.0	5.0	1	30	31	1.700	9.8	120.0	0.108	0.993	0.286	--
3.0	120.0	0	2.0	5.0	1	30	31	1.700	9.8	120.0	0.108	0.989	0.285	--
4.0	120.0	0	2.0	5.0	1	30	31	1.700	9.8	120.0	0.108	0.984	0.284	--
5.0	95.5	0	2.0	5.0	1	30	31	1.700	9.8	95.5	0.108	0.979	0.282	--
6.0	95.5	0	2.0	5.0	1	30	31	1.700	9.8	95.5	0.108	0.975	0.281	--
7.0	95.5	0	2.0	5.0	1	30	31	1.700	9.8	95.5	0.108	0.970	0.280	--
8.0	95.5	0	2.0	5.0	1	30	31	1.601	9.6	95.5	0.105	0.966	0.278	--
9.0	95.5	1	2.0	5.0	1	30	31	1.515	9.4	33.1	0.103	0.961	0.287	0.36
10.0	95.5	1	2.0	5.0	1	30	31	1.441	9.2	33.1	0.102	0.957	0.304	0.33
11.0	95.5	1	4.0	10.0	0	79		1.377	13.4	33.1	~	0.952	0.320	~
12.0	95.5	1	4.0	10.0	0	79		1.321	13.1	33.1	~	0.947	0.334	~
13.0	120.1	1	7.0	15.0	0	56		1.265	18.1	57.7	~	0.943	0.346	~
14.0	120.1	1	7.0	15.0	0	56		1.211	17.6	57.7	~	0.938	0.356	~
15.0	120.1	1	7.0	15.0	0	56		1.163	17.2	57.7	~	0.934	0.365	~
16.0	120.1	1	7.0	15.0	0	56		1.120	16.8	57.7	~	0.929	0.373	~
17.0	120.1	1	7.0	15.0	0	56		1.082	16.5	57.7	~	0.925	0.379	~
18.0	120.1	1	7.0	15.0	0	56		1.047	16.2	57.7	~	0.920	0.385	~
19.0	120.1	1	7.0	15.0	0	56		1.016	15.9	57.7	~	0.915	0.390	~
20.0	129.4	1	14.0	20.0	1	38	71	0.986	26.1	67.0	0.306	0.911	0.394	0.78
21.0	129.4	1	14.0	20.0	1	38	71	0.957	25.6	67.0	0.295	0.906	0.397	0.74
22.0	129.4	1	10.0	25.0	1	57	58	0.931	20.8	67.0	0.227	0.902	0.400	0.57
23.0	129.4	1	10.0	25.0	1	57	58	0.907	20.4	67.0	0.223	0.897	0.402	0.55
24.0	129.4	1	10.0	25.0	1	57	58	0.885	20.1	67.0	0.219	0.893	0.404	0.54
25.0	129.4	1	10.0	25.0	1	57	58	0.864	19.8	67.0	0.215	0.888	0.405	0.53
26.0	129.4	1	10.0	25.0	1	57	58	0.845	19.5	67.0	0.212	0.883	0.406	0.52
27.0	129.4	1	10.0	25.0	1	57	58	0.827	19.2	67.0	0.209	0.879	0.407	0.51
28.0	129.4	1	10.0	25.0	1	57	58	0.810	19.0	67.0	0.206	0.874	0.408	0.51
29.0	129.4	1	10.0	25.0	1	57	58	0.794	18.7	67.0	0.204	0.870	0.408	0.50
30.0	129.1	1	11.0	30.0	0	86		0.779	20.3	66.7	~	0.865	0.408	~
31.0	129.1	1	11.0	30.0	0	86		0.765	20.0	66.7	~	0.861	0.409	~
32.0	129.1	1	11.0	30.0	0	86		0.754	19.8	66.7	~	0.856	0.409	~
33.0	129.1	1	22.0	32.5	1		80	0.747	25.5	66.7	0.290	0.851	0.408	0.71
34.0	129.1	1	22.0	32.5	1		80	0.741	25.2	66.7	0.286	0.847	0.408	0.70
35.0	129.1	1	8.0	35.0	0	93		0.734	16.1	66.7	~	0.842	0.408	~
36.0	129.1	1	8.0	35.0	0	93		0.728	16.0	66.7	~	0.838	0.407	~
37.0	129.1	1	8.0	35.0	0	93		0.722	15.9	66.7	~	0.833	0.406	~
38.0	135.5	1	19.0	37.5	1		71	0.716	21.1	73.1	0.223	0.829	0.405	0.55
39.0	135.5	1	19.0	37.5	1		71	0.710	20.9	73.1	0.221	0.824	0.404	0.55
40.0	135.5	1	19.0	37.5	1		71	0.703	20.7	73.1	0.219	0.819	0.403	0.54
41.0	128.3	1	12.0	40.0	0	62		0.698	20.0	65.9	~	0.815	0.402	~
42.0	128.3	1	12.0	40.0	0	62		0.692	19.9	65.9	~	0.810	0.401	~
43.0	128.3	1	31.0	45.0	0	73		0.687	40.0	65.9	~	0.806	0.400	~
44.0	128.3	1	31.0	45.0	0	73		0.682	39.7	65.9	~	0.801	0.398	~
45.0	128.3	1	31.0	45.0	0	73		0.677	39.5	65.9	~	0.797	0.397	~
46.0	128.3	1	31.0	45.0	0	73		0.672	39.3	65.9	~	0.792	0.396	~
47.0	128.3	1	31.0	50.0	0	73		0.668	39.0	65.9	~	0.787	0.395	~
48.0	128.3	1	31.0	50.0	0	73		0.663	38.8	65.9	~	0.783	0.393	~
49.0	128.3	1	31.0	50.0	0	73		0.658	38.6	65.9	~	0.778	0.392	~
50.0	128.3	1	31.0	50.0	0	73		0.654	38.4	65.9	~	0.774	0.390	~

GEOCON

Project: Chaminade N Campus Extensi
File No. : W1547-06-01
Boring : B1

LIQUEFACTION SETTLEMENT ANALYSIS
MAXIMUM CONSIDERED EARTHQUAKE

(SATURATED SAND AT INITIAL LIQUEFACTION CONDITION)

NCEER (1996) METHOD
EARTHQUAKE INFORMATION:

Earthquake Magnitude:	6.66
PGA_M (g):	0.598
Calculated Mag.Wtg.Factor:	0.741
Historic High Groundwater:	8.0
Groundwater @ Exploration:	100.0

DEPTH TO BASE	BLOW COUNT N	WET DENSITY (PCF)	TOTAL STRESS O (TSF)	EFFECT STRESS O' (TSF)	REL. DEN. Dr (%)	ADJUST BLOWS (N1)60	Tav/σ'o	LIQUEFACTION SAFETY FACTOR	Volumetric Strain [e15} (%)	EQ. SETTLE. Pe (in.)
1.0	2	120.0	0.030	0.030	31	10	0.389	--	0.00	Grading
2.0	2	120.0	0.090	0.090	31	10	0.389	--	0.00	Grading
3.0	2	120.0	0.150	0.150	31	10	0.389	--	0.00	Grading
4.0	2	120.0	0.210	0.210	31	10	0.389	--	0.00	Grading
5.0	2	95.5	0.264	0.264	31	10	0.389	--	0.00	Grading
6.0	2	95.5	0.312	0.312	31	10	0.389	--	0.00	0.00
7.0	2	95.5	0.359	0.359	31	10	0.389	--	0.00	0.00
8.0	2	95.5	0.407	0.407	31	10	0.389	--	0.00	0.00
9.0	2	95.5	0.455	0.439	31	9	0.403	0.36	2.70	0.32
10.0	2	95.5	0.503	0.456	31	9	0.429	0.33	2.70	0.32
11.0	4	95.5	0.550	0.472		13	0.453	~	0.00	0.00
12.0	4	95.5	0.598	0.489		13	0.476	~	0.00	0.00
13.0	7	120.1	0.652	0.512		18	0.495	~	0.00	0.00
14.0	7	120.1	0.712	0.540		18	0.512	~	0.00	0.00
15.0	7	120.1	0.772	0.569		17	0.527	~	0.00	0.00
16.0	7	120.1	0.832	0.598		17	0.541	~	0.00	0.00
17.0	7	120.1	0.892	0.627		16	0.553	~	0.00	0.00
18.0	7	120.1	0.952	0.656		16	0.564	~	0.00	0.00
19.0	7	120.1	1.012	0.685		16	0.575	~	0.00	0.00
20.0	14	129.4	1.075	0.716	71	26	0.584	0.78	1.10	0.13
21.0	14	129.4	1.139	0.749	71	26	0.591	0.74	1.10	0.13
22.0	10	129.4	1.204	0.783	58	21	0.598	0.57	1.40	0.17
23.0	10	129.4	1.269	0.816	58	20	0.604	0.55	1.40	0.17
24.0	10	129.4	1.334	0.850	58	20	0.610	0.54	1.40	0.17
25.0	10	129.4	1.398	0.883	58	20	0.615	0.53	1.60	0.19
26.0	10	129.4	1.463	0.917	58	19	0.620	0.52	1.60	0.19
27.0	10	129.4	1.528	0.950	58	19	0.625	0.51	1.60	0.19
28.0	10	129.4	1.592	0.984	58	19	0.629	0.51	1.60	0.19
29.0	10	129.4	1.657	1.017	58	19	0.633	0.50	1.60	0.19
30.0	11	129.1	1.722	1.051		20	0.637	~	0.00	0.00
31.0	11	129.1	1.786	1.084		20	0.640	~	0.00	0.00
32.0	11	129.1	1.851	1.118		20	0.644	~	0.00	0.00
33.0	22	129.1	1.915	1.151	80	25	0.647	0.71	1.10	0.13
34.0	22	129.1	1.980	1.184	80	25	0.650	0.70	1.10	0.13
35.0	8	129.1	2.044	1.218		16	0.653	~	0.00	0.00
36.0	8	129.1	2.109	1.251		16	0.655	~	0.00	0.00
37.0	8	129.1	2.173	1.284		16	0.658	~	0.00	0.00
38.0	19	135.5	2.240	1.319	71	21	0.660	0.55	1.40	0.17
39.0	19	135.5	2.307	1.356	71	21	0.662	0.55	1.40	0.17
40.0	19	135.5	2.375	1.392	71	21	0.663	0.54	1.40	0.17
41.0	12	128.3	2.441	1.427		20	0.665	~	0.00	0.00
42.0	12	128.3	2.505	1.460		20	0.667	~	0.00	0.00
43.0	31	128.3	2.569	1.493		40	0.669	~	0.00	0.00
44.0	31	128.3	2.634	1.526		40	0.671	~	0.00	0.00
45.0	31	128.3	2.698	1.559		39	0.673	~	0.00	0.00
46.0	31	128.3	2.762	1.592		39	0.674	~	0.00	0.00
47.0	31	128.3	2.826	1.625		39	0.676	~	0.00	0.00
48.0	31	128.3	2.890	1.658		39	0.678	~	0.00	0.00
49.0	31	128.3	2.954	1.691		39	0.679	~	0.00	0.00
50.0	31	128.3	3.018	1.724		38	0.681	~	0.00	0.00

TOTAL SETTLEMENT = 3.1 INCHES

Figure 9

GEOCON

Project: Chaminade N Campus Extensior
File No. : W1547-06-01
Boring : B3

EMPIRICAL ESTIMATION OF LIQUEFACTION POTENTIAL
MAXIMUM CONSIDERED EARTHQUAKE

NCEER (1996) METHOD
EARTHQUAKE INFORMATION:

Earthquake Magnitude:	6.66
Peak Horiz. Acceleration PGA_M (g):	0.598
Calculated Mag.Wtg.Factor:	0.741
Historic High Groundwater:	8.0
Groundwater Depth During Exploration:	100.0

By Thomas F. Blake (1994-1996)
ENERGY & ROD CORRECTIONS:

Energy Correction (CE) for N60:	1.29
Rod Len.Corr.(CR)(0-no or 1-yes):	1.0
Bore Dia. Corr. (CB):	1.00
Sampler Corr. (CS):	1.20
Use Ksigma (0 or 1):	1.0

LIQUEFACTION CALCULATIONS:

Unit Wt. Water (pcf): 62.4

Depth to Base (ft)	Total Unit Wt. (pcf)	Water (0 or 1)	FIELD SPT (N)	Depth of SPT (ft)	Liq.Sus. (0 or 1)	-200 (%)	Est. Dr (%)	CN Factor	Corrected (N1)60	Eff. Unit Wt. (psf)	Resist. CRR	rd Factor	Induced CSR	Liquefac. Safe.Fact.
1.0	126.8	0	4.0	5.0	1	49	44	1.700	14.9	126.8	0.162	0.998	0.288	--
2.0	126.8	0	4.0	5.0	1	49	44	1.700	14.9	126.8	0.162	0.993	0.286	--
3.0	126.8	0	4.0	5.0	1	49	44	1.700	14.9	126.8	0.162	0.989	0.285	--
4.0	126.8	0	4.0	5.0	1	49	44	1.700	14.9	126.8	0.162	0.984	0.284	--
5.0	126.8	0	4.0	5.0	1	49	44	1.700	14.9	126.8	0.162	0.979	0.282	--
6.0	126.8	0	4.0	5.0	1	49	44	1.700	14.9	126.8	0.162	0.975	0.281	--
7.0	126.8	0	4.0	5.0	1	49	44	1.592	14.4	126.8	0.157	0.970	0.280	--
8.0	131.9	0	8.0	7.5	0	49		1.480	20.7	131.9	~	0.966	0.278	~
9.0	131.9	1	8.0	7.5	0	49		1.387	19.9	69.5	~	0.961	0.285	~
10.0	131.9	1	8.0	7.5	0	49		1.310	19.2	69.5	~	0.957	0.299	~
11.0	131.9	1	4.0	10.0	1	49	40	1.244	12.8	69.5	0.140	0.952	0.310	0.45
12.0	131.9	1	4.0	10.0	1	49	40	1.187	12.5	69.5	0.137	0.947	0.320	0.43
13.0	130.0	1	30.0	15.0	0	44		1.138	49.6	67.6	~	0.943	0.329	~
14.0	130.0	1	30.0	15.0	0	44		1.095	48.0	67.6	~	0.938	0.337	~
15.0	130.0	1	30.0	15.0	0	44		1.056	46.6	67.6	~	0.934	0.343	~
16.0	130.0	1	30.0	15.0	0	44		1.021	45.3	67.6	~	0.929	0.349	~
17.0	130.0	1	30.0	15.0	0	44		0.990	44.1	67.6	~	0.925	0.355	~
18.0	130.0	1	30.0	15.0	0	44		0.961	43.0	67.6	~	0.920	0.359	~
19.0	130.0	1	30.0	15.0	0	44		0.934	42.0	67.6	~	0.915	0.363	~
20.0	130.0	1	30.0	20.0	1	34	99	0.910	44.6	67.6	Infin.	0.911	0.367	Non-Liq.
21.0	130.0	1	30.0	20.0	1	34	99	0.887	43.6	67.6	Infin.	0.906	0.370	Non-Liq.
22.0	130.0	1	30.0	20.0	1	34	99	0.866	42.7	67.6	Infin.	0.902	0.373	Non-Liq.
23.0	130.0	1	30.0	20.0	1	34	99	0.847	41.9	67.6	Infin.	0.897	0.375	Non-Liq.
24.0	130.0	1	30.0	20.0	1	34	99	0.828	41.2	67.6	Infin.	0.893	0.377	Non-Liq.
25.0	130.0	1	30.0	20.0	1	34	99	0.811	40.5	67.6	Infin.	0.888	0.379	Non-Liq.
26.0	130.0	1	30.0	20.0	1	34	99	0.795	39.8	67.6	Infin.	0.883	0.380	Non-Liq.
27.0	130.0	1	30.0	20.0	1	34	99	0.780	39.2	67.6	Infin.	0.879	0.382	Non-Liq.
28.0	130.0	1	30.0	20.0	1	34	99	0.766	38.6	67.6	Infin.	0.874	0.383	Non-Liq.
29.0	130.0	1	30.0	20.0	1	34	99	0.752	38.0	67.6	Infin.	0.870	0.384	Non-Liq.
30.0	130.0	1	30.0	20.0	1	34	99	0.739	37.5	67.6	Infin.	0.865	0.384	Non-Liq.
31.0	130.0	1	30.0	20.0	1	34	99	0.727	37.0	67.6	Infin.	0.861	0.385	Non-Liq.
32.0	130.0	1	30.0	20.0	1	34	99	0.715	36.5	67.6	Infin.	0.856	0.385	Non-Liq.
33.0	130.0	1	30.0	20.0	1	34	99	0.704	36.0	67.6	Infin.	0.851	0.385	Non-Liq.
34.0	130.0	1	30.0	20.0	1	34	99	0.693	35.6	67.6	Infin.	0.847	0.385	Non-Liq.
35.0	130.0	1	30.0	20.0	1	34	99	0.683	35.1	67.6	Infin.	0.842	0.385	Non-Liq.
36.0	130.0	1	30.0	20.0	1	34	99	0.674	34.7	67.6	Infin.	0.838	0.385	Non-Liq.
37.0	130.0	1	30.0	20.0	1	34	99	0.664	34.4	67.6	Infin.	0.833	0.385	Non-Liq.
38.0	130.0	1	30.0	20.0	1	34	99	0.655	34.0	67.6	Infin.	0.829	0.384	Non-Liq.
39.0	130.0	1	30.0	20.0	1	34	99	0.647	33.6	67.6	Infin.	0.824	0.384	Non-Liq.
40.0	130.0	1	30.0	20.0	1	34	99	0.638	33.3	67.6	Infin.	0.819	0.383	Non-Liq.
41.0	130.0	1	30.0	20.0	1	34	99	0.631	32.9	67.6	Infin.	0.815	0.383	Non-Liq.
42.0	130.0	1	30.0	20.0	1	34	99	0.623	32.6	67.6	Infin.	0.810	0.382	Non-Liq.
43.0	130.0	1	30.0	20.0	1	34	99	0.615	32.3	67.6	Infin.	0.806	0.381	Non-Liq.
44.0	130.0	1	30.0	20.0	1	34	99	0.608	32.0	67.6	Infin.	0.801	0.380	Non-Liq.
45.0	130.0	1	30.0	20.0	1	34	99	0.601	31.7	67.6	Infin.	0.797	0.379	Non-Liq.
46.0	130.0	1	30.0	20.0	1	34	99	0.595	31.5	67.6	Infin.	0.792	0.378	Non-Liq.
47.0	130.0	1	30.0	20.0	1	34	99	0.588	31.2	67.6	Infin.	0.787	0.377	Non-Liq.
48.0	130.0	1	30.0	20.0	1	34	99	0.582	30.9	67.6	Infin.	0.783	0.376	Non-Liq.
49.0	130.0	1	30.0	20.0	1	34	99	0.576	30.7	67.6	Infin.	0.778	0.375	Non-Liq.
50.0	130.0	1	30.0	20.0	1	34	99	0.570	30.4	67.6	Infin.	0.774	0.374	Non-Liq.

Figure 10

GEOCON

Project: Chaminade N Campus Extensi
File No. : W1547-06-01
Boring : B3

LIQUEFACTION SETTLEMENT ANALYSIS
MAXIMUM CONSIDERED EARTHQUAKE

(SATURATED SAND AT INITIAL LIQUEFACTION CONDITION)

NCEER (1996) METHOD
EARTHQUAKE INFORMATION:

Earthquake Magnitude:	6.66
PGA_M (g):	0.598
Calculated Mag.Wtg.Factor:	0.741
Historic High Groundwater:	8.0
Groundwater @ Exploration:	100.0

DEPTH TO BASE	BLOW COUNT N	WET DENSITY (PCF)	TOTAL STRESS O (TSF)	EFFECT STRESS O' (TSF)	REL. DEN. Dr (%)	ADJUST BLOWS (N1)60	Tav/σ'o	LIQUEFACTION SAFETY FACTOR	Volumetric Strain [e15} (%)	EQ. SETTLE. Pe (in.)
1.0	4	126.8	0.032	0.032	44	15	0.389	--	0.00	Grading
2.0	4	126.8	0.095	0.095	44	15	0.389	--	0.00	Grading
3.0	4	126.8	0.159	0.159	44	15	0.389	--	0.00	Grading
4.0	4	126.8	0.222	0.222	44	15	0.389	--	0.00	Grading
5.0	4	126.8	0.285	0.285	44	15	0.389	--	0.00	Grading
6.0	4	126.8	0.349	0.349	44	15	0.389	--	0.00	0.00
7.0	4	126.8	0.412	0.412	44	14	0.389	--	0.00	0.00
8.0	8	131.9	0.477	0.477		21	0.389	~	0.00	0.00
9.0	8	131.9	0.543	0.527		20	0.400	~	0.00	0.00
10.0	8	131.9	0.609	0.562		19	0.421	~	0.00	0.00
11.0	4	131.9	0.675	0.597	40	13	0.440	0.45	1.80	0.22
12.0	4	131.9	0.741	0.631	40	13	0.456	0.43	1.80	0.22
13.0	30	130.0	0.806	0.666		50	0.471	~	0.00	0.00
14.0	30	130.0	0.871	0.699		48	0.484	~	0.00	0.00
15.0	30	130.0	0.936	0.733		47	0.496	~	0.00	0.00
16.0	30	130.0	1.001	0.767		45	0.507	~	0.00	0.00
17.0	30	130.0	1.066	0.801		44	0.517	~	0.00	0.00
18.0	30	130.0	1.131	0.835		43	0.527	~	0.00	0.00
19.0	30	130.0	1.196	0.868		42	0.535	~	0.00	0.00
20.0	30	130.0	1.261	0.902	99	45	0.543	Non-Liq.	0.00	0.00
21.0	30	130.0	1.326	0.936	99	44	0.551	Non-Liq.	0.00	0.00
22.0	30	130.0	1.391	0.970	99	43	0.558	Non-Liq.	0.00	0.00
23.0	30	130.0	1.456	1.004	99	42	0.564	Non-Liq.	0.00	0.00
24.0	30	130.0	1.521	1.037	99	41	0.570	Non-Liq.	0.00	0.00
25.0	30	130.0	1.586	1.071	99	40	0.575	Non-Liq.	0.00	0.00
26.0	30	130.0	1.651	1.105	99	40	0.581	Non-Liq.	0.00	0.00
27.0	30	130.0	1.716	1.139	99	39	0.586	Non-Liq.	0.00	0.00
28.0	30	130.0	1.781	1.173	99	39	0.590	Non-Liq.	0.00	0.00
29.0	30	130.0	1.846	1.206	99	38	0.595	Non-Liq.	0.00	0.00
30.0	30	130.0	1.911	1.240	99	37	0.599	Non-Liq.	0.00	0.00
31.0	30	130.0	1.976	1.274	99	37	0.603	Non-Liq.	0.00	0.00
32.0	30	130.0	2.041	1.308	99	36	0.607	Non-Liq.	0.00	0.00
33.0	30	130.0	2.106	1.342	99	36	0.610	Non-Liq.	0.00	0.00
34.0	30	130.0	2.171	1.375	99	36	0.614	Non-Liq.	0.00	0.00
35.0	30	130.0	2.236	1.409	99	35	0.617	Non-Liq.	0.00	0.00
36.0	30	130.0	2.301	1.443	99	35	0.620	Non-Liq.	0.00	0.00
37.0	30	130.0	2.366	1.477	99	34	0.623	Non-Liq.	0.00	0.00
38.0	30	130.0	2.431	1.511	99	34	0.626	Non-Liq.	0.00	0.00
39.0	30	130.0	2.496	1.544	99	34	0.628	Non-Liq.	0.00	0.00
40.0	30	130.0	2.561	1.578	99	33	0.631	Non-Liq.	0.00	0.00
41.0	30	130.0	2.626	1.612	99	33	0.633	Non-Liq.	0.00	0.00
42.0	30	130.0	2.691	1.646	99	33	0.636	Non-Liq.	0.00	0.00
43.0	30	130.0	2.756	1.680	99	32	0.638	Non-Liq.	0.00	0.00
44.0	30	130.0	2.821	1.713	99	32	0.640	Non-Liq.	0.00	0.00
45.0	30	130.0	2.886	1.747	99	32	0.642	Non-Liq.	0.00	0.00
46.0	30	130.0	2.951	1.781	99	31	0.644	Non-Liq.	0.00	0.00
47.0	30	130.0	3.016	1.815	99	31	0.646	Non-Liq.	0.00	0.00
48.0	30	130.0	3.081	1.849	99	31	0.648	Non-Liq.	0.00	0.00
49.0	30	130.0	3.146	1.882	99	31	0.650	Non-Liq.	0.00	0.00
50.0	30	130.0	3.211	1.916	99	30	0.651	Non-Liq.	0.00	0.00

TOTAL SETTLEMENT = 0.4 INCHES

Figure 11

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GENERAL MANAGER
SUPERINTENDENT OF BUILDING

JOHN WEIGHT
EXECUTIVE OFFICER

GEOLOGY AND SOILS REPORT REVIEW LETTER

February 24, 2023

LOG # 124921
SOILS/GEOLOGY FILE – 2
LIQ

Jenson Capital Group, Inc.
822 S. Robertson Boulevard, Suite 303
Los Angeles, CA 90035

TRACTS:	26072 // 2500	// 25773	
LOTS:	1 // 19 & 35	// 1 (Arbs. 2, 3 & 4)	
LOCATION:	7500 N. Chaminade Avenue, 23241 W. Cohasset Street // 23260 W. Saticoy Street // 23217-23255 W. Saticoy Street, 7619-7629 N. Woodlake Avenue		

CURRENT REFERENCE REPORT/LETTER	REPORT No.	DATE OF DOCUMENT	PREPARED BY
Geology/Soils Report	W1547-06-01	01/12/2023	Geocon West, Inc.

The Grading Division of the Department of Building and Safety has reviewed the referenced report that provides recommendations for the proposed demolition of existing site improvements and construction of a 3-level administrative/classroom structure, accessory structures, pedestrian bridge, pool house, pool and retaining walls.

The earth materials at the subsurface exploration locations consist of up to 7 feet of uncertified fill underlain by up to 3 feet of colluvium, up to 40 feet of alluvium and Monterey Formation siltstone and sandstone bedrock that dips 10 degrees to the northeast and 12 to 30 degrees to the southeast. According to the consultants, groundwater was encountered at a depth of 14.6 feet in boring 12 and 32 feet in boring 1. Historic High Groundwater is mapped as less than 10 feet bgs in the areas of the pool house, pool, and generally in the areas outside of the proposed administration building.

The consultants recommend to support the proposed structures on conventional and/or drilled-pile foundations bearing in competent bedrock or on mat foundations bearing on a blanket of properly placed fill. According to the consultants, the upper 5 feet in the area of the pool house footprint is recommended to be excavated and compacted for support of the mat foundation.

The site is located in a designated liquefaction hazard zone as shown on the Seismic Hazard Zones map issued by the State of California.

The review of the subject report cannot be completed at this time and will be continued upon submittal of an addendum to the report which shall include, but not be limited to, the following:

(Note: Numbers in parenthesis ( ) refer to applicable sections of the 2023 City of LA Building Code. P/BC numbers refer the applicable Information Bulletin. Information Bulletins can be accessed on the internet at LADBS.ORG.)

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1. Verify the current legal description and addresses (for all lots part of the project site) with the Address Section of the Bureau of Engineering located on the Third Floor of the 201 N. Figueroa Street, City of Los Angeles offices.

2. Provide a geologic map that is based upon conceptual grading or site development plans, to illustrate all proposed and existing contours relative to the planned grading and/or construction, along with all off-site slopes and conditions that could adversely affect the stability or safety of the site (7006.3.2).

3. Show the location and height of all proposed retaining walls.

4. Verify the location of the borings on the maps and cross sections, and revise accordingly.

5. Provide slope stability analyses for all slopes steeper than 2H:1V to remain by the proposed improvements, such as the proposed bridge and administration building.

6. In areas where the depth to bedrock exceeds 10 feet, submit justification in accordance with ASCE/SEI 7-16 (Chapter 20) and code section 1613.2.2 of the 2020 Los Angeles Building Code for the use of a Site Class C. Otherwise, the Site Class shall be D in those areas, and updated seismic design parameters shall be provided.

   Note: The use of the Site Class C in the report does not appear justified due to the presence of up to 40 feet of fill and alluvium (North Campus), lack of shear wave velocities, SPT blow counts, or undrained shear strengths of the upper 100 feet of the site profile.

7. Historic High Groundwater is mapped as less than 10 feet bgs in the areas of the pool house, pool, and generally in the areas outside of the proposed administration building. As such, revise the liquefaction analyses using a historic high groundwater level of less than 10 feet.

8. For other than the Pool House, provide foundation recommendations for the proposed structures within the "North Campus" as shown on FIG. 2A, and for any proposed structures within the southern portion of the "Main Campus" (see FIG.2A). Note: The foundation recommendations shall comply with the settlement thresholds for liquefaction based on P/BC 2020-151.

9. Provide recommendations for the proposed swimming pool.

10. Revise the recommendations in the report based on the above items.

The geologist and soils engineer shall prepare a report containing an itemized response to the review items indicated in this letter. If clarification concerning the review letter is necessary, the report review engineer and/or geologist may be contacted. Two copies of the response report, including one unbound wet-signed original for archiving purposes, a pdf-copy of the complete report in a flash drive, and the appropriate fees will be required for submittal.

CASEY LEE JENSEN
Engineering Geologist Associate III

GLEN RAAD
Geotechnical Engineer I

CLJ/GR:clj/gr
Log No. 124921
213-482-0480

cc: Geocon West, Inc., Project Consultant
VN District Office

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201 NORTH FIGUEROA STREET
LOS ANGELES, CA 90012

OSAMA YOUNAN, P.E.
GENERAL MANAGER
SUPERINTENDENT OF BUILDING

JOHN WEIGHT
EXECUTIVE OFFICER

GEOLOGY AND SOILS REPORT APPROVAL LETTER

June 27, 2023

LOG # 124921-01
SOILS/GEOLOGY FILE - 2
LIQ

Chaminade College Preparatory
7500 Chaminade Avenue
West Hills, CA 91304

TRACTS:	26072 // 2500 // 25773
LOTS:	1 // 19 & 35 // 1 (Arbs. 2, 3 & 4)
LOCATION:	7500 N. Chaminade Avenue, 23241 W. Cohasset Street // 23260 W. Saticoy Street // 23217-23255 W. Saticoy Street, 7619-7629 N. Woodlake Avenue

CURRENT REFERENCE REPORT/LETTER(S)	REPORT No.	DATE OF DOCUMENT	PREPARED BY
Response Report	W1547-06-01	Rev. 05/08/2023	Geocon West, Inc.
Oversized Doc(s).	``	``	``

PREVIOUS REFERENCE REPORT/LETTER(S)	REPORT No.	DATE OF DOCUMENT	PREPARED BY
Dept. Review Letter	124921	02/24/2023	LADBS
Geology/Soils Report	W1547-06-01	01/12/2023	Geocon West, Inc.

The Grading Division of the Department of Building and Safety has reviewed the referenced reports that provide recommendations for the proposed demolition of existing site improvements and construction of a 3-level administrative/classroom structure, accessory structures, pedestrian bridge, pool house, pool and retaining walls, as shown on the Site Plan (Figure 1) and Geologic Maps (Figures 2A & 2B) in the 05/08/2023 report.

The earth materials at the subsurface exploration locations consist of up to 7 feet of uncertified fill underlain by up to 3 feet of colluvium, up to 40 feet of alluvium and Monterey Formation siltstone and sandstone bedrock that dips 10 degrees to the northeast and 12 to 30 degrees to the southeast. According to the consultants, groundwater was encountered at a depth of 14.6 feet in boring 12 and 32 feet in boring 1. Historic High Groundwater is mapped as less than 10 feet bgs in the areas of the pool house, pool, and generally the areas outside of the proposed administration building.

The consultants recommend to support the proposed structures on conventional and/or drilled-pile foundations bearing in competent bedrock or on mat foundations bearing on a blanket of properly placed fill (see pg. 6 of the 05/08/2023 report). According to the consultants, the upper 5 feet

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within the proposed structures is recommended to be excavated and compacted for support of the mat foundation (see pg. 6 of the 05/08/2023 report).

According to the consultants, the proposed swimming pool is recommended to derive support from newly placed fill and/or competent alluvial soils found at or below a depth of 5 feet, as recommended on page 8 of the 05/08/2023.

The site is located in a designated liquefaction hazard zone as shown on the Seismic Hazard Zones map issued by the State of California. The Liquefaction study included as a part of the 05/08/2023 report demonstrates that the site soils for the North Campus (boring B-1 by the pool house) are subject to liquefaction. The earthquake induced total and differential settlements are calculated to be 2.9 and 1.5 inches, respectively (based on 2/3rd the PGA_M). To mitigate the earthquake induced settlements it is proposed to use a mat foundation. The requirements of the 2023 City of Los Angeles Building Code have been satisfied.

The site is located in a designated liquefaction hazard zone as shown on the Seismic Hazard Zones map issued by the State of California. The Liquefaction study included as a part of the 05/08/2023 report demonstrates that the site soils for the North Campus (boring B-3 by the pedestrian bridge) are subject to liquefaction. The earthquake induced total and differential settlements are calculated to be 0.4 and 0.2 inches, respectively (based on 2/3rd the PGA_M). To mitigate the earthquake induced settlements it is proposed to use a pile foundation system bearing in bedrock. The requirements of the 2023 City of Los Angeles Building Code have been satisfied.

The referenced reports are acceptable, provided the following conditions are complied with during site development:

(Note: Numbers in parenthesis ( ) refer to applicable sections of the 2023 City of LA Building Code. P/BC numbers refer to the applicable Information Bulletin. Information Bulletins can be accessed on the internet at LADBS.ORG.)

1. Conformance with the Zoning Code Section 12.21 C8, which limits the heights and number of retaining walls, will be determined during structural plan check.

2. Approval shall be obtained from the Department of Public Works, Bureau of Engineering, Development Services and Permits Program where removal of support and/or retaining of slopes adjoining to a public way is proposed (3307.3.2).

   6262 Van Nuys Blvd. Ste 351, Van Nuys (818) 374-4605

3. Secure the notarized written consent from all owners upon whose property proposed grading/construction access is to extend, in the event off-site grading and/or access for construction purposes is required (7006.6). The consent shall be included as part of the final plans.

4. In the event temporary tie-back anchors are utilized for shoring purposes, then provide a notarized letter from all adjoining property owners allowing tie-back anchors on their property (7006.6).

5. The geologist and soils engineer shall review and approve the detailed plans prior to issuance of any permits. This approval shall be by signature on the plans that clearly

indicates the geologist and soils engineer have reviewed the plans prepared by the design engineer; and, that the plans include the recommendations contained in their reports (7006.1).

6. All recommendations of the report(s) that are in addition to or more restrictive than the conditions contained herein shall be incorporated into the plans.

7. A copy of the subject and appropriate referenced reports and this approval letter shall be attached to the District Office and field set of plans (7006.1). Submit one copy of the above reports to the Building Department Plan Checker prior to issuance of the permit.

8. A grading permit shall be obtained for all structural fill and retaining wall backfill (106.1.2).

9. All graded, brushed or bare slopes shall be planted with low-water consumption, native-type plant varieties to protect slopes against erosion (7012).

10. All new graded slopes shall be no steeper than 2H:1V (7010.2 & 7011.2).

11. All man-made fill shall be compacted to a minimum 90 percent of the maximum dry density of the fill material per the latest version of ASTM D 1557. Where cohesionless soil having less than 15 percent finer than 0.005 millimeters is used for fill, it shall be compacted to a minimum of 95 percent relative compaction based on maximum dry density. Placement of gravel in lieu of compacted fill is only allowed if complying with LAMC Section 91.7011.3.

12. If import soils are used, no footings shall be poured until the soils engineer has submitted a compaction report containing in-place shear test data and settlement data to the Grading Division of the Department; and, obtained approval (7008.2).

13. Compacted fill shall extend beyond the mat foundations a minimum distance equal to the depth of the fill below the bottom of footings or a minimum of three feet, whichever is greater, as recommended (7011.3).

14. Existing uncertified fill shall not be used for support of footings, concrete slabs or new fill (1809.2, 7011.3).

15. Drainage in conformance with the provisions of the Code shall be maintained during and subsequent to construction (7013.12).

16. Grading shall be scheduled for completion prior to the start of the rainy season, or detailed temporary erosion control plans shall be filed in a manner satisfactory to the Grading Division of the Department and the Department of Public Works, Bureau of Engineering, B-Permit Section, for any grading work in excess of 200 cubic yards (7007.1).

17. All loose foundation excavation material shall be removed prior to commencement of framing. Slopes disturbed by construction activities shall be restored (7005.3).

18. Controlled Low Strength Material, CLSM (slurry) if proposed to be used shall satisfy the requirements specified in P/BC 2020-121.

19. The applicant is advised that the approval of this report does not waive the requirements for excavations contained in the General Safety Orders of the California Department of Industrial Relations (3301.1).

20. Temporary excavations that remove lateral support to the public way, adjacent property, or adjacent structures shall be supported by shoring, as recommended. Note: Lateral support shall be considered to be removed when the excavation extends below a plane projected downward at an angle of 45 degrees from the bottom of a footing of an existing structure, from the edge of the public way or an adjacent property. (3307.3.1)

21. Prior to the issuance of any permit that authorizes an excavation where the excavation is to be of a greater depth than are the walls or foundation of any adjoining building or structure and located closer to the property line than the depth of the excavation, the owner of the subject site shall provide the Department with evidence that the adjacent property owner has been given a 30-day written notice of such intent to make an excavation (3307.1).

22. The soils engineer shall review and approve the shoring plans prior to issuance of the permit (3307.3.2).

23. Prior to the issuance of the permits, the soils engineer and/or the structural designer shall evaluate the surcharge loads used in the report calculations for the design of the retaining walls and shoring. If the surcharge loads used in the calculations do not conform to the actual surcharge loads, the soil engineer shall submit a supplementary report with revised recommendations to the Department for approval.

24. Unsurcharged temporary excavations exposing unsupported geology and/or unsupported bedding planes shall be trimmed back at a 2H:1V slope inclination up to 15 feet or shored, as recommended.

25. Unsurcharged temporary excavation may be cut vertical up to 5 feet in fill, soil and favorably orientated bedrock as determined by the project geologist. Excavations over 5 feet up to 10 feet shall be trimmed back at a uniform gradient not exceeding 1.5H:1V, from top to bottom of excavation, as recommended on pages 39 and 40 of the 01/12/2023 report.

26. Shoring shall be designed for the lateral earth pressures specified in the section titled "8.22 Shoring-Soldier Pile Design and Installation" starting on page 40 of the 01/12/2023 report; all surcharge loads shall be included into the design. Total lateral load on shoring piles shall be determined by multiplying the recommended EFP by the pile spacing.

27. Shoring shall be designed for a maximum lateral deflection of 1 inch, provided there are no structures within a 1:1 plane projected up from the base of the excavation. Where a structure is within a 1:1 plane projected up from the base of the excavation, shoring shall be designed for a maximum lateral deflection of ½ inch, or to a lower deflection determined by the consultant that does not present any potential hazard to the adjacent structure.

28. A shoring monitoring program shall be implemented to the satisfaction of the soils engineer.

29. All foundations shall derive entire support from a blanket of properly placed fill or competent bedrock, as recommended and approved by the geologist and soils engineer by inspection (see pg. 6 of the 05/08/2023 report for a summary of the proposed foundations and bearing materials).

30. The building design in the eastern portion of the North Campus (boring B-1 by the pool house) shall incorporate provisions for total anticipated differential settlements of 2 inches, which include 0.5 and 1.5 inches for static and seismic-induced loads, respectively. (1808.2)

31. Special provisions such as flexible or swing joints shall be made for buried utilities and drain lines to allow for differential vertical displacement.

32. Footings for miscellaneous small outlying structures, such as property line walls and trash enclosures, not to be tied-in to the proposed building, shall derive entire support from properly placed fill soils or native undisturbed soils, as recommended on page 21 of the 01/12/2023 report.

33. Piles shall be designed for the down drag forces as specified and recommended on page 27 of the 01/12/2023 report.

34. Foundations adjacent to a descending slope steeper than 3:1 (horizontal to vertical) in gradient shall be a minimum distance of one-third the vertical height of the slope but need not exceed 40 feet measured horizontally from the footing bottom to the face of the slope (1808.7.2); for pools the foundation setback shall be one-sixth the slope height to a maximum of 20 feet (1808.7.3).

35. Buildings adjacent to ascending slopes steeper than 3H:1V in gradient shall be setback from the toe of the slope a level distance measured perpendicular to slope contours equal to one-half the vertical height of the slope, but need not exceed 15 feet (1808.7.1).

36. All continuous footings shall be reinforced with a minimum of four (4), ½-inch diameter (#4) deformed reinforcing bars. Two (2) bars shall be placed near the bottom and two (2) bars placed near the top of the footing, as recommended.

37. The foundation/slab design shall satisfy all requirements of the Information Bulletin P/BC 2017-116 "Foundation Design for Expansive Soils" (1803.5.3).

38. Pile caisson and/or isolated foundation ties are required by LAMC Sections 91.1809.13 and/or 91.1810.3.13. Exceptions and modification to this requirement are provided in Information Bulletin P/BC 2020-030.

39. The design passive pressure shall be neglected for a portion of the pile with a horizontal setback distance less than five feet from the face of the slope, or as recommended in the soils report, whichever is greater.

40. When water is present in drilled pile holes, the concrete shall be tremied from the bottom up to ensure minimum segregation of the mix and negligible turbulence of the water (1808.8.3).

41. Existing uncertified fill shall not be used for lateral support of deep foundations (1810.2.1).

42. The Code requires analysis for the group effects on lateral behavior where the center-to-center spacing of deep foundation elements in the direction of lateral force is less than eight times the least horizontal dimension of an element, and the Code also requires analysis for the group effects on axial behavior where the center-to-center spacing of deep foundation elements is less than three times the least horizontal dimension of an element. Where this occurs for the proposed pile layout, a supplemental report shall be submitted that contains said analysis and recommendations for reduction factors as appropriate. (1810.2.5)

43. Slabs on uncertified fill shall be designed as a structural slab (7011.3).

44. Slabs placed on approved compacted fill shall be at least 4 inches thick and shall be reinforced with ½-inch diameter (#4) reinforcing bars spaced a maximum of 16 inches on center each way, as recommended.

45. Concrete floor slabs placed on expansive soil shall be placed on a 4-inch fill of coarse aggregate or on a moisture barrier membrane. The slabs shall be at least 4 inches thick and shall be reinforced with ½-inch diameter (#4) reinforcing bars spaced a maximum of 16 inches on center each way.

46. The seismic design shall be based on a Site Class C for the Main Campus structure and Site Class D for the North Campus structures, as recommended on page 3 of the 05/08/2023 report. All other seismic design parameters shall be reviewed by LADBS building plan check. According to ASCE 7-16 Section 11.4.8, for structures on Site Class D sites with S1 greater than or equal to 0.2, the parameter SM1 determined by EQ. (11.4-2) shall be increased by 50%. Alternatively, a supplemental report containing a site-specific ground motion hazard analysis in accordance with ASCE 7-16 Section 21.2 shall be submitted for review and approval.

47. Retaining walls with a level backfill shall be designed for the lateral earth pressures specified in the section titled "8.16 Retaining Wall Design" starting on page 36 of the 01/12/2023 report. All surcharge loads shall be included into the design.

48. Retaining walls higher than 6 feet shall be designed for lateral earth pressure due to earthquake motions as specified on page 38 of the 01/12/2023 report (1803.5.12).

    Note: Lateral earth pressure due to earthquake motions shall be in addition to static lateral earth pressures and other surcharge pressures. The height of a stacked retaining wall shall be considered as the summation of the heights of each wall.

49. All retaining walls shall be provided with a standard surface backdrain system and all drainage shall be conducted in a non-erosive device to the street in an acceptable manner (7013.11).

50. With the exception of retaining walls designed for hydrostatic pressure, all retaining walls shall be provided with a subdrain system to prevent possible hydrostatic pressure behind the wall. Prior to issuance of any permit, the retaining wall subdrain system recommended in the soils report shall be incorporated into the foundation plan which shall be reviewed and approved by the soils engineer of record (1805.4).

51. Installation of the subdrain system shall be inspected and approved by the soils engineer of record and the City grading/building inspector (108.9).

52. Basement walls and floors shall be waterproofed/damp-proofed with an LA City approved "Below-grade" waterproofing/damp-proofing material with a research report number (104.2.6).

53. The use of acceptable prefabricated drainage composites (also known as geosynthetic subdrain systems), as an alternative to traditionally accepted methods of draining retained earth, shall be determined during structural plan check.

54. Where the ground water table is lowered and maintained at an elevation not less than 6 inches below the bottom of the lowest floor, or where hydrostatic pressures will not occur, the floor and basement walls shall be damp-proofed. Where a hydrostatic pressure condition exists, and the design does not include a ground-water control system, basement walls and floors shall be waterproofed. (1803.5.4, 1805.1.3, 1805.2, 1805.3)

55. The pool shall be designed for expansive soil conditions in accordance with Information Bulletin P/BC 2020-014.

56. The proposed swimming pool shall be designed for a freestanding condition, as recommended on page 8 of the 05/08/2023.

57. The structure shall be connected to the public sewer system per P/BC 2020-027.

58. All concentrated drainage shall be conducted to the street in an acceptable manner in non-erosive devices or other approved location in a manner that is acceptable to the LADBS and the Department of Public Works; water shall not be dispersed on to descending slopes without specific approval from the Grading Division and the consulting geologist and soils engineer (7013.10).

59. An on-site storm water infiltration system at the subject site shall not be implemented, as recommended.

60. Any recommendations prepared by the geologist and/or the soils engineer for correction of geological hazards found during grading shall be submitted to the Grading Division of the Department for approval prior to use in the field (7008.2, 7008.3).

61. The geologist and soils engineer shall inspect all excavations to determine that conditions anticipated in the report have been encountered and to provide recommendations for the correction of hazards found during grading (7008, 1705.6 & 1705.8).

62. All friction pile or caisson drilling and excavations shall be performed under the inspection and approval of the geologist and soils engineer. The geologist shall indicate the distance that friction piles or caissons penetrate into competent bedrock in a written field memorandum. (1803.5.5, 1705.1.2)

63. Prior to pouring concrete, a representative of the consulting soils engineer shall inspect and approve the footing excavations. The representative shall post a notice on the job site for the LADBS Inspector and the Contractor stating that the work inspected meets the conditions of the report. No concrete shall be poured until the LADBS Inspector has also

inspected and approved the footing excavations. A written certification to this effect shall be filed with the Grading Division of the Department upon completion of the work. (108.9 & 7008.2)

64. Prior to excavation an initial inspection shall be called with the LADBS Inspector. During the initial inspection, the sequence of construction; shoring; pile installation; protection fences; and, dust and traffic control will be scheduled (108.9.1).

65. Installation of shoring and/or pile excavations shall be performed under the inspection and approval of the soils engineer and deputy grading inspector (1705.6, 1705.8).

66. The installation and testing of tie-back anchors shall comply with the recommendations included in the report or the standard sheets titled "Requirement for Tie-back Earth Anchors", whichever is more restrictive. [Research Report #23835]

67. A supplemental report shall be provided in the event any deviation to the currently proposed project configuration, as presented and as shown in the plans and cross sections included in the approved reports, is made. This shall include but not limited to: relocation, change in any dimension, change in the number of stories above or below grade of any of the proposed structures; addition of any structure(s), such as retaining walls, decks, swimming pools, driveways, access roads, living quarters, etc.; or, additional permanent grading or temporary grading for construction purposes that are not described and not shown in the plans and cross sections included in the approved reports.

68. Prior to the placing of compacted fill, a representative of the soils engineer shall inspect and approve the bottom excavations. The representative shall post a notice on the job site for the LADBS Inspector and the Contractor stating that the soil inspected meets the conditions of the report. No fill shall be placed until the LADBS Inspector has also inspected and approved the bottom excavations. A written certification to this effect shall be included in the final compaction report filed with the Grading Division of the Department. All fill shall be placed under the inspection and approval of the soils engineer. A compaction report together with the approved soil report and Department approval letter shall be submitted to the Grading Division of the Department upon completion of the compaction. In addition, an Engineer's Certificate of Compliance with the legal description as indicated in the grading permit and the permit number shall be included (7011.3).

69. No footing/slab shall be poured until the compaction report is submitted and approved by the Grading Division of the Department.

FOR

CASEY LEE JENSEN
Engineering Geologist Associate III

GLEN RAAD
Geotechnical Engineer I

CLJ/GR:clj/gr
Log No. 124921-01
213-482-0480

cc: Geocon West, Inc., Project Consultant
VN District Office

CITY OF LOS ANGELES
DEPARTMENT OF BUILDING AND SAFETY
Grading Division

District VN	Log No. 124921-1

APPLICATION FOR REVIEW OF TECHNICAL REPORTS

INSTRUCTIONS

A. Address all communications to the Grading Division, LADBS, 201 N. Figueroa St., 3rd Fl., Los Angeles, CA 90012 Telephone No. (213)482-0480.
B. Submit two copies (three for subdivisions) of reports, one "pdf" copy of the report on a CD-Rom or flash drive, and one copy of application with items "1" through "10" completed.
C. Check should be made to the City of Los Angeles.

1. LEGAL DESCRIPTION
Tract: 2607 / 2500 / 25733
Block: ____ Lots: LT1 / 19 / LT1 ARB: 1-4
3. OWNER: Chaminade College Preparatory
Address: 7500 Chaminade Avenue
City: West Hills Zip: 91304
Phone (Daytime): ____

2. PROJECT ADDRESS: 7500 Chaminade Avenue, 23255 Saticoy Street, 7621 and 7629 Woodlake Avenue
4. APPLICANT Geocon West Inc.
Address: 500 N. Victory Boulevard
City: Burbank Zip: 91502
Phone (Daytime): 818-841-8388
E-mail address: berliner@geoconinc.com

5. Report(s) Prepared by: Geocon West, Inc. No. W1547-06-01
6. Report Date(s): May 8, 2023

7. Status of project: ☐ Proposed ☑ Under Construction ☐ Storm Damage
8. Previous site reports? ☑ YES if yes, give date(s) of report(s) and name of company who prepared report(s)
Geocon West Inc. Project Numbers: W1547-06-01 dated 01/12/23
9. Previous Department actions? ☑ YES if yes, provide dates and attach a copy to expedite processing.
Dates: Log No. 124921 (02/24/23)
10. Applicant Signature: Kelsey Filban (Kelsey Filban) Position: Admin

(DEPARTMENT USE ONLY)

REVIEW REQUESTED	FEES	REVIEW REQUESTED	FEES
☐ Soils Engineering		No. of Lots	
☐ Geology		No. of Acres	
☐ Combined Soils Engr. & Geol.		☐ Division of Land	
☐ Supplemental		Other	
☐ Combined Supplemental		☒ Expedite	$ 181.50
☐ Import-Export Route		☒ Response to Correction	$ 363.00
Cubic Yards:		☐ Expedite ONLY	
		Sub-total	$ 544.50
		One-Stop Surcharge	$ 129.80
		TOTAL FEE	$ 674.30

Fee Due: $ 674.30
Fee Verified By: AR Date: 5/23/2023
(Cashier Use Only)
Receipt # 1589087 (AR) 5/23/23

ACTION BY:
THE REPORT IS: ☐ NOT APPROVED
☐ APPROVED WITH CONDITIONS ☐ BELOW ☐ ATTACHED

For Geology ____ Date ____
For Soils ____ Date ____

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TECHNICAL MEMORANDUM

To: Stacie Henderson
CAJA Environmental Services, LLC
15350 Sherman Way, Suite 315
Van Nuys, California 91406

From: Mathew Carson, M.S., Lead Paleontologist

Date: December 15, 2022

Re: **Paleontological Resources Technical Memorandum for the Chaminade College Preparatory – High School Project, Los Angeles, Los Angeles County, California**

INTRODUCTION

On behalf of Chaminade College Preparatory, SWCA Environmental Consultants (SWCA) conducted a paleontological resources assessment for the proposed Chaminade College Preparatory – High School Project (project) in the West Hills neighborhood of the city of Los Angeles, Los Angeles County, California (Figure 1). The following study was conducted to analyze any potential impacts the project may have on paleontological resources located in the project area, to comply with the California Environmental Quality Act (CEQA), local regulations, and best practices in paleontological mitigation (Murphey et al. 2019). This technical memorandum documents the methods and results of the paleontological resources assessment, which included a review of geologic maps, scientific literature, and confidential fossil locality records from the Natural History Museum of Los Angeles County (NHMLA). These data were used to evaluate the likelihood of paleontological resources within the project area.

SWCA Lead Paleontologist Mathew Carson, M.S., conducted the paleontological resources assessment presented herein and authored this technical memorandum. SWCA Principal Paleontologist Russell Shapiro, Ph.D., provided quality assurance/quality control. Figures were generated by SWCA Geographic Information System (GIS) Specialist Marty Kooistra, M.A., Registered Professional Archaeologist (RPA). Copies of the report are on file with SWCA's Pasadena office.

PROJECT DESCRIPTION AND LOCATION

The project consists of changing the existing main campus and adding a new north campus (Figure 2). The changes to the main campus include a partial demolition of existing surface parking lots; demolition of approximately 32,204 square feet of existing classroom buildings, including the removal of existing portable buildings; and the addition of approximately 60,760 square feet of new floor area to include a new administrative, multipurpose, and classroom building, as well as the renovation of existing offices and the addition of electric vehicle parking and charging stations within most existing surface parking lots.



Figure 1. Project vicinity within the western San Fernando Valley of Los Angeles County.



Figure 2. Project area plotted on an aerial photograph.

The project also involves the expansion of the high school to the north campus on the north side of Saticoy Street, to include demolition of the existing structures on-site totaling approximately 58,706 square feet and the demolition of the existing surface parking lot (see Figure 2). The expansion to the north campus includes the development of approximately 8,494 square feet of floor area within a proposed athletic field pool house, locker rooms, and proposed building to house restrooms and concessions. The balance of the north campus site will include a proposed new soccer and baseball field, a new pool, and two new proposed surface parking lots.

A new pedestrian bridge will be constructed to span Saticoy Street connecting the north campus to the main campus. The pedestrian bridge will have access at the surface parking lot of the north campus and the new main entrance to the high school on the main campus. In addition, to complete the perimeter security on the main campus, new fencing and vehicular gates will be added along the northeast drive aisle, parent drop-off along Chaminade Avenue, and the most eastern access along Cohasset Street. A new 10-foot-high ornamental fencing will be provided around the perimeter of the north campus.

New construction on the main campus includes a new, multistory building at the main entrance that will include administrative offices, counseling offices, library, multipurpose room, classrooms, and labs. The existing single-story buildings, used for administrative offices located at the southeast corner of the main campus, will undergo renovation, but will not increase in floor area or height. A new surface parking lot will be constructed in place of the existing paved driveway adjacent to the single-story office building at the southeast corner of the main campus. Finally, additional improvements to the main campus will include minor demolition and resurfacing of the existing baseball field along Cohasset Street, to be reutilized as a softball field, and removal of the north surface parking lot and resurfacing to create a new landscaped quad area adjacent to the new administrative building.

Improvements on the north campus include a baseball field, practice soccer fields, swimming pool, associated facilities, and surface parking. The baseball field and soccer field are inclusive of 40-foot-high safety netting along a portion of the outfield perimeter, a 26-foot-high electric scoreboard located in left-center field facing Saticoy Street, single-story locker rooms, batting cages and bull pens located along the first and third base-lines, bleachers providing approximately 350 seats, and a shade structure reaching 19 feet in height located behind home plate with a press box of approximately 100 square feet located between the home and visiting seating sections. Eight stadium light standards ranging in height from 70 feet to 90 feet are proposed with the 70-foot light standards located along the perimeter of left and right field, with 80- and 90-foot light standards along Saticoy Street and adjacent to the new surface parking lot. To the west of the baseball field is a 1,540-square-foot single-story concession and restroom building (16 feet in height) and a 95-stall surface parking lot and entrance to the pedestrian bridge.

To the east of the baseball field is a proposed in-ground pool, with four 40-foot-high light standards, a single-story (19 feet), 6,094-square-foot athletic field and pool house, and 19 surface parking stalls. There are currently four ingress/egress points along Saticoy Street that will be reduced to the two access points for this project. There are currently two ingress/egress points along Woodlake Avenue that will be reduced to one ingress/egress driveway at the approximate location of the existing north access point.

PROJECT LOCATION

The project area is in Section 35, Township 2 North, Range 17 West, and is plotted on the U.S. Geological Survey (USGS) Calabasas, California, quadrangle (Figure 3). The project area comprises six parcels: 7500 Chaminade Avenue (Assessor Parcel Numbers [APNs] 2027-005-002 and -009), which contains the high school campus (the Main Campus); the proposed project will develop another property designated as the North Campus, which is located at the northwest corner of Saticoy Street and Woodlake Avenue, at 23255 Saticoy Street, 7629 Woodlake Avenue, and 7621 Woodlake Avenue (APNs 2027-005-005, 2027-005-006, and 2027-005-007). Combined, the Main Campus and proposed North Campus total

approximately 25.9 acres. The proposed North Campus is currently developed with a multi-tenant mini shopping center and surface parking lot, built between 1962 and 1964.

PROFESSIONAL STANDARDS

The Society of Vertebrate Paleontology (SVP) has established standard guidelines that outline professional protocols and practices for conducting paleontological resource assessments and surveys, monitoring and mitigation, data and fossil recovery, sampling procedures, and specimen preparation, identification, analysis, and curation (SVP 1995, 2010). Most practicing professional vertebrate paleontologists adhere closely to the SVP's assessment, mitigation, and monitoring requirements, as specifically provided in its standard guidelines. Most state regulatory agencies with paleontological laws, ordinances, regulations, and standards accept and use the professional standards set forth by the SVP.

As defined by the SVP (2010:11), significant paleontological resources are

> fossils and fossiliferous deposits, here defined as consisting of identifiable vertebrate fossils, large or small, uncommon invertebrate, plant, and trace fossils, and other data that provide taphonomic, taxonomic, phylogenetic, paleoecologic, stratigraphic, and/or biochronologic information. Paleontological resources are considered to be older than recorded human history and/or older than middle Holocene (i.e., older than about 5,000 radiocarbon years).

Numerous paleontological studies have developed criteria for the assessment of significance for fossil discoveries (e.g., Eisentraut and Cooper 2002; Murphey et al. 2019; Scott and Springer 2003). In general, these studies assess fossils as significant if one or more of the following criteria apply:

1. The fossils provide information on the evolutionary relationships and developmental trends among organisms, living or extinct;
2. The fossils provide data useful in determining the age(s) of the rock unit or sedimentary stratum, including data important in determining the depositional history of the region and the timing of geologic events therein;
3. The fossils provide data regarding the development of biological communities or interaction between paleobotanical and paleozoological biotas;
4. The fossils demonstrate unusual or spectacular circumstances in the history of life; or
5. The fossils are in short supply and/or are in danger of being depleted or destroyed by the elements, vandalism, or commercial exploitation, and are not found in other geographic locations.

Geologic units known to preserve significant fossils or fossil localities are likely to contain additional undiscovered and potentially significant fossils and are generally considered sensitive for paleontological resources throughout their areal and stratigraphic (i.e., vertical) extent. The extent of sensitivity differs from that defined for archaeological resource sites as follows:

> It is extremely important to distinguish between archaeological and paleontological (fossil) resource sites when defining the sensitivity of rock units. The boundaries of archaeological sites define the areal extent of the resource. Paleontological sites, however, indicate that the containing sedimentary rock unit or formation is fossiliferous. The limits of the entire rock formation, both areal and stratigraphic, therefore define the scope of the paleontological potential in each case. (SVP 1995:23)

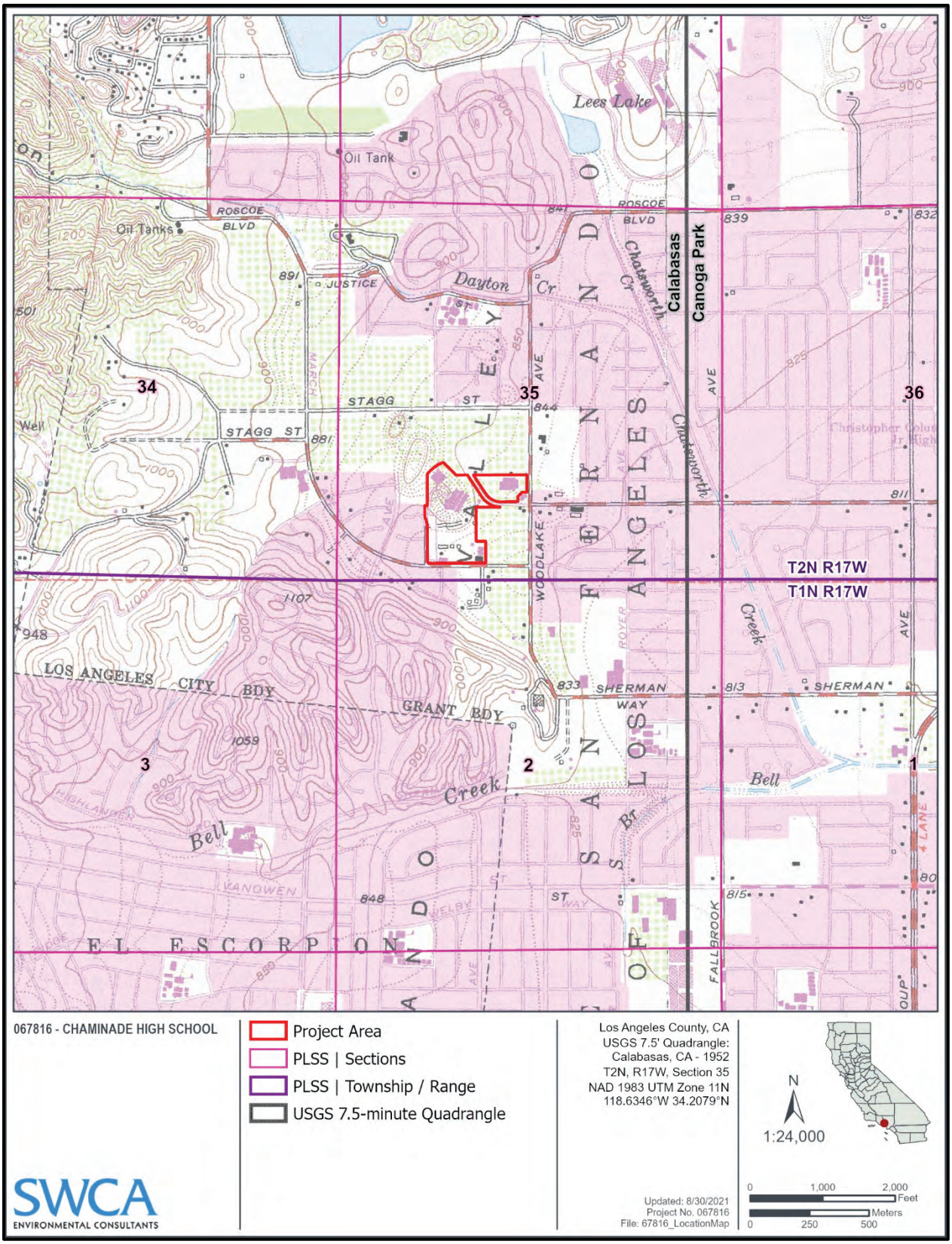


Figure 3. Project area plotted on the USGS Calabasas, California, 7.5-minute topographic quadrangle.

Many archaeological sites contain features visually detectable on the surface. In contrast, fossils may be present at the surface or at depth within sediments or bedrock. Subsurficial fossils would not be observable or detectable unless exposed by erosion or human activity. In the case of human activity, such as project-related ground disturbances within geologic units with a high probability to yield significant fossils, direct or indirect adverse impacts to significant fossils may occur.

In summary, paleontologists cannot know either the quality or quantity of fossils prior to natural erosion or anthropogenic exposure. As a result, even in the absence of fossils on the surface, it is necessary to assess the sensitivity of geologic units based on their known potential to produce significant fossils elsewhere within the same geologic unit (both within and outside the study area), a similar geologic unit, and whether the unit in question was deposited in a type of environment known to be favorable for fossil preservation. Monitoring by experienced paleontologists greatly increases the probability that fossils will be discovered during ground-disturbing activities and that, if such fossils are determined to be potentially significant, successful mitigation and salvage efforts may be undertaken to prevent adverse impacts to these resources.

REGULATORY SETTING

Paleontological resources are limited, nonrenewable resources of scientific, cultural, and educational value and are afforded protection under state and local laws and regulations. This study satisfies project requirements in accordance with state and local regulations and was conducted as a means of characterizing the existing conditions consistent with the application of the screening criteria defined in Appendix G of the State CEQA Guidelines (as amended December 28, 2018). This analysis also complies with guidelines and criteria specified by the SVP (2010) and follows best practices in mitigation paleontology (Murphey et al. 2019).

State Regulations

California Environmental Quality Act

CEQA is the principal statute governing environmental review of projects occurring in the state and is codified at Public Resources Code (PRC) Section 21000 et seq. CEQA requires lead agencies to determine if a proposed project would have a significant effect on the environment, including significant effects on paleontological resources. Guidelines for the Implementation of CEQA, as amended December 28, 2018 (Title 14, Chapter 3, California Code of Regulations [CCR] 15000 et seq.), define procedures, types of activities, persons, and public agencies required to comply with CEQA. Section VII(f) of the Environmental Checklist (State CEQA Guidelines Appendix G) asks whether a project would directly or indirectly destroy a unique paleontological resource and result in impacts to the environment.

Public Resources Code Section 5097.5

Requirements for paleontological resource management are included in PRC Division 5, Chapter 1.7, Section 5097.5, which states:

> No person shall knowingly and willfully excavate upon, or remove, destroy, injure or deface any historic or prehistoric ruins, burial grounds, archaeological or vertebrate paleontological site, including fossilized footprints, inscriptions made by human agency, or any other archaeological, paleontological or historical feature, situated on public lands, except with the express permission of the public agency having jurisdiction over such lands. Violation of this section is a misdemeanor.

These statutes prohibit the removal, without permission, of any paleontological site or feature from land under the jurisdiction of the state or any city, county, district, authority, or public corporation, or any agency thereof. Consequently, local agencies are required to comply with PRC 5097.5 for their own activities, including construction and maintenance, as well as for permit actions (e.g., encroachment permits) undertaken by others. PRC Section 5097.5 also establishes the removal of paleontological resources as a misdemeanor and requires reasonable mitigation of adverse impacts to paleontological resources from developments on public (state, county, city, and district) land.

Local Regulations

City of Los Angeles General Plan

Section 3 (Archaeological and Paleontological) of the *City of Los Angeles General Plan Conservation Element* (Conservation Element) recognizes paleontological resources (page II-3) and contains an objective (page II-5) to protect the city's archaeological and paleontological resources for historical, cultural, research, and/or educational purposes (City of Los Angeles 2001). The Conservation Element includes the policy to "continue to identify and protect significant archaeological and paleontological sites and/or resources known to exist or that are identified during land development, demolition or property modification activities." The Conservation Element also states the following:

> Pursuant to CEQA, if a land development project is within a potentially significant paleontological area, the developer is required to contact a bona fide paleontologist to arrange for assessment of the potential impact and mitigation of potential disruption of or damage to the site. If significant paleontological resources are uncovered during project execution, authorities are to be notified and the designated paleontologist may order excavations stopped, within reasonable time limits, to enable assessment, removal or protection of the resources. (City of Los Angeles 2001:II-5)

Section D:1 of the *L.A. CEQA Thresholds Guide* (City of Los Angeles 2006) specifies that the determination of significance for paleontological resources shall be made on a case-by-case basis, taking into consideration the following factors:

- Whether, or the degree to which, the project might result in the permanent loss of, or loss of access to, a paleontological resource; and
- Whether the paleontological resource is of regional or statewide significance.

METHODS

The following sections present an overview of the methodology used to analyze the potential for paleontological resources within the project area. This report conforms to industry standards as developed by the SVP (1995, 2010) and best practices in mitigation paleontology (Murphey et al. 2019). The purpose of this analysis is to: 1) determine whether any previously recorded fossil localities occur in the project area at the surface or at depth; 2) if so, assess the potential for disturbance of these localities during construction; 3) evaluate the paleontological potential of the project area; and 4) evaluate the potential for significant impacts or adverse effects on previously undiscovered scientifically significant paleontological resources that could be present within the project area and adversely impacted by implementation or construction of the project.

Existing Data Analysis

SWCA conducted an analysis of available existing data pertinent to paleontological resources. This analysis included a review of geologic maps, scientific literature, and museum records search results.

The geologic mapping used in this analysis is from Yerkes and Campbell (1995) at a scale of 1:24,000. The museum records search was submitted to the NHMLA on August 25, 2021. The results of the museum records search were received on August 28, 2021, and are incorporated into the Results section of this technical memorandum and included in confidential Attachment A.

Paleontological Potential Classification

Paleontological potential is defined as the potential for a geologic unit to produce scientifically significant fossils. This is determined by rock type, history of the geologic unit in producing significant fossils, and fossil localities recorded from that unit. Paleontological sensitivity is derived from the known fossil data collected from the entire geologic unit, not just from a specific survey. The SVP (2010:1–2) defines four categories of paleontological sensitivity (potential) for rock units: high, low, undetermined, and no potential:

> **High Potential**. Rock units from which vertebrate or significant invertebrate, plant, or trace fossils have been recovered are considered to have a high potential for containing additional significant paleontological resources. Rocks units classified as having high potential for producing paleontological resources include, but are not limited to, sedimentary formations and some volcaniclastic formations (e.g., ash or tephra), and some low-grade metamorphic rocks which contain significant paleontological resources anywhere within their geographical extent, and sedimentary rock units temporally or lithologically suitable for the preservation of fossils (e.g., middle Holocene and older, fine-grained fluvial sandstone, argillaceous and carbonate-rich paleosols, cross-bedded point bar sandstone, fine-grained marine sandstone, etc.). Paleontological potential consists of both a) the potential for yielding abundant or significant vertebrate fossils or for yielding a few significant fossils, large or small, vertebrate, invertebrate, plant, or trace fossils and b) the importance of recovered evidence for new and significant taxonomic, phylogenetic, paleoecologic, taphonomic, biochronologic, or stratigraphic data. Rock units which contain potentially datable organic remains older than late Holocene, including deposits associated with animal nests or middens, and rock units which may contain new vertebrate deposits, traces, or trackways are also classified as having high potential.
>
> **Low Potential**. Reports in the paleontological literature or field surveys by a qualified professional paleontologist may allow determination that some rock units have low potential for yielding significant fossils. Such rock units will be poorly represented by fossil specimens in institutional collections or based on general scientific consensus only preserve fossils in rare circumstances and the presence of fossils is the exception not the rule, e.g., basalt flows or Recent colluvium. Rock units with low potential typically will not require impact mitigation measures to protect fossils.
>
> **Undetermined Potential**. Rock units for which little information is available concerning their paleontological content, geologic age, and depositional environment are considered to have undetermined potential. Further study is necessary to determine if these rock units have high or low potential to contain significant paleontological resources. A field survey by a qualified professional paleontologist to specifically determine the paleontological resource potential of these rock units is required before a paleontological resource impact mitigation program can be developed. In cases where no subsurface data are available, paleontological potential can sometimes be determined by strategically located excavations into subsurface stratigraphy.

> **No Potential**. Some rock units have no potential to contain significant paleontological resources, for instance high-grade metamorphic rocks (such as gneisses and schists) and plutonic igneous rocks (such as granites and diorites). Rock units with no potential require no protection or impact mitigation measures relative to paleontological resources. (SVP 2010:1–2)

RESULTS

Regional Geology

The project area is situated in the San Fernando Valley, a structural trough located within the Transverse Ranges Geomorphic Province, consisting of a complex series of young, east-west-trending mountain ranges and valleys that contradict the general north-south orientation of California's other mountain ranges, such as the adjacent Peninsular Ranges and Coastal Ranges geomorphic provinces (Norris and Webb 1990; Sylvester and O'Black Gans 2016). The Transverse Ranges Geomorphic Province begins at Point Conception in Santa Barbara County and extends in an easterly direction, terminating at the San Bernardino Mountains in San Bernardino County (Sylvester and O'Black Gans 2016). Most of the Traverse Ranges Geomorphic Province is bounded on the north and east by the San Andreas Fault System that separates the province from the Peninsular Ranges and Coastal Ranges geomorphic provinces. Topography of the Transverse Ranges Geomorphic Province is noted for being extremely steep and difficult to cross (Norris and Webb 1990).

The Transverse Ranges Geomorphic Province includes a wide variety of geologic units, ranging in age from the Proterozoic to Recent (Norris and Webb 1990). Mountain ranges within the Transverse Ranges Geomorphic Province are mainly composed of two distinct types of crystalline basement rocks that are separated by thrust faults (Norris and Webb 1990). The sedimentary units within the province are composed of a thick sequence of late Mesozoic- and Cenozoic-aged strata that rest unconformably on a variety of basement rocks (Namson and Davis 1988). The province is undergoing active north-south shortening due to faulting (Wentworth and Yerkes 1971), causing a significant rise in elevation on an annual scale. The San Fernando Valley specifically is bounded by several of these fault-bounded mountain ranges, such as the Santa Susana Mountains on the northwest, the San Gabriel Mountains on the northeast, the Santa Monica Mountains on the south, and the Simi Hills on the west. Near the Granada Hills neighborhood, the Mission Hills Fault presumably trends along the northern border of the San Fernando Valley along its contact with the topographically rugged Santa Susana Mountains (Dibblee and Ehrenspeck 1992). The San Fernando Valley forms a deep trough into which sediments have been deposited from the Miocene to the present (Wentworth and Yerkes 1971). Sediments are primarily sourced from the Santa Susana Mountains and San Gabriel Mountains to the north and consist of clasts of Precambrian gneisses, the Mesozoic Pelona Schist, and Jurassic siliceous sediments (Yerkes 1997). These sediments have accumulated to thicknesses of more than 9,840 feet in the San Fernando Valley (Yerkes 1997). The valley is situated in a tectonically active area, with sedimentary deposits subjected to uplift and deformation from ongoing fault activity (Wentworth and Yerkes 1971).

Local Geology and Paleontology

According to geologic mapping by Yerkes and Campbell (1995), the project area is mapped at the surface as late to middle Pleistocene old alluvial fan deposits, undivided (Qof) and late Miocene Modelo Formation, undivided (Tm). Although unmapped by Yerkes and Campbell (1995), the project area also contains unmapped Recent to late Holocene artificial fill (Qaf) at the surface based on aerial imagery (see Figure 2). These geologic units are described in geochronological order below and shown in Figure 4.

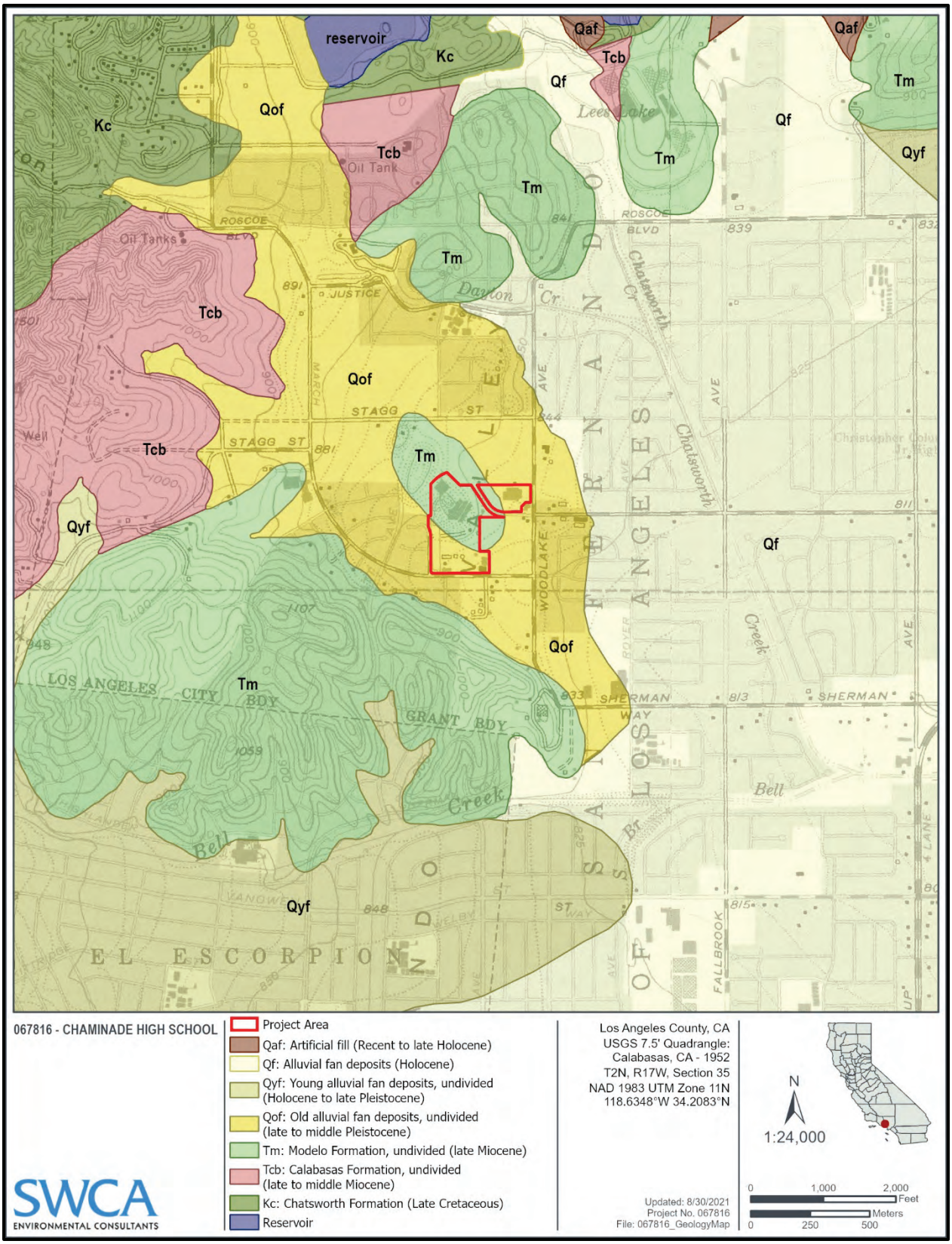


Figure 4. Geology of the project area.

Recent to late Holocene Artificial Fill (Qaf)

Recent to late Holocene artificial fill (Qaf) is not mapped at the surface within the bounds of the project area by Yerkes and Campbell (1995); however, based on aerial imagery, the flat topography of the San Fernando Valley, and previous site development, artificial fill likely caps the project area as a thin veneer. Previously disturbed sediments or artificial fill may contain fossils; however, any such fossil from these deposits has been removed from its original stratigraphic context (provenance). Therefore, artificial fill is unlikely to yield significant paleontological resources. Artificial fill is likely underlain by geologic units capable of preserving scientifically significant paleontological resources (i.e., old alluvial fan deposits [Qof] and/or Modelo Formation [Tm]).

Late to middle Pleistocene Old Alluvial Fan Deposits, undivided (Qof)

According to geologic mapping by Yerkes and Campbell (1995), late to middle Pleistocene old alluvial fan deposits (Qof) are mapped at the surface of the project area but are likely capped by Recent to late Holocene artificial fill (Qaf) (see Figure 4). Old alluvial fan deposits consist of gravel, sand, silt, and clay, moderately to well consolidated, silty to well cemented, and dissected (Yerkes and Campbell 1995). The depth to the old alluvial fan deposits underlying the artificial fill in the subsurface of the project area is unknown but likely shallow based on the flat topography of the San Fernando Valley and on the presence of Pleistocene-age fossils recorded at shallow depths within the project's vicinity (NHMLA 2021).

The SVP (2010) defines fossil resources as being those over 5,000 years in age; therefore, late Pleistocene (i.e., 10,000 to 129,000 years old) old alluvial fan deposits in the subsurface within the project area are of an age to preserve fossil resources. Several paleontological resources have been recovered in the San Fernando Valley and Los Angeles Basin from undifferentiated Pleistocene-aged alluvial deposits. For example, fossil bison and mammoth have been recovered from near the Van Norman Reservoir; fossil bison, camel, peccary, and horse have been recovered from near the Sepulveda Dam Recreation Area; and fossil mammoth and horse were collected in Chatsworth (SWCA 2018; Yerkes 1997). In general, undifferentiated alluvial sediments of Pleistocene age have a rich fossil history in southern California (Jefferson 1991a, 1991b; McDonald and Jefferson 2008; Miller 1971; Reynolds and Reynolds 1991; Springer et al. 2009). The most common Pleistocene terrestrial mammal fossils include the bones of mammoth, bison, deer, and small mammals, but other taxa, including horse, lion, cheetah, wolf, camel, antelope, peccary, mastodon, capybara, and giant ground sloth, have been reported (Graham and Lundelius 1994), as well as reptiles, snakes, frogs, and salamanders (Hudson and Brattstrom 1977). These fossils illuminate the striking differences between southern California in the Pleistocene and southern California today, and this abundant fossil record has been vital in studies of extinction (e.g., Barnosky et al. 2004; Sandom et al. 2014; Scott 2010), ecology (e.g., Connin et al. 1998), and climate change (e.g., Roy et al. 1996).

Late Miocene Modelo Formation, undivided (Tm)

According to geologic mapping by Yerkes and Campbell (1995), late Miocene Modelo Formation (Tm) deposits are mapped at the surface within the project area but are likely capped by Recent to late Holocene artificial fill (Qaf) (see Figure 4). Here, strata of the Modelo Formation are mostly late Miocene in age but may include middle Miocene strata. The Modelo Formation consists of predominantly gray to brown, thin-bedded mudstone, diatomaceous clay shale, or siltstone, with interbeds of very fine-grained to coarse-grained sandstone (Yerkes and Campbell 1995). Throughout its geographic extent, strata of the Modelo Formation rest unconformably over older rocks of middle Miocene age and may be time-equivalent to marine strata of the Puente Formation in the southern Los Angeles Basin and diatomaceous rocks of the Monterey Formation west of the Newport-Inglewood fault zone (Campbell et al. 2014; Yerkes and Campbell 1995). In fact, Dibblee and Ehrenspeck (1992) refer to the rocks in the

immediate vicinity of the project area as the Monterey Formation that is equivalent to the lower Modelo Formation due to its similar lithology to the Monterey Formation. Since Dibblee and Ehrenspeck's (1992) geologic investigation, other geologists have reclassified these strata as part of the Modelo Formation, aligned with earlier investigations. The earliest investigation and description of the Modelo Formation comes from Eldridge and Arnold (1907), who based their description on exposures within the Topatopa Mountains. Later on, Winterer and Durham (1962) described the Modelo Formation within the Santa Susana Mountains and San Fernando Pass. Since these investigations, at least five members have been described by Cemen (1977), with at least four of them present within the Santa Susana Mountains area (Campbell et al. 2014; Yerkes and Campbell 1995). The informal members have been numbered member 1 (oldest) to member 5 (youngest) and consist of alternating shale and sandstone of variable thicknesses (ranging between 200 and 1,000 feet thick) (Campbell et al. 2014). Within the vicinity of the project area, the Modelo Formation has largely been left undivided but may consist of any combination of the five informal members.

The Modelo Formation, and its equivocal geologic units throughout southern California, have yielded numerous significant paleontological resources localities. The Modelo Formation has yielded marine mammals, such as baleen whales and dolphins; birds, such as cormorants, puffins, boobies, and others; bony fishes, such as viperfish, lanternfish, boafish, herrings, smelts, pipefish, mackerels, and others; invertebrates, such as clams, abalones, and gastropods; and green and brown algae (Barnes 1985; Crane 1966; David 1943; Denton 2013; Fink and Fink 1986; Howard 1962; Kellogg 1934; Miller 1929; Woodring 1931). These fossils illuminate the environmental changes that occurred in southern California from the late Miocene to today.

Museum Records Search

The NHMLA (2021) performed a museum records search for paleontological localities within the vicinity of the project area. Based on the results of the museum records search, the NHMLA does not contain records of paleontological resources from within the project area; however, several fossil localities have been recorded within the project vicinity from the Modelo Formation and unknown/unnamed Pleistocene deposits. The closest fossil locality from the Modelo Formation is LACM VP 4506, situated approximately 1.5 miles from the project area; it yielded fossil bony fish (Osteichthyes) from near the surface. From unknown/unnamed Pleistocene deposits, the closest fossil locality is LACM VP 1817, situated approximately 2.7 miles away; it yielded fossil horse (*Equus*) from 3 feet below ground surface. The results of the museum records search from the NHMLA (2021) are summarized in Table 1 and included in confidential Attachment A.

Table 1. NHMLA Fossil Localities near the Project Area from Relevant Geologic Units

Locality Number	Approximate Distance to the Project Area	Formation	Taxa	Depth (below ground surface)
LACM VP 4506	1.5 miles	Modelo Formation	Bony fish (Osteichthyes)	Surface
LACM IP 500	1.8 miles	Modelo Formation	Unspecified invertebrates	Unknown
LACM VP 5658	5.4 miles	Modelo Formation	Baleen whale (Mysticeti)	Unknown
LACM VP 1817	2.7 miles	Unspecified Pleistocene deposits	Horse (*Equus*)	3 feet
LACM VP 5878	3.3 miles	Unspecified Pleistocene deposits	Mastodon (*Mammut*)	Unknown
LACM VP 3822	10.0 miles	Unnamed Pleistocene lacustrine deposits	Bison (*Bison*)	75 to 100 feet

Source: NHMLA (2021)

Paleontological Potential of the Project Area

Based on an analysis of available existing data, SWCA determined the paleontological potential of the geologic units underlying the project area. Recent to late Holocene artificial fill (Qaf) likely exists within the project area as a thin veneer, overlying previously undisturbed sedimentary deposits. Artificial fill has the potential to yield paleontological resources; however, any such fossil has been removed from its original stratigraphic context (provenance). Therefore, artificial fill has a low paleontological sensitivity based on SVP (2010) guidelines. Based on SVP (2010) guidelines and definition of significant paleontological resources, late to middle Pleistocene old alluvial fan deposits (Qof) and late Miocene Modelo Formation (Tm), which both underlie the artificial fill at unknown, but likely very shallow depths, have a high paleontological sensitivity. In summary, the overall project area has a low paleontological sensitivity in the uppermost disturbed sediments and a high paleontological sensitivity in the underlying, previously undisturbed sediments. The depth to the previously undisturbed sediments within the project area is likely very shallow based on the local topography of the existing built environment (i.e., a parking lot and sports stadium). The paleontological sensitivity of the project area and the relevant geologic units within it are summarized in Table 2.

Table 2. Paleontological Potential of the Project Area and its Relevant Geologic Units

Geologic Unit	Age	Paleontological Potential	Recommendations
Artificial fill (Qaf)	Recent to late Holocene	Low	No monitoring during ground-disturbing activities that impact only artificial fill or previously disturbed sediments.
Old alluvial fan deposits (Qof)	Late to middle Pleistocene	High	Full-time monitoring during ground-disturbing activities that impact previously undisturbed sediments at 3 feet below ground surface or greater; no monitoring of previously disturbed sediments regardless of depth.
Modelo Formation (Tm)	Late Miocene	High	Full-time monitoring during ground-disturbing activities that impact previously undisturbed sediments at 3 feet below ground surface or greater; no monitoring of previously disturbed sediments regardless of depth.

Source: Geologic units from Yerkes and Campbell (1995)

IMPACT ASSESSMENT

This paleontological assessment was conducted to analyze any potential impacts this project may have on paleontological resources located in the project area to comply with state and local regulations, as well as best practices in paleontological mitigation (Murphey et al. 2019). The changes to the main campus include a partial demolition of existing structures and the addition of approximately 60,760 square feet of new floor area to include a new administrative, multipurpose, and classroom building, as well as the renovation of existing offices and the addition of electric vehicle parking and charging stations. The expansion to the north campus includes the development of approximately 8,494 square feet of floor area within a proposed athletic field pool house, locker rooms, and proposed building to house restrooms and concessions. The balance of the north campus site will include a proposed new soccer and baseball field, a new pool, and two new proposed surface parking lots. Based on the features of the proposed project, substantial ground-disturbing activities are anticipated to impact previously undisturbed sediments underlying the artificial fill present as a veneer across the site. The depth to the underlying, previously undisturbed sediments is unknown, but likely very shallow (e.g., 3 feet below ground surface). Project-related ground-disturbing activities are likely to exceed the depth of the artificial fill and impact the underlying previously undisturbed geologic units of high paleontological sensitivity. Therefore, fossils may be encountered during the ground-disturbing activities. Should significant fossils be encountered, they would be at risk for damage or destruction from construction activities, which would constitute an impact under CEQA.

CONCLUSIONS AND RECOMMENDATIONS

Based on this analysis of available existing data, the surface of the project area contains unmapped Recent to late Holocene artificial fill (Qaf). Artificial fill is subsequently underlain at very shallow depth (e.g., 3 feet below ground surface) by late to middle Pleistocene old alluvial fan deposits (Qof) and late Miocene Modelo Formation (Tm). Based on SVP (2010) guidelines, artificial fill has a low paleontological sensitivity; however, the underlying old alluvial fan deposits and Modelo Formation have a high paleontological sensitivity. Project-related ground-disturbing activities are likely to exceed the depth of the artificial fill and impact the underlying previously undisturbed geologic units of high paleontological sensitivity. If fossils are encountered, they would be at risk for damage or destruction from construction activities, which would constitute an impact under CEQA. The implementation of the following recommendations will ensure that fossils, if encountered, are assessed for significance and, if determined to be significant, salvaged and curated with an accredited repository. Implementation of these recommendations will reduce potential impacts to paleontological resources from the project to less-than-significant levels, pursuant to CEQA.

Accordingly, SWCA provides the following recommendations that are developed in accordance with and incorporate the performance standards of the SVP (1995, 2010), state and local regulations, and best practices in mitigation paleontology (Murphy et al. 2019).

1. **Retain a Qualified Professional Paleontologist:** Chaminade College Preparatory should retain a Qualified Professional Paleontologist (Project Paleontologist), who meets or exceeds the SVP standards, to oversee all regulatory compliance measures and protocols related to paleontological resources.
2. **Conduct Worker Training:** The Project Paleontologist should develop a Worker Environmental Awareness Program (WEAP) to train the construction crew on the legal requirements for preserving fossil resources, as well as the procedures to follow in the event of a fossil discovery. This training program would be given to the crew before ground-disturbing work commences and would include handouts to be given to new workers as needed.
3. **Monitor for Paleontological Resources:** Ground disturbances greater than or equal to 3 feet below ground surface with the potential to impact late to middle Pleistocene old alluvial fan deposits (Qof) and/or late Miocene Modelo Formation (Tm) should be monitored full-time. Monitoring should be reduced or ceased once over-excavations into the underlying previously undisturbed deposits have been completed, or if Recent to late Holocene artificial fill (Qaf) is the only geologic units encountered during earthwork activities. Ground disturbances in previously disturbed sediments should not be monitored, regardless of depth.

   Monitoring should be conducted by a paleontological monitor who meets the standards of the SVP (2010) working under the supervision of the Project Paleontologist. The Project Paleontologist may periodically inspect construction activities to adjust the level of monitoring in response to subsurface conditions. In consultation with the lead agency and Chaminade College Preparatory, monitoring efforts can be increased, reduced, or ceased entirely if determined adequate by the Project Paleontologist. Paleontological monitoring should include inspection of exposed sedimentary units during active excavations within sensitive geologic sediments. The monitor should have authority to temporarily divert activity away from exposed fossils to evaluate the significance of the find and, should the fossils be determined significant, professionally and efficiently recover the fossil specimens and collect associated data. Paleontological monitors should record pertinent geologic data and collect appropriate sediment samples from any fossil localities.

4. **Prepare a Paleontological Resources Monitoring Report:** Upon conclusion of ground-disturbing activities, the Project Paleontologist overseeing paleontological monitoring should prepare a final Paleontological Resources Monitoring Report (PRMR) that documents the paleontological monitoring efforts for the project and describes any paleontological resources discoveries observed and/or recorded during the life of the project. If paleontological resources are curated, the final PRMR and any associated data pertinent to the curated specimen(s) should be submitted to the designated repository. A copy of the final PRMR should be filed with the lead agency.

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ATTACHMENT A

Natural History Museum of Los Angeles County
Paleontological Records Search

CONFIDENTIAL – NOT FOR PUBLIC RELEASE

Phase I Environmental Site Assessment and Limited Soil Vapor Survey
West Hills Shopping Center
23221-23233 Saticoy St.
and 7629 Woodlake Ave.
West Hills, CA

APNs: 2027-005-005, 2027-005-006, and 2027-005-007

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January 2018

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1. Executive Summary

A Phase I Environmental Site Assessment (ESA) was conducted for the West Hills Shopping Center located at 23221-23233 Saticoy Street and 7629 Woodlake Avenue in West Hills with Assessor's Parcel Numbers (APNs) 2027-005-005, 2027-005-006, and 2027-005-007 in West Hills, California (**Figure 1**). The Site is approximately 4.86 acres and is currently used as a commercial shopping center.

Summary of Findings				
Report Section	**De minimis**	**REC**	**Historical/ Controlled REC**	**Description**
Section 5 Previous Reports		X		PCE impacts to the soil and soil vapor noted in 2013 and 2014.
Section 6 Site Reconnaissance		X		Drycleaner located in one of the tenant units.
Section 7 Historical Source Review		X		A dry cleaner has occupied a tenant unit since at least 1990. The subject property was used for agriculture from before 1928 until after 1959
Section 8 Historical Source Review		X		Potential residual impacts due to a closed release case on the adjacent property located at 27607 Woodlake (former gas station).
Section 8 Vapor Encroachment Screen		X		Cannot rule out a vapor encroachment condition (VEC) for subject property due to known PCE impacts in the soil and soil vapor. Cannot rule out VEC for former adjacent gas station.
Section 9 Additional Potential Hazards			X	An additional potential hazard has been identified as the adjacent former gas station/auto repair facility.

As a result of the identification of these RECs, Dudek performed limited sampling of soil, groundwater, and soil vapor to determine the extent of the potential impacts to the subject property. The results of this Limited Phase II sampling are presented in **Appendix A.**

Based on the results of the limited Phase II sampling, Dudek recommends remediating the shallow perchloroethylene (PCE)-impacted soil vapor to mitigate potential vapor intrusion risk. The results of the limited Phase II also indicate that the former agricultural use of the subject property is unlikely to present a risk to human health and is therefore considered to be *de minimis*.

2. Introduction

This Phase I Environmental Site Assessment was performed according to the guidelines stipulated in the American Society for Testing and Materials Standard E 1527-13, "Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process". The Site is located at 23221-23233 Saticoy Street and 7629 Woodlake Avenue (APNs 2027-005-005, 2027-005-006, and 2027-005-007) in West Hills, California. This Phase I ESA is being conducted as part of the due diligence process for the purchase of the subject property.

2.1 Assessment Procedure and Scope of Investigation

Phase I Environmental Site Assessments assist in identifying past and present land use, including identification of possible on-site releases or disposal of manufacturing or other wastes if such information is contained within regulatory reports, files, and/or is currently visible on-site. The assessment reviews Local, County, State, and U.S. Environmental Protection Agency lists of known or potentially hazardous waste sites, landfills, and sites currently under investigation for environmental violations that may be of concern to this site.

The scope of the environmental investigation consisted of: 1) a reconnaissance of the subject property; 2) a file review of available regulatory agency records; 3) a review of available historical aerial photographs and topographic maps; 4) a review of available Sanborn fire insurance maps, City Directory listings, and City building permit records; 5) an interview with the property owner and occupant; 6) an environmental lien search; 7) vapor encroachment screening; and 8) the preparation of this Phase I Environmental Site Assessment Report detailing the findings of the investigation.

These activities were conducted in order to identify recognized environmental conditions (RECs). The term recognized environmental conditions means the presence or likely presence of any hazardous substances or petroleum products in, on, or at the subject property 1) due to any release to the environment, 2) under conditions that indicate a release to the environment, or 3) under conditions that pose a material threat of a release to the environment.

The term controlled recognized environmental condition (controlled REC) is an environmental condition that would have been considered a recognized environmental condition in the past, but which has been remediated and received risk-based closure by a regulatory agency (i.e. no further action letter) where residual contamination remains in place. Furthermore, controlled REC is used if the property is subject to a control or use restriction (i.e. property use restrictions, activity and use

limitations, institutional controls, or engineering controls) due to residual onsite contamination.

The term historical recognized environmental condition (historical REC) is an environmental condition that would have been considered a recognized environmental condition in the past, but which has been remediated and received unrestricted residential use closure by the regulatory agency. Therefore, no controls or use restrictions have been applied to the property.

The term recognized environmental condition is not intended to include *de minimus* conditions. *De minimus* conditions are conditions that generally do not present a material risk of harm to public health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies.

2.2 Qualifications of Environmental Professionals

The Phase I ESA was conducted under the supervision of Susan Smith, a Professional Geologist with over 15 years of relevant experience (**Appendix B**).

I declare that, to the best of my professional knowledge and belief, I meet the definition of Environmental professionals as defined in Section 312.10 of 40 CFR 312. I have the specific qualifications based on education, training, and experience to assess a property of the nature, history, and setting of the subject property. I have developed and performed all the appropriate inquires in conformance with the standards and practices set forth in 40 CFR Part 312.

3. Site Description

The subject property is approximately 4.86 acres of land with APNs 2027-005-005, 2027-005-006, and 2027-005-007 in West Hills, California (**Figure 1**). The addresses associated with the subject property include 23221-23233 Saticoy Street (St) and 7629 Woodlake Avenue (Ave), West Hills, California. The subject property consists of a relatively flat parcel that is currently used as a commercial shopping center and parking lot. Landscaping is present along the perimeters of the subject property, including ornamental trees, shrubs and groundcover.

One commercial shopping center is located at the subject property, which is a single story structure built on grade with exterior stucco surfacing and a flat roof.

The following fifteen tenants are located in the commercial shopping center:

7625 Woodlake Ave – Delcourt Insurance
7621 Woodlake Ave – Happy Dogs Grooming and Supplies
7629 Woodlake Ave – Melito's Barber Shop 2
23217 Saticoy St – Woodlake Liquors
23221 Saticoy St – Fields Market
23229 Saticoy St – Gourmet Soup Kitchen
23231 Saticoy St – Function First Fitness
23233 Saticoy St, Units 101 through 103 – West Hills Veterinary Clinic
23233 Saticoy St, Unit 104 – Raz's Little Italy
23233 Saticoy St, Unit 105 – State Farm Insurance Agent Steven Hill
23233 Saticoy St, Unit 106 – Disability Rehabilitation Center
23233 Saticoy St, Units 107 and 108 – Golden Performing Arts Center
23233 Saticoy St, Unit 109 – West Hills Massage Therapy
23233 Saticoy St, Unit 110 – West Hills Cleaners
23233 Saticoy St, Unit 114 – Cutting Edge Karate

There are three unoccupied commercial units in the commercial shopping center, units 111 through 113.

The Site is bordered to the north by residential homes, to the south and west by Saticoy St. and to the east by Woodlake Ave. South of Saticoy St. and east of Woodlake Ave. are residential properties, while Chaminade College Preparatory High School is located across Saticoy St. to the west of the Site.

4. Environmental Setting

General topographic information for the Site and the surrounding area was obtained from a review of a USGS topographic map for Calabasas, California (**Appendix G**), from Google Earth, and from the site visit. The subject property and surrounding areas are relatively flat, with an elevation of approximately 846 feet above mean sea level.

Soils observed during Dudek's soil vapor sampling at the subject property consisted of silty sand/sandy silt to 7 feet below ground surface (bgs) and clayey silt/silty clay to 10 feet bgs. According to the United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS), the shallow soils at the subject property are likely well-drained sandy loams (**Appendix C**).

According to the California Department of Conservation, Division of Oil, Gas, and Geothermal Resources (DOGGR), two plugged oil/gas wells are located within 1 mile of the subject property. According to records reviewed on DOGGR both wells were prospect wells that were drilled and abandoned in 1951. Neither well ever produced oil or gas (DOGGR 2017). Since the wells are plugged, never produced, and are located more than ½ mile from the subject property, these two wells are unlikely to impact conditions at the subject property.

No water wells were mapped by EDR within one mile of the subject property.

5. Interviews

5.1. *Site Owner Interview*

A Property Background Information Questionnaire was not completed for the subject property. Although a questionnaire was not completed, the representative for the owner provided previous reports detailing environmental investigations at the subject property.

5.2. *User-Provided Information*

In accordance with ASTM Standard 1527-13, Janet Koller, Vice President of Chaminade College Preparatory, provided the following information:

1) Are you aware of any environmental cleanup liens against the property that are filed or recorded under federal, tribal, state or local law?

   No

2) Are you aware of any activity and land use limitations (AUL), such as engineering controls, land use restrictions or institutional controls that are in place at the site and/or have been filed or recorded in a registry under federal, tribal, state or local law?

   Nothing other than zoning

3) As the user of this ESA, do you have any specialized knowledge or experience related to the property or nearby properties? For example, are you involved in the same line of business as the current or former occupants of the property or an adjoining property so that you would have specialized knowledge of the chemicals and processes used by this type of business?

   We are owners of the property across the street (school). We know that dry cleaners have been present on the property. A gas station is adjacent to the property.

4) Is the property being purchase at fair market value? If the purchase price of the Site was below fair market value, did this occur because contamination was/is known or believed to be present at the property?

   Price will likely be lowered due to soil contamination on the property.

5) Are you aware of commonly known or reasonably ascertainable information about the property that would help the environmental professional to identify conditions indicative of releases or threatened releases? For example, as a user,

   a) Do you know the past uses of the property?

      Just know of an old dry cleaner on east side.

   b) Do you know of specific chemicals that are present or once were present at the property?

      Dry cleaning chemicals

   c) Do you know of spills or other chemical releases that have taken place at the property?

      No specific knowledge of spills or releasing occurring; however, testing indicates that may have occurred.

   d) Do you know of any environmental cleanups that have taken place at the property?

      No

6) As the user of this ESA, based on your knowledge and experience related to the property are there any obvious indicators that point to the presence or likely presence of contamination at the property?

   Yes. Seller and Buyer have had testing done which indicated some soil contamination.

5.3. *Agency Interview*

5.3.1. Los Angeles County Fire Department

Dudek contacted the Los Angeles County Fire Department (LACFD) on March 21, 2017 about agency files for the subject property. The Los Angeles County Department of Public Health responded on behalf of LACFD on April 14, 2017 stating that records were available for review at their office. These records contain the last three Certified Unified Program Agencies (CUPA) inspections completed by the LACFD at the West Hills Cleaners located at 23233 Saticoy St. #110 in Canoga Park, CA 91304. Records also included a list of dates of contacts and inspections completed between March 10, 1992 and April 17, 2013. Although the inspection forms are not available for dates prior to January 23, 2007, records indicated the issuance of Notice

of Violation #022502 on March 10, 1992, but not further information is available and no further Notices of Violation were issued. Inspection forms indicate the presence of one 55 gallon drum of waste perchloroethylene (PCE) located on site in January 2007 and November 2009 but not during the April 2013 inspection which stated that all dry cleaning was being transported to another location. Copies of agency records are presented in **Appendix D**.

5.3.2. Los Angeles Regional Water Quality Control Board

Dudek contacted the Los Angeles Regional Water Quality Control Board (LARWQCB) on March 21, 2017 requesting information on the subject property and the adjacent gas station/auto repair facility. As no response was received from the LARWQB by May 25, 2017, a second request was sent. The LARWQCB replied by email on June 5, 2017 stating that they do not have any records for the subject property, however the LARWQCB did provide information on the adjacent gas station/auto repair facility. A release of petroleum hydrocarbons to the soil and groundwater was first discovered in 1988. Groundwater monitoring was conducted from 1989 to 1992 with low detections of petroleum hydrocarbons and related volatile organic compounds. The site was granted closure in 2001 due to the plume stability and low threat to drinking water. A copy of the agency response is in **Appendix D**.

5.3.3. Los Angeles County Department of Public Health

Dudek contacted the Los Angeles County Department of Public Health (DPH) on March 21, 2017 requesting information on the subject property. The DPH replied by fax on March 30, 2017 that their search revealed no records pertaining to the subject property. This response is attached in **Appendix D**.

5.3.4. South Coast Air Quality Management District

Dudek contacted the South Coast Air Quality Management District (SCAQMD) on March 21, 2017 requesting information on the subject property. The SCAQMD replied by email on March 22, 2017 with information for the West Hills Cleaners at 23233 Saticoy St, #110. These records include Permits to Operate from 1989, 2002, 2004, and 2007, and equipment lists and inspection reports from 2002-2013. Notices of violation are also included, indicating that in 2000 and 2002 a Firbimatic Vortex 40 dry cleaning machine was being operated without a permit. The 2002 notice also included a vapor leak of PCE. A notice of violation was issued in 2009 for failing to change the machine gaskets and another notice was issued for failing to submit a

quadrennial update report; both of these situations were later remedied. Copies of agency records are presented in **Appendix D**.

5.3.5. California Department of Toxic Substances Control

Dudek contacted the California Department of Toxic Substances Control, Chatsworth Office (DTSC) on March 21, 2017 requesting information on the subject property. The DTSC replied by email on March 24, 2017, stating that no records exist in their office for the subject property. A copy of the letter sent by the DTSC is presented in **Appendix D**.

5.4. *Previous Investigations*

Three Confidential Site Assessment Reports were conducted for the current owner of the property. These reports included a Phase I ESA and a Limited Phase II ESA prepared by Alpha Environmental in 2013 and a Limited Subsurface Investigation prepared by Lord Environmental Services in 2014. In the Alpha Phase II ESA, 6 soil vapor borings were advanced and a total of 10 samples were collected and analyzed from depths between 5 and 15 feet bgs. The 2014 Lord Environmental Services (Lord) investigation consisted of 4 borings to 15-20 feet bgs, with soil and 8 soil vapor samples collected. In their conclusions, Lord recommended the installation of 5 soil vapor/groundwater monitoring wells, additional soil vapor probes, and a geophysical survey of the sewer line exiting the dry cleaner.

Previous soil vapor sampling conducted by Alpha and Lord found that:

1. Two soil vapor samples collected near the former Chevron Gas Station found no detected levels of Total Petroleum Hydrocarbons (TPH) or BTEX in samples collected from 15 feet bgs (Alpha, 2013). However, one soil vapor sample had low level detections of PCE and trichloroethene (TCE).

2. Three soil vapor samples collected by Alpha at locations near the current dry cleaner, West Hills Cleaners (23233 Saticoy Street, Unit 110) from 5 and 15 feet bgs had low detected levels of the dry cleaning solvent PCE. Lord collected 8 additional soil vapor samples from the area around West Hills Cleaners and found higher concentrations of PCE ranging from 22 to 360 ug/L, with the highest concentrations found just south of the cleaners.

3. Two soil vapor samples collected from 5 feet bgs within the former dry cleaner unit (7621 Woodlake Avenue) had no detected volatile organic compounds (VOCs) (Alpha, 2013).

The Phase I ESA written by Alpha Environmental was prepared on May 31, 2013. The site reconnaissance indicated that the site was improved with two single-story commercial buildings. Environmental concerns observed during the site reconnaissance included a neighboring dry cleaning business and an adjacent gas station/auto repair shop. The historical review identified concerns related to the dry cleaning businesses, they were reported to be operating during the 1980's, along with the potential storage and handling of chlorinated solvents by the dry cleaning business. Some environmental concerns were also identified due to the presence of a gas station/auto repair facility adjacent to the subject property from 2001 to 2012. Regulatory research did not identify any listings on federal, state, or local agency databases for the subject property. However, the neighboring gas station/auto repair facility was found to be listed for a LUST case that was closed in 2001. The report concluded with recommendations for a Limited Phase II ESA in order to verify the sub-surface soil conditions due to the potential on-site and off-site sources.

Following the recommendations from the Phase I ESA, the current property owner hired Alpha Environmental to prepare a Limited Phase II ESA, dated August 19, 2013. Alpha advanced 6 soil vapor probes for the Phase II ESA at depths of 5 and 15 feet bgs. Soil vapor samples were collected for 10 of the soil vapor probes. Soil vapor samples collected near the on-site dry cleaning facility did not yield any PCE or VOC results above the laboratory detection limits. All samples of TPH and BTEX collected near the neighboring gas station/auto repair facility were found to be below the laboratory detection limits. However, soil vapor samples collected near the adjacent off-site dry cleaning facility and the gas station/auto repair facility were found to have limits above the California Human Health Screening Levels (CHHSL) for a depth of 5 feet bgs for residential (0.18 µg/L) and commercial (0.6 µg/L) PCE and TCE. The maximum concentration of PCE identified was found to be 1.24 µg/L and the maximum concentration of TCE was observed to be 0.25 µg/L. Alpha Environmental recommended additional investigations to further delineate the extent of the PCE subsurface contamination.

A Limited Subsurface Investigation was prepared by Lord Environmental Services on February 13, 2014. Lord analyzed 4 soil borings in and around the on-site cleaners (West Hills Cleaners). One soil boring was done within the cleaners adjacent to the dry cleaning machine and three additional soil borings were done to the north, south, and east of the cleaners. Soil samples were analyzed from the boring within the building and the boring to the south of the building at multiple depths, no results of VOCs were detected above the laboratory detection limits. Soil vapor samples were collected at all 4 of the soil boring locations at a depth of 5 and 15 or 20 feet bgs. No detections of TCE or other VOCs were found. However, levels of PCE were detected in the range of 22 to 360 µg/L, with the highest concentrations found to the south of the dry cleaners. Based on the findings Lord recommended installation of 5 vapor extraction/groundwater monitoring wells, 4 soil vapor probes, and a geophysical survey of the dry cleaner sewer line.

6. Site Reconnaissance

A site reconnaissance was conducted by Dudek on October 13, 2017 by Christian Hunter. The Site Reconnaissance consisted of walking the subject property, viewing liquid and solid waste storage facilities behind the building, and viewing adjacent sites from the subject property or public rights of way. Photographs are included in **Appendix E**.

The subject property is comprised of approximately 4.86 acres containing one large building with eighteen commercial tenant spaces currently occupied by fifteen tenants, two trash enclosures, and a surrounding parking complex (**Figure 1**). The Site is bounded to the north by residential homes (**Photograph 1**); to the west by Saticoy Street and the Chaminade College Preparatory High School (**Photograph 2**); to the south by Saticoy Street and residential homes (**Photograph 3**); to the southeast by Complete Auto Service garage (**Photograph 4**); and to the east by Woodlake Ave. and residential homes (**Photograph 5**).

The Site addresses and their tenants are described below.

- 7621 Woodlake Ave. – Melito's Barber Shop 2 (**Photograph 6**).
- 7625 Woodlake Ave. – Delcourt Insurance (**Photograph 6**).
- 7629 Woodlake Ave. – Happy Dogs Grooming & Supplies (**Photograph 6**).
- 23217 Saticoy St. – Woodlake Liquors (**Photographs 6-7**).
- 23221 Saticoy St. – Fields Market (**Photographs 7-8**).
- 23229 Saticoy St. – The Gourmet Soup Kitchen (**Photograph 9**).
- 23231 Saticoy St. – Function First Fitness (**Photograph 9**).
- 23233 units 111 through 113 – Unoccupied (**Photographs 9-10**).
- 23233 unit 110 – West Hills Cleaners (**Photograph 10**).
- 23233 unit 109 – West Hills Massage Therapy (**Photograph 10**).
- 23233 units 107 and 108 – Golden Performing Arts (**Photograph 11**).
- 23233 unit 106 – Disability Rehabilitation Center (**Photograph 12**).
- 23233 unit 105 – State Farm Insurance Agent Steven Hill (**Photograph 12**).
- 23233 unit 104 – Raz's Little Italy Italian Restaurant (**Photographs 12-13**).
- 23233 units 101 through 103 – West Hills Veterinary Clinic (**Photograph 13**).
- 23233 unit 114 (back of building) – Cutting Edge Karate (**Photograph 14**).

The Site is accessed via driveway entrances along Woodlake Ave. and Saticoy St.

Surface Water Discharge

The subject property is generally flat, with minimal slope to the south and east. No on-site storm drains were observed. Stormwater appears to be directed towards storm drains

on Woodlake Ave. and Saticoy St., aided by a shallow concrete swale running along the length of the north side of the building (**Photograph 15**). No standing water was observed during the Site Reconnaissance.

Pits, Ponds, or Lagoons

No pits, ponds, lagoons, or other waterways were observed at the subject property. It could not be determined by the Site Reconnaissance whether drainage from the depressed loading dock would be sufficient to prevent pooling of water during storm events (**Photograph 15**).

Distressed Vegetation

No distressed vegetation was observed on the subject property.

Indications of Solid Debris Storage

Containerized trash was observed in four dumpsters located at two different areas behind the building. Two of these dumpsters were located in an enclosed solid waste area behind the West Hills Veterinary Clinic near the northwest corner of the building (**Photograph 16**). Adjacent to this enclosure, a drum was observed containing soil samples from a previous subsurface investigation and awaiting disposal (**Photograph 17**). Two additional dumpsters were located below two electrical poles adjacent to the rear loading dock (**Photograph 18**). Although an enclosed trash area was observed behind Function First Fitness, no dumpsters were observed. No additional debris was observed on the subject property.

Chemical Storage or Use

Although the interior of the tenant units were not observed, some chemical storage was observed on the exterior of the building. A 5-gallon bucket of "Premium Final Rinse, Low Temp Machine Chlorinating Sanitizer" dry cleaning solution was located beside the waste storage enclosure behind West Hills Cleaners and Function First Fitness (**Photograph 19**). This product is a disinfectant (sodium hypochlorite) regulated by the California Department of Pesticide Regulation (http://apps.cdpr.ca.gov/cgi-bin/label/pir.pl?prodno=57955). An unlabeled blue drum, containing what appeared to be cooking oil, is located in the waste storage enclosure behind the West Hills Veterinary Clinic (**Photograph 20**). This drum was not sealed and the lid was only placed on top without a drum ring. Additionally, a drum, a 5-gallon bucket, and a cardboard box containing a plastic container were observed behind the two dumpsters located adjacent to the rear loading dock (**Photograph 21**). The unlabeled black drum appears to contain oil, possibly vegetable-based (**Photograph 22**). The cardboard box and plastic container are labeled "Canola Salad Oil". The 5-gallon bucket labeled as pickles contains an odorous decomposed orange liquid (**Photograph 23**). Additionally, rat traps are placed at regular intervals along the back perimeter of the building (**Photograph 24**). Several

drums appear to be stored behind fencing at the Complete Auto Service garage immediately adjacent to southeast corner of the subject property, but their contents could not be determined without access to the adjacent site (**Photograph 25**).

Pools of Liquid

No pools or flowing water were observed on the subject property.

Groundwater Wells, Cisterns, Cesspools or Septic Tanks

No groundwater wells or indications of septic tanks were observed on the subject property.

Drains and Sumps

No sumps were observed on the subject property. Street storm drains associated with surface runoff are described above in Surface Water Discharge.

Transformers and Hydraulic Equipment

A total of nine pole-mounted transformers were observed on or immediately adjacent to the subject property. Two transformers were observed along Saticoy St., one near the northwestern entrance to the subject property (**Photograph 26**) and one near the intersection of Woodlake Ave. and Saticoy St. (**Photograph 27**). Five transformers were located on poles in the area behind Function First Fitness: two on a pole near the back entrance to The Gourmet Soup Kitchen (**Photograph 28**) and another three on a pole above the dumpsters (**Photograph 18**). An additional two transformers were observed behind Melito's Barber Shop (**Photograph 29**). No staining was observed below these transformers, although one of the two transformers behind Melito's Barber Shop does appear to be rusted and in poor condition. No pad-mounted transformers were observed on the subject property.

Abnormal Odor

No abnormal odors were noted on the subject property.

Soil Disturbances

No soil disturbances were observed on the subject property.

Underground Storage Tanks

No evidence of underground storage tanks was observed on the subject property during the Site Reconnaissance.

Aboveground Storage Tanks

No aboveground storage tanks were observed on the subject property during the Site Reconnaissance.

Staining

Minor areas of surface staining were observed on the asphalt of the parking lot related to the parking of vehicles (**Photographs 9, 10, and 12**). No additional staining was observed on the subject property during the Site Reconnaissance.

7. Historical Use Information

Dudek reviewed the following historical use information in order to assess the possibility of historical activities that could present environmental concerns. The information obtained from review of these historical use records is summarized in the following table and described in more detail in the following subsections.

- Historical aerial photographs (AP)
- Historical topographic maps (TM)
- Sanborn fire insurance maps (SFIM)
- City Directory listings (CD)
- City building permits (BP)

The photographs indicate that the subject property consisted of agricultural land from at least 1928 to 1959. Sometime between 1959 and 1967, the subject property was developed as a shopping center with parking lots and a gas station on an adjacent corner parcel. This shopping center was expanded in 1981 to its current size. The residential structures to the north of the subject property were completed between 1981 and 1989. The High School to the southwest of the subject property was constructed between 1959 and 1967. Residential structures to the south of the subject property were completed between 1972 and 1978, while those to the east of the subject property were built in 2005.

Period	Property	Adjoining Area	Source	Comment
1903-1925	The subject property appears to be agriculture or is vacant unused land.	Surrounding properties appear to be used for agriculture or are vacant unused land.	TM	None
1925-1944	The subject property still appears to be agricultural or vacant unused land.	The majority of the surrounding properties appear to be used for agriculture or are vacant unused land. Some residential housing and commercial buildings are noted to the north and east of the subject property. Saticoy St and Santa Ana Ave are first visible on the 1925 topographic map. The name of Santa Ana Ave changes to Woodlake Ave on the 1932-1933 topographic map.	AP, TM	None

Period	Property	Adjoining Area	Source	Comment
1944-1967	Orchards are present on the subject property through 1959. A new structure and parking lot are shown on the eastern half of the subject property, which is consistent with the eastern portion of the commercial shopping center construction.	Surrounding properties continue to be developed as residential housing and commercial buildings. Saticoy Street has been extended further west.	AP, TM	None
1967-2012	The building in the northeastern corner of the subject property appears to have doubled in size, which is consistent with the expansion of the commercial shopping center.	Surrounding properties continue to be developed as residential housing and commercial buildings.	AP, CD	None
2012-Present	The subject property is developed as a commercial shopping center and parking lot, as it appears today.	Surrounding properties are developed for commercial buildings and residential housing, as the area appears today	AP, CD	None

7.1 Aerial Photographs

Dudek reviewed historical aerial photographs from EDR for the years 1928, 1938, 1947, 1952, 1959, 1967, 1972, 1978, 1981, 1989, 1994, 2002, 2005, 2009, 2010, and 2012 (**Appendix F**). The aerial photographs show the following:

Date	Description
1928	Woodlake Ave. is visible to the east of the subject property, which appears to be a young orchard. Surrounding areas appear to be of similar agricultural use with possible farm buildings located immediately to the north of the subject property. Additional farm buildings, possibly homes, are located to the northeast and southeast of the subject property. Saticoy St. appears to be a dirt road, heading east from the subject property.
1938	The subject property and surrounding areas appear similar to the 1928 photograph. The orchards on the subject property and surrounding areas appear to be more mature.
1947	The subject property and surrounding areas appear similar to the 1938 photograph. A racing track, possibly for horses or cars, is located 1000' to the east of the subject property.
1952	Three white structures appear at the center of the subject property. The surrounding areas have had a gradual increase in the number of small structures, possibly farm homes.
1959	Large-scale residential development has occurred southeast of the subject property, as well as further east and northeast. The area to the north of the subject property has been cleared for potential development. The subject property remains similar to the 1952 photographs.
1967	The eastern half of the current West Hills Shopping Center has been built on the subject property, with associated parking areas. A structure, possibly the former fueling station, is located on the northwest corner of Saticoy St. and Woodlake Ave. Residential development has continued to expand around the shopping center and the High School has been built across Saticoy St. to the west and south, with associated sports fields. Surrounding areas to the north, northwest and east of the subject property are largely undeveloped.
1972	Development has continued to expand in the surrounding areas, with construction of residential structures occurring to the north and northwest of the subject property. Areas immediately north, east, and south of the subject property remain largely undeveloped with the exception of a few small structures on the northeast corner of the intersection of Saticoy and Woodlake, and a baseball field to the south of the subject property. The subject property is being actively used as a shopping center.
1978	The subject property appears similar to the 1972 photograph. The area immediately to the south of the subject property has been developed with residential structures and the area to the east is currently under construction. The area immediately to the north of the subject property remains undeveloped.
1981	All surrounding areas have been developed as residential, with the exception of the High School to the southwest of the subject property and areas immediately to the east and north of the subject property. The area to the north appears to be under active excavation and construction appears to have begun on the western half of the West Hills Shopping Center.
1989	The area to the north of the subject property has been developed with residential structures, and construction on the western half of the West Hills Shopping Center has completed. With the exception of the undeveloped parcel to the east of the subject property and a parcel under active residential development south of the subject property, all surrounding areas have been developed as residential.
1994	The subject property and surrounding areas appear similar to the 1989 photograph.
2002	The subject property and surrounding areas appear similar to the 1994 photograph.
2005	Construction of residential structures has begun on the parcel east of the subject property. The Site and all other surrounding areas appear similar to the 2002 photograph.

2009	The subject property appears similar to the 2005 photograph. All surrounding areas have been developed as residential with the exception of the High School to the southwest of the subject property.
2010	The subject property and surrounding areas appear to be similar to the 2009 photograph.
2012	The subject property and surrounding areas appear to be similar to the 2010 photograph.

7.2 Topographic Maps

Historical topographic maps were obtained from EDR for the years 1903, 1925, 1927-1928, 1932-1933, 1940, 1944, 1947, 1952, 1967, and 2012 (**Appendix G**). The topographic maps show the following:

Date	Scale	Description
1903	1:62,500	The subject property appears to be vacant and the closest road is approximately ¾ miles away.
1925	1:24,000	The subject property appears to be vacant. Saticoy St and Santa Ana Ave. (Woodlake Ave) appear. Saticoy St does not extend west of Santa Ana Ave. Other major streets also appear along with some structures.
1927, 1928	1:24,000	The subject property appears to be vacant and the surrounding areas appear to be similar to the 1925 topographic map.
1932, 1933	1:24,000	The subject property appears to be vacant and Saticoy St now extends west of Woodlake Ave approximately the length of the subject property. Santa Ana Ave have been changed to Woodlake Ave. The surrounding areas appear to be similar to the 1927-1928 topographic map.
1940	1:24,000	The subject property appears to be vacant and the surrounding areas appear to be similar to the 1932-1933 topographic map.
1944	1:62,500	The subject property appears to have one structure in the northeast corner. However, based on the aerial photography review and the subject property's relation to Saticoy St, it appears that the subject property boundary may have been placed in the wrong location. Additional roadways and structures appear in the vicinity of the subject property.
1947	1:50,000	The subject property appears to be vacant. However, the location of the subject property in relation to Saticoy St. and Woodlake Ave., it appears that the subject property may have been placed in the wrong location. The vicinity of the subject property appears to be similar to the 1944 topographic map.
1952	1:24,000	The subject property appears to be vacant. Additional structures appear to the southwest of the subject property along Cohasset St. and a race track appears to the west of the subject property.
1967	1:24,000	A structure appears on the northeast corner of the subject property. Development appears on the north, east, and south of the subject property and the High School appears to the west of the subject property.
2012	1:24,000	The subject property is surrounded by development. Structures are not specifically identified on the topographic map.

7.3 Sanborn Fire Insurance Maps

Historical Sanborn fire insurance maps were requested from EDR; however, no maps were available for the subject property (**Appendix H**).

7.4 City Directory Listings

Various tenants at the subject property were identified in the city directory listings. The entries are summarized below and are presented in **Appendix H**.

Year	On-Site Entries
2013	23221 Saticoy St. – Daban Enterprises, Fields Market 23233 Saticoy St. – Cutting Edge Karate, Disability Rehab Center, Elite Full Service Salon & Boutique, Golden Performing Arts Center, Pet Medical Center Chatoak, Razs Little Italy, Star Makers Dance Academy, Steven Hill State Farm Insurance, Superior Collection Bureau, West Hills Massage Therapy, West Hills Pool Supply 7629 Woodlake Ave. – Melitos Barber Shop
2008	23221 Saticoy St. – West Hills Market 23233 Saticoy St. – American Tsuuhan, Cutting Edge Karate, Disability Rehab Center, Elite Full Service Beauty Salon, Golden Performing Arts Center, Superior Collection Inc., Touchstone Estates, West Hills Cleaners, West Hills Pool Supply, West Hills Veterinary Clinic 7629 Woodlake Ave. – Holtons Barber Shop
2004	23221 Saticoy St. – West Hills Markets 23233 Saticoy St. – Amertshuuhan, Arts Center, Beautysln, Buffumrobertm, Collection, Elutefullservice, Goldenperforming, Ilparadiso, Sea & Shoretravel, Superior, Veterinary Clinic, West Hills, West Hls Cleaners 7629 Woodlake Ave. – Holtons Barber Shop
1995	23221 Saticoy St. – Not listed 23233 Saticoy St. – Buffum Robert M, Fax Telephone No, Half Hour Photo, Leimert Walter HJr, Paradise & Beyond Travel, Sues Coffee Corner, West Hills Cleaners, West Hills Postal Center, West Hills Veterinary Clinic 7629 Woodlake Ave. – Holtons Barber Shop
1991	23221 Saticoy St. – Not listed 23233 Saticoy St. – Ad Lib Stylist, Ad Magic Specialties, Fax Telephone No, Haleaf Hour Photo, Leimert Walter H Jr, West Hi URpsjstal Center, West Hills Cleaners, West Hill Property Owners Assn, West Hills Psychiatric Medical Group, West Hills Veterinary Clinic, West Isabelle S, West J, West J Tuj, 7629 Woodlake Ave. – Holtons Barber Shop
1985	23221 Saticoy St. – Not listed 23233 Saticoy St. – Ad Lib Stylist, Ad mArt Second Hand Dealers 7629 Woodlake Ave. – Holtons Barber Shop
1980	23221 Saticoy St. – Not listed 23233 Saticoy St. – Not listed 7629 Woodlake Ave. – Holtons Barber Shop
1975	23221 Saticoy St. – Not listed 23233 Saticoy St. – Canoga Park 7629 Woodlake Ave. – Not listed

1970	23221 Saticoy St. – Not listed 23233 Saticoy St. – Not listed 7629 Woodlake Ave. – J H Barber Shop
1965	23221 Saticoy St. – Lalph Heta Ache Markets 23233 Saticoy St. – BT11C5100E Hair Fashions, TEC0NIOUL Hair Fashions 7629 Woodlake Ave. – Not listed
1956	23221 Saticoy St. – Not listed 23233 Saticoy St. – Not listed 7629 Woodlake Ave. – Schreiber Bert

7.5 Review of Environmental Liens and Activity and Land Use Limitations

An environmental lien search was conducted by NETR for the subject property parcels in March 2017. No liens or activity and use limitations were found (**Appendix I**).

8. **Public Agency Records Search Review**

The regulatory database gives a listing of sites, within an approximately one-mile radius of the subject property, which are known to be chemical handlers, hazardous waste generators, or polluters. Information in these listings includes the location of the site relative to the subject property, sources of pollution, and the status of the site. The search performed for this assessment was conducted in October 2017 by EDR. The complete database search report is included as **Appendix C**.

Acronym	Database	Search Distance	Subject Site	Number of Sites Listed
NPL	National Priorities List (including proposed NPL sites)	1 mile	No	0
NPL LIENS	Federal NPL Site List	Target Property	No	0
Delisted NPL	National Priority List Deletions	1 mile	No	0
CERCLIS	Comprehensive Environmental Response, Compensation and Liability Act (CERCLA)	0.5 mile	No	0
FEDERAL FACILITY	Federal CERCLIS List	0.5 mile	No	0
CERCLIS NFRAP	CERCLIS No Further Remedial Action Planned	0.5 mile	No	0
CORRACTS	Resource Conservation and Recovery Act (RCRA) Corrective Action	1 mile	No	0
RCRA TSDF	RCRA - Transportation, Storage, and Disposal	0.5 mile	No	0
RCRA-LQG	RCRA Large Quantity Generators	0.25 mile	No	0
RCRA-SQG	RCRA Small Quantity Generators	0.25 mile	Yes	2
RCRA-CESQG	RCRA Conditionally Exempt Small Quantity Generators	0.25 mile	No	0
ERNS	Emergency Response Notification System	Target Property	No	0
US ENG CONTROLS	Sites with Engineering Controls	0.5 mile	No	0
US INST CONTROLS	Sites with Institutional Controls	0.5 mile	No	0
LUCIS	Federal Institutional Controls/Engineering Controls Registries	0.5 mile	No	0
RESPONSE	State- and Tribal-Equivalent NPL	1 mile	No	0
ENVIROSTOR	State- and Tribal-Equivalent CERCLIS	1 mile	No	1
SWF/LF	State and Tribal Landfill and/or Solid Waste Disposal Site	0.5 mile	No	0
LUST	State and Tribal Leaking Storage Tank	0.5 mile	No	3

Acronym	Database	Search Distance	Subject Site	Number of Sites Listed
SLIC	State and Tribal Leaking Storage Tank	0.5 mile	No	0
Indian LUST	State and Tribal Leaking Storage Tank	0.5 mile	No	0
UST	State and Tribal Registered Storage Tank	0.25 mile	No	1
AST	State and Tribal Registered Storage Tank	0.25 mile	No	0
Indian UST	State and Tribal Registered Storage Tank	0.25 mile	No	0
FEMA UST	State and Tribal Registered Storage Tank	0.25 mile	No	0
LUCIS	Institutional Control/Engineering Control	0.5 mile	No	0
Indian VCP	State and Tribal Voluntary Cleanup	0.5 mile	No	0
VCP	State and Tribal Voluntary Cleanup	0.5 mile	No	0
US Brownfields	State and Tribal Brownfields	0.5 mile	No	0
EDR US Hist Cleaners	Historic Dry Cleaners	0.25 mile	Yes	1
Additional Environmental Records		Varies	Yes	18

The subject property was listed in eight of the databases searched by EDR. These listings are described in **Section 8.1**.

Four unique sites were identified in the database search within the specified search distances. These sites are discussed in **Section 8.2**.

8.1. *Subject Property Listings*

Multiple addresses within the shopping center were listed in various databases. The subject property listings are described in the table below.

Tenant Name and Address	Database Listings	Comments
West Hills Cleaners 23233 Saticoy Street, Suite 110	RCRA-SQG, FINDS, ECHO, HAZNET, EDR Hist Cleaner, DRYCLEANERS, EMI	The West Hills Cleaners tenant is listed as a small quantity generator of waste; no violations were reported. The HAZNET listing documents the disposal (recycling) of halogenated solvents for the following years: 1995, 1996, 2004, 2005, 2007, 2008, 2010, and 2015. The FINDS database listing reports a dry cleaning plant at the site. The ECHO database listing does not provide site-specific information. The EMI database presents a South Coast AQMD entry for 1990 for the cleaners; no emissions were reported. The RCRA-SQG database did not report any violations for the West Hills Cleaners.
West Hills Pool Supply 23233 Saticoy Street, Suite 111	FINDS	The FINDS database entry reports a SIC code of 5091 for the tenant – Sporting and Recreational Goods and Supplies. No additional information was presented in the listing.
West Hills Veterinary Clinic 23233 Saticoy Street	HAZNET	The HAZNET listing documents the disposal (recycling) of photochemicals/photoprocessing and metal sludge waste for 1993 through 1997.
Rase Inc 23233 Saticoy Street, Suite 146	EDR Hist Auto	The EDR report lists the site as a general automotive repair shop for years 1992, 1993, 1994, 1996, and 1997. No additional information was presented in the listing.

8.2. *Other Site Database Listings*

Of the 4 sites listed in the regulatory databases, only three were identified in databases that are indicative of releases. These sites, Chevron Station #9-3113, West Hills Regional Medical Center, and Enadia Way School, are discussed in the table below.

Site Name and Address	Database Listings	Relative Location	Flow Direction and Relative Gradient to SP	REC?
Chevron Station #9-3113, Paul Mac Chevron 7607 Woodlake Ave	LUST, RCRA-NonGen/NLR, FINDS, ECHO, UST, EDR Hist Auto, HIST UST, SWEEPS UST, CA FID UST, HIST CORTESE	Adjacent - borders subject property to the southeast	Northeast Cross Gradient	Yes
Comments: A gasoline leak was discovered in May of 1988 and was recorded on the LUST and LUST REG 4 lists in June of 1993. Four USTs were removed from the site in December 1989. A letter from Holguin, Fahan, & Associates, Inc. dated February 3, 2000 requesting site closure indicates that the site is a low risk groundwater contamination site due to the facility upgrades, the limited soil contamination at the site, the concrete/asphalt surface barrier, and the attenuation of the dissolved-phase hydrocarbon plume. Furthermore, due to the direction of the groundwater movement trending towards the northeast, away from the subject property, the Chevron Station poses a limited threat to the subject property.				
West Hills Regional Medical Center 7300 Medical Center Drive	RCRA-LQG, LUST, UST, SWEEPS UST, CA FID UST, FINDS, ECHO, EMI, HIST CORTESE	0.4 mile South/Southeast	E/SE Up-gradient	No
Comments: A release of diesel fuel to groundwater was reported in 1991. The database listing for the site details that the release was discovered in July 1991, was reported and remediated in August 1991, and site closure was issued in December 1991. Based on the timeline (5 months from discovery to site closure), this suggests that the release was limited in size and groundwater was not likely to be the impacted media. Additional items listed in the various databases document waste generated at the site and transported off-site for disposal/recycling. This site is not likely to have impacted the environmental conditions on the subject property.				
Enadia Way Elementary School Re-Opening 5460038 2294 Enadia Way	ENVIROSTOR, SCH	0.67 mile South/Southeast	N/A	No
Comments: The Enadia Way Elementary School site was listed in the ENVIROSTOR and SCH databases related to a school investigation prior to the re-opening. The constituents of concern are listed as asbestos and lead-based paint and lead in soil. Based on the nature of the constituents of concern and impacted media (soil), this site is unlikely to impact the environmental conditions of the subject property.				

8.3. *Unmapped Sites*

Unmapped sites are flagged by EDR but not mapped due to insufficient address information. No sites were reported as unmapped by EDR.

8.4. *Online Databases*

Dudek reviewed the RWQCB's online GeoTracker database and the DTSC's online Envirostor database on October 29, 2017 and no additional sites were plotted in the immediate vicinity of the subject property.

9. Vapor Encroachment Screening

A vapor encroachment screen report was prepared using EDR's vapor encroachment tool. A "Tier I" Vapor Encroachment Screening (VES) was performed for the Site in accordance with ASTM E 2600-10 "Standard Guide for Vapor Encroachment Screening on Property Involved in Real Estate Transactions." The Tier I VES was performed to evaluate whether there is a potential for vapors originating from contaminated soil and/or groundwater to occur in the subsurface below the existing and proposed on-site structures. For sites where a vapor encroachment condition (VEC) could not be ruled out but where reports of site sampling were available, those reports were used to evaluate the subject property (Tier 2 screening).

The EDR vapor encroachment worksheet evaluated types of soils, geology, and hydrology as well as listed contaminated sites as identified in Federal, State, and local databases. The following table presents a summary of the VEC findings:

Potential for Vapor Intrusion on Site	
Areas of Concern	**Conclusion**
Site (existing conditions)	VEC cannot be ruled out (presence of a dry cleaner).
Site (former condition)	VEC cannot be ruled out (presence of a dry cleaner).
Adjoining Property or near-by Property Operations or Existing Conditions	VEC cannot be ruled out (nearby former gas station with known residual impacts).
Historical Uses of Adjoining Property or Near-by Properties	VEC cannot be ruled out (former release at nearby gas station).
Regulatory Review of sites identified on Federal, State, and Local databases	None identified.

Based on this screening, a VEC cannot be ruled out for the subject property due to the long-term presence of a dry cleaner and residual impacts left in place at the adjacent gas station; both items are considered RECs.

10. Evaluation of Additional Potential Hazards

Dudek obtained information regarding the following potential sources of hazards and hazardous material releases from the interview, site reconnaissance, the EDR report, historical documents, and environmental reports.

Agricultural Use
Based on a review of historical aerial photographs, orchards were present on the subject property from before 1928 to sometime after 1959.

Off-Site Sources
Based on a review of environmental reports and the results of the database search by EDR, an adjacent gas station/auto repair facility with a known release of gasoline to groundwater may have impacted the environmental conditions of the subject property. The adjacent gas station/auto repair facility case was closed in 2001. Groundwater and soil sampling results show that low concentrations of residual impacts remain at the site.

Radon
Los Angeles County is classified as a Zone 2 Federal EPA Radon Zone, indicating that the indoor average level is ≥2 picocuries per liter (pCi/L) but ≤4 pCi/L which is below the EPA radon action level of 4 pCi/L.

PCB Items
Pole-mounted transformers were observed on and immediately adjacent to the subject property. The PCB content of the transformers was not known but no staining or leaks were observed on the transformers.

Fill Material
Based on a review of historical aerial photographs and a search of public agency records, the subject property is not known to have received fill material.

Debris
No evidence of debris dumping was observed on the subject property.

Tanks
No evidence of underground storage tanks was observed on the subject property during the site reconnaissance.

11. Conclusions and Recommendations

Information obtained during the Phase I ESA indicates that the subject property consisted of agricultural land from at least 1928 to 1959. Sometime between 1959 and 1967, the subject property was developed as a shopping center with parking lots and a gas station on an adjacent corner parcel. This shopping center was expanded in 1981 to its current size. According to records reviewed, the dry cleaner has operated at the subject property since at least 1989.

Dudek has performed this Phase I ESA in conformance with the scope and limitations of ASTM Practice E 1527-13. Any exceptions to, or deletions from, this practice are described in Section 12 of this report.

The Phase I Environmental Site Assessment identified the following recognized environmental conditions in connection with the subject property.

- The long-term presence of a dry cleaner at the subject property with known solvent releases;
- The known release of hydrocarbons to soil and groundwater from the adjacent former gas station;
- Potential vapor intrusion concerns from the dry cleaner and adjacent former gas station; and
- Former agricultural use from before 1928 until sometime after 1959.

As a result of the identification of these RECs, Dudek performed a limited Phase II environmental assessment related to the dry cleaner, adjacent former gas station, and former agricultural use of the subject property. The results of this assessment are presented in **Appendix A.** Based on the results of the limited Phase II environmental assessment, Dudek recommends remediating the shallow perchloroethylene (PCE)-impacted soil vapor to mitigate potential vapor intrusion risk.

The results of the limited Phase II also indicate that the former agricultural use of the subject property is unlikely to present a risk to human health and is therefore considered to be *de minimis*.

Although not a REC, asbestos and/or lead may be present on the buildings at subject property, given that the existing buildings were constructed prior to 1967. Dudek recommends that a lead-based paint and asbestos survey be conducted prior to remodeling, demolition, or any other activity that may disturb the subject property structures. If asbestos and/or lead paint are identified, Dudek recommends that the materials be abated by a licensed abatement contractor in accordance with applicable local, state, and federal guidelines and/or regulations.

12. Limitations

The following data gaps, which are unlikely to be significant, were identified for this Phase I ESA:

- The property owner did not complete a background questionnaire; and
- Dudek was only able to access the dry cleaner tenant unit.

The findings and conclusions presented in this report are professional opinions based solely upon the indicated data described in this report, visual observations of the property and vicinity and our interpretation of the available historical information and documents reviewed. Dudek makes no warranty as to the accuracy of statements made by others or the accuracy of information included in documentation reviewed in connection with this study. It should be recognized that this study was not intended to be a definitive investigation of potential contamination at the property and that the recommendations do not necessarily include all conditions that may be present. Because the scope of the investigation was limited, it is possible that currently unrecognized conditions or contamination might exist at the property.

No warranties or guarantees or representations, expressed or implied, are made by Dudek, except that this report has been prepared in accordance with current generally accepted practices and standards consistent with the level of care and skill exercised under similar circumstances by other professionals performing the same or similar services. The conclusions are intended exclusively for the purpose outlined herein and may not be suitable to satisfy the needs of other users. Thus, any use or reuse of this document is at the sole risk of said user. No parties other than the user of this Phase I ESA, as identified in Section 2.0 of this Phase I ESA or Chaminade College Preparatory, should rely on this report without prior written consent of Dudek.

Coleman & Horowitt, for itself, and as agent for any parties who now or hereafter hold any portion of or interest in, the indebtedness, and their successors and assign, its parent, affiliates, bond holders and potential bond holders, the underwriters of any securitization of the loan secured by the subject property, the rating agencies rating such securitization, and each of such parties' counsel, are entitled to rely upon this report and to use its contents and conclusions as may be appropriate.

In accordance with ASTM Standard E 1527-13, this Phase I ESA is valid for 180 days. After 180 days, this report, or the information presented in this report must be updated in accordance with the ASTM Standard.

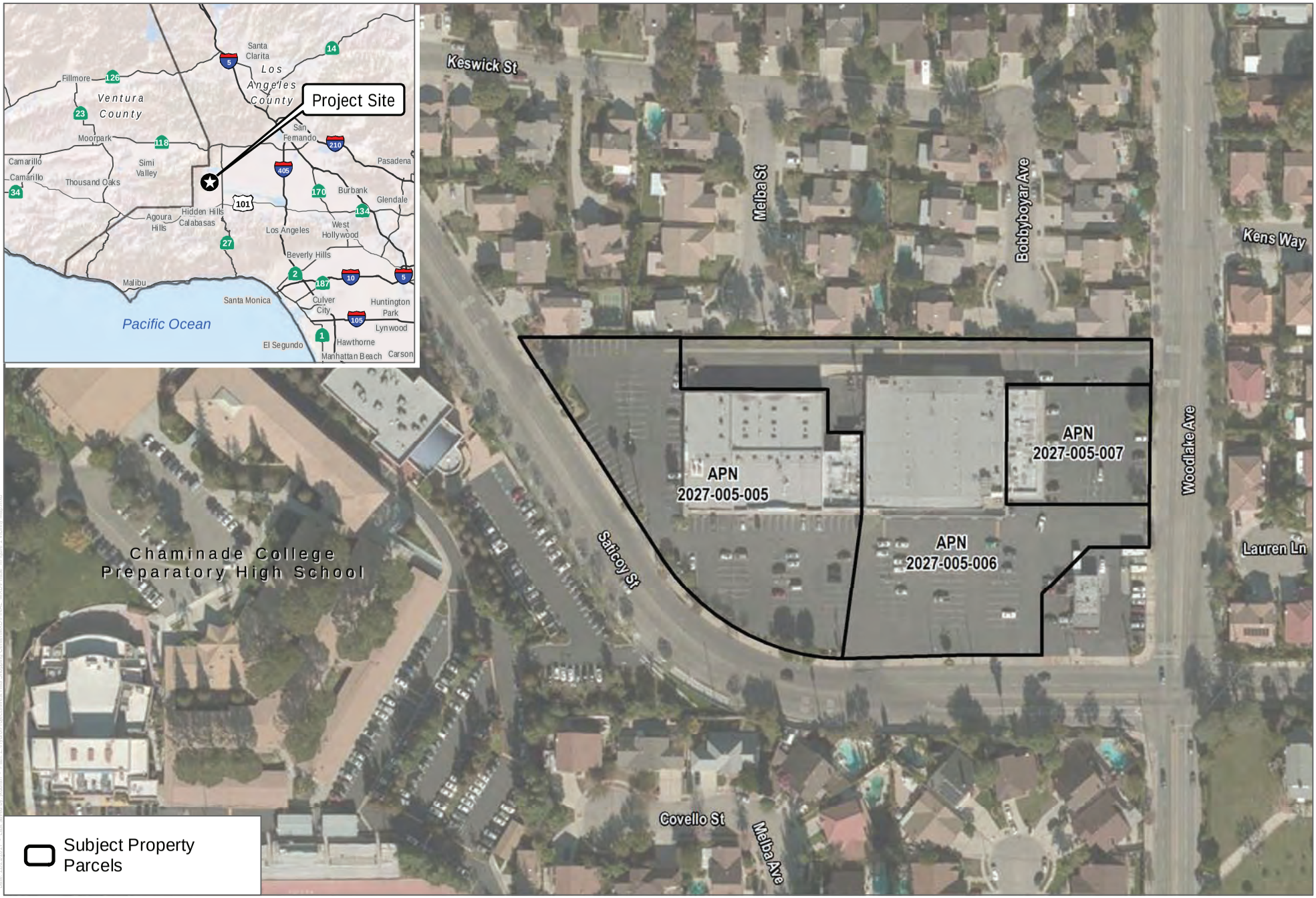
13. References

California Department of Toxic Control Substances (DTSC) EnviroStor database. http://www.envirostor.dtsc.ca.gov/public/. Accessed January 18, 2018.

California State Water Resources Control Board Geotracker database. http://geotracker.waterboards.ca.gov/. Accessed January 18, 2018.

DOGGR 2018. California Department of Conservation, Division of Oil, Gas, and Geothermal Resources online Well Finder database, http://www.conservation.ca.gov/dog/Pages/Wellfinder.aspx. Accessed January 18, 2018.

FIGURE



SOURCE: Bing Maps, Los Angeles County

DUDEK

0 75 150 Feet

FIGURE 1

Vicinity and Site Map

Phase I Enviornmental Site Assessment and Limited Soil Vapor Survey - West Hills Shopping Center 23221-23233 Saticoy St. and 7629 Woodlake Ave. West Hills, CA

APPENDICES

Appendix A

Limited Phase II Environmental Site Assessment

Limited Phase II Environmental Site Assessment
West Hills Shopping Center

23221-23233 Saticoy Street, West Hills, California

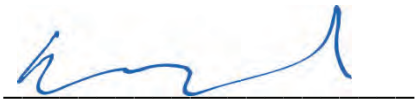
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January 2018

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1. Introduction

This Limited Phase II Environmental Site Assessment was conducted for the West Hills Shopping Center site located between 23221 and 23233 Saticoy Street in West Hills, California (the Site; Figures 1, 2 and 3). The Site is within Assessor's Parcel Numbers (APNs) 2027-005-005, 2027-005-006, and 2027-005-007 and is bounded by Woodlake Avenue, Saticoy Street and residences (Figure 2 and 3). The Site is approximately 4.86 acres and is used as a commercial shopping center. The shopping center was first constructed in 1962-1963. Historically and currently, dry cleaners have occupied a tenant unit at the Site since approximately 1980. The West Hills Cleaners have operated at the Site since 1990. We understand that tetrachloroethene (PCE) was a chemical used in the past onsite by the West Hills Cleaners tenant. Additionally, the Site was used for agriculture from at least 1928 until after 1959.

A former gas station is located on a parcel immediately to the southeast of the Site. A previous report for the gas station indicated that a leaking underground gasoline storage tank was first reported in 1988. Total petroleum hydrocarbons (TPH) and volatile organic compounds (VOCs) were detected in soil and groundwater samples. Groundwater monitoring and sampling began in 1989 and ceased in 1999. Site closure was granted in 2001. Two soil vapor samples collected near the former Chevron Gas Station found no detected levels of TPH or benzene, toluene, ethylene and xylenes (BTEX) in samples collected from 15 feet bgs. (Alpha, 2013). However, one soil vapor sample had low-level detections of PCE and trichloroethylene (TCE).

In July 2013, Alpha Environmental performed a Limited Phase II Environmental Site Investigation (ESA) at the Site to assess the presence of VOCs in the subsurface soil vapor. This investigation consisted of installing six soil vapor probes to a maximum depth of 15 feet below ground surface (bgs). Soil vapor samples were collected from depths of 5 at 15 feet bgs. Groundwater was not encountered during this work. A total of ten soil vapor samples were collected from the six soil vapor probes. Three of the soil vapor samples were at locations near the current dry cleaner, West Hills Cleaners (located at 23233 Saticoy Street, Unit 110). The samples at these three locations, collected between 5 and 15 feet bgs, had low detected levels of the dry cleaning solvent PCE ranging from non-detect to 1.24 µg/L.

In February 2014, Lord Environmental Services performed a Limited Subsurface Investigation to evaluate the presence and distribution of VOCs in subsurface soil and soil gas at the Site. Four soil borings were advanced to a maximum depth of 20 feet bgs in the area around the West Hills Cleaners. Soil samples were collected at 5 foot intervals from these borings and submitted to a laboratory for VOC analysis. VOCs were not detected in any of the soil samples. Each soil boring was completed as a dual-nested soil vapor probe, with one probe set at total depth (between 15 and 20 feet bgs) and one probe set at 5 feet bgs. A soil vapor sample was collected from each probe, resulting in a total of 8 soil vapor samples. PCE was detected at concentrations ranging from 22 to 360 µg/L, with the highest concentrations located immediately south of the cleaners.

This Limited Phase II ESA follow-up sampling was conducted to further define the extent of VOC impacts, specifically PCE, which were identified during the July 2013 and February 2014 investigations.

2. Investigation

Based on review of the previous Site investigations, Dudek conducted follow-up sampling of soil vapor, soil, and groundwater at the Site between March 2, 2017 and July 13, 2017. The investigation consisted of the collection of soil vapor samples from 21 locations at depths of 5 and 15 feet bgs. Groundwater samples were collected via hydropunch method from 7 locations between 25 and 29 feet bgs. Soil samples were collected at depths of 1 and 3 feet bgs from four locations.

2.1. Soil Vapor Sampling

A total of 43 soil vapor samples, including 4 duplicate samples, were collected at the Site from 21 unique locations (Figure 1). Eight of the soil vapor locations (DSV-1 through DSV-8) were advanced on March 2, 2017. Twelve of the soil vapor locations (DSV-9 through DSV-20) were advanced between July 7 and 8, 2017. One soil vapor sample location, SG-4, is a permanent soil vapor probe which we understand was installed in 2014. Soil vapor samples were collected from 5 and 15 feet bgs. at all locations with the exception of DSV-2, DSV-4, DSV-7 and DSV-20, where no-flow conditions were encountered at 15 feet bgs. Thus, soil vapor samples were collected from 5 feet bgs at these locations; one additional probe was installed to 10 feet bgs at DSV-7. Soil vapor samples were analyzed on the Site for VOCs by EPA Method 8260B by a mobile analytical laboratory.

PCE was detected in 41 of the 43 samples analyzed at concentrations ranging from 0.017 µg/L to 384 µg/L. Thirteen of the 21 sample locations contained concentrations of PCE exceeding the DTSC HERO Note 7 Future Residential Soil Gas Screening Level of 0.46 µg/L. Eleven of the 21 sample locations contained concentrations of PCE exceeding the DTSC HERO Note 7 Current Commercial Soil Gas Screening Level of 2.0 µg/L. PCE soil vapor concentrations from the samples collected at 5 feet bgs are presented in Figure 2. PCE soil vapor concentrations from the samples collected at 15 feet bgs are presented in Figure 3.

Trichloroethylene (TCE) was detected in 16 of the 43 samples at concentrations ranging from 0.010 µg/L to 1.73 µg/L. The highest site TCE concentrations were detected at location DSV-5 (5 and 15 feet bgs). The concentration of TCE in the samples collected from location DSV-5 do not exceed the calculated DTSC Hero Note 5 Screening Level for Residential Soil Gas of 2.0 µg/L or Commercial Soil Gas of 8.0 µg/L. DTSC HERO Note 5 Residential and Commercial Accelerated Response Action Levels were used to calculate soil gas screening levels by applying the 0.001 attenuation factor. The 0.001 attenuation factor was determined by DTSC in the 2011 Final Guidance for the

Evaluation and Mitigation of Subsurface Vapor Intrusion to Indoor Air. The location of DSV-5 coincides with the highest detected PCE concentrations at the Site.

Benzene was detected in one sample – DSV-2 at 5 feet bgs – at a concentration of 0.232 µg/L. This concentration exceeds the calculated DTSC Hero Note 3 Screening Level for Residential Soil Gas of 0.097 µg/L, but is below the Screening Level for Commercial Soil Gas of 0.42 µg/L. DTSC HERO Note 3 Screening Levels for Residential and Commercial Air were used to calculate soil gas screening levels by applying the 0.001 attenuation factor. Adjacent sample locations did not contain benzene concentrations at or above the laboratory reporting limits.

The soil vapor sample results are summarized in Table 1 and the laboratory analytical report is presented in Appendix A.

2.2 Groundwater Sampling

As part of this Limited Phase II Investigation, a total of 7 groundwater samples were collected at the Site from 7 unique locations (Figure 1). One hydropunch (DHP-27) was advanced at the Site in the vicinity of the West Hills Cleaners on March 2, 2017. Six hydropunch borings (DHP-1 through DPH-6) were advanced throughout the Site on July 13, 2017. The groundwater samples were collected from depths between 25 and 29 feet bgs, approximately 30 minutes after each borehole was advanced.

The groundwater samples collected at locations DPH-27, DPH-5 and DPH-6 contained detectable concentrations of PCE. PCE concentrations ranged from 0.7 µg/L at DPH-6 to 5.5 µg/L at DPH-27, which exceeds the maximum contaminant level (MCL) of 5 µg/L. Low concentrations of toluene, chloroform, dibromodichloromethane, and dibromochloromethane were also detected at location DPH-27. The concentration of toluene is below the MCL; no MCLs are established for the remaining detected constituents.

The hydropunch groundwater sample results are summarized in Table 2 and the laboratory analytical report is presented in Appendix B.

2.3 Soil Sampling

As part of this Limited Phase II Investigation, a total of 8 soil sample s were collected from four locations on the Site (Figure 2). The soil samples were collectedfrom 1 and 5 feet bgs on July 7, 2017 to be analyzed for metals and organochlorine pesticides (OCPs). The soil sample results are summarized in Tables 3 and 4. The laboratory analytical results are presented in Appendix C.

3. Data Summary and Recommendations

The results of the Dudek's Limited Phase II Investigation sampling are summarized below:

- PCE was detected throughout the Site in subsurface soil vapor at depths between 5 and 15 feet bgs. The highest concentrations of PCE are located immediately south of the current dry cleaners location.
  Concentrations of PCE in soil vapor generally decrease with distance from the dry cleaner location.

- Additionally, concentrations of PCE generally decrease with depth at each sampling location. The soil vapor samples collected at 5 feet bgs generally had higher concentrations of PCE than the samples collected at 15 feet bgs

- PCE concentrations in soil vapor exceed both residential and commercial screening levels. PCE concentrations are generally highest in the south-central portion of the parking lot. Dudek recommends remediating the shallow PCE-impacted soil vapor to mitigate potential vapor intrusion risk.

- Groundwater samples were collected from depths between 25 and 29 feet bgs at 7 individual locations. Low concentrations of PCE were detected in 3 of the samples, one of which (5.5 µg/L at DPH-27) was slightly over the MCL of 5 µg/L. It is probable that the remediation of the soil vapor would sufficiently remediate the low, spatially constrained PCE concentrations in shallow groundwater at the Site.

- OCPs were not detected at or above the laboratory detection limits in any of the soil samples analyzed.

- Low concentrations of metals were detected in all of the soil samples collected and analyzed by the laboratory. The low concentrations represent background conditions at the Site and are not likely to present a risk to human health.

4. Potential Remediation Options

Based on the nature of the contamination, the concentration levels, the shallow depth of impacted soil vapor and the lateral extent of the contamination, Dudek recommends soil vapor extraction (SVE) as the primary means of remediation at the Site. The SVE remediation method involves installing vapor extraction wells screened in the target zone (vertical extent of contaminated soil vapor) and are connected to an SVE unit. Typically,

the SVE unit consists of a blower package which creates vacuum pressure on the wells and a mobile treatment unit which extracts or destroys the contamination within the soil vapor.

Dudek proposes installing an SVE remediation system consisting of 17 vapor extraction wells. Each vapor extraction well will have a 10 foot screened interval, from 5 feet to 15 feet bgs. The wells will be connected to the SVE unit via sub-grade PVC piping which will be placed in shallow trenches in the parking lot which will be backfilled and patched to match existing asphalt surface. In scoping this proposal, it is assumed that sufficient power is available at the Site to operate the SVE system and the SVE system will be operated for a duration of 12 months.

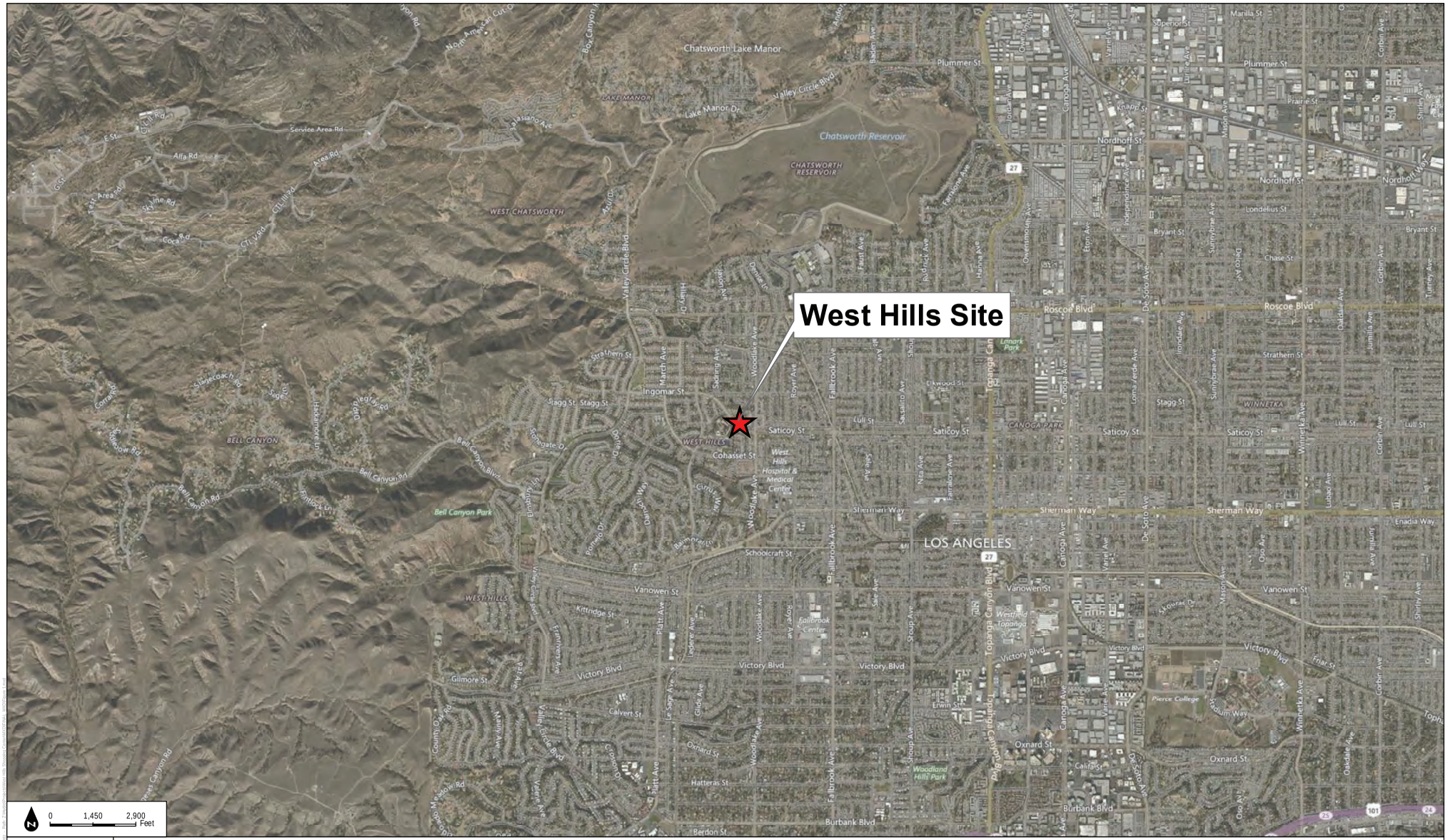
Dudek has been successful in the past achieving site-cleanup with the SVE remediation method and the SVE method is a commonly employed remediation strategy but takes time to achieve meaningful results. While we are hopeful that this remediation method will effectively address vapor concerns, it is possible that post-remediation concentrations of PCE will still not meet the DTSC HERO Note 7 Future Residential Soil Gas Screening Level of 0.46 µg/L at all Site locations. Since we do not know what post-remediation concentrations will be after employing SVE remediation method at this time and are mindful that the remediation process will likely take more than twelve (12) months to achieve meaningful results extracting these soil vapors, we can't aver or opine at this time whether this remediation method will successfully reduce concentrations below these screening levels and remain keenly aware that it could take well over a year from employment to make such determinations. To further address these continuing concerns, if necessary, a site specific human health risk analysis can be used to evaluate potential human health risk at post-remediation levels. Additionally, mitigation of buildings located in areas where soil vapor exceeds screening levels is also an option. Future building construction may implement mitigation measures at time of development utilizing vapor barriers and passive venting systems. Again, these are remediation scenarios that can't be quantified and scoped at this early stage.

5. Limitations

The findings and conclusions presented in this report are professional opinions based solely upon the indicated data described in this report, visual observations of the Site and vicinity and our interpretation of the available historical information and documents reviewed. Dudek makes no warranty as to the accuracy of statements made by others or the accuracy of information included in documentation reviewed in connection with this study. It should be recognized that this study was not intended to be a definitive investigation of potential contamination at the subject property and that the recommendations do not necessarily include all conditions that may be present. Because the scope of the investigation was limited, it is possible that currently unrecognized conditions or contamination might exist at the Site.

No warranties or guarantees or representations, expressed or implied, are made by Dudek, except that this report has been prepared in accordance with current generally accepted practices and standards consistent with the level of care and skill exercised under similar circumstances by other professionals performing the same or similar services. The conclusions are intended exclusively for the purpose outlined herein and may not be suitable to satisfy the needs of other users. Thus, any use or reuse of this document is at the sole risk of said user.

FIGURES



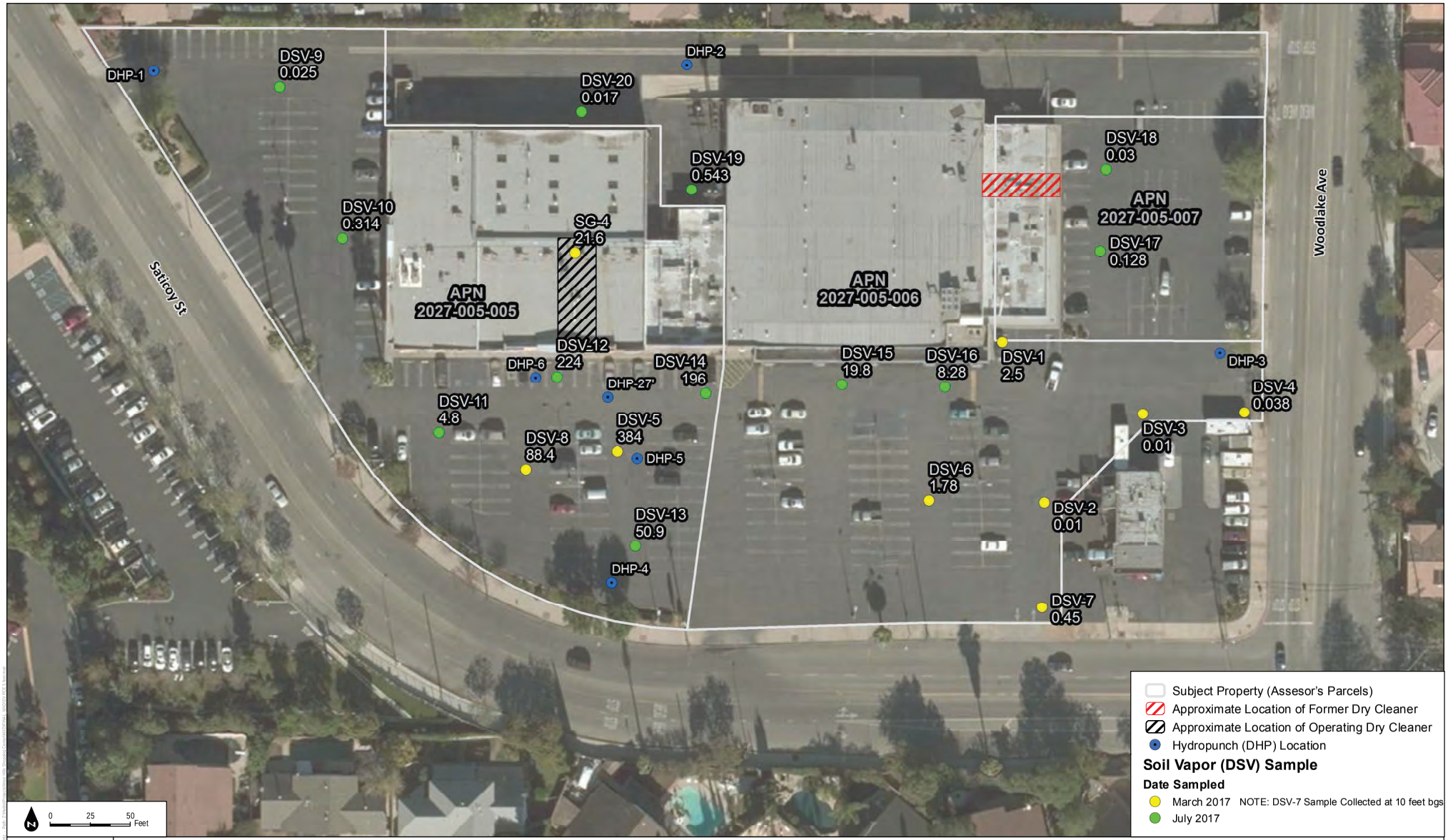
SOURCE: Bing MAPS

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FIGURE 1
Site Vicinity Map

West Hills Shopping Center Limited Phase II

JULY 2017



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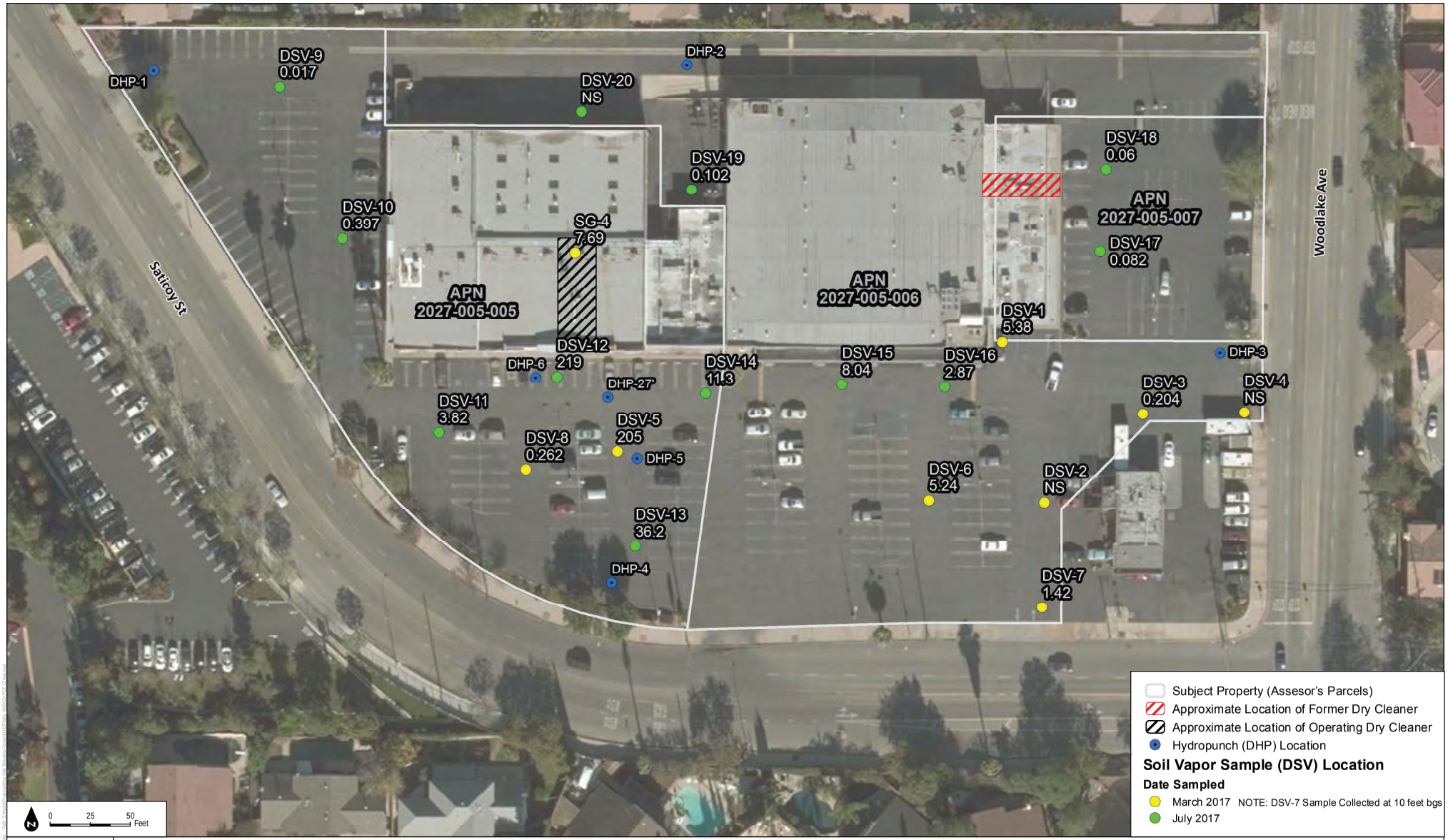
SOURCE: Bing MAPS

FIGURE 2

West Hills Shopping Center - PCE Concentrations (ug/L) in Soil Vapor at 5 feet bgs

West Hills Shopping Center Limited Phase II

JULY 2017



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SOURCE: Bing MAPS

FIGURE 3

West Hills Shopping Center - PCE Concentrations (ug/L) in Soil Vapor at 15 feet bgs

West Hills Shopping Center Limited Phase II

JULY 2017

TABLES

Table 1 - Summary of Soil Vapor Sample Detections

			VOCs by EPA Method 8260B (µg/L)									
Sample ID	Sample Collection Date	Sample Depth (ft. bgs)	PCE	TCE	Benzene	Toluene	MTBE	Dichlorodiflurormethane	4-Isopropyltoluene	n-Butylbenzene	sec-Butylbenzene	cis 1,2-DCE
SG-4	3/2/2017	5	**21.6**	<0.020	<0.020	<0.020	<0.100	<0.020	<0.020	<0.020	<0.020	<0.020
		5 (dup)	**18.6**	<0.020	<0.020	<0.020	<0.100	<0.020	<0.020	<0.020	<0.020	<0.020
		15	**7.69**	<0.020	<0.020	<0.020	<0.100	<0.020	<0.020	<0.020	<0.020	<0.020
DSV-1	3/2/2017	5	2.50	<0.020	<0.020	0.031	<0.100	0.216	0.042	<0.020	<0.020	<0.020
		15	**5.38**	<0.020	<0.020	0.029	<0.100	<0.020	<0.020	<0.020	<0.020	<0.020
DSV-2	3/2/2017	5	<0.020	<0.020	**0.232**	<0.020	1.82	0.124	<0.020	0.260	0.489	<0.020
DSV-3	3/2/2017	5	<0.020	0.030	<0.020	0.042	<0.100	0.112	0.068	<0.020	0.020	<0.020
		15	0.204	0.032	<0.020	<0.020	0.855	0.062	<0.020	<0.020	<0.020	<0.020
DSV-4	3/2/2017	5	0.038	<0.020	<0.020	0.034	<0.100	<0.020	0.036	<0.020	<0.020	<0.020
DSV-5	3/2/2017	5	**384**	1.73	<0.020	<0.020	<0.100	<0.020	0.064	<0.020	<0.020	0.578
		15	**205**	1.45	<0.020	<0.020	<0.100	<0.020	<0.020	<0.020	<0.020	0.088
DSV-6	3/2/2017	5	**1.78**	0.424	<0.020	<0.020	<0.100	0.201	<0.020	<0.020	<0.020	0.030
		15	**5.24**	0.082	<0.020	<0.020	<0.100	0.114	<0.020	<0.020	<0.020	<0.020
DSV-7	3/2/2017	5	0.450	<0.020	<0.020	<0.020	<0.100	<0.020	<0.020	<0.020	<0.020	<0.020
		10	**1.42**	<0.020	<0.020	<0.020	<0.100	<0.020	<0.020	<0.020	<0.020	<0.020
DSV-8	3/2/2017	5	**81.3**	<0.020	<0.020	<0.020	<0.100	<0.020	<0.020	<0.020	<0.020	<0.020
		5 (dup)	**88.4**	<0.020	<0.020	<0.020	<0.100	<0.020	<0.020	<0.020	<0.020	<0.020
		15	0.262	<0.020	<0.020	<0.020	<0.100	<0.020	<0.020	<0.020	<0.020	<0.020
DSV-9	7/8/207	5	0.025	<0.008	<0.008	0.104	<0.04	<0.008	0.033	<0.008	<0.008	<0.008
		15	0.017	<0.008	<0.008	0.341	<0.04	<0.008	0.013	<0.008	<0.008	<0.008
		15 (dup)	0.017	<0.008	<0.008	0.228	<0.04	<0.008	0.009	<0.008	<0.008	<0.008
DSV-10	7/7/2017	5	0.314	<0.008	<0.008	0.08	<0.04	<0.008	0.019	<0.008	<0.008	<0.008
		15	0.397	<0.008	<0.008	0.223	<0.04	<0.008	<0.008	<0.008	<0.008	<0.008
DSV-11	7/7/2017	5	**4.8**	<0.008	<0.008	0.271	<0.04	<0.008	0.039	<0.008	<0.008	<0.008
		15	**3.82**	<0.008	<0.008	0.325	<0.04	<0.008	<0.008	<0.008	<0.008	<0.008
DSV-12	7/7/2017	5	**224**	0.075	<0.008	0.232	<0.04	<0.008	0.014	<0.008	<0.008	<0.008
		15	**219**	0.023	<0.008	0.275	<0.04	<0.008	<0.008	<0.008	<0.008	<0.008
DSV-13	7/7/2017	5	**50.9**	0.018	<0.008	0.411	<0.04	<0.008	0.047	<0.008	<0.008	<0.008
		15	**36.2**	<0.008	<0.008	0.41	<0.04	<0.008	<0.008	<0.008	<0.008	<0.008
DSV-14	7/7/2017	5	**196**	0.295	<0.008	0.151	<0.04	0.036	0.017	<0.008	<0.008	<0.008
		15	**11.3**	0.028	<0.008	0.546	<0.04	<0.008	<0.008	<0.008	<0.008	<0.008
DSV-15	7/7/2017	5	**19.8**	0.044	<0.008	0.051	<0.04	0.097	0.019	<0.008	<0.008	<0.008
		15	**8.04**	0.01	<0.008	0.248	<0.04	0.076	<0.008	<0.008	<0.008	<0.008
DSV-16	7/7/2017	5	**8.28**	0.011	<0.008	0.076	<0.04	0.241	0.039	<0.008	<0.008	<0.008
		15	**2.87**	0.016	<0.008	0.477	<0.04	0.155	<0.008	<0.008	<0.008	<0.008
		15 (dup)	**2.46**	0.013	<0.008	0.463	<0.04	0.13	<0.008	<0.008	<0.008	<0.008
DSV-17	7/8/2017	5	0.128	<0.008	<0.008	0.034	<0.04	0.032	0.02	<0.008	<0.008	<0.008
		15	0.082	<0.008	<0.008	0.05	<0.04	0.034	<0.008	<0.008	<0.008	<0.008
DSV-18	7/8/2017	5	0.03	<0.008	<0.008	0.035	<0.04	0.021	0.015	<0.008	<0.008	<0.008
		15	0.06	<0.008	<0.008	0.132	<0.04	0.044	<0.008	<0.008	<0.008	<0.008
DSV-19	7/8/2017	5	**0.543**	<0.008	<0.008	0.077	<0.04	<0.008	0.057	<0.008	<0.008	<0.008
		15	0.102	<0.008	<0.008	0.216	<0.04	<0.008	<0.008	<0.008	<0.008	<0.008
DSV-20	7/8/2017	5	0.017	<0.008	<0.008	0.206	<0.04	<0.008	0.024	<0.008	<0.008	<0.008
HERO Note 7 Future Resident Soil Gas Screening Level (µg/L) / Current Commercial Soil Gas Screening Level (µg/L)			0.46 / 2.0	--	--	--	--	--	--	--	--	--
Soil Gas Screening Level Based on HERO Note 5 Screening Levels for Residential Air (µg/L) /Commercial Air (µg/L)[a]			--	2.0 / 8.0	--	--	--	--	--	--	--	--
Soil Gas Screening Level Based on HERO Note 3 Screening Levels for Residential Air (µg/L)[a]			0.46	--	0.097	310	--	--	--	210	420	8
Soil Gas Screening Level Based on HERO Note 3 Screening Levels for Commercial Air (µg/L)[a]			2	--	0.42	1,300	--	--	--	880	880	35
Soil Gas Screening Level Based on Regional Screening Level - Resident Air (µg/L)[a]			11	0	0.36	5,200	11	100	--	--	--	--

Notes:
VOCs - volatile organic compounds
EPA - Environmental Protection Agency
µg/L - micrograms per liter
ft. bgs - feet below ground surface
PCE - tetrachloroethylene
TCE - trichloroethylene
DCE - dichloroethylene
dup - indicates duplicate sample
-- - screening level not available
concentrations in bold exceed their respective residential screening levels
[a] - attenuation factor of 0.001 applied to air screening levels to determine soil gas action level

Table 2 - Summary of Hydropunch Groundwater Sample Detections

			VOCs by EPA Method 8260B (µg/L)				
Sample ID	Sample Collection Date	Approximate Sample Depth (ft. bgs)	PCE	Toluene	Bromodichloromethane	Chloroform	Dibromodichloromethane
DHP-27'	3/2/2017	27	**5.5**	0.5	1.0	0.5	1.2
DHP-1-25	7/13/2017	25	<0.5	<0.5	<0.5	<0.5	2.7
DHP-2-29	7/13/2017	29	<0.5	<0.5	0.6	<0.5	<0.5
DHP-3-28	7/13/2017	28	<0.5	<0.5	<0.5	<0.5	1.1
DHP-4-26	7/13/2017	26	<0.5	<0.5	<0.5	<0.5	<0.5
DHP-5-27	7/13/2017	27	3.4	<0.5	<0.5	<0.5	<0.5
DHP-6-29	7/13/2017	29	0.7	<0.5	<0.5	<0.5	<0.5
California Maximum Contaminant Level (µg/L)			5	150	--	--	--

Notes:
VOCs - volatile organic compounds
EPA - Environmental Protection Agency
µg/L - micrograms per liter
ft. bgs - feet below ground surface
PCE - tetrachloroethylene
-- - screening level not available
concentrations in bold exceed their respective screening levels

Table 3 - Summary of Metals Detections in Soil

Sample Location	Sample ID	Date Sampled	Sample Depth (ft. bgs)	Total Metals by EPA Method 6010B/7471A (mg/kg)																
				Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium (total)	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
DSV13	DSV13-1	7/7/17	1	<0.5	3.4	61.2	<0.5	<0.5	13.7	5.1	8.4	7.3	<0.020	<0.5	10.9	<0.5	<0.5	<0.5	24.9	53.7
	DSV13-3	7/7/17	3	<0.5	5.6	84.5	<0.5	<0.5	21.2	7.7	8.4	7.1	<0.020	<0.5	16.4	<0.5	<0.5	<0.5	36.4	57.2
DSV15	DSV15-1	7/7/17	1	<0.5	4.1	67.0	<0.5	0.7	18.6	6.2	10.4	6.3	<0.020	<0.5	15.1	<0.5	<0.5	<0.5	34.5	51.6
	DSV15-3	7/7/17	3	<0.5	4.6	70.1	<0.5	<0.5	15.6	6.1	7.1	5.3	<0.020	<0.5	11.9	<0.5	<0.5	<0.5	27.3	46.9
DSV18	DSV18-1	7/7/17	1	<0.5	4.0	72.9	<0.5	<0.5	15.0	5.6	9.2	8.5	<0.020	<0.5	12.0	<0.5	<0.5	<0.5	27.2	62.9
	DSV18-3	7/7/17	3	<0.5	3.7	76.7	<0.5	<0.5	16.9	6.4	6.8	5.2	<0.020	<0.5	12.7	<0.5	<0.5	<0.5	29.7	48.9
DSV20	DSV20-1	7/7/17	1	<0.5	4.3	61.6	<0.5	<0.5	15.1	5.6	7.8	8.1	<0.020	<0.5	11.4	<0.5	<0.5	<0.5	26.9	53.9
	DSV20-3	7/7/17	3	<0.5	4.1	74.9	<0.5	<0.5	17.4	6.5	8.4	10.3	<0.020	<0.5	12.9	<0.5	<0.5	<0.5	30.9	64.4
DTSC Background Screening Level[1]				-	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Residental RSL[2]				3	0.680	15,000	160	71.0	-	23	3,100	400	11	390	-	390	390	0.78	390	23,000
Commercial/Industrial CHHSL[3]				380	0.24	63,000	190	7.5	100,000	3,200	38,000	320	180	4,800	16,000	4,800	4,800	63	6,700	100,000
Residential CHHSL[3]				30	0.07	5,200	16	1.7	100,000	660	3,000	80	18	380	1,600	380	380	5.0	530	23,000

Notes:

mg/kg milligrams per kilogram

ft. bgs feet below ground surface

BG- DTSC recommends the consideration of site background concentrations of arsenic in HERO HHRA NOTE 3 (October 2015)

[1]Data from Department of Toxic Substances Control paper: *Background Arsenic Concentration in Soil*

[2]Data from EPA Regional Screening Levels - Screening Levels for Chemical Contaminants, November 2017

[3] California Human Health Screening Levels developed by California EPA Office of Enviornmental Health Hazard Assessment updated 2010

Table 4 - Summary of Organochlorine Pesticides Detections in Soil

Sample ID	Sample Date	Organochlorine Pesticides by EPA Method 8081A (µg/kg)																			
		Aldrin	α-BHC	β-BHC	γ-BHC (Lindane)	δ-BHC	γ-Chlordane	α-Chlordane	4,4'-DDD	4,4'-DDE	4,4'-DDT	Dieldrin	Endosulfan I	Endosulfan II	Endosulfan Sulfate	Endrin	Endrin aldehyde	Endrin ketone	Heptachlor	Heptachlor epoxide	Methoxychlor
DSV13-1	7/7/2017	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
DSV13-3	7/7/2017	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
DSV15-1	7/7/2017	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
DSV15-3	7/7/2017	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
DSV18-1	7/7/2017	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
DSV18-3	7/7/2017	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
DSV20-1	7/7/2017	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
DSV20-3	7/7/2017	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Residental RSL[1]		39	86	300	570	-	1700	-	1900	2000	1900	34	470000	-	-	19000	-	-	130	70	320000
Residental CHHSL[2]		33	-	-	500	-	430	-	2300	1600	1600	35	-	-	-	21000	-	-	130	-	340000
Commerciam/Industrial CHHSL[2]		130	-	-	2000	-	1700	-	9000	6300	6300	130	-	-	-	230000	-	-	520	-	3800000
Residential DTSC HERO Note 3[3]		-	-	-	-	-	440	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Notes:

µg/kg - micrograms per kilogram

< Constituent was not detected (above the Method Detection Limit).

NA - Not Analyzed

[1]Data from EPA Regional Screening Levels - Screening Levels for Chemical Contaminants, November 2017

[2]Data from CalEPA California Human Health Screening Levels in Evaluation of Contaminated Properties, September 2010

[3]HERO Note Number 3- Human Health Risk Assesment (HHRA) recommended methodology for USEPA Regional Screening Levels, August 2017

- No guidance concentration for the constituent.

APPENDIX A

JONES ENVIRONMENTAL, INC.

714-449-9937
562-646-1611
805-399-0060

11007 FOREST PLACE
SANTA FE SPRINGS, CA 90670
WWW.JONESENV.COM

JONES ENVIRONMENTAL
LABORATORY RESULTS

Client:	Millennium Environmental, Inc	**Report date:**	3/2/2017
Client Address:	2936 E. Coronado Street Anaheim, CA 92806	**JEL Ref. No.:** **Client Ref. No.:**	E-0685 M184-16
Attn:	Mindy Jenkins	**Date Sampled:** **Date Received:**	3/2/2017 3/2/2017
Project Name:	Dudek - West Hills	**Date Analyzed:**	3/2/2017
Project Address:	23233 Saticoy St. West Hills, CA	**Physical State:**	Soil Gas

ANALYSES REQUESTED

1. EPA 8260B - Volatile Organics by GC/MS + Oxygenates

Sampling – Soil Gas samples were collected in glass gas-tight syringes equipped with Teflon plungers.

A tracer gas mixture of n-pentane, n-hexane, and n-heptane was placed at the tubing-surface interface before sampling. These compounds were analyzed during the 8260B analytical run to determine if there were surface leaks into the subsurface due to improper installation of the probe. No n-pentane, n-hexane, or n-heptane was found in any of the samples reported herein.

The sampling rate was approximately 200 cc/min, except when noted differently on the chain of custody record, using a glass gas-tight syringe. Purging was completed using a pump set at approximately 200 cc/min, except when noted differently on the chain of custody record. A default of 3 purge volumes was used as recommended by July 2015 DTSC/RWQCB guidance documents.

Prior to purging and sampling of soil gas at each point, a shut-in test was conducted to check for leaks in the above ground fittings. The shut-in test was performed on the above ground apparatus by evacuating the line to a vacuum of 100 inches of water, sealing the entire system and watching the vacuum for at least one minute. A vacuum gauge attached in parallel to the apparatus measured the vacuum. If there was any observable loss of vacuum, the fittings were adjusted as needed until the vacuum did not change noticeably. The soil gas sample was then taken.

No flow conditions occur when a sampling rate greater than 10 mL/min cannot be maintained without applying a vacuum greater than 100 inches of water to the sampling train. The sampling train is left at a vacuum for no less than three minutes. If the vacuum does not subside appreciably after three minutes, the sample location is determined to be a no flow sample.

Analytical – Soil Gas samples were analyzed using EPA Method 8260 that includes extra compounds required by DTSC/RWQCB (such as Freon 113). Instrument Continuing Calibration Verification, QC Reference Standards, Instrument Blanks and Sampling Blanks were analyzed every 12 hours as prescribed by the method. In addition, a Laboratory Control Sample (LCS) and Laboratory Control Sample Duplicate (LCSD) were analyzed with each batch of Soil Gas samples. A duplicate/replicate sample was analyzed each day of the sampling activity. All samples were injected into the GC/MS system within 30 minutes of sampling.

Approval: 

Steve Jones, Ph.D.
Laboratory Manager

JONES ENVIRONMENTAL, INC.
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11007 FOREST PLACE
SANTA FE SPRINGS, CA 90670
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JONES ENVIRONMENTAL LABORATORY RESULTS

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Client Address:	2936 E. Coronado Street Anaheim, CA 92806	**Jones Ref. No.:** **Client Ref. No.:**	E-0685 M184-16
Attn:	Mindy Jenkins	**Date Sampled:**	3/2/2017
		Date Received:	3/2/2017
Project:	Dudek - West Hills	**Date Analyzed:**	3/2/2017
Project Address:	23233 Saticoy St. West Hills, CA	**Physical State:**	Soil Gas

EPA 8260B – Volatile Organics by GC/MS + Oxygenates

Sample ID:	**SG4-5'**	**SG4-5' REP**	**SG4-15'**	**DSV-1-5'**	**DSV-1-15'**		
Jones ID:	**E-0685-01**	**E-0685-02**	**E-0685-03**	**E-0685-04**	**E-0685-05**	**Practical Quantitation Limit**	**Units**
Analytes:							
Benzene	ND	ND	ND	ND	ND	0.020	µg/L
Bromobenzene	ND	ND	ND	ND	ND	0.020	µg/L
Bromodichloromethane	ND	ND	ND	ND	ND	0.020	µg/L
Bromoform	ND	ND	ND	ND	ND	0.020	µg/L
n-Butylbenzene	ND	ND	ND	ND	ND	0.020	µg/L
sec-Butylbenzene	ND	ND	ND	ND	ND	0.020	µg/L
tert-Butylbenzene	ND	ND	ND	ND	ND	0.020	µg/L
Carbon tetrachloride	ND	ND	ND	ND	ND	0.020	µg/L
Chlorobenzene	ND	ND	ND	ND	ND	0.020	µg/L
Chloroform	ND	ND	ND	ND	ND	0.020	µg/L
2-Chlorotoluene	ND	ND	ND	ND	ND	0.020	µg/L
4-Chlorotoluene	ND	ND	ND	ND	ND	0.020	µg/L
Dibromochloromethane	ND	ND	ND	ND	ND	0.020	µg/L
1,2-Dibromo-3-chloropropane	ND	ND	ND	ND	ND	0.020	µg/L
1,2-Dibromoethane (EDB)	ND	ND	ND	ND	ND	0.020	µg/L
Dibromomethane	ND	ND	ND	ND	ND	0.020	µg/L
1,2- Dichlorobenzene	ND	ND	ND	ND	ND	0.020	µg/L
1,3-Dichlorobenzene	ND	ND	ND	ND	ND	0.020	µg/L
1,4-Dichlorobenzene	ND	ND	ND	ND	ND	0.020	µg/L
Dichlorodifluoromethane	ND	ND	ND	**0.216**	ND	0.020	µg/L
1,1-Dichloroethane	ND	ND	ND	ND	ND	0.020	µg/L
1,2-Dichloroethane	ND	ND	ND	ND	ND	0.020	µg/L
1,1-Dichloroethene	ND	ND	ND	ND	ND	0.020	µg/L
cis-1,2-Dichloroethene	ND	ND	ND	ND	ND	0.020	µg/L
trans-1,2-Dichloroethene	ND	ND	ND	ND	ND	0.020	µg/L
1,2-Dichloropropane	ND	ND	ND	ND	ND	0.020	µg/L
1,3-Dichloropropane	ND	ND	ND	ND	ND	0.020	µg/L
2,2-Dichloropropane	ND	ND	ND	ND	ND	0.020	µg/L
1,1-Dichloropropene	ND	ND	ND	ND	ND	0.020	µg/L

JONES ENVIRONMENTAL LABORATORY RESULTS

EPA 8260B – Volatile Organics by GC/MS + Oxygenates

Sample ID:	**SG4-5'**	**SG4-5' REP**	**SG4-15'**	**DSV-1-5'**	**DSV-1-15'**		
Jones ID:	**E-0685-01**	**E-0685-02**	**E-0685-03**	**E-0685-04**	**E-0685-05**	**Practical Quantitation Limit**	**Units**
Analytes:							
cis-1,3-Dichloropropene	ND	ND	ND	ND	ND	0.020	µg/L
trans-1,3-Dichloropropene	ND	ND	ND	ND	ND	0.020	µg/L
Ethylbenzene	ND	ND	ND	ND	ND	0.020	µg/L
Freon 113	ND	ND	ND	ND	ND	0.100	µg/L
Hexachlorobutadiene	ND	ND	ND	ND	ND	0.020	µg/L
Isopropylbenzene	ND	ND	ND	ND	ND	0.020	µg/L
4-Isopropyltoluene	ND	ND	ND	**0.042**	ND	0.020	µg/L
Methylene chloride	ND	ND	ND	ND	ND	0.020	µg/L
Naphthalene	ND	ND	ND	ND	ND	0.100	µg/L
n-Propylbenzene	ND	ND	ND	ND	ND	0.020	µg/L
Styrene	ND	ND	ND	ND	ND	0.020	µg/L
1,1,1,2-Tetrachloroethane	ND	ND	ND	ND	ND	0.020	µg/L
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	ND	0.020	µg/L
Tetrachloroethene	**21.6**	**18.6**	**7.69**	**2.50**	**5.38**	0.020	µg/L
Toluene	ND	ND	ND	**0.031**	**0.029**	0.020	µg/L
1,2,3-Trichlorobenzene	ND	ND	ND	ND	ND	0.100	µg/L
1,2,4-Trichlorobenzene	ND	ND	ND	ND	ND	0.020	µg/L
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	0.020	µg/L
1,1,2-Trichloroethane	ND	ND	ND	ND	ND	0.020	µg/L
Trichloroethene	ND	ND	ND	ND	ND	0.020	µg/L
Trichlorofluoromethane	ND	ND	ND	ND	ND	0.020	µg/L
1,2,3-Trichloropropane	ND	ND	ND	ND	ND	0.020	µg/L
1,2,4-Trimethylbenzene	ND	ND	ND	ND	ND	0.020	µg/L
1,3,5-Trimethylbenzene	ND	ND	ND	ND	ND	0.020	µg/L
Vinyl chloride	ND	ND	ND	ND	ND	0.020	µg/L
m,p-Xylene	ND	ND	ND	ND	ND	0.020	µg/L
o-Xylene	ND	ND	ND	ND	ND	0.020	µg/L
MTBE	ND	ND	ND	ND	ND	0.100	µg/L
Ethyl-tert-butylether	ND	ND	ND	ND	ND	0.100	µg/L
Di-isopropylether	ND	ND	ND	ND	ND	0.100	µg/L
tert-amylmethylether	ND	ND	ND	ND	ND	0.100	µg/L
tert-Butylalcohol	ND	ND	ND	ND	ND	1.00	µg/L
TIC:							
n-Pentane	ND	ND	ND	ND	ND	1.00	µg/L
n-Hexane	ND	ND	ND	ND	ND	1.00	µg/L
n-Heptane	ND	ND	ND	ND	ND	1.00	µg/L
Dilution Factor	1	1	1	1	1		
Surrogate Recoveries:						**QC Limits**	
Dibromofluoromethane	133%	121%	125%	128%	127%	60 - 140	
Toluene-d_8	98%	99%	100%	100%	100%	60 - 140	
4-Bromofluorobenzene	103%	106%	104%	107%	105%	60 - 140	
	E1-030217-E-0685	E1-030217-E-0685	E1-030217-E-0685	E1-030217-E-0685	E1-030217-E-0685		

ND= Not Detected

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JONES ENVIRONMENTAL LABORATORY RESULTS

Client:	Millennium Environmental, Inc	**Report date:**	3/2/2017
Client Address:	2936 E. Coronado Street Anaheim, CA 92806	**Jones Ref. No.:** **Client Ref. No.:**	E-0685 M184-16
Attn:	Mindy Jenkins	**Date Sampled:**	3/2/2017
		Date Received:	3/2/2017
Project:	Dudek - West Hills	**Date Analyzed:**	3/2/2017
Project Address:	23233 Saticoy St. West Hills, CA	**Physical State:**	Soil Gas

EPA 8260B – Volatile Organics by GC/MS + Oxygenates

Sample ID:	**DSV-2-5'**	**DSV-3-5'**	**DSV-3-15'**	**DSV-4-5'**	**DSV-5-5'**		
Jones ID:	**E-0685-06**	**E-0685-08**	**E-0685-09**	**E-0685-10**	**E-0685-12**	**Practical Quantitation Limit**	**Units**
Analytes:							
Benzene	**0.232**	ND	ND	ND	ND	0.020	µg/L
Bromobenzene	ND	ND	ND	ND	ND	0.020	µg/L
Bromodichloromethane	ND	ND	ND	ND	ND	0.020	µg/L
Bromoform	ND	ND	ND	ND	ND	0.020	µg/L
n-Butylbenzene	**0.260**	ND	ND	ND	ND	0.020	µg/L
sec-Butylbenzene	**0.489**	**0.020**	ND	ND	ND	0.020	µg/L
tert-Butylbenzene	ND	ND	ND	ND	ND	0.020	µg/L
Carbon tetrachloride	ND	ND	ND	ND	ND	0.020	µg/L
Chlorobenzene	ND	ND	ND	ND	ND	0.020	µg/L
Chloroform	ND	ND	ND	ND	ND	0.020	µg/L
2-Chlorotoluene	ND	ND	ND	ND	ND	0.020	µg/L
4-Chlorotoluene	ND	ND	ND	ND	ND	0.020	µg/L
Dibromochloromethane	ND	ND	ND	ND	ND	0.020	µg/L
1,2-Dibromo-3-chloropropane	ND	ND	ND	ND	ND	0.020	µg/L
1,2-Dibromoethane (EDB)	ND	ND	ND	ND	ND	0.020	µg/L
Dibromomethane	ND	ND	ND	ND	ND	0.020	µg/L
1,2- Dichlorobenzene	ND	ND	ND	ND	ND	0.020	µg/L
1,3-Dichlorobenzene	ND	ND	ND	ND	ND	0.020	µg/L
1,4-Dichlorobenzene	ND	ND	ND	ND	ND	0.020	µg/L
Dichlorodifluoromethane	**0.124**	**0.112**	**0.062**	ND	ND	0.020	µg/L
1,1-Dichloroethane	ND	ND	ND	ND	ND	0.020	µg/L
1,2-Dichloroethane	ND	ND	ND	ND	ND	0.020	µg/L
1,1-Dichloroethene	ND	ND	ND	ND	ND	0.020	µg/L
cis-1,2-Dichloroethene	ND	ND	ND	ND	**0.578**	0.020	µg/L
trans-1,2-Dichloroethene	ND	ND	ND	ND	ND	0.020	µg/L
1,2-Dichloropropane	ND	ND	ND	ND	ND	0.020	µg/L
1,3-Dichloropropane	ND	ND	ND	ND	ND	0.020	µg/L
2,2-Dichloropropane	ND	ND	ND	ND	ND	0.020	µg/L
1,1-Dichloropropene	ND	ND	ND	ND	ND	0.020	µg/L

JONES ENVIRONMENTAL LABORATORY RESULTS

EPA 8260B – Volatile Organics by GC/MS + Oxygenates

Sample ID:	**DSV-2-5'**	**DSV-3-5'**	**DSV-3-15'**	**DSV-4-5'**	**DSV-5-5'**		
Jones ID:	**E-0685-06**	**E-0685-08**	**E-0685-09**	**E-0685-10**	**E-0685-12**	**Practical Quantitation Limit**	**Units**
Analytes:							
cis-1,3-Dichloropropene	ND	ND	ND	ND	ND	0.020	µg/L
trans-1,3-Dichloropropene	ND	ND	ND	ND	ND	0.020	µg/L
Ethylbenzene	ND	ND	ND	ND	ND	0.020	µg/L
Freon 113	ND	ND	ND	ND	ND	0.100	µg/L
Hexachlorobutadiene	ND	ND	ND	ND	ND	0.020	µg/L
Isopropylbenzene	ND	ND	ND	ND	ND	0.020	µg/L
4-Isopropyltoluene	ND	**0.068**	ND	**0.036**	**0.064**	0.020	µg/L
Methylene chloride	ND	ND	ND	ND	ND	0.020	µg/L
Naphthalene	ND	ND	ND	ND	ND	0.100	µg/L
n-Propylbenzene	ND	ND	ND	ND	ND	0.020	µg/L
Styrene	ND	ND	ND	ND	ND	0.020	µg/L
1,1,1,2-Tetrachloroethane	ND	ND	ND	ND	ND	0.020	µg/L
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	ND	0.020	µg/L
Tetrachloroethene	ND	ND	**0.204**	**0.038**	**384***	0.020	µg/L
Toluene	ND	**0.042**	ND	**0.034**	ND	0.020	µg/L
1,2,3-Trichlorobenzene	ND	ND	ND	ND	ND	0.100	µg/L
1,2,4-Trichlorobenzene	ND	ND	ND	ND	ND	0.020	µg/L
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	0.020	µg/L
1,1,2-Trichloroethane	ND	ND	ND	ND	ND	0.020	µg/L
Trichloroethene	ND	**0.030**	**0.032**	ND	**1.73**	0.020	µg/L
Trichlorofluoromethane	ND	ND	ND	ND	ND	0.020	µg/L
1,2,3-Trichloropropane	ND	ND	ND	ND	ND	0.020	µg/L
1,2,4-Trimethylbenzene	ND	ND	ND	ND	ND	0.020	µg/L
1,3,5-Trimethylbenzene	ND	ND	ND	ND	ND	0.020	µg/L
Vinyl chloride	ND	ND	ND	ND	ND	0.020	µg/L
m,p-Xylene	ND	ND	ND	ND	ND	0.020	µg/L
o-Xylene	ND	ND	ND	ND	ND	0.020	µg/L
MTBE	**1.82**	ND	**0.855**	ND	ND	0.100	µg/L
Ethyl-tert-butylether	ND	ND	ND	ND	ND	0.100	µg/L
Di-isopropylether	ND	ND	ND	ND	ND	0.100	µg/L
tert-amylmethylether	ND	ND	ND	ND	ND	0.100	µg/L
tert-Butylalcohol	ND	ND	ND	ND	ND	1.00	µg/L
TIC:							
n-Pentane	ND	ND	ND	ND	ND	1.00	µg/L
n-Hexane	ND	ND	ND	ND	ND	1.00	µg/L
n-Heptane	ND	ND	ND	ND	ND	1.00	µg/L
Dilution Factor	1	1	1	1	1/20*		
Surrogate Recoveries:						**QC Limits**	
Dibromofluoromethane	61%	119%	118%	127%	126%	60 - 140	
Toluene-d_8	94%	104%	101%	101%	96%	60 - 140	
4-Bromofluorobenzene	90%	92%	86%	106%	104%	60 - 140	
	E1-030217-E-0685	E1-030217-E-0685	E1-030217-E-0685	E1-030217-E-0685	E1-030217-E-0685		

ND= Not Detected

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JONES ENVIRONMENTAL LABORATORY RESULTS

Client:	Millennium Environmental, Inc	**Report date:**	3/2/2017
Client Address:	2936 E. Coronado Street Anaheim, CA 92806	**Jones Ref. No.:** **Client Ref. No.:**	E-0685 M184-16
Attn:	Mindy Jenkins	**Date Sampled:**	3/2/2017
		Date Received:	3/2/2017
Project:	Dudek - West Hills	**Date Analyzed:**	3/2/2017
Project Address:	23233 Saticoy St. West Hills, CA	**Physical State:**	Soil Gas

EPA 8260B – Volatile Organics by GC/MS + Oxygenates

Sample ID:	**DSV-5-15'**	**DSV-6-5'**	**DSV-6-15'**	**DSV-7-5'**	**DSV-7-10'**		
Jones ID:	**E-0685-13**	**E-0685-14**	**E-0685-15**	**E-0685-16**	**E-0685-17**	**Practical Quantitation Limit**	**Units**
Analytes:							
Benzene	ND	ND	ND	ND	ND	0.020	µg/L
Bromobenzene	ND	ND	ND	ND	ND	0.020	µg/L
Bromodichloromethane	ND	ND	ND	ND	ND	0.020	µg/L
Bromoform	ND	ND	ND	ND	ND	0.020	µg/L
n-Butylbenzene	ND	ND	ND	ND	ND	0.020	µg/L
sec-Butylbenzene	ND	ND	ND	ND	ND	0.020	µg/L
tert-Butylbenzene	ND	ND	ND	ND	ND	0.020	µg/L
Carbon tetrachloride	ND	ND	ND	ND	ND	0.020	µg/L
Chlorobenzene	ND	ND	ND	ND	ND	0.020	µg/L
Chloroform	ND	ND	ND	ND	ND	0.020	µg/L
2-Chlorotoluene	ND	ND	ND	ND	ND	0.020	µg/L
4-Chlorotoluene	ND	ND	ND	ND	ND	0.020	µg/L
Dibromochloromethane	ND	ND	ND	ND	ND	0.020	µg/L
1,2-Dibromo-3-chloropropane	ND	ND	ND	ND	ND	0.020	µg/L
1,2-Dibromoethane (EDB)	ND	ND	ND	ND	ND	0.020	µg/L
Dibromomethane	ND	ND	ND	ND	ND	0.020	µg/L
1,2- Dichlorobenzene	ND	ND	ND	ND	ND	0.020	µg/L
1,3-Dichlorobenzene	ND	ND	ND	ND	ND	0.020	µg/L
1,4-Dichlorobenzene	ND	ND	ND	ND	ND	0.020	µg/L
Dichlorodifluoromethane	ND	**0.201**	**0.114**	ND	ND	0.020	µg/L
1,1-Dichloroethane	ND	ND	ND	ND	ND	0.020	µg/L
1,2-Dichloroethane	ND	ND	ND	ND	ND	0.020	µg/L
1,1-Dichloroethene	ND	ND	ND	ND	ND	0.020	µg/L
cis-1,2-Dichloroethene	**0.088**	**0.030**	ND	ND	ND	0.020	µg/L
trans-1,2-Dichloroethene	ND	ND	ND	ND	ND	0.020	µg/L
1,2-Dichloropropane	ND	ND	ND	ND	ND	0.020	µg/L
1,3-Dichloropropane	ND	ND	ND	ND	ND	0.020	µg/L
2,2-Dichloropropane	ND	ND	ND	ND	ND	0.020	µg/L
1,1-Dichloropropene	ND	ND	ND	ND	ND	0.020	µg/L

JONES ENVIRONMENTAL LABORATORY RESULTS

EPA 8260B – Volatile Organics by GC/MS + Oxygenates

Sample ID:	**DSV-5-15'**	**DSV-6-5'**	**DSV-6-15'**	**DSV-7-5'**	**DSV-7-10'**		
Jones ID:	**E-0685-13**	**E-0685-14**	**E-0685-15**	**E-0685-16**	**E-0685-17**	**Practical Quantitation Limit**	**Units**
Analytes:							
cis-1,3-Dichloropropene	ND	ND	ND	ND	ND	0.020	µg/L
trans-1,3-Dichloropropene	ND	ND	ND	ND	ND	0.020	µg/L
Ethylbenzene	ND	ND	ND	ND	ND	0.020	µg/L
Freon 113	ND	ND	ND	ND	ND	0.100	µg/L
Hexachlorobutadiene	ND	ND	ND	ND	ND	0.020	µg/L
Isopropylbenzene	ND	ND	ND	ND	ND	0.020	µg/L
4-Isopropyltoluene	ND	ND	ND	ND	ND	0.020	µg/L
Methylene chloride	ND	ND	ND	ND	ND	0.020	µg/L
Naphthalene	ND	ND	ND	ND	ND	0.100	µg/L
n-Propylbenzene	ND	ND	ND	ND	ND	0.020	µg/L
Styrene	ND	ND	ND	ND	ND	0.020	µg/L
1,1,1,2-Tetrachloroethane	ND	ND	ND	ND	ND	0.020	µg/L
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	ND	0.020	µg/L
Tetrachloroethene	**205***	**1.78**	**5.24**	**0.450**	**1.42**	0.020	µg/L
Toluene	ND	ND	ND	ND	ND	0.020	µg/L
1,2,3-Trichlorobenzene	ND	ND	ND	ND	ND	0.100	µg/L
1,2,4-Trichlorobenzene	ND	ND	ND	ND	ND	0.020	µg/L
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	0.020	µg/L
1,1,2-Trichloroethane	ND	ND	ND	ND	ND	0.020	µg/L
Trichloroethene	**1.45**	**0.424**	**0.082**	ND	ND	0.020	µg/L
Trichlorofluoromethane	ND	ND	ND	ND	ND	0.020	µg/L
1,2,3-Trichloropropane	ND	ND	ND	ND	ND	0.020	µg/L
1,2,4-Trimethylbenzene	ND	ND	ND	ND	ND	0.020	µg/L
1,3,5-Trimethylbenzene	ND	ND	ND	ND	ND	0.020	µg/L
Vinyl chloride	ND	ND	ND	ND	ND	0.020	µg/L
m,p-Xylene	ND	ND	ND	ND	ND	0.020	µg/L
o-Xylene	ND	ND	ND	ND	ND	0.020	µg/L
MTBE	ND	ND	ND	ND	ND	0.100	µg/L
Ethyl-tert-butylether	ND	ND	ND	ND	ND	0.100	µg/L
Di-isopropylether	ND	ND	ND	ND	ND	0.100	µg/L
tert-amylmethylether	ND	ND	ND	ND	ND	0.100	µg/L
tert-Butylalcohol	ND	ND	ND	ND	ND	1.00	µg/L
TIC:							
n-Pentane	ND	ND	ND	ND	ND	1.00	µg/L
n-Hexane	ND	ND	ND	ND	ND	1.00	µg/L
n-Heptane	ND	ND	ND	ND	ND	1.00	µg/L
Dilution Factor	1/20*	1	1	1	1		
Surrogate Recoveries:						**QC Limits**	
Dibromofluoromethane	127%	127%	122%	126%	128%	60 - 140	
Toluene-d_8	95%	101%	100%	99%	101%	60 - 140	
4-Bromofluorobenzene	103%	104%	106%	100%	104%	60 - 140	
	E1-030217-E-0685	E1-030217-E-0685	E1-030217-E-0685	E1-030217-E-0685	E1-030217-E-0685		

ND= Not Detected

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JONES ENVIRONMENTAL LABORATORY RESULTS

Client:	Millennium Environmental, Inc	**Report date:**	3/2/2017
Client Address:	2936 E. Coronado Street Anaheim, CA 92806	**Jones Ref. No.:** **Client Ref. No.:**	E-0685 M184-16
Attn:	Mindy Jenkins	**Date Sampled:** **Date Received:**	3/2/2017 3/2/2017
Project:	Dudek - West Hills	**Date Analyzed:**	3/2/2017
Project Address:	23233 Saticoy St. West Hills, CA	**Physical State:**	Soil Gas

EPA 8260B – Volatile Organics by GC/MS + Oxygenates

Sample ID:	**DSV-8-5'**	**DSV-8-5' REP**	**DSV-8-15'**		
Jones ID:	**E-0685-18**	**E-0685-19**	**E-0685-20**	**Practical Quantitation Limit**	**Units**
Analytes:					
Benzene	ND	ND	ND	0.020	µg/L
Bromobenzene	ND	ND	ND	0.020	µg/L
Bromodichloromethane	ND	ND	ND	0.020	µg/L
Bromoform	ND	ND	ND	0.020	µg/L
n-Butylbenzene	ND	ND	ND	0.020	µg/L
sec-Butylbenzene	ND	ND	ND	0.020	µg/L
tert-Butylbenzene	ND	ND	ND	0.020	µg/L
Carbon tetrachloride	ND	ND	ND	0.020	µg/L
Chlorobenzene	ND	ND	ND	0.020	µg/L
Chloroform	ND	ND	ND	0.020	µg/L
2-Chlorotoluene	ND	ND	ND	0.020	µg/L
4-Chlorotoluene	ND	ND	ND	0.020	µg/L
Dibromochloromethane	ND	ND	ND	0.020	µg/L
1,2-Dibromo-3-chloropropane	ND	ND	ND	0.020	µg/L
1,2-Dibromoethane (EDB)	ND	ND	ND	0.020	µg/L
Dibromomethane	ND	ND	ND	0.020	µg/L
1,2- Dichlorobenzene	ND	ND	ND	0.020	µg/L
1,3-Dichlorobenzene	ND	ND	ND	0.020	µg/L
1,4-Dichlorobenzene	ND	ND	ND	0.020	µg/L
Dichlorodifluoromethane	ND	ND	ND	0.020	µg/L
1,1-Dichloroethane	ND	ND	ND	0.020	µg/L
1,2-Dichloroethane	ND	ND	ND	0.020	µg/L
1,1-Dichloroethene	ND	ND	ND	0.020	µg/L
cis-1,2-Dichloroethene	ND	ND	ND	0.020	µg/L
trans-1,2-Dichloroethene	ND	ND	ND	0.020	µg/L
1,2-Dichloropropane	ND	ND	ND	0.020	µg/L
1,3-Dichloropropane	ND	ND	ND	0.020	µg/L
2,2-Dichloropropane	ND	ND	ND	0.020	µg/L
1,1-Dichloropropene	ND	ND	ND	0.020	µg/L

JONES ENVIRONMENTAL LABORATORY RESULTS

EPA 8260B – Volatile Organics by GC/MS + Oxygenates

Sample ID:	DSV-8-5'	DSV-8-5' REP	DSV-8-15'		
Jones ID:	**E-0685-18**	**E-0685-19**	**E-0685-20**	**Practical Quantitation Limit**	**Units**
Analytes:					
cis-1,3-Dichloropropene	ND	ND	ND	0.020	µg/L
trans-1,3-Dichloropropene	ND	ND	ND	0.020	µg/L
Ethylbenzene	ND	ND	ND	0.020	µg/L
Freon 113	ND	ND	ND	0.100	µg/L
Hexachlorobutadiene	ND	ND	ND	0.020	µg/L
Isopropylbenzene	ND	ND	ND	0.020	µg/L
4-Isopropyltoluene	ND	ND	ND	0.020	µg/L
Methylene chloride	ND	ND	ND	0.020	µg/L
Naphthalene	ND	ND	ND	0.100	µg/L
n-Propylbenzene	ND	ND	ND	0.020	µg/L
Styrene	ND	ND	ND	0.020	µg/L
1,1,1,2-Tetrachloroethane	ND	ND	ND	0.020	µg/L
1,1,2,2-Tetrachloroethane	ND	ND	ND	0.020	µg/L
Tetrachloroethene	**81.3**	**88.4**	**0.262**	0.020	µg/L
Toluene	ND	ND	ND	0.020	µg/L
1,2,3-Trichlorobenzene	ND	ND	ND	0.100	µg/L
1,2,4-Trichlorobenzene	ND	ND	ND	0.020	µg/L
1,1,1-Trichloroethane	ND	ND	ND	0.020	µg/L
1,1,2-Trichloroethane	ND	ND	ND	0.020	µg/L
Trichloroethene	ND	ND	ND	0.020	µg/L
Trichlorofluoromethane	ND	ND	ND	0.020	µg/L
1,2,3-Trichloropropane	ND	ND	ND	0.020	µg/L
1,2,4-Trimethylbenzene	ND	ND	ND	0.020	µg/L
1,3,5-Trimethylbenzene	ND	ND	ND	0.020	µg/L
Vinyl chloride	ND	ND	ND	0.020	µg/L
m,p-Xylene	ND	ND	ND	0.020	µg/L
o-Xylene	ND	ND	ND	0.020	µg/L
MTBE	ND	ND	ND	0.100	µg/L
Ethyl-tert-butylether	ND	ND	ND	0.100	µg/L
Di-isopropylether	ND	ND	ND	0.100	µg/L
tert-amylmethylether	ND	ND	ND	0.100	µg/L
tert-Butylalcohol	ND	ND	ND	1.00	µg/L
TIC:					
n-Pentane	ND	ND	ND	1.00	µg/L
n-Hexane	ND	ND	ND	1.00	µg/L
n-Heptane	ND	ND	ND	1.00	µg/L
Dilution Factor	10	10	1		
Surrogate Recoveries:				**QC Limits**	
Dibromofluoromethane	103%	100%	100%	60 - 140	
Toluene-d_8	86%	86%	86%	60 - 140	
4-Bromofluorobenzene	86%	88%	86%	60 - 140	
	D1-030217-CHECKS	D1-030217-CHECKS	D1-030217-CHECKS		

ND= Not Detected

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JONES ENVIRONMENTAL QUALITY CONTROL INFORMATION

Client:	Millennium Environmental, Inc	**Report date:**	3/2/2017
Client Address:	2936 E. Coronado Street Anaheim, CA 92806	**Jones Ref. No.:** **Client Ref. No.:**	E-0685 M184-16
Attn:	Mindy Jenkins	**Date Sampled:** **Date Received:**	3/2/2017 3/2/2017
Project:	Dudek - West Hills	**Date Analyzed:**	3/2/2017
Project Address:	23233 Saticoy St. West Hills, CA	**Physical State:**	Soil Gas

EPA 8260B – Volatile Organics by GC/MS + Oxygenates

Sample ID:	METHOD BLANK	SAMPLING BLANK	METHOD BLANK	SAMPLING BLANK		
Jones ID:	030217-E1MB1	030217-E1SB1	030217-D1MB1	030217-D1SB1	**Practical Quantitation Limit**	**Units**
Analytes:						
Benzene	ND	ND	ND	ND	0.020	µg/L
Bromobenzene	ND	ND	ND	ND	0.020	µg/L
Bromodichloromethane	ND	ND	ND	ND	0.020	µg/L
Bromoform	ND	ND	ND	ND	0.020	µg/L
n-Butylbenzene	ND	ND	ND	ND	0.020	µg/L
sec-Butylbenzene	ND	ND	ND	ND	0.020	µg/L
tert-Butylbenzene	ND	ND	ND	ND	0.020	µg/L
Carbon tetrachloride	ND	ND	ND	ND	0.020	µg/L
Chlorobenzene	ND	ND	ND	ND	0.020	µg/L
Chloroform	ND	ND	ND	ND	0.020	µg/L
2-Chlorotoluene	ND	ND	ND	ND	0.020	µg/L
4-Chlorotoluene	ND	ND	ND	ND	0.020	µg/L
Dibromochloromethane	ND	ND	ND	ND	0.020	µg/L
1,2-Dibromo-3-chloropropane	ND	ND	ND	ND	0.020	µg/L
1,2-Dibromoethane (EDB)	ND	ND	ND	ND	0.020	µg/L
Dibromomethane	ND	ND	ND	ND	0.020	µg/L
1,2- Dichlorobenzene	ND	ND	ND	ND	0.020	µg/L
1,3-Dichlorobenzene	ND	ND	ND	ND	0.020	µg/L
1,4-Dichlorobenzene	ND	ND	ND	ND	0.020	µg/L
Dichlorodifluoromethane	ND	ND	ND	ND	0.020	µg/L
1,1-Dichloroethane	ND	ND	ND	ND	0.020	µg/L
1,2-Dichloroethane	ND	ND	ND	ND	0.020	µg/L
1,1-Dichloroethene	ND	ND	ND	ND	0.020	µg/L
cis-1,2-Dichloroethene	ND	ND	ND	ND	0.020	µg/L
trans-1,2-Dichloroethene	ND	ND	ND	ND	0.020	µg/L
1,2-Dichloropropane	ND	ND	ND	ND	0.020	µg/L
1,3-Dichloropropane	ND	ND	ND	ND	0.020	µg/L
2,2-Dichloropropane	ND	ND	ND	ND	0.020	µg/L
1,1-Dichloropropene	ND	ND	ND	ND	0.020	µg/L

JONES ENVIRONMENTAL QUALITY CONTROL INFORMATION

EPA 8260B – Volatile Organics by GC/MS + Oxygenates

Sample ID:	METHOD BLANK	SAMPLING BLANK	METHOD BLANK	SAMPLING BLANK		
Jones ID:	**030217-E1MB1**	**030217-E1SB1**	**030217-D1MB1**	**030217-D1SB1**	**Practical Quantitation Limit**	**Units**
Analytes:						
cis-1,3-Dichloropropene	ND	ND	ND	ND	0.020	µg/L
trans-1,3-Dichloropropene	ND	ND	ND	ND	0.020	µg/L
Ethylbenzene	ND	ND	ND	ND	0.020	µg/L
Freon 113	ND	ND	ND	ND	0.100	µg/L
Hexachlorobutadiene	ND	ND	ND	ND	0.020	µg/L
Isopropylbenzene	ND	ND	ND	ND	0.020	µg/L
4-Isopropyltoluene	ND	ND	ND	ND	0.020	µg/L
Methylene chloride	ND	ND	ND	ND	0.020	µg/L
Naphthalene	ND	ND	ND	ND	0.100	µg/L
n-Propylbenzene	ND	ND	ND	ND	0.020	µg/L
Styrene	ND	ND	ND	ND	0.020	µg/L
1,1,1,2-Tetrachloroethane	ND	ND	ND	ND	0.020	µg/L
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	0.020	µg/L
Tetrachloroethene	ND	ND	ND	ND	0.020	µg/L
Toluene	ND	ND	ND	ND	0.020	µg/L
1,2,3-Trichlorobenzene	ND	ND	ND	ND	0.100	µg/L
1,2,4-Trichlorobenzene	ND	ND	ND	ND	0.020	µg/L
1,1,1-Trichloroethane	ND	ND	ND	ND	0.020	µg/L
1,1,2-Trichloroethane	ND	ND	ND	ND	0.020	µg/L
Trichloroethene	ND	ND	ND	ND	0.020	µg/L
Trichlorofluoromethane	ND	ND	ND	ND	0.020	µg/L
1,2,3-Trichloropropane	ND	ND	ND	ND	0.020	µg/L
1,2,4-Trimethylbenzene	ND	ND	ND	ND	0.020	µg/L
1,3,5-Trimethylbenzene	ND	ND	ND	ND	0.020	µg/L
Vinyl chloride	ND	ND	ND	ND	0.020	µg/L
m,p-Xylene	ND	ND	ND	ND	0.020	µg/L
o-Xylene	ND	ND	ND	ND	0.020	µg/L
MTBE	ND	ND	ND	ND	0.100	µg/L
Ethyl-tert-butylether	ND	ND	ND	ND	0.100	µg/L
Di-isopropylether	ND	ND	ND	ND	0.100	µg/L
tert-amylmethylether	ND	ND	ND	ND	0.100	µg/L
tert-Butylalcohol	ND	ND	ND	ND	1.00	µg/L
TIC:						
n-Pentane	ND	ND	ND	ND	1.00	µg/L
n-Hexane	ND	ND	ND	ND	1.00	µg/L
n-Heptane	ND	ND	ND	ND	1.00	µg/L
Dilution Factor	1	1	1	1		
Surrogate Recoveries:					**QC Limits**	
Dibromofluoromethane	125%	127%	106%	103%	60 - 140	
Toluene-d_8	98%	98%	87%	86%	60 - 140	
4-Bromofluorobenzene	104%	100%	87%	86%	60 - 140	
	E1-030217-E-0685	E1-030217-E-0685	D1-030217-CHECKS	D1-030217-CHECKS		

ND= Not Detected

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JONES ENVIRONMENTAL QUALITY CONTROL INFORMATION

Client:	Millennium Environmental, Inc	**Report date:**	3/2/2017
Client Address:	2936 E. Coronado Street Anaheim, CA 92806	**Jones Ref. No.:** **Client Ref. No.:**	E-0685 M184-16
Attn:	Mindy Jenkins	**Date Sampled:** **Date Received:**	3/2/2017 3/2/2017
Project:	Dudek - West Hills	**Date Analyzed:**	3/2/2017
Project Address:	23233 Saticoy St. West Hills, CA	**Physical State:**	Soil Gas

EPA 8260B – Volatile Organics by GC/MS + Oxygenates

Batch ID: E1-030217-E-0685

Jones ID:	**030217-E1LCS1**	**030217-E1LCSD1**			**030217-E1CCV1**	
Parameter	LCS Recovery (%)	LCSD Recovery (%)	RPD	Acceptability Range (%)	CCV	Acceptability Range (%)
Vinyl chloride	122%	116%	4.7%	70 - 130	121%	80 - 120
1,1-Dichloroethene	118%	109%	8.1%	70 - 130	108%	80 - 120
Cis-1,2-Dichloroethene	119%	108%	9.6%	70 - 130	92%	80 - 120
1,1,1-Trichloroethane	112%	102%	9.3%	70 - 130	94%	80 - 120
Benzene	118%	105%	12.0%	70 - 130	102%	80 - 120
Trichloroethene	112%	105%	6.5%	70 - 130	96%	80 - 120
Toluene	123%	110%	10.8%	70 - 130	106%	80 - 120
Tetrachloroethene	124%	126%	1.7%	70 - 130	104%	80 - 120
Chlorobenzene	124%	111%	11.2%	70 - 130	102%	80 - 120
Ethylbenzene	120%	108%	10.4%	70 - 130	96%	80 - 120
1,2,4 Trimethylbenzene	138%	119%	14.8%	70 - 130	107%	80 - 120
Surrogate Recovery:						
Dibromofluoromethane	120%	124%		60 - 140	111%	60 - 140
Toluene-d_8	97%	99%		60 - 140	106%	60 - 140
4-Bromofluorobenzene	101%	104%		60 - 140	112%	60 - 140

LCS = Laboratory Control Sample
LCSD = Laboratory Control Sample Duplicate
CCV = Continuing Calibration Verification
RPD = Relative Percent Difference; Acceptability range for RPD is ≤ 15%

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JONES ENVIRONMENTAL QUALITY CONTROL INFORMATION

Client:	Millennium Environmental, Inc	**Report date:**	3/2/2017
Client Address:	2936 E. Coronado Street Anaheim, CA 92806	**Jones Ref. No.:** **Client Ref. No.:**	E-0685 M184-16
Attn:	Mindy Jenkins	**Date Sampled:** **Date Received:**	3/2/2017 3/2/2017
Project:	Dudek - West Hills	**Date Analyzed:**	3/2/2017
Project Address:	23233 Saticoy St. West Hills, CA	**Physical State:**	Soil Gas

EPA 8260B – Volatile Organics by GC/MS + Oxygenates

Batch ID: D1-030217-CHECKS

Jones ID:	**030217-D1LCS1**	**030217-D1LCSD1**			**030217-D1CCV1**	
Parameter	LCS Recovery (%)	LCSD Recovery (%)	RPD	Acceptability Range (%)	CCV	Acceptability Range (%)
Vinyl chloride	91%	90%	1.5%	70 - 130		80 - 120
1,1-Dichloroethene	80%	77%	4.7%	70 - 130	101%	80 - 120
Cis-1,2-Dichloroethene	110%	106%	3.6%	70 - 130	104%	80 - 120
1,1,1-Trichloroethane	97%	92%	4.7%	70 - 130	96%	80 - 120
Benzene	101%	99%	1.8%	70 - 130	92%	80 - 120
Trichloroethene	107%	103%	3.8%	70 - 130	96%	80 - 120
Toluene	100%	99%	0.9%	70 - 130	91%	80 - 120
Tetrachloroethene	96%	95%	1.0%	70 - 130	87%	80 - 120
Chlorobenzene	120%	116%	3.2%	70 - 130	103%	80 - 120
Ethylbenzene	111%	107%	3.5%	70 - 130	97%	80 - 120
1,2,4 Trimethylbenzene	116%	109%	5.8%	70 - 130	99%	80 - 120
Surrogate Recovery:						
Dibromofluoromethane	103%	103%		60 - 140	102%	60 - 140
Toluene-d_8	88%	91%		60 - 140	90%	60 - 140
4-Bromofluorobenzene	90%	93%		60 - 140	90%	60 - 140

LCS = Laboratory Control Sample
LCSD = Laboratory Control Sample Duplicate
CCV = Continuing Calibration Verification
RPD = Relative Percent Difference; Acceptability range for RPD is ≤ 15%

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Soil-Gas Chain-of-Custody Record

Client: MILLENNIUM ENVIRONMENTAL, INC
Project Name: DUDEK - WEST HILLS
Project Address: 23233 SATICOY ST. WEST HILLS, CA
Email:
Phone: 714-595-8156
Report To: MINDY JENKINS
Sampler: JSB

Date: 3/2/2017
Client Project #: M184-16

Purge Number: □ 1P ☒ 3P □ 7P □ 10P
Shut-In Test: (Y) / N

Report Options: EDD ____ EDF* - 10% Surcharge____ *Global ID _____

Turn Around Requested: □ Immediate Attention □ Rush 24 Hours □ Rush 48 Hours □ Rush 72 Hours □ Normal ☒ Mobile Lab

Tracer: ☒ n-pentane ☒ n-hexane ☒ n-heptane □ Helium □ 1,1-DFA □ _____

Reporting Limits Requested: ☒ Commercial □ Residential **Units:** ug/L

LAB USE ONLY
Jones Project #: E-0685
Page 1 of 3
Sample Container:
If different than above, see Notes.

Sample ID	Purge Number	Purge Volume (mL)	Date	Sample Collection Time	Sample Analysis Time	Laboratory Sample ID	Purge Rate (mL/min)	Pump Used	Magnehelic	Sample Matrix: Soil Gas (SG), Air (A), Material (M)	Analysis Requested: EPA 8260B				Magnehelic Vacuum (In/H_2O)	Number of Containers	Notes & Special Instructions
SG4-5'	3	1630	3/2/17	8:30	8:32	E-0685-01	200	J1	118001	SG	X				4	1	
SG4-5' REP	3	1630	3/2/17	8:48	8:50	E-0685-02	200	J1	118001	SG	X				4	1	
SG4-15'	3	1790	3/2/17	9:06	9:08	E-0685-03	200	J2	118008	SG	X				12	1	
DSV-1-5'	3	1630	3/2/17	10:08	10:12	E-0685-04	200	J1	118001	SG	X				6	1	
DSV-1-15'	3	1790	3/2/17	10:09	10:28	E-0685-05	200	J2	118008	SG	X				20	1	
DSV-2-5'	3	1630	3/2/17	10:40	10:46	E-0685-06	200	J1	118001	SG	X				4	1	
DSV-2-15'	-	-	3/2/17	10:42	-	E-0685-07	200	J2	118008	SG	X				>100	-	NO FLOW
DSV-3-5'	3	1630	3/2/17	11:00	11:04	E-0685-08	200	J1	118001	SG	X				4	1	
DSV-3-15'	3	1790	3/2/17	11:01	11:20	E-0685-09	200	J2	118008	SG	X				18	1	
DSV-4-5'	3	1630	3/2/17	11:40	11:44	E-0685-10	200	J1	118001	SG	X				<2	1	

Relinquished By (Signature)	Printed Name: Claire Kocba	Received By (Signature)	Printed Name: JOSH BASS
Company: Dudek	Date: 3/2/17 Time: 1610	Company: Jones Environmental	Date: 3-7-17 Time: 1610
Relinquished By (Signature)	Printed Name: JOSH BASS	Received By Laboratory (Signature)	Printed Name: Juan Camacho
Company: Jones Environmental	Date: 3-7-17 Time: 1658	Company: Jones Environmental	Date: 3-7-17 Time: 1858

9 Total Number of Containers

Client signature on this Chain of Custody form constitutes acknowledgement that the above analyses have been reqested, and the information provided herein is correct and accurate.

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Soil-Gas Chain-of-Custody Record

Client: MILLENNIUM ENVIRONMENTAL, INC
Project Name: DUDEK - WEST HILLS
Project Address: 23233 SATICOY ST. WEST HILLS, CA
Email:
Phone: 714-595-8156
Report To: MINDY JENKINS
Sampler: JSB

Date: 3/2/2017
Client Project #: M184-16

Purge Number: □ 1P ☒ 3P □ 7P □ 10P
Shut-In Test: (Y) / N

Report Options: EDD ____ EDF* - 10% Surcharge____ *Global ID _____

Turn Around Requested:
□ Immediate Attention
□ Rush 24 Hours
□ Rush 48 Hours
□ Rush 72 Hours
□ Normal
☒ Mobile Lab

Tracer:
☒ n-pentane
☒ n-hexane
☒ n-heptane
□ Helium
□ 1,1-DFA
□ _____

Reporting Limits Requested: ☒ Commercial □ Residential
Units: ug/L

LAB USE ONLY
Jones Project #: E-0685
Page 2 of 3
Sample Container:
If different than above, see Notes.

Sample ID	Purge Number	Purge Volume (mL)	Date	Sample Collection Time	Sample Analysis Time	Laboratory Sample ID	Purge Rate (mL/min)	Pump Used	Magnehelic	Sample Matrix: Soil Gas (SG), Air (A), Material (M)	EPA 8260B				Magnehelic Vacuum (in/H_2O)	Number of Containers	Notes & Special Instructions
DSV-4-15'	-	-	3/2/17	11:41	-	E-0685-11	200	J2	118008	SG	X				>100	-	NO FLOW
DSV-5-5'	3	1630	3/2/17	12:57	13:00	E-0685-12	200	J1	118001	SG	X				4	1	
DSV-5-15'	3	1790	3/2/17	12:58	13:16	E-0685-13	200	J2	118008	SG	X				10	1	
DSV-5-5' DIL	-	-	3/2/17	13:30	13:33	-	200	J1	118001	SG	X				4	1	
DSV-5-15' DIL	-	-	3/2/17	13:42	13:49	-	200	J2	118008	SG	X				10	1	
DSV-6-5'	3	1630	3/2/17	14:08	14:12	E-0685-14	200	J1	118001	SG	X				<2	1	
DSV-6-15'	3	1790	3/2/17	14:09	14:29	E-0685-15	200	J2	118008	SG	X				8	1	
DSV-7-5'	3	1630	3/2/17	14:40	14:46	E-0685-16	200	J1	118001	SG	X				<2	1	
DSV-7-10'	3	1710	3/2/17	14:41	15:04	E-0685-17	200	J2	118008	SG	X				2	1	
DSV-8-5'	3	1630	3/2/17	15:58		E-0685-18	200	J1	118001	SG	X				4	1	TEDLAR BAG

Relinquished By (Signature)	Printed Name: Claire Kamba	Received By (Signature)	Printed Name: JOSH BASS	9	Total Number of Containers
Company: Dudek	Date: 3/2/17 Time: 1610	Company: Jones Environmental	Date: 3-2-17 Time: 1610		
Relinquished By (Signature)	Printed Name: JOSH BASS	Received By Laboratory (Signature)	Printed Name: Juan Camacho	Client signature on this Chain of Custody form constitutes acknowledgement that the above analyses have been reqested, and the information provided herein is correct and accurate.	
Company: Jones Environmental	Date: 3-2-17 Time: 1858	Company: Jones Environmental	Date: 3-2-17 Time: 1858		

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Soil-Gas Chain-of-Custody Record

Client: MILLENNIUM ENVIRONMENTAL, INC
Project Name: DUDEK - WEST HILLS
Project Address: 23233 SATICOY ST.
WEST HILLS, CA
Email:
Phone: 714-595-8156
Report To: MINDY JENKINS
Sampler: JSB

Date: 3/2/2017
Client Project #: M184-16

Purge Number: □ 1P ☒ 3P □ 7P □ 10P
Shut-In Test: (Y) / N

Report Options: EDD ____ EDF* - 10% Surcharge____ *Global ID _____

Turn Around Requested:
□ Immediate Attention
□ Rush 24 Hours
□ Rush 48 Hours
□ Rush 72 Hours
□ Normal
□ Mobile Lab

Tracer:
☒ n-pentane
☒ n-hexane
☒ n-heptane
□ Helium
□ 1,1-DFA
□ _____

Reporting Limits Requested: ☒ Commercial □ Residential
Units: ug/L

LAB USE ONLY
Jones Project #: E-0685

Page 3 of 3
Sample Container:
If different than above, see Notes.

Sample ID	Purge Number	Purge Volume (mL)	Date	Sample Collection Time	Sample Analysis Time	Laboratory Sample ID	Purge Rate (mL/min)	Pump Used	Magnehelic	Sample Matrix: Soil Gas (SG), Air (A), Material (M)	EPA 8260B				Magnehelic Vacuum (In/H_2O)	Number of Containers	Notes & Special Instructions
DSV-8-5' REP	3	1630	3/2/17	16:00		E-0685-19	200	J1	118001	SG	X				4	1	TEDLAR BAG
DSV-8-15'	3	1710	3/2/17	16:03		E-0685-20	200	J2	118008	SG	X				10	1	TEDLAR BAG

Relinquished By (Signature): [signature] **Printed Name:** claire kouba
Company: Dudek **Date:** 3/2/17 **Time:** 1610

Relinquished By (Signature): [signature] **Printed Name:** JOSH BASS
Company: Jones Environmental **Date:** 3-2-17 **Time:** 1858

Received By (Signature): [signature] **Printed Name:** JOSH BASS
Company: Jones Environmental **Date:** 3-2-17 **Time:** 1610

Received By Laboratory (Signature): Juan Camacho **Printed Name:** Juan Camacho
Company: Jones Environmental **Date:** 3-2-17 **Time:** 1858

2 Total Number of Containers

Client signature on this Chain of Custody form constitutes acknowledgement that the above analyses have been reqested, and the information provided herein is correct and accurate.

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JONES ENVIRONMENTAL
LABORATORY RESULTS

Client:	Dudek & Associates, Inc.	**Report date:**	7/7/2017
Client Address:	605 Third Street Encinitas, CA 92024	**JEL Ref. No.:** **Client Ref. No.:**	E-0735 10138
Attn:	Susan Smith	**Date Sampled:** **Date Received:**	7/7/2017 7/7/2017
Project Name:	West Hills Shopping Center	**Date Analyzed:**	7/7/2017
Project Address:	23233 Saticoy Street West Hills, CA	**Physical State:**	Soil Gas

ANALYSES REQUESTED

1. EPA 8260B – Volatile Organics by GC/MS + Oxygenates

Sampling – Soil Gas samples were collected in glass gas-tight syringes equipped with Teflon plungers.

A tracer gas mixture of n-pentane, n-hexane, and n-heptane was placed at the tubing-surface interface before sampling. These compounds were analyzed during the 8260B analytical run to determine if there were surface leaks into the subsurface due to improper installation of the probe. No n-pentane, n-hexane, or n-heptane was found in any of the samples reported herein.

The sampling rate was approximately 200 cc/min, except when noted differently on the chain of custody record, using a glass gas-tight syringe. Purging was completed using a pump set at approximately 200 cc/min, except when noted differently on the chain of custody record. A default of 3 purge volumes was used as recommended by July 2015 DTSC/RWQCB guidance documents.

Prior to purging and sampling of soil gas at each point, a shut-in test was conducted to check for leaks in the above ground fittings. The shut-in test was performed on the above ground apparatus by evacuating the line to a vacuum of 100 inches of water, sealing the entire system and watching the vacuum for at least one minute. A vacuum gauge attached in parallel to the apparatus measured the vacuum. If there was any observable loss of vacuum, the fittings were adjusted as needed until the vacuum did not change noticeably. The soil gas sample was then taken.

No flow conditions occur when a sampling rate greater than 10 mL/min cannot be maintained without applying a vacuum greater than 100 inches of water to the sampling train. The sampling train is left at a vacuum for no less than three minutes. If the vacuum does not subside appreciably after three minutes, the sample location is determined to be a no flow sample.

Analytical – Soil Gas samples were analyzed using EPA Method 8260 that includes extra compounds required by DTSC/RWQCB (such as Freon 113). Instrument Continuing Calibration Verification, QC Reference Standards, Instrument Blanks and Sampling Blanks were analyzed every 12 hours as prescribed by the method. In addition, a Laboratory Control Sample (LCS) and Laboratory Control Sample Duplicate (LCSD) were analyzed with each batch of Soil Gas samples. A duplicate/replicate sample was analyzed each day of the sampling activity. All samples were injected into the GC/MS system within 30 minutes of sampling.

Approval:

Carolyn Carroll
Stationary Lab Manager

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JONES ENVIRONMENTAL LABORATORY RESULTS

Client:	Dudek & Associates, Inc.	**Report date:**	7/7/2017
Client Address:	605 Third Street	**Jones Ref. No.:**	E-0735
	Encinitas, CA 92024	**Client Ref. No.:**	10138
Attn:	Susan Smith	**Date Sampled:**	7/7/2017
		Date Received:	7/7/2017
Project:	West Hills Shopping Center	**Date Analyzed:**	7/7/2017
Project Address:	23233 Saticoy Street	**Physical State:**	Soil Gas
	West Hills, CA		

EPA 8260B – Volatile Organics by GC/MS + Oxygenates

Sample ID:	**DSV-15-5'**	**DSV-15-15'**	**DSV-16-5'**	**DSV-16-15'**	**DSV-16-15' REP**		
Jones ID:	**E-0735-01**	**E-0735-02**	**E-0735-03**	**E-0735-04**	**E-0735-05**	**Practical Quantitation Limit**	**Units**
Analytes:							
Benzene	ND	ND	ND	ND	ND	0.008	µg/L
Bromobenzene	ND	ND	ND	ND	ND	0.008	µg/L
Bromodichloromethane	ND	ND	ND	ND	ND	0.008	µg/L
Bromoform	ND	ND	ND	ND	ND	0.008	µg/L
n-Butylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
sec-Butylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
tert-Butylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
Carbon tetrachloride	ND	ND	ND	ND	ND	0.008	µg/L
Chlorobenzene	ND	ND	ND	ND	ND	0.008	µg/L
Chloroform	ND	ND	ND	ND	ND	0.008	µg/L
2-Chlorotoluene	ND	ND	ND	ND	ND	0.008	µg/L
4-Chlorotoluene	ND	ND	ND	ND	ND	0.008	µg/L
Dibromochloromethane	ND	ND	ND	ND	ND	0.008	µg/L
1,2-Dibromo-3-chloropropane	ND	ND	ND	ND	ND	0.008	µg/L
1,2-Dibromoethane (EDB)	ND	ND	ND	ND	ND	0.008	µg/L
Dibromomethane	ND	ND	ND	ND	ND	0.008	µg/L
1,2- Dichlorobenzene	ND	ND	ND	ND	ND	0.008	µg/L
1,3-Dichlorobenzene	ND	ND	ND	ND	ND	0.008	µg/L
1,4-Dichlorobenzene	ND	ND	ND	ND	ND	0.008	µg/L
Dichlorodifluoromethane	**0.097**	**0.076**	**0.241**	**0.155**	**0.130**	0.008	µg/L
1,1-Dichloroethane	ND	ND	ND	ND	ND	0.008	µg/L
1,2-Dichloroethane	ND	ND	ND	ND	ND	0.008	µg/L
1,1-Dichloroethene	ND	ND	ND	ND	ND	0.008	µg/L
cis-1,2-Dichloroethene	ND	ND	ND	ND	ND	0.008	µg/L
trans-1,2-Dichloroethene	ND	ND	ND	ND	ND	0.008	µg/L
1,2-Dichloropropane	ND	ND	ND	ND	ND	0.008	µg/L
1,3-Dichloropropane	ND	ND	ND	ND	ND	0.008	µg/L
2,2-Dichloropropane	ND	ND	ND	ND	ND	0.008	µg/L
1,1-Dichloropropene	ND	ND	ND	ND	ND	0.008	µg/L

JONES ENVIRONMENTAL LABORATORY RESULTS

EPA 8260B – Volatile Organics by GC/MS + Oxygenates

Sample ID:	**DSV-15-5'**	**DSV-15-15'**	**DSV-16-5'**	**DSV-16-15'**	**DSV-16-15' REP**		
Jones ID:	**E-0735-01**	**E-0735-02**	**E-0735-03**	**E-0735-04**	**E-0735-05**	**Practical Quantitation Limit**	**Units**
Analytes:							
cis-1,3-Dichloropropene	ND	ND	ND	ND	ND	0.008	µg/L
trans-1,3-Dichloropropene	ND	ND	ND	ND	ND	0.008	µg/L
Ethylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
Freon 113	ND	ND	ND	ND	ND	0.040	µg/L
Hexachlorobutadiene	ND	ND	ND	ND	ND	0.008	µg/L
Isopropylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
4-Isopropyltoluene	**0.019**	ND	**0.039**	ND	ND	0.008	µg/L
Methylene chloride	ND	ND	ND	ND	ND	0.008	µg/L
Naphthalene	ND	ND	ND	ND	ND	0.040	µg/L
n-Propylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
Styrene	ND	ND	ND	ND	ND	0.008	µg/L
1,1,1,2-Tetrachloroethane	ND	ND	ND	ND	ND	0.008	µg/L
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	ND	0.008	µg/L
Tetrachloroethene	**19.8**	**8.04**	**8.28**	**2.87**	**2.46**	0.008	µg/L
Toluene	**0.051**	**0.248**	**0.076**	**0.477**	**0.463**	0.008	µg/L
1,2,3-Trichlorobenzene	ND	ND	ND	ND	ND	0.040	µg/L
1,2,4-Trichlorobenzene	ND	ND	ND	ND	ND	0.008	µg/L
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	0.008	µg/L
1,1,2-Trichloroethane	ND	ND	ND	ND	ND	0.008	µg/L
Trichloroethene	**0.044**	**0.010**	**0.011**	**0.016**	**0.013**	0.008	µg/L
Trichlorofluoromethane	ND	ND	ND	ND	ND	0.008	µg/L
1,2,3-Trichloropropane	ND	ND	ND	ND	ND	0.008	µg/L
1,2,4-Trimethylbenzene	**0.012**	ND	**0.024**	ND	ND	0.008	µg/L
1,3,5-Trimethylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
Vinyl chloride	ND	ND	ND	ND	ND	0.008	µg/L
m,p-Xylene	**0.022**	**0.018**	**0.036**	ND	ND	0.008	µg/L
o-Xylene	ND	ND	**0.012**	ND	ND	0.008	µg/L
MTBE	ND	ND	ND	ND	ND	0.040	µg/L
Ethyl-tert-butylether	ND	ND	ND	ND	ND	0.040	µg/L
Di-isopropylether	ND	ND	ND	ND	ND	0.040	µg/L
tert-amylmethylether	ND	ND	ND	ND	ND	0.040	µg/L
tert-Butylalcohol	ND	ND	ND	ND	ND	0.400	µg/L
TIC:							
n-Pentane	ND	ND	ND	ND	ND	0.400	µg/L
n-Hexane	ND	ND	ND	ND	ND	0.400	µg/L
n-Heptane	ND	ND	ND	ND	ND	0.400	µg/L
Dilution Factor	1	1	1	1	1		
Surrogate Recoveries:						**QC Limits**	
Dibromofluoromethane	126%	129%	130%	129%	132%	60 - 140	
Toluene-d_8	94%	99%	98%	99%	98%	60 - 140	
4-Bromofluorobenzene	105%	107%	108%	107%	106%	60 - 140	
	E1-070717-E-0735	E1-070717-E-0735	E1-070717-E-0735	E1-070717-E-0735	E1-070717-E-0735		

ND= Not Detected

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JONES ENVIRONMENTAL LABORATORY RESULTS

Client:	Dudek & Associates, Inc.	**Report date:**	7/7/2017
Client Address:	605 Third Street	**Jones Ref. No.:**	E-0735
	Encinitas, CA 92024	**Client Ref. No.:**	10138
Attn:	Susan Smith	**Date Sampled:**	7/7/2017
		Date Received:	7/7/2017
Project:	West Hills Shopping Center	**Date Analyzed:**	7/7/2017
Project Address:	23233 Saticoy Street	**Physical State:**	Soil Gas
	West Hills, CA		

EPA 8260B – Volatile Organics by GC/MS + Oxygenates

Sample ID:	**DSV-14-5'**	**DSV-14-15'**	**DSV-13-5'**	**DSV-13-15'**	**DSV-12-5'**		
Jones ID:	**E-0735-06**	**E-0735-07**	**E-0735-08**	**E-0735-09**	**E-0735-10**	**Practical Quantitation Limit**	**Units**
Analytes:							
Benzene	ND	ND	ND	ND	ND	0.008	µg/L
Bromobenzene	ND	ND	ND	ND	ND	0.008	µg/L
Bromodichloromethane	ND	ND	ND	ND	ND	0.008	µg/L
Bromoform	**0.009**	ND	**0.008**	ND	**0.020**	0.008	µg/L
n-Butylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
sec-Butylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
tert-Butylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
Carbon tetrachloride	ND	ND	ND	ND	ND	0.008	µg/L
Chlorobenzene	ND	ND	ND	ND	ND	0.008	µg/L
Chloroform	ND	ND	ND	ND	ND	0.008	µg/L
2-Chlorotoluene	ND	ND	ND	ND	ND	0.008	µg/L
4-Chlorotoluene	ND	ND	ND	ND	ND	0.008	µg/L
Dibromochloromethane	ND	ND	ND	ND	ND	0.008	µg/L
1,2-Dibromo-3-chloropropane	ND	ND	ND	ND	ND	0.008	µg/L
1,2-Dibromoethane (EDB)	ND	ND	ND	ND	ND	0.008	µg/L
Dibromomethane	ND	ND	ND	ND	ND	0.008	µg/L
1,2- Dichlorobenzene	ND	ND	ND	ND	ND	0.008	µg/L
1,3-Dichlorobenzene	ND	ND	ND	ND	ND	0.008	µg/L
1,4-Dichlorobenzene	ND	ND	ND	ND	ND	0.008	µg/L
Dichlorodifluoromethane	**0.036**	ND	ND	ND	ND	0.008	µg/L
1,1-Dichloroethane	ND	ND	ND	ND	ND	0.008	µg/L
1,2-Dichloroethane	ND	ND	ND	ND	ND	0.008	µg/L
1,1-Dichloroethene	ND	ND	ND	ND	ND	0.008	µg/L
cis-1,2-Dichloroethene	ND	ND	ND	ND	ND	0.008	µg/L
trans-1,2-Dichloroethene	ND	ND	ND	ND	ND	0.008	µg/L
1,2-Dichloropropane	ND	ND	ND	ND	ND	0.008	µg/L
1,3-Dichloropropane	ND	ND	ND	ND	ND	0.008	µg/L
2,2-Dichloropropane	ND	ND	ND	ND	ND	0.008	µg/L
1,1-Dichloropropene	ND	ND	ND	ND	ND	0.008	µg/L

JONES ENVIRONMENTAL LABORATORY RESULTS

EPA 8260B – Volatile Organics by GC/MS + Oxygenates

Sample ID:	**DSV-14-5'**	**DSV-14-15'**	**DSV-13-5'**	**DSV-13-15'**	**DSV-12-5'**		
Jones ID:	**E-0735-06**	**E-0735-07**	**E-0735-08**	**E-0735-09**	**E-0735-10**	**Practical Quantitation Limit**	**Units**
Analytes:							
cis-1,3-Dichloropropene	ND	ND	ND	ND	ND	0.008	µg/L
trans-1,3-Dichloropropene	ND	ND	ND	ND	ND	0.008	µg/L
Ethylbenzene	ND	ND	**0.016**	ND	ND	0.008	µg/L
Freon 113	ND	ND	ND	ND	ND	0.040	µg/L
Hexachlorobutadiene	ND	ND	ND	ND	ND	0.008	µg/L
Isopropylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
4-Isopropyltoluene	**0.017**	ND	**0.047**	ND	**0.014**	0.008	µg/L
Methylene chloride	ND	ND	ND	ND	ND	0.008	µg/L
Naphthalene	ND	ND	ND	ND	ND	0.040	µg/L
n-Propylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
Styrene	ND	ND	ND	ND	ND	0.008	µg/L
1,1,1,2-Tetrachloroethane	ND	ND	ND	ND	ND	0.008	µg/L
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	ND	0.008	µg/L
Tetrachloroethene	**196***	**11.3**	**50.9**	**36.2**	**224***	0.008	µg/L
Toluene	**0.151**	**0.546**	**0.411**	**0.410**	**0.232**	0.008	µg/L
1,2,3-Trichlorobenzene	ND	ND	ND	ND	ND	0.040	µg/L
1,2,4-Trichlorobenzene	ND	ND	ND	ND	ND	0.008	µg/L
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	0.008	µg/L
1,1,2-Trichloroethane	ND	ND	ND	ND	ND	0.008	µg/L
Trichloroethene	**0.295**	**0.028**	**0.018**	ND	**0.075**	0.008	µg/L
Trichlorofluoromethane	ND	ND	ND	ND	ND	0.008	µg/L
1,2,3-Trichloropropane	ND	ND	ND	ND	ND	0.008	µg/L
1,2,4-Trimethylbenzene	**0.015**	ND	**0.031**	ND	**0.009**	0.008	µg/L
1,3,5-Trimethylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
Vinyl chloride	**0.026**	ND	ND	ND	ND	0.008	µg/L
m,p-Xylene	**0.034**	**0.377**	**0.075**	ND	**0.019**	0.008	µg/L
o-Xylene	**0.011**	**0.136**	**0.023**	ND	ND	0.008	µg/L
MTBE	ND	ND	ND	ND	ND	0.040	µg/L
Ethyl-tert-butylether	ND	ND	ND	ND	ND	0.040	µg/L
Di-isopropylether	ND	ND	ND	ND	ND	0.040	µg/L
tert-amylmethylether	ND	ND	ND	ND	ND	0.040	µg/L
tert-Butylalcohol	ND	ND	ND	ND	ND	0.400	µg/L
TIC:							
n-Pentane	ND	ND	ND	ND	ND	0.400	µg/L
n-Hexane	ND	ND	ND	ND	ND	0.400	µg/L
n-Heptane	ND	ND	ND	ND	ND	0.400	µg/L
Dilution Factor	1/25*	1	1	1	1/25*		
Surrogate Recoveries:						**QC Limits**	
Dibromofluoromethane	128%	129%	127%	128%	129%	60 - 140	
Toluene-d_8	101%	95%	97%	99%	98%	60 - 140	
4-Bromofluorobenzene	107%	101%	104%	106%	103%	60 - 140	
	E1-070717-E-0735	E1-070717-E-0735	E1-070717-E-0735	E1-070717-E-0735	E1-070717-E-0735		

ND= Not Detected

* = Dilutions for these compound(s); first number for all others

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JONES ENVIRONMENTAL LABORATORY RESULTS

Client:	Dudek & Associates, Inc.	**Report date:**	7/7/2017
Client Address:	605 Third Street	**Jones Ref. No.:**	E-0735
	Encinitas, CA 92024	**Client Ref. No.:**	10138
Attn:	Susie Smith	**Date Sampled:**	7/7/2017
		Date Received:	7/7/2017
Project:	West Hills Shopping Center	**Date Analyzed:**	7/7/2017
Project Address:	23233 Saticoy St	**Physical State:**	Soil Gas
	West Hills, CA		

EPA 8260B – Volatile Organics by GC/MS + Oxygenates

Sample ID:	**DSV-12-15'**	**DSV-11-5'**	**DSV-11-15'**	**DSV-10-5'**	**DSV-10-15'**		
Jones ID:	**E-0735-11**	**E-0735-12**	**E-0735-13**	**E-0735-14**	**E-0735-15**	**Practical Quantitation Limit**	**Units**
Analytes:							
Benzene	ND	ND	ND	ND	ND	0.008	µg/L
Bromobenzene	ND	ND	ND	ND	ND	0.008	µg/L
Bromodichloromethane	ND	ND	ND	ND	ND	0.008	µg/L
Bromoform	ND	**0.012**	ND	**0.013**	ND	0.008	µg/L
n-Butylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
sec-Butylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
tert-Butylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
Carbon tetrachloride	ND	ND	ND	ND	ND	0.008	µg/L
Chlorobenzene	ND	ND	ND	ND	ND	0.008	µg/L
Chloroform	ND	ND	ND	ND	ND	0.008	µg/L
2-Chlorotoluene	ND	ND	ND	ND	ND	0.008	µg/L
4-Chlorotoluene	ND	ND	ND	ND	ND	0.008	µg/L
Dibromochloromethane	ND	ND	ND	ND	ND	0.008	µg/L
1,2-Dibromo-3-chloropropane	ND	ND	ND	ND	ND	0.008	µg/L
1,2-Dibromoethane (EDB)	ND	ND	ND	ND	ND	0.008	µg/L
Dibromomethane	ND	ND	ND	ND	ND	0.008	µg/L
1,2- Dichlorobenzene	ND	ND	ND	ND	ND	0.008	µg/L
1,3-Dichlorobenzene	ND	ND	ND	ND	ND	0.008	µg/L
1,4-Dichlorobenzene	ND	ND	ND	ND	ND	0.008	µg/L
Dichlorodifluoromethane	ND	ND	ND	ND	ND	0.008	µg/L
1,1-Dichloroethane	ND	ND	ND	ND	ND	0.008	µg/L
1,2-Dichloroethane	ND	ND	ND	ND	ND	0.008	µg/L
1,1-Dichloroethene	ND	ND	ND	ND	ND	0.008	µg/L
cis-1,2-Dichloroethene	ND	ND	ND	ND	ND	0.008	µg/L
trans-1,2-Dichloroethene	ND	ND	ND	ND	ND	0.008	µg/L
1,2-Dichloropropane	ND	ND	ND	ND	ND	0.008	µg/L
1,3-Dichloropropane	ND	ND	ND	ND	ND	0.008	µg/L
2,2-Dichloropropane	ND	ND	ND	ND	ND	0.008	µg/L
1,1-Dichloropropene	ND	ND	ND	ND	ND	0.008	µg/L

JONES ENVIRONMENTAL LABORATORY RESULTS

EPA 8260B – Volatile Organics by GC/MS + Oxygenates

Sample ID:	**DSV-12-15'**	**DSV-11-5'**	**DSV-11-15'**	**DSV-10-5'**	**DSV-10-15'**		
Jones ID:	**E-0735-11**	**E-0735-12**	**E-0735-13**	**E-0735-14**	**E-0735-15**	**Practical Quantitation Limit**	**Units**
Analytes:							
cis-1,3-Dichloropropene	ND	ND	ND	ND	ND	0.008	µg/L
trans-1,3-Dichloropropene	ND	ND	ND	ND	ND	0.008	µg/L
Ethylbenzene	ND	**0.010**	ND	ND	ND	0.008	µg/L
Freon 113	ND	ND	ND	ND	ND	0.040	µg/L
Hexachlorobutadiene	ND	ND	ND	ND	ND	0.008	µg/L
Isopropylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
4-Isopropyltoluene	ND	**0.039**	ND	**0.019**	ND	0.008	µg/L
Methylene chloride	ND	ND	ND	ND	ND	0.008	µg/L
Naphthalene	ND	ND	ND	ND	ND	0.040	µg/L
n-Propylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
Styrene	ND	**0.103**	ND	ND	ND	0.008	µg/L
1,1,1,2-Tetrachloroethane	ND	ND	ND	ND	ND	0.008	µg/L
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	ND	0.008	µg/L
Tetrachloroethene	**219***	**4.80**	**3.82**	**0.314**	**0.397**	0.008	µg/L
Toluene	**0.275**	**0.271**	**0.325**	**0.080**	**0.223**	0.008	µg/L
1,2,3-Trichlorobenzene	ND	ND	ND	ND	ND	0.040	µg/L
1,2,4-Trichlorobenzene	ND	ND	ND	ND	ND	0.008	µg/L
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	0.008	µg/L
1,1,2-Trichloroethane	ND	ND	ND	ND	ND	0.008	µg/L
Trichloroethene	**0.023**	ND	ND	ND	ND	0.008	µg/L
Trichlorofluoromethane	ND	ND	ND	ND	ND	0.008	µg/L
1,2,3-Trichloropropane	ND	ND	ND	ND	ND	0.008	µg/L
1,2,4-Trimethylbenzene	ND	**0.028**	ND	**0.010**	ND	0.008	µg/L
1,3,5-Trimethylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
Vinyl chloride	ND	ND	ND	ND	ND	0.008	µg/L
m,p-Xylene	ND	**0.054**	ND	**0.025**	**0.034**	0.008	µg/L
o-Xylene	ND	**0.017**	ND	ND	**0.014**	0.008	µg/L
MTBE	ND	ND	ND	ND	ND	0.040	µg/L
Ethyl-tert-butylether	ND	ND	ND	ND	ND	0.040	µg/L
Di-isopropylether	ND	ND	ND	ND	ND	0.040	µg/L
tert-amylmethylether	ND	ND	ND	ND	ND	0.040	µg/L
tert-Butylalcohol	ND	ND	ND	ND	ND	0.400	µg/L
TIC:							
n-Pentane	ND	ND	ND	ND	ND	0.400	µg/L
n-Hexane	ND	ND	ND	ND	ND	0.400	µg/L
n-Heptane	ND	ND	ND	ND	ND	0.400	µg/L
Dilution Factor	1/25*	1	1	1	1		
Surrogate Recoveries:						**QC Limits**	
Dibromofluoromethane	126%	128%	125%	127%	123%	60 - 140	
Toluene-d_8	99%	98%	98%	96%	116%	60 - 140	
4-Bromofluorobenzene	104%	106%	104%	104%	100%	60 - 140	
	E1-070717-E-0735	E1-070717-E-0735	E1-070717-E-0735	E1-070717-E-0735	E1-070717-E-0735		

ND= Not Detected

* = Dilutions for these compound(s); first number for all others

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JONES ENVIRONMENTAL QUALITY CONTROL INFORMATION

Client:	Dudek & Associates, Inc.	**Report date:**	7/7/2017
Client Address:	605 Third Street	**Jones Ref. No.:**	E-0735
	Encinitas, CA 92024	**Client Ref. No.:**	10138
Attn:	Susan Smith	**Date Sampled:**	7/7/2017
		Date Received:	7/7/2017
Project:	West Hills Shopping Center	**Date Analyzed:**	7/7/2017
Project Address:	23233 Saticoy Street	**Physical State:**	Soil Gas
	West Hills, CA		

EPA 8260B – Volatile Organics by GC/MS + Oxygenates

Sample ID:	**METHOD BLANK**	**SAMPLING BLANK**		
Jones ID:	**070717-E1MB1**	**070717-E1SB1**	**Practical Quantitation Limit**	**Units**
Analytes:				
Benzene	ND	ND	0.008	µg/L
Bromobenzene	ND	ND	0.008	µg/L
Bromodichloromethane	ND	ND	0.008	µg/L
Bromoform	ND	ND	0.008	µg/L
n-Butylbenzene	ND	ND	0.008	µg/L
sec-Butylbenzene	ND	ND	0.008	µg/L
tert-Butylbenzene	ND	ND	0.008	µg/L
Carbon tetrachloride	ND	ND	0.008	µg/L
Chlorobenzene	ND	ND	0.008	µg/L
Chloroform	ND	ND	0.008	µg/L
2-Chlorotoluene	ND	ND	0.008	µg/L
4-Chlorotoluene	ND	ND	0.008	µg/L
Dibromochloromethane	ND	ND	0.008	µg/L
1,2-Dibromo-3-chloropropane	ND	ND	0.008	µg/L
1,2-Dibromoethane (EDB)	ND	ND	0.008	µg/L
Dibromomethane	ND	ND	0.008	µg/L
1,2- Dichlorobenzene	ND	ND	0.008	µg/L
1,3-Dichlorobenzene	ND	ND	0.008	µg/L
1,4-Dichlorobenzene	ND	ND	0.008	µg/L
Dichlorodifluoromethane	ND	ND	0.008	µg/L
1,1-Dichloroethane	ND	ND	0.008	µg/L
1,2-Dichloroethane	ND	ND	0.008	µg/L
1,1-Dichloroethene	ND	ND	0.008	µg/L
cis-1,2-Dichloroethene	ND	ND	0.008	µg/L
trans-1,2-Dichloroethene	ND	ND	0.008	µg/L
1,2-Dichloropropane	ND	ND	0.008	µg/L
1,3-Dichloropropane	ND	ND	0.008	µg/L
2,2-Dichloropropane	ND	ND	0.008	µg/L
1,1-Dichloropropene	ND	ND	0.008	µg/L

JONES ENVIRONMENTAL QUALITY CONTROL INFORMATION

EPA 8260B – Volatile Organics by GC/MS + Oxygenates

Sample ID:	METHOD BLANK	SAMPLING BLANK		
Jones ID:	**070717-E1MB1**	**070717-E1SB1**	**Practical Quantitation Limit**	**Units**
Analytes:				
cis-1,3-Dichloropropene	ND	ND	0.008	µg/L
trans-1,3-Dichloropropene	ND	ND	0.008	µg/L
Ethylbenzene	ND	ND	0.008	µg/L
Freon 113	ND	ND	0.040	µg/L
Hexachlorobutadiene	ND	ND	0.008	µg/L
Isopropylbenzene	ND	ND	0.008	µg/L
4-Isopropyltoluene	ND	ND	0.008	µg/L
Methylene chloride	ND	ND	0.008	µg/L
Naphthalene	ND	ND	0.040	µg/L
n-Propylbenzene	ND	ND	0.008	µg/L
Styrene	ND	ND	0.008	µg/L
1,1,1,2-Tetrachloroethane	ND	ND	0.008	µg/L
1,1,2,2-Tetrachloroethane	ND	ND	0.008	µg/L
Tetrachloroethene	ND	ND	0.008	µg/L
Toluene	ND	ND	0.008	µg/L
1,2,3-Trichlorobenzene	ND	ND	0.040	µg/L
1,2,4-Trichlorobenzene	ND	ND	0.008	µg/L
1,1,1-Trichloroethane	ND	ND	0.008	µg/L
1,1,2-Trichloroethane	ND	ND	0.008	µg/L
Trichloroethene	ND	ND	0.008	µg/L
Trichlorofluoromethane	ND	ND	0.008	µg/L
1,2,3-Trichloropropane	ND	ND	0.008	µg/L
1,2,4-Trimethylbenzene	ND	ND	0.008	µg/L
1,3,5-Trimethylbenzene	ND	ND	0.008	µg/L
Vinyl chloride	ND	ND	0.008	µg/L
m,p-Xylene	ND	ND	0.008	µg/L
o-Xylene	ND	ND	0.008	µg/L
MTBE	ND	ND	0.040	µg/L
Ethyl-tert-butylether	ND	ND	0.040	µg/L
Di-isopropylether	ND	ND	0.040	µg/L
tert-amylmethylether	ND	ND	0.040	µg/L
tert-Butylalcohol	ND	ND	0.400	µg/L
Gasoline Range Organics (C4-C12)	ND	ND	#REF! #REF!	µg/L
TIC:				
n-Pentane	ND	ND	0.400	µg/L
n-Hexane	ND	ND	0.400	µg/L
n-Heptane	ND	ND	0.400	µg/L
Dilution Factor	1	1		
Surrogate Recoveries:			**QC Limits**	
Dibromofluoromethane	126%	128%	60 - 140	
Toluene-d_8	97%	95%	60 - 140	
4-Bromofluorobenzene	107%	104%	60 - 140	
	E1-070717-E-0735	E1-070717-E-0735		

ND= Not Detected

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JONES ENVIRONMENTAL QUALITY CONTROL INFORMATION

Client:	Dudek & Associates, Inc.	**Report date:**	7/7/2017
Client Address:	605 Third Street Encinitas, CA 92024	**Jones Ref. No.:** **Client Ref. No.:**	E-0735 10138
Attn:	Susan Smith	**Date Sampled:** **Date Received:**	7/7/2017 7/7/2017
Project:	West Hills Shopping Center	**Date Analyzed:**	7/7/2017
Project Address:	23233 Saticoy Street West Hills, CA	**Physical State:**	Soil Gas

EPA 8260B – Volatile Organics by GC/MS + Oxygenates

Batch ID: E1-070717-E-0735

Jones ID:	**070717-E1LCS1**	**070717-E1LCSD1**			**070717-E1CCV1**	
Parameter	LCS Recovery (%)	LCSD Recovery (%)	RPD	Acceptability Range (%)	CCV	Acceptability Range (%)
Vinyl chloride	104%	104%	0.1%	70 - 130	82%	80 - 120
1,1-Dichloroethene	125%	117%	6.8%	70 - 130	97%	80 - 120
Cis-1,2-Dichloroethene	115%	114%	0.7%	70 - 130	82%	80 - 120
1,1,1-Trichloroethane	102%	99%	2.5%	70 - 130	100%	80 - 120
Benzene	107%	102%	4.4%	70 - 130	99%	80 - 120
Trichloroethene	101%	98%	2.9%	70 - 130	96%	80 - 120
Toluene	105%	103%	1.4%	70 - 130	100%	80 - 120
Tetrachloroethene	103%	101%	2.4%	70 - 130	102%	80 - 120
Chlorobenzene	107%	105%	1.9%	70 - 130	103%	80 - 120
Ethylbenzene	105%	106%	0.5%	70 - 130	102%	80 - 120
1,2,4 Trimethylbenzene	106%	109%	2.1%	70 - 130	106%	80 - 120
Surrogate Recovery:						
Dibromofluoromethane	121%	121%		60 - 140	114%	60 - 140
Toluene-d_8	96%	98%		60 - 140	95%	60 - 140
4-Bromofluorobenzene	107%	107%		60 - 140	104%	60 - 140

LCS = Laboratory Control Sample
LCSD = Laboratory Control Sample Duplicate
CCV = Continuing Calibration Verification
RPD = Relative Percent Difference; Acceptability range for RPD is ≤ 15%

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Soil-Gas Chain-of-Custody Record

Client: DUDEK AND ASSOCIATES, INC.
Project Name:
Project Address: 23233 SATICOY STREET, WEST HILLS, CA
Email:
Phone:
Report To: SUSIE
Sampler: ANNALISE O'TOOLE

Date: 7/7/2017
Client Project #:

Purge Number: ☐ 1P ☒ 3P ☐ 7P ☐ 10P
Shut-In Test: (Y) / N

Report Options: EDD ____ EDF* - 10% Surcharge____ *Global ID _____

Turn Around Requested:
- ☐ Immediate Attention
- ☐ Rush 24 Hours
- ☐ Rush 48 Hours
- ☐ Rush 72 Hours
- ☐ Normal
- ☒ Mobile Lab

Tracer:
- ☒ n-pentane
- ☒ n-hexane
- ☒ n-heptane
- ☐ Helium
- ☐ 1,1-DFA
- ☐ _____

Reporting Limits Requested: ☐ Commercial ☒ Residential
Units: ug/L

LAB USE ONLY
Jones Project #: E-0735
Page 1 of 3 2
Sample Container: GASTIGHT GLASS SYRINGE
If different than above, see Notes.

Sample ID	Purge Number	Purge Volume (mL)	Date	Sample Collection Time	Sample Analysis Time	Laboratory Sample ID	Purge Rate (mL/min)	Pump Used	Magnehelic	Sample Matrix: Soil Gas (SG), Air (A), Material (M)	Analysis Requested: EPA 8260B (VOCs)				Magnehelic Vacuum (inH_2O)	Number of Containers	Notes & Special Instructions
DSV-15-5'	3	1630	7/7/17	11:49	11:52	E-0735-01	~200	ANNALISE.1	TSS#118001	SG	X				10	2	
DSV-15-15'	3	1790	7/7/17	12:05	12:08	E-0735-02	~200	JOSH.1	TSS#118012	SG	X				<2	2	
DSV-16-5'	3	1630	7/7/17	12:29	12:30	E-0735-03	~200	ANNALISE.1	TSS#118001	SG	X				<2	2	
DSV-16-15'	3	1790	7/7/17	12:35	12:42	E-0735-04	~200	JOSH.1	TSS#118012	SG	X				10	2	
DSV-16-15' REP	3	1790	7/7/17	12:54	13:01	E-0735-05	~200	JOSH.1	TSS#118012	SG	X				10	2	
DSV-14-5'	3	1630	7/7/17	13:11	13:18	E-0735-06	~200	ANNALISE.1	TSS#118001	SG	X				<2	2	
DSV-14-15'	3	1790	7/7/17	13:29	13:38	E-0735-07	~200	JOSH.1	TSS#118012	SG	X				60	2	LOW FLOW
DSV-13-5'	3	1630	7/7/17	14:03	14:12	E-0735-08	~200	ANNALISE.1	TSS#118001	SG	X				<2	2	
DSV-13-15'	3	1790	7/7/17	14:19	14:30	E-0735-09	~200	JOSH.1	TSS#118012	SG	X				<2	2	
DSV-12-5'	3	1630	7/7/17	14:21	14:52	E-0735-10	~200	ANNALISE.1	TSS#118001	SG	X				<2	2	

Relinquished By (Signature)	Printed Name: Susan Smith	Received By (Signature)	Printed Name: Annalise O'Toole	20	Total Number of Containers
Company: DUDEK	Date: 7/7/17 Time: 1454	Company: Jones Environmental	Date: 7/7/17 Time: 1454		
Relinquished By (Signature)	Printed Name	Received By Laboratory (Signature)	Printed Name		
Company	Date Time	Company	Date Time		

Client signature on this Chain of Custody form constitutes acknowledgement that the above analyses have been requested, and the information provided herein is correct and accurate.

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Soil-Gas Chain-of-Custody Record

Client: DUDEK AND ASSOCIATES, INC.

Project Name:

Project Address: 23233 SATICOY STREET

WEST HILLS, CA

Email:

Phone:

Report To: SUSIE

Sampler: ANNALISE O'TOOLE

Date: 7/7/2017

Client Project #:

Purge Number: □ 1P ☒ 3P □ 7P □ 10P

Shut-In Test: (Y) / N

Report Options: EDD ____ EDF* - 10% Surcharge____ *Global ID _____

LAB USE ONLY

Jones Project #: E-0735

Page 2 of ~~3~~ 2

Sample Container: GASTIGHT GLASS SYRINGE

If different than above, see Notes.

Turn Around Requested:
- □ Immediate Attention
- □ Rush 24 Hours
- □ Rush 48 Hours
- □ Rush 72 Hours
- □ Normal
- ☒ Mobile Lab

Tracer:
- ☒ n-pentane
- ☒ n-hexane
- ☒ n-heptane
- □ Helium
- □ 1,1-DFA
- □ _____

Reporting Limits Requested: □ Commercial ☒ Residential

Units: µg/L

Analysis Requested

Sample ID	Purge Number	Purge Volume (mL)	Date	Sample Collection Time	Sample Analysis Time	Laboratory Sample ID	Purge Rate (mL/min)	Pump Used	Magnehelic	Sample Matrix: Soil Gas (SG), Air (A), Material (M)	EPA 8260B (VOCs)					Magnehelic Vacuum (in/H_2O)	Number of Containers	Notes & Special Instructions
DSV-12-15'	3	1790	7/7/17	15:01	15:05	E-0735-11	~200	JOSH.1	TSS#118001	SG	X					<2	2	
DSV-11-5'	3	1630	7/7/17	15:52	16:00	E-0735-12	~200	ANNALISE 1	TSS#118012	SG	X					4	2	
DSV-11-15'	3	1790	7/7/17	16:09	16:17	E-0735-13	~200	JOSH.1	TSS#118001	SG	X					6	2	
DSV-10-5'	3	1630	7/7/17	16:28	16:34	E-0735-14	~200	ANNALISE 1	TSS#118012	SG	X					8	1	
DSV-10-15'	3	1790	7/7/17	16:43	16:51	E-0735-15	~200	JOSH.1	TSS#118001	SG	X					<2	1	
DSV-12-5' DIL	-	-	7/17/17	15:16	15:22	-	-	-	TSS#118012	SG	X					<2	1	
DSV-14-5' DIL	-	-	7/7/17	13:47	13:53	-	-	-	TSS#118012	SG	X					<2	1	
DSV-12-15' DIL	-	-	7/7/17	15:38	15:40	-	-	-	TSS#118001	SG	X					<2	1	

Relinquished By (Signature): _____ Printed Name: _____

Company: _____ Date: _____ Time: _____

Relinquished By (Signature): _____ Printed Name: _____

Company: _____ Date: _____ Time: _____

Received By (Signature): [signature] Printed Name: ANNALISE O'TOOLE

Company: JONES ENVIRONMENTAL Date: 7-7-17 Time: 1705 1454

Received By Laboratory (Signature): _____ Printed Name: _____

Company: _____ Date: _____ Time: _____

11 Total Number of Containers

Client signature on this Chain of Custody form constitutes acknowledgement that the above analyses have been requested, and the information provided herein is correct and accurate.

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JONES ENVIRONMENTAL
LABORATORY RESULTS

Client:	Dudek & Associates, Inc.	**Report date:**	7/8/2017
Client Address:	605 Third Street Encinitas, CA 92024	**JEL Ref. No.:** **Client Ref. No.:**	E-0736 10138
Attn:	Susan Smith	**Date Sampled:** **Date Received:**	7/8/2017 7/8/2017
Project Name:	West Hills Shopping Center	**Date Analyzed:**	7/8/2017
Project Address:	23233 Saticoy Street West Hills, CA	**Physical State:**	Soil Gas

ANALYSES REQUESTED

1. EPA 8260B – Volatile Organics by GC/MS + Oxygenates

Sampling – Soil Gas samples were collected in glass gas-tight syringes equipped with Teflon plungers.

A tracer gas mixture of n-pentane, n-hexane, and n-heptane was placed at the tubing-surface interface before sampling. These compounds were analyzed during the 8260B analytical run to determine if there were surface leaks into the subsurface due to improper installation of the probe. No n-pentane, n-hexane, or n-heptane was found in any of the samples reported herein.

The sampling rate was approximately 200 cc/min, except when noted differently on the chain of custody record, using a glass gas-tight syringe. Purging was completed using a pump set at approximately 200 cc/min, except when noted differently on the chain of custody record. A default of 3 purge volumes was used as recommended by July 2015 DTSC/RWQCB guidance documents.

Prior to purging and sampling of soil gas at each point, a shut-in test was conducted to check for leaks in the above ground fittings. The shut-in test was performed on the above ground apparatus by evacuating the line to a vacuum of 100 inches of water, sealing the entire system and watching the vacuum for at least one minute. A vacuum gauge attached in parallel to the apparatus measured the vacuum. If there was any observable loss of vacuum, the fittings were adjusted as needed until the vacuum did not change noticeably. The soil gas sample was then taken.

No flow conditions occur when a sampling rate greater than 10 mL/min cannot be maintained without applying a vacuum greater than 100 inches of water to the sampling train. The sampling train is left at a vacuum for no less than three minutes. If the vacuum does not subside appreciably after three minutes, the sample location is determined to be a no flow sample.

Analytical – Soil Gas samples were analyzed using EPA Method 8260 that includes extra compounds required by DTSC/RWQCB (such as Freon 113). Instrument Continuing Calibration Verification, QC Reference Standards, Instrument Blanks and Sampling Blanks were analyzed every 12 hours as prescribed by the method. In addition, a Laboratory Control Sample (LCS) and Laboratory Control Sample Duplicate (LCSD) were analyzed with each batch of Soil Gas samples. A duplicate/replicate sample was analyzed each day of the sampling activity. All samples were injected into the GC/MS system within 30 minutes of sampling.

Approval:

Carolyn Carroll
Stationary Lab Manager

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JONES ENVIRONMENTAL LABORATORY RESULTS

Client:	Dudek & Associates, Inc.	**Report date:**	7/8/2017
Client Address:	605 Third Street	**Jones Ref. No.:**	E-0736
	Encinitas, CA 92024	**Client Ref. No.:**	10138
Attn:	Susan Smith	**Date Sampled:**	7/8/2017
		Date Received:	7/8/2017
Project:	West Hills Shopping Center	**Date Analyzed:**	7/8/2017
Project Address:	23233 Saticoy St.	**Physical State:**	Soil Gas
	West Hills, CA		

EPA 8260B – Volatile Organics by GC/MS + Oxygenates

Sample ID:	**DSV-9-5'**	**DSV-9-15'**	**DSV-9-15' REP**	**DSV-20-5'**	**DSV-19-5'**		
Jones ID:	**E-0736-01**	**E-0736-02**	**E-0736-03**	**E-0736-04**	**E-0736-05**	**Practical Quantitation Limit**	**Units**
Analytes:							
Benzene	ND	ND	ND	ND	ND	0.008	µg/L
Bromobenzene	ND	ND	ND	ND	ND	0.008	µg/L
Bromodichloromethane	ND	ND	ND	ND	ND	0.008	µg/L
Bromoform	ND	ND	ND	ND	**0.008**	0.008	µg/L
n-Butylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
sec-Butylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
tert-Butylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
Carbon tetrachloride	ND	ND	ND	ND	ND	0.008	µg/L
Chlorobenzene	ND	ND	ND	ND	ND	0.008	µg/L
Chloroform	ND	ND	ND	ND	ND	0.008	µg/L
2-Chlorotoluene	ND	ND	ND	ND	ND	0.008	µg/L
4-Chlorotoluene	ND	ND	ND	ND	ND	0.008	µg/L
Dibromochloromethane	ND	ND	ND	ND	ND	0.008	µg/L
1,2-Dibromo-3-chloropropane	ND	ND	ND	ND	ND	0.008	µg/L
1,2-Dibromoethane (EDB)	ND	ND	ND	ND	ND	0.008	µg/L
Dibromomethane	ND	ND	ND	ND	ND	0.008	µg/L
1,2- Dichlorobenzene	ND	ND	ND	ND	ND	0.008	µg/L
1,3-Dichlorobenzene	ND	ND	ND	ND	ND	0.008	µg/L
1,4-Dichlorobenzene	ND	ND	ND	ND	ND	0.008	µg/L
Dichlorodifluoromethane	ND	ND	ND	ND	ND	0.008	µg/L
1,1-Dichloroethane	ND	ND	ND	ND	ND	0.008	µg/L
1,2-Dichloroethane	ND	ND	ND	ND	ND	0.008	µg/L
1,1-Dichloroethene	ND	ND	ND	ND	ND	0.008	µg/L
cis-1,2-Dichloroethene	ND	ND	ND	ND	ND	0.008	µg/L
trans-1,2-Dichloroethene	ND	ND	ND	ND	ND	0.008	µg/L
1,2-Dichloropropane	ND	ND	ND	ND	ND	0.008	µg/L
1,3-Dichloropropane	ND	ND	ND	ND	ND	0.008	µg/L
2,2-Dichloropropane	ND	ND	ND	ND	ND	0.008	µg/L
1,1-Dichloropropene	ND	ND	ND	ND	ND	0.008	µg/L

JONES ENVIRONMENTAL LABORATORY RESULTS

EPA 8260B – Volatile Organics by GC/MS + Oxygenates

Sample ID:	DSV-9-5'	DSV-9-15'	DSV-9-15' REP	DSV-20-5'	DSV-19-5'		
Jones ID:	**E-0736-01**	**E-0736-02**	**E-0736-03**	**E-0736-04**	**E-0736-05**	**Practical Quantitation Limit**	**Units**
Analytes:							
cis-1,3-Dichloropropene	ND	ND	ND	ND	ND	0.008	µg/L
trans-1,3-Dichloropropene	ND	ND	ND	ND	ND	0.008	µg/L
Ethylbenzene	ND	**0.015**	**0.009**	ND	ND	0.008	µg/L
Freon 113	ND	ND	ND	ND	ND	0.040	µg/L
Hexachlorobutadiene	ND	ND	ND	ND	ND	0.008	µg/L
Isopropylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
4-Isopropyltoluene	**0.033**	**0.013**	**0.009**	**0.024**	**0.057**	0.008	µg/L
Methylene chloride	ND	ND	ND	ND	ND	0.008	µg/L
Naphthalene	ND	ND	ND	ND	ND	0.040	µg/L
n-Propylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
Styrene	ND	ND	ND	ND	ND	0.008	µg/L
1,1,1,2-Tetrachloroethane	ND	ND	ND	ND	ND	0.008	µg/L
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	ND	0.008	µg/L
Tetrachloroethene	**0.025**	**0.017**	**0.017**	**0.017**	**0.543**	0.008	µg/L
Toluene	**0.104**	**0.341**	**0.228**	**0.206**	**0.077**	0.008	µg/L
1,2,3-Trichlorobenzene	ND	ND	ND	ND	ND	0.040	µg/L
1,2,4-Trichlorobenzene	ND	ND	ND	ND	ND	0.008	µg/L
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	0.008	µg/L
1,1,2-Trichloroethane	ND	ND	ND	ND	ND	0.008	µg/L
Trichloroethene	ND	ND	ND	ND	ND	0.008	µg/L
Trichlorofluoromethane	**0.047**	**0.048**	**0.032**	ND	ND	0.008	µg/L
1,2,3-Trichloropropane	ND	ND	ND	ND	ND	0.008	µg/L
1,2,4-Trimethylbenzene	**0.017**	**0.010**	ND	**0.012**	**0.030**	0.008	µg/L
1,3,5-Trimethylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
Vinyl chloride	ND	ND	ND	ND	ND	0.008	µg/L
m,p-Xylene	**0.015**	**0.077**	**0.049**	**0.011**	**0.021**	0.008	µg/L
o-Xylene	ND	**0.026**	**0.016**	ND	ND	0.008	µg/L
MTBE	ND	ND	ND	ND	ND	0.040	µg/L
Ethyl-tert-butylether	ND	ND	ND	ND	ND	0.040	µg/L
Di-isopropylether	ND	ND	ND	ND	ND	0.040	µg/L
tert-amylmethylether	ND	ND	ND	ND	ND	0.040	µg/L
tert-Butylalcohol	ND	ND	ND	ND	ND	0.400	µg/L
TIC:							
n-Pentane	ND	ND	ND	ND	ND	0.400	µg/L
n-Hexane	ND	ND	ND	ND	ND	0.400	µg/L
n-Heptane	ND	ND	ND	ND	ND	0.400	µg/L
Dilution Factor	1	1	1	1	1		
Surrogate Recoveries:						**QC Limits**	
Dibromofluoromethane	129%	129%	127%	126%	129%	60 - 140	
Toluene-d_8	98%	98%	99%	99%	97%	60 - 140	
4-Bromofluorobenzene	90%	104%	103%	106%	110%	60 - 140	
	E1-070817-E-0736	E1-070817-E-0736	E1-070817-E-0736	E1-070817-E-0736	E1-070817-E-0736		

ND= Not Detected

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JONES ENVIRONMENTAL LABORATORY RESULTS

Client:	Dudek & Associates, Inc.	**Report date:**	7/8/2017
Client Address:	605 Third Street	**Jones Ref. No.:**	E-0736
	Encinitas, CA 92024	**Client Ref. No.:**	10138
Attn:	Susan Smith	**Date Sampled:**	7/8/2017
		Date Received:	7/8/2017
Project:	West Hills Shopping Center	**Date Analyzed:**	7/8/2017
Project Address:	23233 Saticoy St.	**Physical State:**	Soil Gas
	West Hills, CA		

EPA 8260B – Volatile Organics by GC/MS + Oxygenates

Sample ID:	**DSV-19-15'**	**DSV-17-5'**	**DSV-17-15'**	**DSV-18-5'**	**DSV-18-15'**		
Jones ID:	**E-0736-06**	**E-0736-07**	**E-0736-08**	**E-0736-09**	**E-0736-10**	**Practical Quantitation Limit**	**Units**
Analytes:							
Benzene	ND	ND	ND	ND	ND	0.008	µg/L
Bromobenzene	ND	ND	ND	ND	ND	0.008	µg/L
Bromodichloromethane	ND	ND	ND	ND	ND	0.008	µg/L
Bromoform	ND	ND	ND	ND	ND	0.008	µg/L
n-Butylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
sec-Butylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
tert-Butylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
Carbon tetrachloride	ND	ND	ND	ND	ND	0.008	µg/L
Chlorobenzene	ND	ND	ND	ND	ND	0.008	µg/L
Chloroform	ND	ND	ND	ND	ND	0.008	µg/L
2-Chlorotoluene	ND	ND	ND	ND	ND	0.008	µg/L
4-Chlorotoluene	ND	ND	ND	ND	ND	0.008	µg/L
Dibromochloromethane	ND	ND	ND	ND	ND	0.008	µg/L
1,2-Dibromo-3-chloropropane	ND	ND	ND	ND	ND	0.008	µg/L
1,2-Dibromoethane (EDB)	ND	ND	ND	ND	ND	0.008	µg/L
Dibromomethane	ND	ND	ND	ND	ND	0.008	µg/L
1,2- Dichlorobenzene	ND	ND	ND	ND	ND	0.008	µg/L
1,3-Dichlorobenzene	ND	ND	ND	ND	ND	0.008	µg/L
1,4-Dichlorobenzene	ND	ND	ND	ND	ND	0.008	µg/L
Dichlorodifluoromethane	ND	**0.032**	**0.034**	**0.021**	**0.044**	0.008	µg/L
1,1-Dichloroethane	ND	ND	ND	ND	ND	0.008	µg/L
1,2-Dichloroethane	ND	ND	ND	ND	ND	0.008	µg/L
1,1-Dichloroethene	ND	ND	ND	ND	ND	0.008	µg/L
cis-1,2-Dichloroethene	ND	ND	ND	ND	ND	0.008	µg/L
trans-1,2-Dichloroethene	ND	ND	ND	ND	ND	0.008	µg/L
1,2-Dichloropropane	ND	ND	ND	ND	ND	0.008	µg/L
1,3-Dichloropropane	ND	ND	ND	ND	ND	0.008	µg/L
2,2-Dichloropropane	ND	ND	ND	ND	ND	0.008	µg/L
1,1-Dichloropropene	ND	ND	ND	ND	ND	0.008	µg/L

JONES ENVIRONMENTAL LABORATORY RESULTS

EPA 8260B – Volatile Organics by GC/MS + Oxygenates

Sample ID:	**DSV-19-15'**	**DSV-17-5'**	**DSV-17-15'**	**DSV-18-5'**	**DSV-18-15'**		
Jones ID:	**E-0736-06**	**E-0736-07**	**E-0736-08**	**E-0736-09**	**E-0736-10**	**Practical Quantitation Limit**	**Units**
Analytes:							
cis-1,3-Dichloropropene	ND	ND	ND	ND	ND	0.008	µg/L
trans-1,3-Dichloropropene	ND	ND	ND	ND	ND	0.008	µg/L
Ethylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
Freon 113	ND	ND	ND	ND	ND	0.040	µg/L
Hexachlorobutadiene	ND	ND	ND	ND	ND	0.008	µg/L
Isopropylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
4-Isopropyltoluene	ND	**0.020**	ND	**0.015**	ND	0.008	µg/L
Methylene chloride	ND	ND	ND	ND	ND	0.008	µg/L
Naphthalene	ND	ND	ND	ND	ND	0.040	µg/L
n-Propylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
Styrene	ND	ND	ND	ND	ND	0.008	µg/L
1,1,1,2-Tetrachloroethane	ND	ND	ND	ND	ND	0.008	µg/L
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	ND	0.008	µg/L
Tetrachloroethene	**0.102**	**0.128**	**0.082**	**0.030**	**0.060**	0.008	µg/L
Toluene	**0.216**	**0.034**	**0.050**	**0.035**	**0.132**	0.008	µg/L
1,2,3-Trichlorobenzene	ND	ND	ND	ND	ND	0.040	µg/L
1,2,4-Trichlorobenzene	ND	ND	ND	ND	ND	0.008	µg/L
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	0.008	µg/L
1,1,2-Trichloroethane	ND	ND	ND	ND	ND	0.008	µg/L
Trichloroethene	ND	ND	ND	ND	ND	0.008	µg/L
Trichlorofluoromethane	ND	ND	ND	ND	ND	0.008	µg/L
1,2,3-Trichloropropane	ND	ND	ND	ND	ND	0.008	µg/L
1,2,4-Trimethylbenzene	ND	**0.015**	ND	**0.015**	ND	0.008	µg/L
1,3,5-Trimethylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
Vinyl chloride	ND	ND	ND	ND	ND	0.008	µg/L
m,p-Xylene	**0.015**	**0.019**	**0.012**	ND	ND	0.008	µg/L
o-Xylene	ND	ND	ND	ND	ND	0.008	µg/L
MTBE	ND	ND	ND	ND	ND	0.040	µg/L
Ethyl-tert-butylether	ND	ND	ND	ND	ND	0.040	µg/L
Di-isopropylether	ND	ND	ND	ND	ND	0.040	µg/L
tert-amylmethylether	ND	ND	ND	ND	ND	0.040	µg/L
tert-Butylalcohol	ND	ND	ND	ND	ND	0.400	µg/L
TIC:							
n-Pentane	ND	ND	ND	ND	ND	0.400	µg/L
n-Hexane	ND	ND	ND	ND	ND	0.400	µg/L
n-Heptane	ND	ND	ND	ND	ND	0.400	µg/L
Dilution Factor	1	1	1	1	1		
Surrogate Recoveries:						**QC Limits**	
Dibromofluoromethane	132%	130%	129%	130%	127%	60 - 140	
Toluene-d_8	100%	100%	100%	99%	101%	60 - 140	
4-Bromofluorobenzene	107%	107%	104%	108%	111%	60 - 140	
	E1-070817-E-0736	E1-070817-E-0736	E1-070817-E-0736	E1-070817-E-0736	E1-070817-E-0736		

ND= Not Detected

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JONES ENVIRONMENTAL QUALITY CONTROL INFORMATION

Client:	Dudek & Associates, Inc.	**Report date:**	7/8/2017
Client Address:	605 Third Street	**Jones Ref. No.:**	E-0736
	Encinitas, CA 92024	**Client Ref. No.:**	10138
Attn:	Susan Smith	**Date Sampled:**	7/8/2017
		Date Received:	7/8/2017
Project:	West Hills Shopping Center	**Date Analyzed:**	7/8/2017
Project Address:	23233 Saticoy St.	**Physical State:**	Soil Gas
	West Hills, CA		

EPA 8260B – Volatile Organics by GC/MS + Oxygenates

Sample ID:	METHOD BLANK	SAMPLING BLANK		
Jones ID:	070817-E1MB1	070817-E1SB1	Practical Quantitation Limit	Units
Analytes:				
Benzene	ND	ND	0.008	µg/L
Bromobenzene	ND	ND	0.008	µg/L
Bromodichloromethane	ND	ND	0.008	µg/L
Bromoform	ND	ND	0.008	µg/L
n-Butylbenzene	ND	ND	0.008	µg/L
sec-Butylbenzene	ND	ND	0.008	µg/L
tert-Butylbenzene	ND	ND	0.008	µg/L
Carbon tetrachloride	ND	ND	0.008	µg/L
Chlorobenzene	ND	ND	0.008	µg/L
Chloroform	ND	ND	0.008	µg/L
2-Chlorotoluene	ND	ND	0.008	µg/L
4-Chlorotoluene	ND	ND	0.008	µg/L
Dibromochloromethane	ND	ND	0.008	µg/L
1,2-Dibromo-3-chloropropane	ND	ND	0.008	µg/L
1,2-Dibromoethane (EDB)	ND	ND	0.008	µg/L
Dibromomethane	ND	ND	0.008	µg/L
1,2- Dichlorobenzene	ND	ND	0.008	µg/L
1,3-Dichlorobenzene	ND	ND	0.008	µg/L
1,4-Dichlorobenzene	ND	ND	0.008	µg/L
Dichlorodifluoromethane	ND	ND	0.008	µg/L
1,1-Dichloroethane	ND	ND	0.008	µg/L
1,2-Dichloroethane	ND	ND	0.008	µg/L
1,1-Dichloroethene	ND	ND	0.008	µg/L
cis-1,2-Dichloroethene	ND	ND	0.008	µg/L
trans-1,2-Dichloroethene	ND	ND	0.008	µg/L
1,2-Dichloropropane	ND	ND	0.008	µg/L
1,3-Dichloropropane	ND	ND	0.008	µg/L
2,2-Dichloropropane	ND	ND	0.008	µg/L
1,1-Dichloropropene	ND	ND	0.008	µg/L

JONES ENVIRONMENTAL QUALITY CONTROL INFORMATION

EPA 8260B – Volatile Organics by GC/MS + Oxygenates

Sample ID:	METHOD BLANK	SAMPLING BLANK		
Jones ID:	**070817-E1MB1**	**070817-E1SB1**	**Practical Quantitation Limit**	**Units**
Analytes:				
cis-1,3-Dichloropropene	ND	ND	0.008	µg/L
trans-1,3-Dichloropropene	ND	ND	0.008	µg/L
Ethylbenzene	ND	ND	0.008	µg/L
Freon 113	ND	ND	0.040	µg/L
Hexachlorobutadiene	ND	ND	0.008	µg/L
Isopropylbenzene	ND	ND	0.008	µg/L
4-Isopropyltoluene	ND	ND	0.008	µg/L
Methylene chloride	ND	ND	0.008	µg/L
Naphthalene	ND	ND	0.040	µg/L
n-Propylbenzene	ND	ND	0.008	µg/L
Styrene	ND	ND	0.008	µg/L
1,1,1,2-Tetrachloroethane	ND	ND	0.008	µg/L
1,1,2,2-Tetrachloroethane	ND	ND	0.008	µg/L
Tetrachloroethene	ND	ND	0.008	µg/L
Toluene	ND	ND	0.008	µg/L
1,2,3-Trichlorobenzene	ND	ND	0.040	µg/L
1,2,4-Trichlorobenzene	ND	ND	0.008	µg/L
1,1,1-Trichloroethane	ND	ND	0.008	µg/L
1,1,2-Trichloroethane	ND	ND	0.008	µg/L
Trichloroethene	ND	ND	0.008	µg/L
Trichlorofluoromethane	ND	ND	0.008	µg/L
1,2,3-Trichloropropane	ND	ND	0.008	µg/L
1,2,4-Trimethylbenzene	ND	ND	0.008	µg/L
1,3,5-Trimethylbenzene	ND	ND	0.008	µg/L
Vinyl chloride	ND	ND	0.008	µg/L
m,p-Xylene	ND	ND	0.008	µg/L
o-Xylene	ND	ND	0.008	µg/L
MTBE	ND	ND	0.040	µg/L
Ethyl-tert-butylether	ND	ND	0.040	µg/L
Di-isopropylether	ND	ND	0.040	µg/L
tert-amylmethylether	ND	ND	0.040	µg/L
tert-Butylalcohol	ND	ND	0.400	µg/L
Gasoline Range Organics (C4-C12)	ND	ND	#REF! #REF!	µg/L
TIC:				
n-Pentane	ND	ND	0.400	µg/L
n-Hexane	ND	ND	0.400	µg/L
n-Heptane	ND	ND	0.400	µg/L
Dilution Factor	1	1		
Surrogate Recoveries:			**QC Limits**	
Dibromofluoromethane	127%	127%	60 - 140	
Toluene-d_8	97%	98%	60 - 140	
4-Bromofluorobenzene	103%	102%	60 - 140	
	E1-070817-E-0736	E1-070817-E-0736		

ND= Not Detected

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JONES ENVIRONMENTAL QUALITY CONTROL INFORMATION

Client:	Dudek & Associates, Inc.	**Report date:**	7/8/2017
Client Address:	605 Third Street Encinitas, CA 92024	**Jones Ref. No.:** **Client Ref. No.:**	E-0736 10138
Attn:	Susan Smith	**Date Sampled:** **Date Received:**	7/8/2017 7/8/2017
Project:	West Hills Shopping Center	**Date Analyzed:**	7/8/2017
Project Address:	23233 Saticoy St. West Hills, CA	**Physical State:**	Soil Gas

EPA 8260B – Volatile Organics by GC/MS + Oxygenates

Batch ID: E1-070817-E-0736

Jones ID:	**070817-E1LCS1**	**070817-E1LCSD1**			**070817-E1CCV1**	
Parameter	LCS Recovery (%)	LCSD Recovery (%)	RPD	Acceptability Range (%)	CCV	Acceptability Range (%)
Vinyl chloride	87%	89%	3.4%	70 - 130	78%	80 - 120
1,1-Dichloroethene	82%	78%	4.9%	70 - 130	114%	80 - 120
Cis-1,2-Dichloroethene	118%	116%	1.5%	70 - 130	92%	80 - 120
1,1,1-Trichloroethane	102%	108%	6.0%	70 - 130	107%	80 - 120
Benzene	105%	112%	6.2%	70 - 130	111%	80 - 120
Trichloroethene	98%	104%	5.8%	70 - 130	107%	80 - 120
Toluene	105%	110%	4.1%	70 - 130	107%	80 - 120
Tetrachloroethene	101%	107%	6.2%	70 - 130	107%	80 - 120
Chlorobenzene	107%	110%	2.9%	70 - 130	112%	80 - 120
Ethylbenzene	105%	111%	5.5%	70 - 130	111%	80 - 120
1,2,4 Trimethylbenzene	116%	115%	0.6%	70 - 130	122%	80 - 120
Surrogate Recovery:						
Dibromofluoromethane	121%	123%		60 - 140	117%	60 - 140
Toluene-d_8	97%	97%		60 - 140	96%	60 - 140
4-Bromofluorobenzene	104%	105%		60 - 140	105%	60 - 140

LCS = Laboratory Control Sample
LCSD = Laboratory Control Sample Duplicate
CCV = Continuing Calibration Verification
RPD = Relative Percent Difference; Acceptability range for RPD is ≤ 15%

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Soil-Gas Chain-of-Custody Record

Client: DUDEK AND ASSOCIATES, INC.
Project Name: WEST HILLS
Project Address: 23233 SATICOY STREET
WEST HILLS, CA
Email:
Phone:
Report To: SUSIE SMITH
Sampler: ANNALISE O'TOOLE

Date: 7/8/2017
Client Project #: 10138

Purge Number: □ 1P ☒ 3P □ 7P □ 10P
Shut-In Test: (Y) / N

Report Options: EDD ____ EDF* - 10% Surcharge ____ *Global ID ____

Turn Around Requested: □ Immediate Attention □ Rush 24 Hours □ Rush 48 Hours □ Rush 72 Hours □ Normal ☒ Mobile Lab

Tracer: ☒ n-pentane ☒ n-hexane ☒ n-heptane □ Helium □ 1,1-DFA □ ____

Reporting Limits Requested: □ Commercial ☒ Residential
Units: ug/L

LAB USE ONLY
Jones Project #: E-0736
Page: 1 of 2
Sample Container: GASTIGHT GLASS SYRINGE
If different than above, see Notes.

Sample ID	Purge Number	Purge Volume (mL)	Date	Sample Collection Time	Sample Analysis Time	Laboratory Sample ID	Purge Rate (mL/min)	Pump Used	Magnehelic	Sample Matrix: Soil Gas (SG), Air (A), Material (M)	EPA 8260B (VOCs)				Magnehelic Vacuum (in/H_2O)	Number of Containers	Notes & Special Instructions
DSV-9-5'	3	1630	7/8/17	6:54	7:05	E-0736-01	~200	ANNALISE.1	TSS#118001	SG	X				<2	2	
DSV-9-15'	3	1790	7/8/17	7:13	7:20	E-0736-02	~200	JOSH.1	TSS#118012	SG	X				10	2	
DSV-9-15' REP	3	1790	7/8/17	7:30	7:39	E-0736-03	~200	ANNALISE.1	TSS#118001	SG	X				10	2	
DSV-20-5'	3	1630	7/8/17	7:53	7:55	E-0736-04	~200	JOSH.1	TSS#118012	SG	X				10	2	
DSV-20-15'	-	-	7/8/17	7:09	-	E-0736-11	-	-	-	-	-				>100	-	NO FLOW
DSV-19-5'	3	1630	7/8/17	8:07	8:14	E-0736-05	~200	ANNALISE.1	TSS#118001	SG	X				10	2	
DSV-19-15'	3	1790	7/8/17	8:24	8:30	E-0736-06	~200	JOSH.1	TSS#118012	SG	X				60	2	LOW FLOW
DSV-17-5'	3	1630	7/8/17	8:43	8:48	E-0736-07	~200	ANNALISE.1	TSS#118001	SG	X				8	2	
DSV-17-15'	3	1790	7/8/17	9:00	9:05	E-0736-08	~200	JOSH.1	TSS#118012	SG	X				30	2	
DSV-18-5'	3	1630	7/8/17	9:16	9:25	E-0736-09	~200	ANNALISE.1	TSS#118001	SG	X				<2	2	

Relinquished By (Signature): ____ Printed Name: ____ Company: ____ Date: ____ Time: ____

Received By (Signature): [signature] Printed Name: Annalise O'Toole Company: Jones Environmental Date: 7-8-17 Time: 0956

Total Number of Containers: 18

Relinquished By (Signature): ____ Printed Name: ____ Company: ____ Date: ____ Time: ____

Received By Laboratory (Signature): ____ Printed Name: ____ Company: ____ Date: ____ Time: ____

Client signature on this Chain of Custody form constitutes acknowledgement that the above analyses have been requested, and the information provided herein is correct and accurate.

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Soil-Gas Chain-of-Custody Record

Client: DUDEK AND ASSOCIATES, INC.
Project Name: WEST HILLS
Project Address: 23233 SATICOY STREET
WEST HILLS, CA
Email:
Phone:
Report To: SUSIE SMITH
Sampler: ANNALISE O'TOOLE

Date: 7/8/2017
Client Project #: 10138

Purge Number: □ 1P ☒ 3P □ 7P □ 10P
Shut-In Test: (Y) / N

Report Options: EDD ____ EDF* - 10% Surcharge____ *Global ID _____

LAB USE ONLY
Jones Project # E-07356
Page 2 of 2
Sample Container: GASTIGHT GLASS SYRINGE
If different than above, see Notes.

Turn Around Requested:
□ Immediate Attention
□ Rush 24 Hours
□ Rush 48 Hours
□ Rush 72 Hours
□ Normal
☒ Mobile Lab

Tracer:
☒ n-pentane
☒ n-hexane
☒ n-heptane
□ Helium
□ 1,1-DFA
□ _____

Reporting Limits Requested: □ Commercial ☒ Residential
Units: ug/L

Analysis Requested

Sample ID	Purge Number	Purge Volume (mL)	Date	Sample Collection Time	Sample Analysis Time	Laboratory Sample ID	Purge Rate (mL/min)	Pump Used	Magnehelic	Sample Matrix: Soil Gas (SG), Air (A), Material (M)	EPA 8260B (VOCs)				Magnehelic Vacuum (in/H_2O)	Number of Containers	Notes & Special Instructions
DSV-18-15'	3	1790	7/8/17	9:34	9:42	E-07356-10	~200	JOSH.1	TSS#118001	SG	X				30	2	

Relinquished By (Signature) _____ Printed Name _____
Company _____ Date _____ Time _____

Relinquished By (Signature) _____ Printed Name _____
Company _____ Date _____ Time _____

Received By (Signature) Annalise O'Toole Printed Name Annalise O'Toole
Company Jones Environmental Date 7-8-17 Time 0756

Received By Laboratory (Signature) _____ Printed Name _____
Company _____ Date _____ Time _____

2 Total Number of Containers

Client signature on this Chain of Custody form constitutes acknowledgement that the above analyses have been reqested, and the information provided herein is correct and accurate.

APPENDIX B

JONES ENVIRONMENTAL, INC.

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JONES ENVIRONMENTAL
LABORATORY RESULTS

Client:	Millennium Environmental, Inc	**Report date:**	3/3/2017
Client Address:	2936 E. Coronado Street Anaheim, CA 92806	**JEL Ref. No.:**	ST-10286
Attn:	Mindy Jenkins	**Date Sampled:**	3/2/2017
		Date Received:	3/2/2017
Project:	Dudek - West Hills	**Date Analyzed:**	3/3/2017
Project Address:	23233 Saticoy St. West Hills, CA	**Physical State:**	Water

ANALYSES REQUESTED

1. EPA 8260B by 5030B – Volatile Organics by GC/MS + Oxygenates

Approval:

Steve Jones, Ph.D.
Laboratory Manager

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JONES ENVIRONMENTAL LABORATORY RESULTS

Client:	Millennium Environmental, Inc	**Report date:**	3/8/2017
Client Address:	2936 E. Coronado Street Anaheim, CA 92806	**JEL Ref. No.:**	ST-10286
Attn:	Mindy Jenkins	**Date Sampled:**	3/2/2017
		Date Received:	3/2/2017
Project:	Dudek - West Hills	**Date Analyzed:**	3/8/2017
Project Address:	23233 Saticoy St. West Hills, CA	**Physical State:**	Water

EPA 8260B by 5030B – Volatile Organics by GC/MS + Oxygenates

Sample ID:	**DHP-27' Filtered**		
JEL ID:	**ST-10286-01**	**Practical Quantitation Limit**	**Units**
Analytes:			
Benzene	ND	0.5	µg/L
Bromobenzene	ND	0.5	µg/L
Bromodichloromethane	**1.0**	0.5	µg/L
Bromoform	ND	0.5	µg/L
n-Butylbenzene	ND	0.5	µg/L
sec-Butylbenzene	ND	0.5	µg/L
tert-Butylbenzene	ND	0.5	µg/L
Carbon tetrachloride	ND	0.5	µg/L
Chlorobenzene	ND	0.5	µg/L
Chloroform	**0.5**	0.5	µg/L
2-Chlorotoluene	ND	0.5	µg/L
4-Chlorotoluene	ND	0.5	µg/L
Dibromochloromethane	**1.2**	0.5	µg/L
1,2-Dibromo-3-chloropropane	ND	0.5	µg/L
1,2-Dibromoethane (EDB)	ND	0.5	µg/L
Dibromomethane	ND	0.5	µg/L
1,2- Dichlorobenzene	ND	0.5	µg/L
1,3-Dichlorobenzene	ND	0.5	µg/L
1,4-Dichlorobenzene	ND	0.5	µg/L
Dichlorodifluoromethane	ND	2.5	µg/L
1,1-Dichloroethane	ND	0.5	µg/L
1,2-Dichloroethane	ND	0.5	µg/L
1,1-Dichloroethene	ND	0.5	µg/L
cis-1,2-Dichloroethene	ND	0.5	µg/L
trans-1,2-Dichloroethene	ND	0.5	µg/L
1,2-Dichloropropane	ND	0.5	µg/L
1,3-Dichloropropane	ND	0.5	µg/L
2,2-Dichloropropane	ND	0.5	µg/L
1,1-Dichloropropene	ND	0.5	µg/L

JONES ENVIRONMENTAL LABORATORY RESULTS

EPA 8260B by 5030B – Volatile Organics by GC/MS + Oxygenates

Sample ID:	**DHP-27' Filtered**		
JEL ID:	**ST-10286-01**	**Practical Quantitation Limit**	**Units**
Analytes:			
cis-1,3-Dichloropropene	ND	0.5	µg/L
trans-1,3-Dichloropropene	ND	0.5	µg/L
Ethylbenzene	ND	0.5	µg/L
Freon 113	ND	2.5	µg/L
Hexachlorobutadiene	ND	0.5	µg/L
Isopropylbenzene	ND	0.5	µg/L
4-Isopropyltoluene	ND	0.5	µg/L
Methylene chloride	ND	0.5	µg/L
Naphthalene	ND	0.5	µg/L
n-Propylbenzene	ND	0.5	µg/L
Styrene	ND	0.5	µg/L
1,1,1,2-Tetrachloroethane	ND	0.5	µg/L
1,1,2,2-Tetrachloroethane	ND	0.5	µg/L
Tetrachloroethylene	**5.5**	0.5	µg/L
Toluene	**0.5**	0.5	µg/L
1,2,3-Trichlorobenzene	ND	0.5	µg/L
1,2,4-Trichlorobenzene	ND	0.5	µg/L
1,1,1-Trichloroethane	ND	0.5	µg/L
1,1,2-Trichloroethane	ND	0.5	µg/L
Trichloroethylene	ND	0.5	µg/L
Trichlorofluoromethane	ND	2.5	µg/L
1,2,3-Trichloropropane	ND	0.5	µg/L
1,2,4-Trimethylbenzene	ND	0.5	µg/L
1,3,5-Trimethylbenzene	ND	0.5	µg/L
Vinyl chloride	ND	0.5	µg/L
m,p-Xylene	ND	0.5	µg/L
o-Xylene	ND	0.5	µg/L
MTBE	ND	2.5	µg/L
Ethyl-tert-butylether	ND	2.5	µg/L
Di-isopropylether	ND	2.5	µg/L
tert-amylmethylether	ND	2.5	µg/L
tert-Butylalcohol	ND	25.0	µg/L
Dilution Factor	1		
Surrogate Recoveries:		**QC Limits**	
Dibromofluoromethane	79%	60 - 140	
Toluene-d_8	84%	60 - 140	
4-Bromofluorobenzene	103%	60 - 140	
	VOC3-030817-CHECKS		

ND= Not Detected

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JONES ENVIRONMENTAL QUALITY CONTROL INFORMATION

Client:	Millennium Environmental, Inc	**Report date:**	3/8/2017
Client Address:	2936 E. Coronado Street Anaheim, CA 92806	**JEL Ref. No.:**	ST-10286
Attn:	Mindy Jenkins	**Date Sampled:**	3/2/2017
		Date Received:	3/2/2017
Project:	Dudek - West Hills	**Date Analyzed:**	3/8/2017
Project Address:	23233 Saticoy St. West Hills, CA	**Physical State:**	Water

EPA 8260B by 5030B – Volatile Organics by GC/MS + Oxygenates

Sample ID:	**METHOD BLANK**		
JEL ID:	**030317-V3MB1**	**Practical Quantitation Limit**	**Units**
Analytes:			
Benzene	ND	0.5	µg/L
Bromobenzene	ND	0.5	µg/L
Bromodichloromethane	ND	0.5	µg/L
Bromoform	ND	0.5	µg/L
n-Butylbenzene	ND	0.5	µg/L
sec-Butylbenzene	ND	0.5	µg/L
tert-Butylbenzene	ND	0.5	µg/L
Carbon tetrachloride	ND	0.5	µg/L
Chlorobenzene	ND	0.5	µg/L
Chloroform	ND	0.5	µg/L
2-Chlorotoluene	ND	0.5	µg/L
4-Chlorotoluene	ND	0.5	µg/L
Dibromochloromethane	ND	0.5	µg/L
1,2-Dibromo-3-chloropropane	ND	0.5	µg/L
1,2-Dibromoethane (EDB)	ND	0.5	µg/L
Dibromomethane	ND	0.5	µg/L
1,2- Dichlorobenzene	ND	0.5	µg/L
1,3-Dichlorobenzene	ND	0.5	µg/L
1,4-Dichlorobenzene	ND	0.5	µg/L
Dichlorodifluoromethane	ND	2.5	µg/L
1,1-Dichloroethane	ND	0.5	µg/L
1,2-Dichloroethane	ND	0.5	µg/L
1,1-Dichloroethene	ND	0.5	µg/L
cis-1,2-Dichloroethene	ND	0.5	µg/L
trans-1,2-Dichloroethene	ND	0.5	µg/L
1,2-Dichloropropane	ND	0.5	µg/L
1,3-Dichloropropane	ND	0.5	µg/L
2,2-Dichloropropane	ND	0.5	µg/L
1,1-Dichloropropene	ND	0.5	µg/L

JONES ENVIRONMENTAL QUALITY CONTROL INFORMATION

EPA 8260B by 5030B – Volatile Organics by GC/MS + Oxygenates

Sample ID:	**METHOD BLANK**		
JEL ID:	**030317-V3MB1**	**Practical Quantitation Limit**	**Units**
Analytes:			
cis-1,3-Dichloropropene	ND	0.5	µg/L
trans-1,3-Dichloropropene	ND	0.5	µg/L
Ethylbenzene	ND	0.5	µg/L
Freon 113	ND	2.5	µg/L
Hexachlorobutadiene	ND	0.5	µg/L
Isopropylbenzene	ND	0.5	µg/L
4-Isopropyltoluene	ND	0.5	µg/L
Methylene chloride	ND	0.5	µg/L
Naphthalene	ND	0.5	µg/L
n-Propylbenzene	ND	0.5	µg/L
Styrene	ND	0.5	µg/L
1,1,1,2-Tetrachloroethane	ND	0.5	µg/L
1,1,2,2-Tetrachloroethane	ND	0.5	µg/L
Tetrachloroethylene	ND	0.5	µg/L
Toluene	ND	0.5	µg/L
1,2,3-Trichlorobenzene	ND	0.5	µg/L
1,2,4-Trichlorobenzene	ND	0.5	µg/L
1,1,1-Trichloroethane	ND	0.5	µg/L
1,1,2-Trichloroethane	ND	0.5	µg/L
Trichloroethylene	ND	0.5	µg/L
Trichlorofluoromethane	ND	2.5	µg/L
1,2,3-Trichloropropane	ND	0.5	µg/L
1,2,4-Trimethylbenzene	ND	0.5	µg/L
1,3,5-Trimethylbenzene	ND	0.5	µg/L
Vinyl chloride	ND	0.5	µg/L
m,p-Xylene	ND	0.5	µg/L
o-Xylene	ND	0.5	µg/L
MTBE	ND	2.5	µg/L
Ethyl-tert-butylether	ND	2.5	µg/L
Di-isopropylether	ND	2.5	µg/L
tert-amylmethylether	ND	2.5	µg/L
tert-Butylalcohol	ND	25.0	µg/L
Dilution Factor	1		
Surrogate Recoveries:		**QC Limits**	
Dibromofluoromethane	92%	60 - 140	
Toluene-d_8	105%	60 - 140	
4-Bromofluorobenzene	116%	60 - 140	

VOC3-030317-CHECKS

ND= Not Detected

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JONES ENVIRONMENTAL
QUALITY CONTROL INFORMATION

Client:	Millennium Environmental, Inc	**Report date:**	3/8/2017
Client Address:	2936 E. Coronado Street Anaheim, CA 92806	**JEL Ref. No.:** **Client Ref. No.:**	ST-10286
Attn:	Mindy Jenkins	**Date Sampled:**	3/2/2017
		Date Received:	3/2/2017
Project:	Dudek - West Hills	**Date Analyzed:**	3/8/2017
Project Address:	23233 Saticoy St. West Hills, CA	**Physical State:**	Water

EPA 8260B by 5030B – Volatile Organics by GC/MS + Oxygenates

Sample Spiked: Clean Water **GC#:** VOC3-030317-CHECKS

JEL ID:	**030317-V3MS1**	**030317-V3MSD1**			**030317-V3LCS1**	
Parameter	MS Recovery (%)	MSD Recovery (%)	RPD	Acceptability Range (%)	LCS	Acceptability Range (%)
Vinyl Chloride	87%	81%	6.8%	60 - 140	109%	70 - 130
1,1-Dichloroethylene	73%	70%	5.0%	60 - 140	103%	70 - 130
Cis-1,2-Dichloroethene	115%	113%	1.9%	70 - 130	90%	70 - 130
1,1,1-Trichloroethane	112%	103%	8.3%	70 - 130	103%	70 - 130
Benzene	101%	94%	7.1%	70 - 130	105%	70 - 130
Trichloroethylene	100%	93%	7.4%	70 - 130	102%	70 - 130
Toluene	113%	106%	7.0%	70 - 130	106%	70 - 130
Tetrachloroethene	95%	85%	11.3%	70 - 130	88%	70 - 130
Chlorobenzene	109%	105%	3.6%	70 - 130	101%	70 - 130
Ethylbenzene	119%	112%	5.7%	70 - 130	110%	70 - 130
1,2,4 Trimethylbenzene	124%	116%	6.6%	70 - 130	109%	70 - 130
Surrogate Recovery:						
Dibromofluoromethane	75%	76%		60 - 140	82%	60 - 140
Toluene-d_8	104%	106%		60 - 140	100%	60 - 140
4-Bromofluorobenzene	112%	112%		60 - 140	88%	60 - 140

MS = Matrix Spike
MSD = Matrix Spike Duplicate
RPD = Relative Percent Difference; Acceptability range for RPD is ≤ 15%

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Chain-of-Custody Record

Client	Milkunivan Environmental
Project Name	Dudek - West Hills
Project Address	23233 Saticoy St West Hills CA
Email	
Phone	714 595 8156
Report To	Mindy Jenkins
Sampler	JSB
Date	3-2-17
Client Project #	

Turn Around Requested:
- ☐ Immediate Attention
- ☐ Rush 24 Hours
- ☐ Rush 48 Hours
- ☐ Rush 72 Hours
- ☒ Normal

Report Options
EDD _____
EDF* - 10% Surcharge____
*Global ID _____

Project # ST-10286

Page 1 of 1

Lab Use Only
Sample Condition as Recieved:
Chilled ☒ yes ☐ no
Sealed ☒ yes ☐ no

Sample Container / Preservative Abbreviations

AS - Acetate Sleeve
SS - Stainless Steel Sleeve
BS - Brass Sleeve
G - Glass
AB - Amber Bottle
P - Plastic
SOBI - Sodium Bisulfate
MeOH - Methanol
HCl - Hydrochloric Acid
HNO3 - Nitric Acid
O - Other (See Notes)

Analysis Requested

Sample ID	Date	Sample Collection Time	Laboratory Sample ID	Preservative	Sample Container	Sample Matrix: Soil (S), Sludge (SL), Aqueous (A), Free Product (FP)	VOCs 8260B	Number of Containers	Notes & Special Instructions
DHP-27'	3/2/17	1008	ST-10286.01	HCl	VOA	A	X	3	

Relinquished By (Signature)	Printed Name: Claire Kouba	Received By (Signature)	Printed Name: Josh Bass
Company: Dudek	Date: 3/2/17 Time: 1610	Company: Jones Environmental	Date: 3-2-17 Time: 1610
Relinquished By (Signature)	Printed Name: Josh Bass	Received By Laboratory (Signature)	Printed Name: Juan Camacho
Company: Jones Environmental	Date: 3-2-17 Time: 1858	Company: Jones Environmental	Date: 3-2-17 Time: 1858

3 Total Number of Containers

Client signature on this Chain of Custody form constitutes acknowledgement that the above analyses have been reqested, and the information provided herein is correct and accurate.

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JONES ENVIRONMENTAL
LABORATORY RESULTS

Client:	Dudek & Associates, Inc.	**Report date:**	7/18/2017
Client Address:	605 Third Street Encinitas, CA 92024	**JEL Ref. No.:** **Client Ref. No.:**	ST-10911 10138
Attn:	Derek Reed	**Date Sampled:**	7/13/2017
		Date Received:	7/14/2017
Project:	West Hills Ph. II	**Date Analyzed:**	7/17/2017
Project Address:	West Hills, CA	**Physical State:**	Water

ANALYSES REQUESTED

1. EPA 8260B by 5030B – Volatile Organics by GC/MS + Oxygenates

Approval:

Colby Wakeman
QA/QC Manager

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JONES ENVIRONMENTAL LABORATORY RESULTS

Client:	Dudek & Associates, Inc.	**Report date:**	7/18/2017
Client Address:	605 Third Street	**JEL Ref. No.:**	ST-10911
	Encinitas, CA 92024	**Client Ref. No.:**	10138
Attn:	Derek Reed	**Date Sampled:**	7/13/2017
		Date Received:	7/14/2017
Project:	West Hills Ph. II	**Date Analyzed:**	7/17/2017
Project Address:	West Hills, CA	**Physical State:**	Water

EPA 8260B by 5030B – Volatile Organics by GC/MS + Oxygenates

Sample ID:	**DHP-1-25**	**DHP-2-29**	**DHP-3-28**	**DHP-4-26**	**DHP-5-27**		
JEL ID:	**ST-10911-01**	**ST-10911-02**	**ST-10911-03**	**ST-10911-05**	**ST-10911-06**	**Practical Quantitation Limit**	**Units**
Analytes:							
Benzene	ND	ND	ND	ND	ND	0.5	µg/L
Bromobenzene	ND	ND	ND	ND	ND	0.5	µg/L
Bromodichloromethane	ND	**0.6**	ND	ND	ND	0.5	µg/L
Bromoform	**3.9**	**13.7**	**0.7**	**3.8**	**0.7**	0.5	µg/L
n-Butylbenzene	ND	ND	ND	ND	ND	0.5	µg/L
sec-Butylbenzene	ND	ND	ND	ND	ND	0.5	µg/L
tert-Butylbenzene	ND	ND	ND	ND	ND	0.5	µg/L
Carbon tetrachloride	ND	ND	ND	ND	ND	0.5	µg/L
Chlorobenzene	ND	ND	ND	ND	ND	0.5	µg/L
Chloroform	ND	ND	ND	ND	ND	0.5	µg/L
2-Chlorotoluene	ND	ND	ND	ND	ND	0.5	µg/L
4-Chlorotoluene	ND	ND	ND	ND	ND	0.5	µg/L
Dibromochloromethane	**1.2**	**2.7**	ND	**1.1**	ND	0.5	µg/L
1,2-Dibromo-3-chloropropane	ND	ND	ND	ND	ND	0.5	µg/L
1,2-Dibromoethane (EDB)	ND	ND	ND	ND	ND	0.5	µg/L
Dibromomethane	**0.8**	**0.6**	**2.0**	**2.1**	**2.1**	0.5	µg/L
1,2- Dichlorobenzene	ND	ND	ND	ND	ND	0.5	µg/L
1,3-Dichlorobenzene	ND	ND	ND	ND	ND	0.5	µg/L
1,4-Dichlorobenzene	ND	ND	ND	ND	ND	0.5	µg/L
Dichlorodifluoromethane	ND	ND	ND	ND	ND	2.5	µg/L
1,1-Dichloroethane	ND	ND	ND	ND	ND	0.5	µg/L
1,2-Dichloroethane	ND	ND	ND	ND	ND	0.5	µg/L
1,1-Dichloroethene	ND	ND	ND	ND	ND	0.5	µg/L
cis-1,2-Dichloroethene	ND	ND	ND	ND	ND	0.5	µg/L
trans-1,2-Dichloroethene	ND	ND	ND	ND	ND	0.5	µg/L
1,2-Dichloropropane	ND	ND	ND	ND	ND	0.5	µg/L
1,3-Dichloropropane	ND	ND	ND	ND	ND	0.5	µg/L
2,2-Dichloropropane	ND	ND	ND	ND	ND	0.5	µg/L
1,1-Dichloropropene	ND	ND	ND	ND	ND	0.5	µg/L

JONES ENVIRONMENTAL LABORATORY RESULTS

EPA 8260B by 5030B – Volatile Organics by GC/MS + Oxygenates

Sample ID:	**DHP-1-25**	**DHP-2-29**	**DHP-3-28**	**DHP-4-26**	**DHP-5-27**		
JEL ID:	**ST-10911-01**	**ST-10911-02**	**ST-10911-03**	**ST-10911-05**	**ST-10911-06**	**Practical Quantitation Limit**	**Units**
Analytes:							
cis-1,3-Dichloropropene	ND	ND	ND	ND	ND	0.5	µg/L
trans-1,3-Dichloropropene	ND	ND	ND	ND	ND	0.5	µg/L
Ethylbenzene	ND	ND	ND	ND	ND	0.5	µg/L
Freon 113	ND	ND	ND	ND	ND	2.5	µg/L
Hexachlorobutadiene	ND	ND	ND	ND	ND	0.5	µg/L
Isopropylbenzene	ND	ND	ND	ND	ND	0.5	µg/L
4-Isopropyltoluene	ND	ND	ND	ND	ND	0.5	µg/L
Methylene chloride	ND	ND	ND	ND	ND	0.5	µg/L
Naphthalene	ND	ND	ND	ND	ND	0.5	µg/L
n-Propylbenzene	ND	ND	ND	ND	ND	0.5	µg/L
Styrene	ND	ND	ND	ND	ND	0.5	µg/L
1,1,1,2-Tetrachloroethane	ND	ND	ND	ND	ND	0.5	µg/L
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	ND	0.5	µg/L
Tetrachloroethylene	ND	ND	ND	ND	**3.4**	0.5	µg/L
Toluene	ND	ND	ND	ND	ND	0.5	µg/L
1,2,3-Trichlorobenzene	ND	ND	ND	ND	ND	0.5	µg/L
1,2,4-Trichlorobenzene	ND	ND	ND	ND	ND	0.5	µg/L
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	0.5	µg/L
1,1,2-Trichloroethane	ND	ND	ND	ND	ND	0.5	µg/L
Trichloroethylene	ND	ND	ND	ND	ND	0.5	µg/L
Trichlorofluoromethane	ND	ND	ND	ND	ND	2.5	µg/L
1,2,3-Trichloropropane	ND	ND	ND	ND	ND	0.5	µg/L
1,2,4-Trimethylbenzene	ND	ND	ND	ND	ND	0.5	µg/L
1,3,5-Trimethylbenzene	ND	ND	ND	ND	ND	0.5	µg/L
Vinyl chloride	ND	ND	ND	ND	ND	0.5	µg/L
m,p-Xylene	ND	ND	ND	ND	ND	0.5	µg/L
o-Xylene	ND	ND	ND	ND	ND	0.5	µg/L
MTBE	ND	ND	ND	ND	ND	2.5	µg/L
Ethyl-tert-butylether	ND	ND	ND	ND	ND	2.5	µg/L
Di-isopropylether	ND	ND	ND	ND	ND	2.5	µg/L
tert-amylmethylether	ND	ND	ND	ND	ND	2.5	µg/L
tert-Butylalcohol	ND	ND	ND	ND	ND	25.0	µg/L
Dilution Factor	1	1	1	1	1		
Surrogate Recoveries:						**QC Limits**	
Dibromofluoromethane	107%	103%	103%	104%	103%	60 - 140	
Toluene-d_8	106%	102%	103%	102%	102%	60 - 140	
4-Bromofluorobenzene	107%	103%	105%	99%	106%	60 - 140	
	VOC1-071717-CHECKS	VOC1-071717-CHECKS	VOC1-071717-CHECKS	VOC1-071717-CHECKS	VOC1-071717-CHECKS		

ND= Not Detected

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JONES ENVIRONMENTAL LABORATORY RESULTS

Client:	Dudek & Associates, Inc.	**Report date:**	7/18/2017
Client Address:	605 Third Street	**JEL Ref. No.:**	ST-10911
	Encinitas, CA 92024	**Client Ref. No.:**	10138
Attn:	Derek Reed	**Date Sampled:**	7/13/2017
		Date Received:	7/14/2017
Project:	West Hills Ph. II	**Date Analyzed:**	7/17/2017
Project Address:	West Hills, CA	**Physical State:**	Water

EPA 8260B by 5030B – Volatile Organics by GC/MS + Oxygenates

Sample ID: **DHP-6-29**

JEL ID:	**ST-10911-07**	**Practical Quantitation Limit**	**Units**
Analytes:			
Benzene	ND	0.5	µg/L
Bromobenzene	ND	0.5	µg/L
Bromodichloromethane	ND	0.5	µg/L
Bromoform	ND	0.5	µg/L
n-Butylbenzene	ND	0.5	µg/L
sec-Butylbenzene	ND	0.5	µg/L
tert-Butylbenzene	ND	0.5	µg/L
Carbon tetrachloride	ND	0.5	µg/L
Chlorobenzene	ND	0.5	µg/L
Chloroform	ND	0.5	µg/L
2-Chlorotoluene	ND	0.5	µg/L
4-Chlorotoluene	ND	0.5	µg/L
Dibromochloromethane	ND	0.5	µg/L
1,2-Dibromo-3-chloropropane	ND	0.5	µg/L
1,2-Dibromoethane (EDB)	ND	0.5	µg/L
Dibromomethane	**2.2**	0.5	µg/L
1,2- Dichlorobenzene	ND	0.5	µg/L
1,3-Dichlorobenzene	ND	0.5	µg/L
1,4-Dichlorobenzene	ND	0.5	µg/L
Dichlorodifluoromethane	ND	0.5	µg/L
1,1-Dichloroethane	ND	0.5	µg/L
1,2-Dichloroethane	ND	0.5	µg/L
1,1-Dichloroethene	ND	0.5	µg/L
cis-1,2-Dichloroethene	ND	0.5	µg/L
trans-1,2-Dichloroethene	ND	0.5	µg/L
1,2-Dichloropropane	ND	0.5	µg/L
1,3-Dichloropropane	ND	0.5	µg/L
2,2-Dichloropropane	ND	0.5	µg/L
1,1-Dichloropropene	ND	0.5	µg/L

JONES ENVIRONMENTAL LABORATORY RESULTS

EPA 8260B by 5030B – Volatile Organics by GC/MS + Oxygenates

Sample ID:	**DHP-6-29**		
JEL ID:	**ST-10911-07**	**Practical Quantitation Limit**	**Units**
Analytes:			
cis-1,3-Dichloropropene	ND	0.5	µg/L
trans-1,3-Dichloropropene	ND	0.5	µg/L
Ethylbenzene	ND	0.5	µg/L
Freon 113	ND	2.5	µg/L
Hexachlorobutadiene	ND	0.5	µg/L
Isopropylbenzene	ND	0.5	µg/L
4-Isopropyltoluene	ND	0.5	µg/L
Methylene chloride	ND	0.5	µg/L
Naphthalene	ND	0.5	µg/L
n-Propylbenzene	ND	0.5	µg/L
Styrene	ND	0.5	µg/L
1,1,1,2-Tetrachloroethane	ND	0.5	µg/L
1,1,2,2-Tetrachloroethane	ND	0.5	µg/L
Tetrachloroethylene	**0.7**	0.5	µg/L
Toluene	ND	0.5	µg/L
1,2,3-Trichlorobenzene	ND	0.5	µg/L
1,2,4-Trichlorobenzene	ND	0.5	µg/L
1,1,1-Trichloroethane	ND	0.5	µg/L
1,1,2-Trichloroethane	ND	0.5	µg/L
Trichloroethylene	ND	0.5	µg/L
Trichlorofluoromethane	ND	0.5	µg/L
1,2,3-Trichloropropane	ND	0.5	µg/L
1,2,4-Trimethylbenzene	ND	0.5	µg/L
1,3,5-Trimethylbenzene	ND	0.5	µg/L
Vinyl chloride	ND	0.5	µg/L
m,p-Xylene	ND	0.5	µg/L
o-Xylene	ND	0.5	µg/L
MTBE	ND	2.5	µg/L
Ethyl-tert-butylether	ND	2.5	µg/L
Di-isopropylether	ND	2.5	µg/L
tert-amylmethylether	ND	2.5	µg/L
tert-Butylalcohol	ND	25.0	µg/L
Dilution Factor	1		

Surrogate Recoveries:		**QC Limits**
Dibromofluoromethane	100%	60 - 140
Toluene-d_8	100%	60 - 140
4-Bromofluorobenzene	101%	60 - 140
	VOC1-071717-CHECKS	

ND= Not Detected

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JONES ENVIRONMENTAL QUALITY CONTROL INFORMATION

Client:	Dudek & Associates, Inc.	**Report date:**	7/18/2017
Client Address:	605 Third Street	**JEL Ref. No.:**	ST-10911
	Encinitas, CA 92024	**Client Ref. No.:**	10138
Attn:	Derek Reed	**Date Sampled:**	7/13/2017
		Date Received:	7/14/2017
Project:	West Hills Ph. II	**Date Analyzed:**	7/17/2017
Project Address:	West Hills, CA	**Physical State:**	Water

EPA 8260B by 5030B – Volatile Organics by GC/MS + Oxygenates

Sample ID:	**METHOD BLANK**		
JEL ID:	**071717-V1MB1**	**Practical Quantitation Limit**	**Units**
Analytes:			
Benzene	ND	0.5	µg/L
Bromobenzene	ND	0.5	µg/L
Bromodichloromethane	ND	0.5	µg/L
Bromoform	ND	0.5	µg/L
n-Butylbenzene	ND	0.5	µg/L
sec-Butylbenzene	ND	0.5	µg/L
tert-Butylbenzene	ND	0.5	µg/L
Carbon tetrachloride	ND	0.5	µg/L
Chlorobenzene	ND	0.5	µg/L
Chloroform	ND	0.5	µg/L
2-Chlorotoluene	ND	0.5	µg/L
4-Chlorotoluene	ND	0.5	µg/L
Dibromochloromethane	ND	0.5	µg/L
1,2-Dibromo-3-chloropropane	ND	0.5	µg/L
1,2-Dibromoethane (EDB)	ND	0.5	µg/L
Dibromomethane	ND	0.5	µg/L
1,2- Dichlorobenzene	ND	0.5	µg/L
1,3-Dichlorobenzene	ND	0.5	µg/L
1,4-Dichlorobenzene	ND	0.5	µg/L
Dichlorodifluoromethane	ND	2.5	µg/L
1,1-Dichloroethane	ND	0.5	µg/L
1,2-Dichloroethane	ND	0.5	µg/L
1,1-Dichloroethene	ND	0.5	µg/L
cis-1,2-Dichloroethene	ND	0.5	µg/L
trans-1,2-Dichloroethene	ND	0.5	µg/L
1,2-Dichloropropane	ND	0.5	µg/L
1,3-Dichloropropane	ND	0.5	µg/L
2,2-Dichloropropane	ND	0.5	µg/L
1,1-Dichloropropene	ND	0.5	µg/L

JONES ENVIRONMENTAL QUALITY CONTROL INFORMATION

EPA 8260B by 5030B – Volatile Organics by GC/MS + Oxygenates

Sample ID:	**METHOD BLANK**		
JEL ID:	**071717-V1MB1**	**Practical Quantitation Limit**	**Units**
Analytes:			
cis-1,3-Dichloropropene	ND	0.5	µg/L
trans-1,3-Dichloropropene	ND	0.5	µg/L
Ethylbenzene	ND	0.5	µg/L
Freon 113	ND	2.5	µg/L
Hexachlorobutadiene	ND	0.5	µg/L
Isopropylbenzene	ND	0.5	µg/L
4-Isopropyltoluene	ND	0.5	µg/L
Methylene chloride	ND	0.5	µg/L
Naphthalene	ND	0.5	µg/L
n-Propylbenzene	ND	0.5	µg/L
Styrene	ND	0.5	µg/L
1,1,1,2-Tetrachloroethane	ND	0.5	µg/L
1,1,2,2-Tetrachloroethane	ND	0.5	µg/L
Tetrachloroethylene	ND	0.5	µg/L
Toluene	ND	0.5	µg/L
1,2,3-Trichlorobenzene	ND	0.5	µg/L
1,2,4-Trichlorobenzene	ND	0.5	µg/L
1,1,1-Trichloroethane	ND	0.5	µg/L
1,1,2-Trichloroethane	ND	0.5	µg/L
Trichloroethylene	ND	0.5	µg/L
Trichlorofluoromethane	ND	2.5	µg/L
1,2,3-Trichloropropane	ND	0.5	µg/L
1,2,4-Trimethylbenzene	ND	0.5	µg/L
1,3,5-Trimethylbenzene	ND	0.5	µg/L
Vinyl chloride	ND	0.5	µg/L
m,p-Xylene	ND	0.5	µg/L
o-Xylene	ND	0.5	µg/L
MTBE	ND	2.5	µg/L
Ethyl-tert-butylether	ND	2.5	µg/L
Di-isopropylether	ND	2.5	µg/L
tert-amylmethylether	ND	2.5	µg/L
tert-Butylalcohol	ND	25.0	µg/L
Dilution Factor	1		
Surrogate Recoveries:		**QC Limits**	
Dibromofluoromethane	105%	60 - 140	
Toluene-d_8	105%	60 - 140	
4-Bromofluorobenzene	108%	60 - 140	

VOC1-071717-CHECKS

ND= Not Detected

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JONES ENVIRONMENTAL
QUALITY CONTROL INFORMATION

Client:	Dudek & Associates, Inc.	**Report date:**	7/18/2017
Client Address:	605 Third Street	**JEL Ref. No.:**	ST-10911
	Encinitas, CA 92024	**Client Ref. No.:**	10138
Attn:	Derek Reed	**Date Sampled:**	7/13/2017
		Date Received:	7/14/2017
Project:	West Hills Ph. II	**Date Analyzed:**	7/17/2017
Project Address:	West Hills, CA	**Physical State:**	Water

EPA 8260B by 5030B – Volatile Organics by GC/MS + Oxygenates

Sample Spiked: Clean Water **GC#:** VOC1-071717-CHECKS

JEL ID:	**071717-V1MS1**	**071717-V1MSD1**			**071717-V1LCS1**	
Parameter	MS Recovery (%)	MSD Recovery (%)	RPD	Acceptability Range (%)	LCS	Acceptability Range (%)
Vinyl Chloride	110%	101%	8.3%	60 - 140	114%	70 - 130
1,1-Dichloroethylene	96%	93%	3.6%	60 - 140	102%	70 - 130
Cis-1,2-Dichloroethene	114%	109%	4.6%	70 - 130	114%	70 - 130
1,1,1-Trichloroethane	107%	99%	7.4%	70 - 130	106%	70 - 130
Benzene	104%	98%	5.6%	70 - 130	105%	70 - 130
Trichloroethylene	103%	98%	5.8%	70 - 130	106%	70 - 130
Toluene	108%	104%	3.3%	70 - 130	108%	70 - 130
Tetrachloroethene	92%	86%	6.6%	70 - 130	99%	70 - 130
Chlorobenzene	100%	99%	1.4%	70 - 130	103%	70 - 130
Ethylbenzene	106%	102%	3.9%	70 - 130	107%	70 - 130
1,2,4 Trimethylbenzene	105%	96%	8.7%	70 - 130	107%	70 - 130
Surrogate Recovery:						
Dibromofluoromethane	91%	92%		60 - 140	88%	60 - 140
Toluene-d_8	102%	103%		60 - 140	100%	60 - 140
4-Bromofluorobenzene	106%	107%		60 - 140	105%	60 - 140

MS = Matrix Spike
MSD = Matrix Spike Duplicate
RPD = Relative Percent Difference; Acceptability range for RPD is ≤ 15%

DUDEK
605 Third Street
Encinitas, CA 92024
Tel: 760-942-5147
Fax: 760-942-5206

Chain - of - Custody Form

ST-10911

Laboratory: Jones | Lab Job #:
Lab Contact: Colby Wakemem | Shipping Method: FedEx
Project Manager: D Reed | PM Email: dreed @dudek.com

Project Name: West Hills Ph. II
Job Number: 10138
Sampled by: C. KOUBA
Sampler Signature:

Sample ID	Sample Collection: Date	Sample Collection: Time	Matrix: Water	Matrix: Soil	Method Preserved: HCL	Method Preserved: HNO_3	Method Preserved: NONE	Method Preserved: Filtered (Y/N)	Number of Sample Container: 40 mL glass VOA	Number of Sample Container: ___oz. Glass Jar	Number of Sample Container: ___Amber	Type of Analysis to be Performed: EPA 8260B VOCs	EPA 8270C 1,4-Dioxane	EPA 8270 SVOCs	EPA 8081A Chlorinated Pesticides	EPA 8015M TPH (CC / GRO / DRO / Motor Oil)	TDS	6010B/7471 Metals	TAT: Standard Turn-Around Time	TAT: 24 hr 48 hr 72 hr Other:	Special Instructions
ST-10911-01 DHP-1-25	7/13/17	0920	X		X				3			X							X		LAB FILTERED
ST-10911-02 DHP-2-29	7/13/17	1000	X		X				3			X							X		Lab Filtered
ST-10911-03 DHP-3-28	7/13/17	1050	X		X				3			X							X		Lab Filtered
ST-10911-04 TB-1	7/13/17	1045	X		X				3			*							*		*HOLD
ST-10911-05 DHP-4-26	7/13/17	1140	X		X				3			X							X		Lab Filtered
ST-10911-06 DHP-5-27	7/13/17	1240	X		X				3			X							X		Lab Filtered
ST-10911-07 DHP-6-29	7/13/17	1315	X		X				3			X							X		Lab Filtered
Total # of containers per type									21			Total # of containers						21			Please return original COC to Dudek

Relinquished by:	Company	Date	Time	Received by:	Company	Date	Time	Sample Receipt
	Dudek	7/13/17	1430		Jones	7/14/17	0957	☒ Samples Intact — 1 VOA in DHP-5-27 was broken
								☒ Cooler Temp: 3.5 °C
								☒ Conforms to COC

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SAMPLE RECEIPT FORM

Jones ID: ST-10911

CLIENT: Dudek
DATE/TIME: 7/14/17 0957
PROJECT: West Hills Ph. II
RECEIVED BY: Stephanie Jackson

Delivered by: ☐ Client ☐ Jones Courier ☒ UPS / FedEx / USPS ☐ Other

TEMPERATURE: Temp Criteria = 6°C > Temp > 0°C (NO frozen containers)

Temperature Cooler #1 3.5 °C ± 0.1°C Blank Sample

Temperature Cooler #2 ____.____ °C ± 0.1°C Blank Sample

☒ Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling.

☐ Sample(s) outside temperature criteria. *

☐ Samples not received on ice.*

Ambient Temperature: 25.4 °C Checked by: SJ

SAMPLE CONDITION:	YES	NO*	N/A
Chain of Custody (COC) document(s) received complete with samples--------	☒	☐	☐
☐ Collection date, collection time, matrix, and/or # of containers logged in based on sample labels missing. (circle)			
☐ No analysis requested. ☐ Not relinquished. ☐ No date/time relinquished.			
Sample container label(s) consistent with COC----------	☒	☐	☐
Total number of containers received match COC----------	☒	☐	☐
Sample container(s) intact and in good condition----------	☐	☒	☐
Proper containers and sufficient volume for analyses requested----------	☒	☐	☐
Volatile analysis container(s) free of headspace----------	☒	☐	☐
Proper preservation for analyses requested----------	☒	☐	☐
Custody Seals Intact on Cooler/Sample----------	☐	☐	☒

CONTAINER TYPE:

Solid: ~~VOA~~, Sleeves Aqueous: VOA

SJ 7/14/17

*Complete Non-Conformance if checked Checked by: SJ

Comments:

Sample DHP-5-27 has a broken VOA

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SAMPLE NON-CONFORMANCE

Jones ID: ST-10911

CLIENT: Dudek
PROJECT: West Hills Ph II

DATE/TIME: 7/14/17 0957
REPORTED BY: Stephanie Jackson
Non-Conformance ID:

1) Coolers
   a) Not received (received COC only)
   b) Leaking/Damaged
   c) Other:
2) Custody Seals
   a) None
   b) Not intact
3) Temperature (Temp criteria = 6°C > Temp > 0°C)
   a) Sample Temp(s)
   b) Cooler Temp(s)
   c) Temperature Blank(s)
4) Chain of Custody (COC)
   a) Not relinquished by client
   b) No date/time relinquished
   c) Incomplete information provided
   d) COC not received – notify PM
5) Containers
   a) Leaking
   b) Broken
   c) Extra
   d) Missing
6) Labels
   a) Not the same sample ID / info as on the COC
   b) Incomplete information
   c) Markings / Info illegible
7) Samples
   a) Incorrect sample ID
   b) Incorrect sampling Date/Time
   c) Samples not received but listed on COC
   d) Samples received but not listed on COC
   e) Logged based on Label Information and not COC
   f) Logged according to Work Plan and not COC
   g) Logged in, on hold until further notice
   h) Insufficient quantities for analysis
   i) Improper container used
   j) Mislabeled as to tests, preservatives, etc.
   k) Holding time expired – list sample ID and test
   l) Not preserved/Improper preservative used
   m) Without labels, no information on containers
   n) Other (see comments)

Checked by: SJ

Comments:

1 VOA in DHP-5-27 was broken when recieved.

APPENDIX C

JONES ENVIRONMENTAL, INC.

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JONES ENVIRONMENTAL
LABORATORY RESULTS

Client:	Dudek & Associates, Inc.	**Report date:**	7/12/2017
Client Address:	605 Third Street Encinitas, CA 92024	**JEL Ref. No.:** **Client Ref. No:**	ST-10880 10138
Attn:	Susie Smith	**Date Sampled:** **Date Received:**	7/7/2017 7/7/2017
Project:	West Hills	**Date Analyzed:**	7/10-11/2017
Project Address:	23233 Saticoy St. West Hills, CA	**Physical State:**	Soil

ANALYSES REQUESTED

1. EPA 6010B by 3050B and EPA 7471A – CAM 17 Metals
2. EPA 8081A by 3546 – Chlorinated Pesticides by GC/ECD

Approval:

Carolyn Carroll
Stationary Lab Manager

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JONES ENVIRONMENTAL LABORATORY RESULTS

Client:	Dudek & Associates, Inc.	**Report date:**	7/12/2017
Client Address:	605 Third Street	**JEL Ref. No.:**	ST-10880
	Encinitas, CA 92024	**Client Ref. No.:**	10138
Attn:	Susie Smith	**Date Sampled:**	7/7/2017
		Date Received:	7/7/2017
Project:	West Hills	**Date Analyzed:**	7/10-11/2017
Project Address:	23233 Saticoy St.	**Physical State:**	Soil
	West Hills, CA		

Sample ID: **DSV-15-1** **JEL ID:** **ST-10880-01**

EPA 6010B by 3050 - Title 22 CAM 17 Trace Metals by ICP-OES

Analytes:	Result	Dilution	Batch	Prepared	Analyzed	Practical Quantitation Limit	Units
Silver, Ag	ND	1	I17071001	7/10/2017	7/10/2017	0.5	mg/kg
Arsenic, As	**4.1**	1	"	"	"	0.5	mg/kg
Barium, Ba	**67.0**	1	"	"	"	0.5	mg/kg
Beryllium, Be	ND	1	"	"	"	0.5	mg/kg
Cadmium, Cd	**0.7**	1	"	"	"	0.5	mg/kg
Cobalt, Co	**6.2**	1	"	"	"	0.5	mg/kg
Chromium, Cr	**18.6**	1	"	"	"	0.5	mg/kg
Copper, Cu	**10.4**	1	"	"	"	0.5	mg/kg
Molybdenum, Mo	ND	1	"	"	"	0.5	mg/kg
Nickel, Ni	**15.1**	1	"	"	"	0.5	mg/kg
Lead, Pb	**6.3**	1	"	"	"	0.5	mg/kg
Antimony, Sb	ND	1	"	"	"	0.5	mg/kg
Selenium, Se	ND	1	"	"	"	0.5	mg/kg
Thallium, Tl	ND	1	"	"	"	0.5	mg/kg
Vanadium, V	**34.5**	1	"	"	"	0.5	mg/kg
Zinc, Zn	**51.6**	1	"	"	"	0.5	mg/kg

EPA 7471A - Mercury by Cold Vapor Atomic Absorption

	Result	Dilution	Batch	Prepared	Analyzed	Practical Quantitation Limit	Units
Mercury, Hg	ND	1	H17071001	7/10/2017	7/10/2017	0.020	mg/kg

ND= Not Detected

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JONES ENVIRONMENTAL LABORATORY RESULTS

Client:	Dudek & Associates, Inc.	**Report date:**	7/12/2017
Client Address:	605 Third Street	**JEL Ref. No.:**	ST-10880
	Encinitas, CA 92024	**Client Ref. No.:**	10138
Attn:	Susie Smith	**Date Sampled:**	7/7/2017
		Date Received:	7/7/2017
Project:	West Hills	**Date Analyzed:**	7/10-11/2017
Project Address:	23233 Saticoy St.	**Physical State:**	Soil
	West Hills, CA		

Sample ID: **DSV-15-3** **JEL ID:** **ST-10880-02**

EPA 6010B by 3050 - Title 22 CAM 17 Trace Metals by ICP-OES

Analytes:	Result	Dilution	Batch	Prepared	Analyzed	Practical Quantitation Limit	Units
Silver, Ag	ND	1	I17071001	7/10/2017	7/10/2017	0.5	mg/kg
Arsenic, As	**4.6**	1	"	"	"	0.5	mg/kg
Barium, Ba	**70.1**	1	"	"	"	0.5	mg/kg
Beryllium, Be	ND	1	"	"	"	0.5	mg/kg
Cadmium, Cd	ND	1	"	"	"	0.5	mg/kg
Cobalt, Co	**6.1**	1	"	"	"	0.5	mg/kg
Chromium, Cr	**15.6**	1	"	"	"	0.5	mg/kg
Copper, Cu	**7.1**	1	"	"	"	0.5	mg/kg
Molybdenum, Mo	ND	1	"	"	"	0.5	mg/kg
Nickel, Ni	**11.9**	1	"	"	"	0.5	mg/kg
Lead, Pb	**5.3**	1	"	"	"	0.5	mg/kg
Antimony, Sb	ND	1	"	"	"	0.5	mg/kg
Selenium, Se	ND	1	"	"	"	0.5	mg/kg
Thallium, Tl	ND	1	"	"	"	0.5	mg/kg
Vanadium, V	**27.3**	1	"	"	"	0.5	mg/kg
Zinc, Zn	**46.9**	1	"	"	"	0.5	mg/kg

EPA 7471A - Mercury by Cold Vapor Atomic Absorption

	Result	Dilution	Batch	Prepared	Analyzed	Practical Quantitation Limit	Units
Mercury, Hg	ND	1	H17071001	7/10/2017	7/10/2017	0.020	mg/kg

ND= Not Detected

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JONES ENVIRONMENTAL LABORATORY RESULTS

Client:	Dudek & Associates, Inc.	**Report date:**	7/12/2017
Client Address:	605 Third Street	**JEL Ref. No.:**	ST-10880
	Encinitas, CA 92024	**Client Ref. No.:**	10138
Attn:	Susie Smith	**Date Sampled:**	7/7/2017
		Date Received:	7/7/2017
Project:	West Hills	**Date Analyzed:**	7/10-11/2017
Project Address:	23233 Saticoy St.	**Physical State:**	Soil
	West Hills, CA		

Sample ID: **DSV-13-1** **JEL ID:** **ST-10880-03**

EPA 6010B by 3050 - Title 22 CAM 17 Trace Metals by ICP-OES

	Result	Dilution	Batch	Prepared	Analyzed	Practical Quantitation Limit	Units
Analytes:							
Silver, Ag	ND	1	I17071001	7/10/2017	7/10/2017	0.5	mg/kg
Arsenic, As	**3.4**	1	"	"	"	0.5	mg/kg
Barium, Ba	**61.2**	1	"	"	"	0.5	mg/kg
Beryllium, Be	ND	1	"	"	"	0.5	mg/kg
Cadmium, Cd	ND	1	"	"	"	0.5	mg/kg
Cobalt, Co	**5.1**	1	"	"	"	0.5	mg/kg
Chromium, Cr	**13.7**	1	"	"	"	0.5	mg/kg
Copper, Cu	**8.4**	1	"	"	"	0.5	mg/kg
Molybdenum, Mo	ND	1	"	"	"	0.5	mg/kg
Nickel, Ni	**10.9**	1	"	"	"	0.5	mg/kg
Lead, Pb	**7.3**	1	"	"	"	0.5	mg/kg
Antimony, Sb	ND	1	"	"	"	0.5	mg/kg
Selenium, Se	ND	1	"	"	"	0.5	mg/kg
Thallium, Tl	ND	1	"	"	"	0.5	mg/kg
Vanadium, V	**24.9**	1	"	"	"	0.5	mg/kg
Zinc, Zn	**53.7**	1	"	"	"	0.5	mg/kg

EPA 7471A - Mercury by Cold Vapor Atomic Absorption

	Result	Dilution	Batch	Prepared	Analyzed	Practical Quantitation Limit	Units
Mercury, Hg	ND	1	H17071001	7/10/2017	7/10/2017	0.020	mg/kg

ND= Not Detected

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JONES ENVIRONMENTAL LABORATORY RESULTS

Client:	Dudek & Associates, Inc.	**Report date:**	7/12/2017
Client Address:	605 Third Street	**JEL Ref. No.:**	ST-10880
	Encinitas, CA 92024	**Client Ref. No.:**	10138
Attn:	Susie Smith	**Date Sampled:**	7/7/2017
		Date Received:	7/7/2017
Project:	West Hills	**Date Analyzed:**	7/10-11/2017
Project Address:	23233 Saticoy St.	**Physical State:**	Soil
	West Hills, CA		

Sample ID: **DSV-13-3** **JEL ID:** **ST-10880-04**

EPA 6010B by 3050 - Title 22 CAM 17 Trace Metals by ICP-OES

	Result	Dilution	Batch	Prepared	Analyzed	Practical Quantitation Limit	Units
Analytes:							
Silver, Ag	ND	1	I17071001	7/10/2017	7/10/2017	0.5	mg/kg
Arsenic, As	**5.6**	1	"	"	"	0.5	mg/kg
Barium, Ba	**84.5**	1	"	"	"	0.5	mg/kg
Beryllium, Be	ND	1	"	"	"	0.5	mg/kg
Cadmium, Cd	ND	1	"	"	"	0.5	mg/kg
Cobalt, Co	**7.7**	1	"	"	"	0.5	mg/kg
Chromium, Cr	**21.2**	1	"	"	"	0.5	mg/kg
Copper, Cu	**8.4**	1	"	"	"	0.5	mg/kg
Molybdenum, Mo	ND	1	"	"	"	0.5	mg/kg
Nickel, Ni	**16.4**	1	"	"	"	0.5	mg/kg
Lead, Pb	**7.1**	1	"	"	"	0.5	mg/kg
Antimony, Sb	ND	1	"	"	"	0.5	mg/kg
Selenium, Se	ND	1	"	"	"	0.5	mg/kg
Thallium, Tl	ND	1	"	"	"	0.5	mg/kg
Vanadium, V	**36.4**	1	"	"	"	0.5	mg/kg
Zinc, Zn	**57.2**	1	"	"	"	0.5	mg/kg

EPA 7471A - Mercury by Cold Vapor Atomic Absorption

	Result	Dilution	Batch	Prepared	Analyzed	Practical Quantitation Limit	Units
Mercury, Hg	ND	1	H17071001	7/10/2017	7/10/2017	0.020	mg/kg

ND= Not Detected

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JONES ENVIRONMENTAL LABORATORY RESULTS

Client:	Dudek & Associates, Inc.	**Report date:**	7/12/2017
Client Address:	605 Third Street	**JEL Ref. No.:**	ST-10880
	Encinitas, CA 92024	**Client Ref. No.:**	10138
Attn:	Susie Smith	**Date Sampled:**	7/7/2017
		Date Received:	7/7/2017
Project:	West Hills	**Date Analyzed:**	7/10-11/2017
Project Address:	23233 Saticoy St.	**Physical State:**	Soil
	West Hills, CA		

Sample ID: **DSV-20-1** **JEL ID:** **ST-10880-05**

EPA 6010B by 3050 - Title 22 CAM 17 Trace Metals by ICP-OES

	Result	Dilution	Batch	Prepared	Analyzed	Practical Quantitation Limit	Units
Analytes:							
Silver, Ag	ND	1	I17071001	7/10/2017	7/10/2017	0.5	mg/kg
Arsenic, As	**4.3**	1	"	"	"	0.5	mg/kg
Barium, Ba	**61.6**	1	"	"	"	0.5	mg/kg
Beryllium, Be	ND	1	"	"	"	0.5	mg/kg
Cadmium, Cd	ND	1	"	"	"	0.5	mg/kg
Cobalt, Co	**5.6**	1	"	"	"	0.5	mg/kg
Chromium, Cr	**15.1**	1	"	"	"	0.5	mg/kg
Copper, Cu	**7.8**	1	"	"	"	0.5	mg/kg
Molybdenum, Mo	ND	1	"	"	"	0.5	mg/kg
Nickel, Ni	**11.4**	1	"	"	"	0.5	mg/kg
Lead, Pb	**8.1**	1	"	"	"	0.5	mg/kg
Antimony, Sb	ND	1	"	"	"	0.5	mg/kg
Selenium, Se	ND	1	"	"	"	0.5	mg/kg
Thallium, Tl	ND	1	"	"	"	0.5	mg/kg
Vanadium, V	**26.9**	1	"	"	"	0.5	mg/kg
Zinc, Zn	**53.9**	1	"	"	"	0.5	mg/kg

EPA 7471A - Mercury by Cold Vapor Atomic Absorption

	Result	Dilution	Batch	Prepared	Analyzed	Practical Quantitation Limit	Units
Mercury, Hg	ND	1	H17071001	7/10/2017	7/10/2017	0.020	mg/kg

ND= Not Detected

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JONES ENVIRONMENTAL LABORATORY RESULTS

Client:	Dudek & Associates, Inc.	**Report date:**	7/12/2017
Client Address:	605 Third Street	**JEL Ref. No.:**	ST-10880
	Encinitas, CA 92024	**Client Ref. No.:**	10138
Attn:	Susie Smith	**Date Sampled:**	7/7/2017
		Date Received:	7/7/2017
Project:	West Hills	**Date Analyzed:**	7/10-11/2017
Project Address:	23233 Saticoy St.	**Physical State:**	Soil
	West Hills, CA		

Sample ID: **DSV-20-3** **JEL ID:** **ST-10880-06**

EPA 6010B by 3050 - Title 22 CAM 17 Trace Metals by ICP-OES

	Result	Dilution	Batch	Prepared	Analyzed	Practical Quantitation Limit	Units
Analytes:							
Silver, Ag	ND	1	I17071001	7/10/2017	7/10/2017	0.5	mg/kg
Arsenic, As	**4.1**	1	"	"	"	0.5	mg/kg
Barium, Ba	**74.9**	1	"	"	"	0.5	mg/kg
Beryllium, Be	ND	1	"	"	"	0.5	mg/kg
Cadmium, Cd	ND	1	"	"	"	0.5	mg/kg
Cobalt, Co	**6.5**	1	"	"	"	0.5	mg/kg
Chromium, Cr	**17.4**	1	"	"	"	0.5	mg/kg
Copper, Cu	**8.4**	1	"	"	"	0.5	mg/kg
Molybdenum, Mo	ND	1	"	"	"	0.5	mg/kg
Nickel, Ni	**12.9**	1	"	"	"	0.5	mg/kg
Lead, Pb	**10.3**	1	"	"	"	0.5	mg/kg
Antimony, Sb	ND	1	"	"	"	0.5	mg/kg
Selenium, Se	ND	1	"	"	"	0.5	mg/kg
Thallium, Tl	ND	1	"	"	"	0.5	mg/kg
Vanadium, V	**30.9**	1	"	"	"	0.5	mg/kg
Zinc, Zn	**64.4**	1	"	"	"	0.5	mg/kg

EPA 7471A - Mercury by Cold Vapor Atomic Absorption

	Result	Dilution	Batch	Prepared	Analyzed	Practical Quantitation Limit	Units
Mercury, Hg	ND	1	H17071001	7/10/2017	7/10/2017	0.020	mg/kg

ND= Not Detected

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JONES ENVIRONMENTAL LABORATORY RESULTS

Client:	Dudek & Associates, Inc.	**Report date:**	7/12/2017
Client Address:	605 Third Street	**JEL Ref. No.:**	ST-10880
	Encinitas, CA 92024	**Client Ref. No.:**	10138
Attn:	Susie Smith	**Date Sampled:**	7/7/2017
		Date Received:	7/7/2017
Project:	West Hills	**Date Analyzed:**	7/10-11/2017
Project Address:	23233 Saticoy St.	**Physical State:**	Soil
	West Hills, CA		

Sample ID: **DSV-18-1** **JEL ID:** **ST-10880-07**

EPA 6010B by 3050 - Title 22 CAM 17 Trace Metals by ICP-OES

	Result	Dilution	Batch	Prepared	Analyzed	Practical Quantitation Limit	Units
Analytes:							
Silver, Ag	ND	1	I17071001	7/10/2017	7/10/2017	0.5	mg/kg
Arsenic, As	**4.0**	1	"	"	"	0.5	mg/kg
Barium, Ba	**72.9**	1	"	"	"	0.5	mg/kg
Beryllium, Be	ND	1	"	"	"	0.5	mg/kg
Cadmium, Cd	ND	1	"	"	"	0.5	mg/kg
Cobalt, Co	**5.6**	1	"	"	"	0.5	mg/kg
Chromium, Cr	**15.0**	1	"	"	"	0.5	mg/kg
Copper, Cu	**9.2**	1	"	"	"	0.5	mg/kg
Molybdenum, Mo	ND	1	"	"	"	0.5	mg/kg
Nickel, Ni	**12.0**	1	"	"	"	0.5	mg/kg
Lead, Pb	**8.5**	1	"	"	"	0.5	mg/kg
Antimony, Sb	ND	1	"	"	"	0.5	mg/kg
Selenium, Se	ND	1	"	"	"	0.5	mg/kg
Thallium, Tl	ND	1	"	"	"	0.5	mg/kg
Vanadium, V	**27.2**	1	"	"	"	0.5	mg/kg
Zinc, Zn	**62.9**	1	"	"	"	0.5	mg/kg

EPA 7471A - Mercury by Cold Vapor Atomic Absorption

	Result	Dilution	Batch	Prepared	Analyzed	Practical Quantitation Limit	Units
Mercury, Hg	ND	1	H17071001	7/10/2017	7/10/2017	0.020	mg/kg

ND= Not Detected

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JONES ENVIRONMENTAL LABORATORY RESULTS

Client:	Dudek & Associates, Inc.	**Report date:**	7/12/2017
Client Address:	605 Third Street	**JEL Ref. No.:**	ST-10880
	Encinitas, CA 92024	**Client Ref. No.:**	10138
Attn:	Susie Smith	**Date Sampled:**	7/7/2017
		Date Received:	7/7/2017
Project:	West Hills	**Date Analyzed:**	7/10-11/2017
Project Address:	23233 Saticoy St.	**Physical State:**	Soil
	West Hills, CA		

Sample ID: **DSV-18-3** **JEL ID:** **ST-10880-08**

EPA 6010B by 3050 - Title 22 CAM 17 Trace Metals by ICP-OES

	Result	Dilution	Batch	Prepared	Analyzed	Practical Quantitation Limit	Units
Analytes:							
Silver, Ag	ND	1	I17071001	7/10/2017	7/10/2017	0.5	mg/kg
Arsenic, As	**3.7**	1	"	"	"	0.5	mg/kg
Barium, Ba	**76.7**	1	"	"	"	0.5	mg/kg
Beryllium, Be	ND	1	"	"	"	0.5	mg/kg
Cadmium, Cd	ND	1	"	"	"	0.5	mg/kg
Cobalt, Co	**6.4**	1	"	"	"	0.5	mg/kg
Chromium, Cr	**16.9**	1	"	"	"	0.5	mg/kg
Copper, Cu	**6.8**	1	"	"	"	0.5	mg/kg
Molybdenum, Mo	ND	1	"	"	"	0.5	mg/kg
Nickel, Ni	**12.7**	1	"	"	"	0.5	mg/kg
Lead, Pb	**5.2**	1	"	"	"	0.5	mg/kg
Antimony, Sb	ND	1	"	"	"	0.5	mg/kg
Selenium, Se	ND	1	"	"	"	0.5	mg/kg
Thallium, Tl	ND	1	"	"	"	0.5	mg/kg
Vanadium, V	**29.7**	1	"	"	"	0.5	mg/kg
Zinc, Zn	**48.9**	1	"	"	"	0.5	mg/kg

EPA 7471A - Mercury by Cold Vapor Atomic Absorption

	Result	Dilution	Batch	Prepared	Analyzed	Practical Quantitation Limit	Units
Mercury, Hg	ND	1	H17071001	7/10/2017	7/10/2017	0.020	mg/kg

ND= Not Detected

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JONES ENVIRONMENTAL QUALITY CONTROL INFORMATION

Client:	Dudek & Associates, Inc.	**Report date:**	7/12/2017
Client Address:	605 Third Street	**JEL Ref. No.:**	ST-10880
	Encinitas, CA 92024	**Client Ref. No.:**	10138
Attn:	Susie Smith	**Date Sampled:**	7/7/2017
		Date Received:	7/7/2017
Project:	West Hills	**Date Analyzed:**	7/10-11/2017
Project Address:	23233 Saticoy St.	**Physical State:**	Soil
	West Hills, CA		

BATCH: **I17071001** **Prepared:** 7/10/2017 **Analyzed:** 7/10/2017

EPA 6010B by 3050 - Title 22 CAM 17 Trace Metals by ICP-OES

	Result	Spike Level	% REC	% REC Limits	% RPD	Practical Quantitation Limit	Units
METHOD BLANK:	**I170710-BLK1**						
Analytes:							
Silver, Ag	ND					0.5	mg/kg
Arsenic, As	ND					0.5	mg/kg
Barium, Ba	ND					0.5	mg/kg
Beryllium, Be	ND					0.5	mg/kg
Cadmium, Cd	ND					0.5	mg/kg
Cobalt, Co	ND					0.5	mg/kg
Chromium, Cr	ND					0.5	mg/kg
Copper, Cu	ND					0.5	mg/kg
Molybdenum, Mo	ND					0.5	mg/kg
Nickel, Ni	ND					0.5	mg/kg
Lead, Pb	ND					0.5	mg/kg
Antimony, Sb	ND					0.5	mg/kg
Selenium, Se	ND					0.5	mg/kg
Thallium, Tl	ND					0.5	mg/kg
Vanadium, V	ND					0.5	mg/kg
Zinc, Zn	ND					0.5	mg/kg

ND= Not Detected

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JONES ENVIRONMENTAL QUALITY CONTROL INFORMATION

Client:	Dudek & Associates, Inc.	**Report date:**	7/12/2017
Client Address:	605 Third Street	**JEL Ref. No.:**	ST-10880
	Encinitas, CA 92024	**Client Ref. No.:**	10138
Attn:	Susie Smith	**Date Sampled:**	7/7/2017
		Date Received:	7/7/2017
Project:	West Hills	**Date Analyzed:**	7/10-11/2017
Project Address:	23233 Saticoy St.	**Physical State:**	Soil
	West Hills, CA		

BATCH: **I17071001** **Prepared:** 7/10/2017 **Analyzed:** 7/10/2017

EPA 6010B by 3050 - Title 22 CAM 17 Trace Metals by ICP-OES

	Result	Spike Level	Source Result	% REC	% RPD	% REC Limits	Units
LCS:	**I170710-LCS1**						
Analytes:							
Barium, Ba	**194**	200		97%		80 - 120	mg/kg
Cobalt, Co	**49.9**	50.0		100%		80 - 120	mg/kg
Lead, Pb	**50.9**	50.0		102%		80 - 120	mg/kg
Selenium, Se	**173**	200		173%		80 - 120	mg/kg
Zinc, Zn	**53.8**	50.0		108%		80 - 120	mg/kg
LCSD:	**I170710-LCSD1**						
Barium, Ba	**196**	200		98%	1.0%	80 - 120	mg/kg
Cobalt, Co	**49.4**	50.0		99%	1.0%	80 - 120	mg/kg
Lead, Pb	**50.4**	50.0		101%	1.0%	80 - 120	mg/kg
Selenium, Se	**171**	200		86%	1.2%	80 - 120	mg/kg
Zinc, Zn	**48.1**	50.0		96%	11.2%	80 - 120	mg/kg

ND= Not Detected

RPD = Relative Percent Difference; Acceptability range for RPD is ≤ 15%

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JONES ENVIRONMENTAL QUALITY CONTROL INFORMATION

Client:	Dudek & Associates, Inc.	**Report date:**	7/12/2017
Client Address:	605 Third Street	**JEL Ref. No.:**	ST-10880
	Encinitas, CA 92024	**Client Ref. No.:**	10138
Attn:	Susie Smith	**Date Sampled:**	7/7/2017
		Date Received:	7/7/2017
Project:	West Hills	**Date Analyzed:**	7/10-11/2017
Project Address:	23233 Saticoy St.	**Physical State:**	Soil
	West Hills, CA		

BATCH: **H17071001** **Prepared:** 7/10/2017 **Analyzed:** 7/11/2017

EPA 7471A - Mercury by Cold Vapor Atomic Absorption

	Result	Spike Level	Source Result	% REC	% RPD	% REC Limits	Units
METHOD BLANK:	**H170710-BLK1**						
Analytes:							
Mercury, Hg	ND						mg/kg
LCS:	**H170710-LCS1**						
Mercury, Hg	**1.01**	1.00		101%		80 - 120	mg/kg
LCSD:	**H170710-LCSD1**						
Mercury, Hg	**1.01**	1.00		101%	**0.1%**	80 - 120	mg/kg

ND= Not Detected

RPD = Relative Percent Difference; Acceptability range for RPD is ≤ 15%

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JONES ENVIRONMENTAL LABORATORY RESULTS

Client:	Dudek & Associates, Inc.	**Report date:**	7/12/2017
Client Address:	605 Third Street Encinitas, CA 92024	**JEL Ref. No.:** **Client Ref. No.:**	ST-10880 10138
Attn:	Susie Smith	**Date Sampled:** **Date Received:**	7/7/2017 7/7/2017
Project:	West Hills	**Date Analyzed:**	7/10/2017
Project Address:	23233 Saticoy St. West Hills, CA	**Physical State:**	Soil

Sample ID: **DSV-15-1** **JEL ID:** **ST-10880-01**

EPA 8081A by 3546 – Chlorinated Pesticides by GC/ECD

Analytes:	Result	Dilution	Batch	Prepared	Analyzed	Practical Quantitation Limit	Units
Aldrin	ND	1	8081_170710_01	7/10/2017	7/10/2017	10	µg/kg
α-BHC	ND	1	"	"	"	10	µg/kg
β-BHC	ND	1	"	"	"	10	µg/kg
γ-BHC (Lindane)	ND	1	"	"	"	10	µg/kg
δ-BHC	ND	1	"	"	"	10	µg/kg
γ-Chlordane	ND	1	"	"	"	10	µg/kg
α-Chlordane	ND	1	"	"	"	10	µg/kg
4,4'-DDD	ND	1	"	"	"	10	µg/kg
4,4'-DDE	ND	1	"	"	"	10	µg/kg
4,4'-DDT	ND	1	"	"	"	10	µg/kg
Dieldrin	ND	1	"	"	"	10	µg/kg
Endosulfan I	ND	1	"	"	"	10	µg/kg
Endosulfan II	ND	1	"	"	"	10	µg/kg
Endosulfan sulfate	ND	1	"	"	"	10	µg/kg
Endrin	ND	1	"	"	"	10	µg/kg
Endrin aldehyde	ND	1	"	"	"	10	µg/kg
Endrin ketone	ND	1	"	"	"	10	µg/kg
Heptachlor	ND	1	"	"	"	10	µg/kg
Heptachlor epoxide	ND	1	"	"	"	10	µg/kg
Methoxychlor	ND	1	"	"	"	20	µg/kg

Surrogate Recoveries:		QC Limits
TCMX	46%	30 - 120
Decachlorobiphenyl	45%	30 - 120

ND = Not Detected

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JONES ENVIRONMENTAL LABORATORY RESULTS

Client:	Dudek & Associates, Inc.	**Report date:**	7/12/2017
Client Address:	605 Third Street Encinitas, CA 92024	**JEL Ref. No.:** **Client Ref. No.:**	ST-10880 10138
Attn:	Susie Smith	**Date Sampled:**	7/7/2017
		Date Received:	7/7/2017
Project:	West Hills	**Date Analyzed:**	7/10/2017
Project Address:	23233 Saticoy St. West Hills, CA	**Physical State:**	Soil

Sample ID: **DSV-15-3** **JEL ID:** **ST-10880-02**

EPA 8081A by 3546 – Chlorinated Pesticides by GC/ECD

Analytes:	Result	Dilution	Batch	Prepared	Analyzed	Practical Quantitation Limit	Units
Aldrin	ND	1	8081_170710_01	7/10/2017	7/10/2017	10	µg/kg
α-BHC	ND	1	"	"	"	10	µg/kg
β-BHC	ND	1	"	"	"	10	µg/kg
γ-BHC (Lindane)	ND	1	"	"	"	10	µg/kg
δ-BHC	ND	1	"	"	"	10	µg/kg
γ-Chlordane	ND	1	"	"	"	10	µg/kg
α-Chlordane	ND	1	"	"	"	10	µg/kg
4,4'-DDD	ND	1	"	"	"	10	µg/kg
4,4'-DDE	ND	1	"	"	"	10	µg/kg
4,4'-DDT	ND	1	"	"	"	10	µg/kg
Dieldrin	ND	1	"	"	"	10	µg/kg
Endosulfan I	ND	1	"	"	"	10	µg/kg
Endosulfan II	ND	1	"	"	"	10	µg/kg
Endosulfan sulfate	ND	1	"	"	"	10	µg/kg
Endrin	ND	1	"	"	"	10	µg/kg
Endrin aldehyde	ND	1	"	"	"	10	µg/kg
Endrin ketone	ND	1	"	"	"	10	µg/kg
Heptachlor	ND	1	"	"	"	10	µg/kg
Heptachlor epoxide	ND	1	"	"	"	10	µg/kg
Methoxychlor	ND	1	"	"	"	20	µg/kg

Surrogate Recoveries:		QC Limits
TCMX	64%	30 - 120
Decachlorobiphenyl	62%	30 - 120

ND = Not Detected

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JONES ENVIRONMENTAL LABORATORY RESULTS

Client:	Dudek & Associates, Inc.	**Report date:**	7/12/2017
Client Address:	605 Third Street Encinitas, CA 92024	**JEL Ref. No.:** **Client Ref. No.:**	ST-10880 10138
Attn:	Susie Smith	**Date Sampled:** **Date Received:**	7/7/2017 7/7/2017
Project:	West Hills	**Date Analyzed:**	7/10/2017
Project Address:	23233 Saticoy St. West Hills, CA	**Physical State:**	Soil

Sample ID: **DSV-13-1** **JEL ID:** **ST-10880-03**

EPA 8081A by 3546 – Chlorinated Pesticides by GC/ECD

Analytes:	Result	Dilution	Batch	Prepared	Analyzed	Practical Quantitation Limit	Units
Aldrin	ND	1	8081_170710_01	7/10/2017	7/10/2017	10	µg/kg
α-BHC	ND	1	"	"	"	10	µg/kg
β-BHC	ND	1	"	"	"	10	µg/kg
γ-BHC (Lindane)	ND	1	"	"	"	10	µg/kg
δ-BHC	ND	1	"	"	"	10	µg/kg
γ-Chlordane	ND	1	"	"	"	10	µg/kg
α-Chlordane	ND	1	"	"	"	10	µg/kg
4,4'-DDD	ND	1	"	"	"	10	µg/kg
4,4'-DDE	ND	1	"	"	"	10	µg/kg
4,4'-DDT	ND	1	"	"	"	10	µg/kg
Dieldrin	ND	1	"	"	"	10	µg/kg
Endosulfan I	ND	1	"	"	"	10	µg/kg
Endosulfan II	ND	1	"	"	"	10	µg/kg
Endosulfan sulfate	ND	1	"	"	"	10	µg/kg
Endrin	ND	1	"	"	"	10	µg/kg
Endrin aldehyde	ND	1	"	"	"	10	µg/kg
Endrin ketone	ND	1	"	"	"	10	µg/kg
Heptachlor	ND	1	"	"	"	10	µg/kg
Heptachlor epoxide	ND	1	"	"	"	10	µg/kg
Methoxychlor	ND	1	"	"	"	20	µg/kg

Surrogate Recoveries:		QC Limits
TCMX	53%	30 - 120
Decachlorobiphenyl	56%	30 - 120

ND = Not Detected

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JONES ENVIRONMENTAL LABORATORY RESULTS

Client:	Dudek & Associates, Inc.	**Report date:**	7/12/2017
Client Address:	605 Third Street Encinitas, CA 92024	**JEL Ref. No.:** **Client Ref. No.:**	ST-10880 10138
Attn:	Susie Smith	**Date Sampled:** **Date Received:**	7/7/2017 7/7/2017
Project:	West Hills	**Date Analyzed:**	7/10/2017
Project Address:	23233 Saticoy St. West Hills, CA	**Physical State:**	Soil

Sample ID: **DSV-13-3** **JEL ID:** **ST-10880-04**

EPA 8081A by 3546 – Chlorinated Pesticides by GC/ECD

Analytes:	Result	Dilution	Batch	Prepared	Analyzed	Practical Quantitation Limit	Units
Aldrin	ND	1	8081_170710_01	7/10/2017	7/10/2017	10	µg/kg
α-BHC	ND	1	"	"	"	10	µg/kg
β-BHC	ND	1	"	"	"	10	µg/kg
γ-BHC (Lindane)	ND	1	"	"	"	10	µg/kg
δ-BHC	ND	1	"	"	"	10	µg/kg
γ-Chlordane	ND	1	"	"	"	10	µg/kg
α-Chlordane	ND	1	"	"	"	10	µg/kg
4,4'-DDD	ND	1	"	"	"	10	µg/kg
4,4'-DDE	ND	1	"	"	"	10	µg/kg
4,4'-DDT	ND	1	"	"	"	10	µg/kg
Dieldrin	ND	1	"	"	"	10	µg/kg
Endosulfan I	ND	1	"	"	"	10	µg/kg
Endosulfan II	ND	1	"	"	"	10	µg/kg
Endosulfan sulfate	ND	1	"	"	"	10	µg/kg
Endrin	ND	1	"	"	"	10	µg/kg
Endrin aldehyde	ND	1	"	"	"	10	µg/kg
Endrin ketone	ND	1	"	"	"	10	µg/kg
Heptachlor	ND	1	"	"	"	10	µg/kg
Heptachlor epoxide	ND	1	"	"	"	10	µg/kg
Methoxychlor	ND	1	"	"	"	20	µg/kg

Surrogate Recoveries:		QC Limits
TCMX	57%	30 - 120
Decachlorobiphenyl	43%	30 - 120

ND = Not Detected

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JONES ENVIRONMENTAL LABORATORY RESULTS

Client:	Dudek & Associates, Inc.	**Report date:**	7/12/2017
Client Address:	605 Third Street Encinitas, CA 92024	**JEL Ref. No.:** **Client Ref. No.:**	ST-10880 10138
Attn:	Susie Smith	**Date Sampled:** **Date Received:**	7/7/2017 7/7/2017
Project:	West Hills	**Date Analyzed:**	7/10/2017
Project Address:	23233 Saticoy St. West Hills, CA	**Physical State:**	Soil

Sample ID: **DSV-20-1** **JEL ID:** **ST-10880-05**

EPA 8081A by 3546 – Chlorinated Pesticides by GC/ECD

Analytes:	Result	Dilution	Batch	Prepared	Analyzed	Practical Quantitation Limit	Units
Aldrin	ND	1	8081_170710_01	7/10/2017	7/10/2017	10	µg/kg
α-BHC	ND	1	"	"	"	10	µg/kg
β-BHC	ND	1	"	"	"	10	µg/kg
γ-BHC (Lindane)	ND	1	"	"	"	10	µg/kg
δ-BHC	ND	1	"	"	"	10	µg/kg
γ-Chlordane	ND	1	"	"	"	10	µg/kg
α-Chlordane	ND	1	"	"	"	10	µg/kg
4,4'-DDD	ND	1	"	"	"	10	µg/kg
4,4'-DDE	ND	1	"	"	"	10	µg/kg
4,4'-DDT	ND	1	"	"	"	10	µg/kg
Dieldrin	ND	1	"	"	"	10	µg/kg
Endosulfan I	ND	1	"	"	"	10	µg/kg
Endosulfan II	ND	1	"	"	"	10	µg/kg
Endosulfan sulfate	ND	1	"	"	"	10	µg/kg
Endrin	ND	1	"	"	"	10	µg/kg
Endrin aldehyde	ND	1	"	"	"	10	µg/kg
Endrin ketone	ND	1	"	"	"	10	µg/kg
Heptachlor	ND	1	"	"	"	10	µg/kg
Heptachlor epoxide	ND	1	"	"	"	10	µg/kg
Methoxychlor	ND	1	"	"	"	20	µg/kg

Surrogate Recoveries:		QC Limits
TCMX	62%	30 - 120
Decachlorobiphenyl	52%	30 - 120

ND = Not Detected

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JONES ENVIRONMENTAL LABORATORY RESULTS

Client:	Dudek & Associates, Inc.	**Report date:**	7/12/2017
Client Address:	605 Third Street Encinitas, CA 92024	**JEL Ref. No.:** **Client Ref. No.:**	ST-10880 10138
Attn:	Susie Smith	**Date Sampled:** **Date Received:**	7/7/2017 7/7/2017
Project:	West Hills	**Date Analyzed:**	7/10/2017
Project Address:	23233 Saticoy St. West Hills, CA	**Physical State:**	Soil

Sample ID: **DSV-20-3** **JEL ID:** **ST-10880-06**

EPA 8081A by 3546 – Chlorinated Pesticides by GC/ECD

Analytes:	Result	Dilution	Batch	Prepared	Analyzed	Practical Quantitation Limit	Units
Aldrin	ND	1	8081_170710_01	7/10/2017	7/10/2017	10	µg/kg
α-BHC	ND	1	"	"	"	10	µg/kg
β-BHC	ND	1	"	"	"	10	µg/kg
γ-BHC (Lindane)	ND	1	"	"	"	10	µg/kg
δ-BHC	ND	1	"	"	"	10	µg/kg
γ-Chlordane	ND	1	"	"	"	10	µg/kg
α-Chlordane	ND	1	"	"	"	10	µg/kg
4,4'-DDD	ND	1	"	"	"	10	µg/kg
4,4'-DDE	ND	1	"	"	"	10	µg/kg
4,4'-DDT	ND	1	"	"	"	10	µg/kg
Dieldrin	ND	1	"	"	"	10	µg/kg
Endosulfan I	ND	1	"	"	"	10	µg/kg
Endosulfan II	ND	1	"	"	"	10	µg/kg
Endosulfan sulfate	ND	1	"	"	"	10	µg/kg
Endrin	ND	1	"	"	"	10	µg/kg
Endrin aldehyde	ND	1	"	"	"	10	µg/kg
Endrin ketone	ND	1	"	"	"	10	µg/kg
Heptachlor	ND	1	"	"	"	10	µg/kg
Heptachlor epoxide	ND	1	"	"	"	10	µg/kg
Methoxychlor	ND	1	"	"	"	20	µg/kg

Surrogate Recoveries:		QC Limits
TCMX	29%	30 - 120
Decachlorobiphenyl	25%	30 - 120

ND = Not Detected

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JONES ENVIRONMENTAL LABORATORY RESULTS

Client:	Dudek & Associates, Inc.	**Report date:**	7/12/2017
Client Address:	605 Third Street Encinitas, CA 92024	**JEL Ref. No.:** **Client Ref. No.:**	ST-10880 10138
Attn:	Susie Smith	**Date Sampled:** **Date Received:**	7/7/2017 7/7/2017
Project:	West Hills	**Date Analyzed:**	7/10/2017
Project Address:	23233 Saticoy St. West Hills, CA	**Physical State:**	Soil

Sample ID: **DSV-18-1** **JEL ID:** **ST-10880-07**

EPA 8081A by 3546 – Chlorinated Pesticides by GC/ECD

Analytes:	Result	Dilution	Batch	Prepared	Analyzed	Practical Quantitation Limit	Units
Aldrin	ND	1	8081_170710_01	7/10/2017	7/10/2017	10	µg/kg
α-BHC	ND	1	"	"	"	10	µg/kg
β-BHC	ND	1	"	"	"	10	µg/kg
γ-BHC (Lindane)	ND	1	"	"	"	10	µg/kg
δ-BHC	ND	1	"	"	"	10	µg/kg
γ-Chlordane	ND	1	"	"	"	10	µg/kg
α-Chlordane	ND	1	"	"	"	10	µg/kg
4,4'-DDD	ND	1	"	"	"	10	µg/kg
4,4'-DDE	ND	1	"	"	"	10	µg/kg
4,4'-DDT	ND	1	"	"	"	10	µg/kg
Dieldrin	ND	1	"	"	"	10	µg/kg
Endosulfan I	ND	1	"	"	"	10	µg/kg
Endosulfan II	ND	1	"	"	"	10	µg/kg
Endosulfan sulfate	ND	1	"	"	"	10	µg/kg
Endrin	ND	1	"	"	"	10	µg/kg
Endrin aldehyde	ND	1	"	"	"	10	µg/kg
Endrin ketone	ND	1	"	"	"	10	µg/kg
Heptachlor	ND	1	"	"	"	10	µg/kg
Heptachlor epoxide	ND	1	"	"	"	10	µg/kg
Methoxychlor	ND	1	"	"	"	20	µg/kg

Surrogate Recoveries:		QC Limits
TCMX	51%	30 - 120
Decachlorobiphenyl	43%	30 - 120

ND = Not Detected

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JONES ENVIRONMENTAL LABORATORY RESULTS

Client:	Dudek & Associates, Inc.	**Report date:**	7/12/2017
Client Address:	605 Third Street Encinitas, CA 92024	**JEL Ref. No.:** **Client Ref. No.:**	ST-10880 10138
Attn:	Susie Smith	**Date Sampled:** **Date Received:**	7/7/2017 7/7/2017
Project:	West Hills	**Date Analyzed:**	7/10/2017
Project Address:	23233 Saticoy St. West Hills, CA	**Physical State:**	Soil

Sample ID: **DSV-18-3** **JEL ID:** **ST-10880-08**

EPA 8081A by 3546 – Chlorinated Pesticides by GC/ECD

Analytes:	Result	Dilution	Batch	Prepared	Analyzed	Practical Quantitation Limit	Units
Aldrin	ND	1	8081_170710_01	7/10/2017	7/10/2017	10	µg/kg
α-BHC	ND	1	"	"	"	10	µg/kg
β-BHC	ND	1	"	"	"	10	µg/kg
γ-BHC (Lindane)	ND	1	"	"	"	10	µg/kg
δ-BHC	ND	1	"	"	"	10	µg/kg
γ-Chlordane	ND	1	"	"	"	10	µg/kg
α-Chlordane	ND	1	"	"	"	10	µg/kg
4,4'-DDD	ND	1	"	"	"	10	µg/kg
4,4'-DDE	ND	1	"	"	"	10	µg/kg
4,4'-DDT	ND	1	"	"	"	10	µg/kg
Dieldrin	ND	1	"	"	"	10	µg/kg
Endosulfan I	ND	1	"	"	"	10	µg/kg
Endosulfan II	ND	1	"	"	"	10	µg/kg
Endosulfan sulfate	ND	1	"	"	"	10	µg/kg
Endrin	ND	1	"	"	"	10	µg/kg
Endrin aldehyde	ND	1	"	"	"	10	µg/kg
Endrin ketone	ND	1	"	"	"	10	µg/kg
Heptachlor	ND	1	"	"	"	10	µg/kg
Heptachlor epoxide	ND	1	"	"	"	10	µg/kg
Methoxychlor	ND	1	"	"	"	20	µg/kg

Surrogate Recoveries:		QC Limits
TCMX	39%	30 - 120
Decachlorobiphenyl	34%	30 - 120

ND = Not Detected

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JONES ENVIRONMENTAL QUALITY CONTROL INFORMATION

Client:	Dudek & Associates, Inc.	**Report date:**	7/12/2017
Client Address:	605 Third Street Encinitas, CA 92024	**JEL Ref. No.:** **Client Ref. No.:**	ST-10880 10138
Attn:	Susie Smith	**Date Sampled:**	7/7/2017
		Date Received:	7/7/2017
Project:	West Hills	**Date Analyzed:**	7/10/2017
Project Address:	23233 Saticoy St. West Hills, CA	**Physical State:**	Soil

Sample ID: **Method Blank** **JEL ID:** **MB-170710_01**

EPA 8081A by 3546 – Chlorinated Pesticides by GC/ECD

Analytes:	Result	Dilution	Batch	Prepared	Analyzed	Practical Quantitation Limit	Units
Aldrin	ND	1	8081_170710_01	7/10/2017	7/10/2017	10	µg/kg
α-BHC	ND	1	"	"	"	10	µg/kg
β-BHC	ND	1	"	"	"	10	µg/kg
γ-BHC (Lindane)	ND	1	"	"	"	10	µg/kg
δ-BHC	ND	1	"	"	"	10	µg/kg
γ-Chlordane	ND	1	"	"	"	10	µg/kg
α-Chlordane	ND	1	"	"	"	10	µg/kg
4,4'-DDD	ND	1	"	"	"	10	µg/kg
4,4'-DDE	ND	1	"	"	"	10	µg/kg
4,4'-DDT	ND	1	"	"	"	10	µg/kg
Dieldrin	ND	1	"	"	"	10	µg/kg
Endosulfan I	ND	1	"	"	"	10	µg/kg
Endosulfan II	ND	1	"	"	"	10	µg/kg
Endosulfan sulfate	ND	1	"	"	"	10	µg/kg
Endrin	ND	1	"	"	"	10	µg/kg
Endrin aldehyde	ND	1	"	"	"	10	µg/kg
Endrin ketone	ND	1	"	"	"	10	µg/kg
Heptachlor	ND	1	"	"	"	10	µg/kg
Heptachlor epoxide	ND	1	"	"	"	10	µg/kg
Methoxychlor	ND	1	"	"	"	20	µg/kg

Surrogate Recoveries:		QC Limits
TCMX	81%	30 - 120
Decachlorobiphenyl	88%	30 - 120

ND = Not Detected

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JONES ENVIRONMENTAL QUALITY CONTROL INFORMATION

Client:	Dudek & Associates, Inc.	**Report date:**	7/12/2017
Client Address:	605 Third Street	**JEL Ref. No.:**	ST-10880
	Encinitas, CA 92024	**Client Ref. No.:**	10138
Attn:	Susie Smith	**Date Sampled:**	7/7/2017
		Date Received:	7/7/2017
Project:	West Hills	**Date Analyzed:**	7/10/2017
Project Address:	23233 Saticoy St.	**Physical State:**	Soil
	West Hills, CA		

BATCH: **8081_170710_01** **Prepared:** 7/10/2017 **Analyzed:** 7/10/2017

EPA 8081A by 3546 – Chlorinated Pesticides by GC/ECD

	LCS	LCS Duplicate	% RPD	Spike Level	% Recovery Limits	Units
	LCS-170710_01	LCSD-170710_01				
Analytes:						
β-BHC	**76.6**	**84.1**	9.3%	100	60 - 140	ppb
γ-Chlordane	**56.5**	**63.6**	11.8%	100	60 - 140	ppb
Aldrin	**55.4**	**62.1**	11.4%	100	60 - 140	ppb
4,4'-DDD	**68.0**	**75.3**	10.2%	100	60 - 140	ppb
4,4'-DDE	**62.5**	**67.3**	7.4%	100	60 - 140	ppb
4,4'-DDT	**62.6**	**65.9**	5.1%	100	60 - 140	ppb
Dieldrin	**67.6**	**74.4**	9.6%	100	60 - 140	ppb
Endosulfan I	**59.8**	**65.2**	8.6%	100	60 - 140	ppb
Endosulfan II	**70.5**	**73.7**	4.4%	100	60 - 140	ppb
Endrin	**59.9**	**64.9**	8.0%	100	60 - 140	ppb
Endrin ketone	**74.4**	**78.2**	5.0%	100	60 - 140	ppb
Heptachlor	**59.2**	**63.7**	7.3%	100	60 - 140	ppb
Heptachlor epoxide	**59.7**	**65.4**	9.1%	100	60 - 140	ppb
Surrogate Recoveries:						
TCMX	57%	62%			30 - 120	
Decachlorobiphenyl	71%	74%			30 - 120	

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Chain-of-Custody Record

Client: DUDEK
Date: 7/7/17
Project Name: West Hills
Client Project #: 10138
Project Address: 23233 Saticoy St. West Hills, CA
Project Contact: Susie Smith ssmith@dudek.com

Turn Around Requested:
- ☐ Immediate Attention
- Rush: ☐ 24 ☐ 48 ☐ 72
- ☒ Normal
- ☐ Mobile Lab

SOIL GAS
Purge Number: ☐ 1P ☐ 3P ☐ 7P ☐ 10P
Purge Rate: _____ cc/min
Shut in Test Y / N
Tracer:
- ☐ n-propanol
- ☐ n-pentane
- ☐ 1,1-DFA
- ☐ Helium
- ☐ _____

JEL Project #: ST-10880
Page 1 of 1

Lab Use Only
Sample Condition as Received:
Chilled ☐ yes ☐ no
Sealed ☐ yes ☐ no

Sample ID	Purge Number	Purge Volume	Date	Sample Collection Time	Sample Analysis Time	Laboratory Sample Number	Sample Matrix: Soil (S), Sludge (SL), Aqueous (A), Soil Gas (SG)	Analysis Requested: Metals - Ti+Zr	OCPs - 8081B			Magnehelic Vacuum (In/H_2O)	Number of Containers	Remarks/Special Instructions
DSV-15-1			7/7/17	0725		ST-10880-01	S	X	X					
DSV-15-3			7/7/17	0727		ST-10880-02	S	X	X					
DSV-13-1			7/7/17	0848		ST-10880-03	S	X	X					
DSV-13-3			7/7/17	0849		ST-10880-04	S	X	X					
DSV-20-1			7/7/17	1138		ST-10880-05	S	X	X					
DSV-20-3			7/7/17	1139		ST-10880-06	S	X	X					
DSV-18-1			7/7/17	1340		ST-10880-07	S	X	X					
DSV-18-3			7/7/17	1342		ST-10880-08	S	X	X					

❶ Relinquished by (signature)	Date 7/7/17	❷ Received by (signature)	Date 7-7-17
Company Dudek	Time 1530	Company Jones Environmental	Time 1530
❸ Relinquished by (signature)	Date	❹ Received by Laboratory (signature)	Date
Company	Time	Company	Time

Total Number of Containers

The delivery of samples and the signature on this Chain of Custody form constitutes authorization to perform the analyses specified above under the Terms and Conditions set forth on the back hereof.

☐ EDD ☐ EDF

Appendix B

Qualifications

APPENDIX B
Qualifications of Environmental Professionals

Environmental Professional	Professional License	Degree(s)	Years' Experience	Task Performed
Susan Smith	Professional Geologist, State of California	B.S., Geological Sciences, California State University Fullerton, 2008	15	Report Preparation/Review, QA/QC
Jeff Kubran	--	B.A., Geography, University of California Santa Barbara, 2005	12	Report Preparation
Christian Hunter	--	B.S. Physics, Wheaton College (IL.), 2005 M.A. Education, Wheaton College (IL.) 2007 Ph.D. Civil Engineering, University of Notre Dame, 2017	6	Site Reconnaissance, Report Preparation

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Appendix C

Environmental Data Resources, Inc. Report

West Hills Shopping Center
23233 Saticoy Street
Canoga Park, CA 91304

Inquiry Number: 5076154.2s
October 13, 2017

The EDR Radius Map™ Report

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

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GEOCHECK ADDENDUM

GeoCheck - Not Requested

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

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EXECUTIVE SUMMARY

A search of available environmental records was conducted by Environmental Data Resources, Inc (EDR). The report was designed to assist parties seeking to meet the search requirements of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), the ASTM Standard Practice for Environmental Site Assessments (E 1527-13) or custom requirements developed for the evaluation of environmental risk associated with a parcel of real estate.

TARGET PROPERTY INFORMATION

ADDRESS

23233 SATICOY STREET
CANOGA PARK, CA 91304

COORDINATES

Latitude (North):	34.2089720 - 34° 12' 32.29''
Longitude (West):	118.6333410 - 118° 38' 0.02''
Universal Tranverse Mercator:	Zone 11
UTM X (Meters):	349523.9
UTM Y (Meters):	3786337.8
Elevation:	844 ft. above sea level

USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property Map:	5630735 CALABASAS, CA
Version Date:	2012
East Map:	5630737 CANOGA PARK, CA
Version Date:	2012

AERIAL PHOTOGRAPHY IN THIS REPORT

Portions of Photo from:	20140531
Source:	USDA

MAPPED SITES SUMMARY

Target Property Address:
23233 SATICOY STREET
CANOGA PARK, CA 91304

Click on Map ID to see full detail.

MAP ID	SITE NAME	ADDRESS	DATABASE ACRONYMS	RELATIVE ELEVATION	DIST (ft. & mi.) DIRECTION
A1	WEST HILL CLEANERS	23233 SATICOY ST STE	RCRA-SQG, HAZNET		TP
A2	WEST HILL CLEANERS	23233 SATICOY ST STE	HAZNET		TP
A3	WEST HILLS POOL SUPP	23233 SATICOY ST UN	FINDS		TP
A4	WEST HILLS CLEANERS	23233 SATICOY ST STE	EDR Hist Cleaner		TP
A5	WEST HILL CLEANERS	23233 SATICOY ST STE	DRYCLEANERS		TP
A6	WEST HILLS VETERINAR	23233 SATICOY ST	HAZNET		TP
A7	WEST HILL CLEANERS	23233 SATICOY ST 110	RCRA-SQG, FINDS, ECHO		TP
A8	WEST HILLS CLEANERS,	23233 SATICOY ST, #1	EMI		TP
A9	RASE INC	23233 SATICOY ST 146	EDR Hist Auto		TP
B10	WOODLAKE CLEANERS	7621 WOODLAKE AVE	EDR Hist Cleaner	Higher	1 ft.
B11	93113-CHEVRON STATIO	7607 WOODLAKE AVE	SWEEPS UST, CA FID UST	Lower	54, 0.010, ESE
B12	93113	7607 WOODLAKE	HIST UST	Lower	54, 0.010, ESE
B13	PAUL MAC CHEVRON	7607 WOODLAKE AV	EDR Hist Auto	Lower	54, 0.010, ESE
B14	CHEVRON STATION #9-3	7607 WOODLAKE AVE	UST	Lower	54, 0.010, ESE
B15	CHEVRON STATION NO 9	7607 WOODLAKE	LUST, RCRA NonGen / NLR, FINDS, ECHO	Lower	54, 0.010, ESE
B16	CHEVRON #9-3113	7607 WOODLAKE AVE	LUST	Lower	54, 0.010, ESE
B17	CHEVRON #9-3113	7607 WOODLAKE	HIST CORTESE	Lower	112, 0.021, ESE
18	OAKBROOK FARM	23254 COHASSET STREE	HIST UST	Lower	1096, 0.208, SW
19	WEST HILLS REGIONAL	7300 MEDICAL CENTER	RCRA-LQG, LUST, UST, SWEEPS UST, CA FID UST,...	Lower	2156, 0.408, SSE
20	ENADIA WAY ES RE-OPE	22944 ENADIA WAY	ENVIROSTOR, SCH	Lower	3553, 0.673, SSE

EXECUTIVE SUMMARY

TARGET PROPERTY SEARCH RESULTS

The target property was identified in the following records. For more information on this property see page 8 of the attached EDR Radius Map report:

Site	Database(s)	EPA ID
WEST HILL CLEANERS 23233 SATICOY ST STE CANOGA PARK, CA 91304	RCRA-SQG EPA ID:: CAD983598103 HAZNET GEPAID: CAD983598103	CAD983598103
WEST HILL CLEANERS 23233 SATICOY ST STE WEST HILLS, CA 91304	HAZNET GEPAID: CAL000282103	N/A
WEST HILLS POOL SUPP 23233 SATICOY ST UN WEST HILLS, CA 91304	FINDS Registry ID:: 110065764514	N/A
WEST HILLS CLEANERS 23233 SATICOY ST STE CANOGA PARK, CA 91304	EDR Hist Cleaner	N/A
WEST HILL CLEANERS 23233 SATICOY ST STE WEST HILLS, CA 91304	DRYCLEANERS EPA Id: CAL000282103	N/A
WEST HILLS VETERINAR 23233 SATICOY ST WEST HILLS, CA 91304	HAZNET GEPAID: CAL921975487	N/A
WEST HILL CLEANERS 23233 SATICOY ST 110 CANOGA PARK, CA 91304	RCRA-SQG EPA ID:: CAD982503906 FINDS Registry ID:: 110002855367 ECHO	CAD982503906
WEST HILLS CLEANERS, 23233 SATICOY ST, #1 WEST HILLS, CA 91304	EMI Facility Id: 73792	N/A
RASE INC 23233 SATICOY ST 146 CANOGA PARK, CA 91304	EDR Hist Auto	N/A

EXECUTIVE SUMMARY

DATABASES WITH NO MAPPED SITES

No mapped sites were found in EDR's search of available ("reasonably ascertainable ") government records either on the target property or within the search radius around the target property for the following databases:

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL ---------- National Priority List
Proposed NPL ---------- Proposed National Priority List Sites
NPL LIENS ---------- Federal Superfund Liens

Federal Delisted NPL site list

Delisted NPL ---------- National Priority List Deletions

Federal CERCLIS list

FEDERAL FACILITY ---------- Federal Facility Site Information listing
SEMS ---------- Superfund Enterprise Management System

Federal CERCLIS NFRAP site list

SEMS-ARCHIVE ---------- Superfund Enterprise Management System Archive

Federal RCRA CORRACTS facilities list

CORRACTS ---------- Corrective Action Report

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF ---------- RCRA - Treatment, Storage and Disposal

Federal RCRA generators list

RCRA-LQG ---------- RCRA - Large Quantity Generators
RCRA-CESQG ---------- RCRA - Conditionally Exempt Small Quantity Generator

Federal institutional controls / engineering controls registries

LUCIS ---------- Land Use Control Information System
US ENG CONTROLS ---------- Engineering Controls Sites List
US INST CONTROL ---------- Sites with Institutional Controls

Federal ERNS list

ERNS ---------- Emergency Response Notification System

State- and tribal - equivalent NPL

RESPONSE ---------- State Response Sites

EXECUTIVE SUMMARY

State and tribal landfill and/or solid waste disposal site lists

SWF/LF---------- Solid Waste Information System

State and tribal leaking storage tank lists

INDIAN LUST---------- Leaking Underground Storage Tanks on Indian Land
SLIC---------- Statewide SLIC Cases

State and tribal registered storage tank lists

FEMA UST---------- Underground Storage Tank Listing
AST---------- Aboveground Petroleum Storage Tank Facilities
INDIAN UST---------- Underground Storage Tanks on Indian Land

State and tribal voluntary cleanup sites

VCP---------- Voluntary Cleanup Program Properties
INDIAN VCP---------- Voluntary Cleanup Priority Listing

State and tribal Brownfields sites

BROWNFIELDS---------- Considered Brownfieds Sites Listing

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS---------- A Listing of Brownfields Sites

Local Lists of Landfill / Solid Waste Disposal Sites

WMUDS/SWAT---------- Waste Management Unit Database
SWRCY---------- Recycler Database
HAULERS---------- Registered Waste Tire Haulers Listing
INDIAN ODI---------- Report on the Status of Open Dumps on Indian Lands
DEBRIS REGION 9---------- Torres Martinez Reservation Illegal Dump Site Locations
ODI---------- Open Dump Inventory
IHS OPEN DUMPS---------- Open Dumps on Indian Land

Local Lists of Hazardous waste / Contaminated Sites

US HIST CDL---------- Delisted National Clandestine Laboratory Register
AOCONCERN---------- San Gabriel Valley Areas of Concern
HIST Cal-Sites---------- Historical Calsites Database
SCH---------- School Property Evaluation Program
CDL---------- Clandestine Drug Labs
Toxic Pits---------- Toxic Pits Cleanup Act Sites
US CDL---------- National Clandestine Laboratory Register

Local Land Records

LIENS---------- Environmental Liens Listing

LIENS 2	CERCLA Lien Information
DEED	Deed Restriction Listing

Records of Emergency Release Reports

HMIRS	Hazardous Materials Information Reporting System
CHMIRS	California Hazardous Material Incident Report System
LDS	Land Disposal Sites Listing
MCS	Military Cleanup Sites Listing
SPILLS 90	SPILLS 90 data from FirstSearch

Other Ascertainable Records

FUDS	Formerly Used Defense Sites
DOD	Department of Defense Sites
SCRD DRYCLEANERS	State Coalition for Remediation of Drycleaners Listing
US FIN ASSUR	Financial Assurance Information
EPA WATCH LIST	EPA WATCH LIST
2020 COR ACTION	2020 Corrective Action Program List
TSCA	Toxic Substances Control Act
TRIS	Toxic Chemical Release Inventory System
SSTS	Section 7 Tracking Systems
ROD	Records Of Decision
RMP	Risk Management Plans
RAATS	RCRA Administrative Action Tracking System
PRP	Potentially Responsible Parties
PADS	PCB Activity Database System
ICIS	Integrated Compliance Information System
FTTS	FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
MLTS	Material Licensing Tracking System
COAL ASH DOE	Steam-Electric Plant Operation Data
COAL ASH EPA	Coal Combustion Residues Surface Impoundments List
PCB TRANSFORMER	PCB Transformer Registration Database
RADINFO	Radiation Information Database
HIST FTTS	FIFRA/TSCA Tracking System Administrative Case Listing
DOT OPS	Incident and Accident Data
CONSENT	Superfund (CERCLA) Consent Decrees
INDIAN RESERV	Indian Reservations
FUSRAP	Formerly Utilized Sites Remedial Action Program
UMTRA	Uranium Mill Tailings Sites
LEAD SMELTERS	Lead Smelter Sites
US AIRS	Aerometric Information Retrieval System Facility Subsystem
US MINES	Mines Master Index File
ABANDONED MINES	Abandoned Mines
UXO	Unexploded Ordnance Sites
DOCKET HWC	Hazardous Waste Compliance Docket Listing
FUELS PROGRAM	EPA Fuels Program Registered Listing
CA BOND EXP. PLAN	Bond Expenditure Plan
Cortese	"Cortese" Hazardous Waste & Substances Sites List
CUPA Listings	CUPA Resources List
ENF	Enforcement Action Listing
Financial Assurance	Financial Assurance Information Listing
ICE	ICE
LOS ANGELES CO. HMS	HMS: Street Number List

HWP ---------- EnviroStor Permitted Facilities Listing
HWT ---------- Registered Hazardous Waste Transporter Database
MINES ---------- Mines Site Location Listing
MWMP ---------- Medical Waste Management Program Listing
NPDES ---------- NPDES Permits Listing
PEST LIC ---------- Pesticide Regulation Licenses Listing
PROC ---------- Certified Processors Database
Notify 65 ---------- Proposition 65 Records
LA Co. Site Mitigation ---------- Site Mitigation List
UIC ---------- UIC Listing
WASTEWATER PITS ---------- Oil Wastewater Pits Listing
WDS ---------- Waste Discharge System
WIP ---------- Well Investigation Program Case List

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP ---------- EDR Proprietary Manufactured Gas Plants

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA LF ---------- Recovered Government Archive Solid Waste Facilities List
RGA LUST ---------- Recovered Government Archive Leaking Underground Storage Tank

SURROUNDING SITES: SEARCH RESULTS

Surrounding sites were identified in the following databases.

Elevations have been determined from the USGS Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified. Sites with an elevation equal to or higher than the target property have been differentiated below from sites with an elevation lower than the target property.
Page numbers and map identification numbers refer to the EDR Radius Map report where detailed data on individual sites can be reviewed.

Sites listed in ***bold italics*** are in multiple databases.

Unmappable (orphan) sites are not considered in the foregoing analysis.

STANDARD ENVIRONMENTAL RECORDS

State- and tribal - equivalent CERCLIS

ENVIROSTOR: The Department of Toxic Substances Control's (DTSC's) Site Mitigation and Brownfields Reuse Program's (SMBRP's) EnviroStor database identifes sites that have known contamination or sites for which there may be reasons to investigate further. The database includes the following site types: Federal Superfund sites (National Priorities List (NPL)); State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites. EnviroStor provides similar information to the information that was available in CalSites, and provides additional site information, including, but not limited to,

identification of formerly-contaminated properties that have been released for reuse, properties where environmental deed restrictions have been recorded to prevent inappropriate land uses, and risk characterization information that is used to assess potential impacts to public health and the environment at contaminated sites.

A review of the ENVIROSTOR list, as provided by EDR, and dated 07/31/2017 has revealed that there is 1 ENVIROSTOR site within approximately 1 mile of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
ENADIA WAY ES RE-OPE	***22944 ENADIA WAY***	***SSE 1/2 - 1 (0.673 mi.)***	***20***	***41***
Facility Id: 19820127				
Status: No Action Required				

State and tribal leaking storage tank lists

LUST: Leaking Underground Storage Tank (LUST) Sites included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

A review of the LUST list, as provided by EDR, has revealed that there are 3 LUST sites within approximately 0.5 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
CHEVRON STATION NO 9	***7607 WOODLAKE***	***ESE 0 - 1/8 (0.010 mi.)***	***B15***	***21***
Database: LUST, Date of Government Version: 06/12/2017				
Status: Completed - Case Closed				
Global Id: T0603702103				
CHEVRON #9-3113	7607 WOODLAKE AVE	ESE 0 - 1/8 (0.010 mi.)	B16	25
Database: LUST REG 4, Date of Government Version: 09/07/2004				
Facility Id: 913040616				
Status: Case Closed				
Global ID: T0603702103				
WEST HILLS REGIONAL	***7300 MEDICAL CENTER***	***SSE 1/4 - 1/2 (0.408 mi.)***	***19***	***27***
Database: LUST REG 4, Date of Government Version: 09/07/2004				
Database: LUST, Date of Government Version: 06/12/2017				
Status: Completed - Case Closed				
Facility Id: 913070089				
Status: Case Closed				
Global Id: T0603702126				
Global ID: T0603702126				

State and tribal registered storage tank lists

UST: The Underground Storage Tank database contains registered USTs. USTs are regulated under Subtitle I of the Resource Conservation and Recovery Act (RCRA). The data come from the State Water Resources Control Board's Hazardous Substance Storage Container Database.

A review of the UST list, as provided by EDR, has revealed that there is 1 UST site within

approximately 0.25 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
CHEVRON STATION #9-3	7607 WOODLAKE AVE	ESE 0 - 1/8 (0.010 mi.)	B14	21
Database: UST, Date of Government Version: 06/12/2017				
Facility Id: 23811				

ADDITIONAL ENVIRONMENTAL RECORDS

Local Lists of Registered Storage Tanks

SWEEPS UST: Statewide Environmental Evaluation and Planning System. This underground storage tank listing was updated and maintained by a company contacted by the SWRCB in the early 1990's. The listing is no longer updated or maintained. The local agency is the contact for more information on a site on the SWEEPS list.

A review of the SWEEPS UST list, as provided by EDR, and dated 06/01/1994 has revealed that there is 1 SWEEPS UST site within approximately 0.25 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
93113-CHEVRON STATIO	***7607 WOODLAKE AVE***	***ESE 0 - 1/8 (0.010 mi.)***	***B11***	***17***
Status: A				
Tank Status: A				
Comp Number: 3538				

HIST UST: Historical UST Registered Database.

A review of the HIST UST list, as provided by EDR, and dated 10/15/1990 has revealed that there are 2 HIST UST sites within approximately 0.25 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
93113	7607 WOODLAKE	ESE 0 - 1/8 (0.010 mi.)	B12	19
Facility Id: 00000062391				
OAKBROOK FARM	23254 COHASSET STREE	SW 1/8 - 1/4 (0.208 mi.)	18	26
Facility Id: 00000047092				

CA FID UST: The Facility Inventory Database contains active and inactive underground storage tank locations. The source is the State Water Resource Control Board.

A review of the CA FID UST list, as provided by EDR, and dated 10/31/1994 has revealed that there is 1 CA FID UST site within approximately 0.25 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
93113-CHEVRON STATIO	***7607 WOODLAKE AVE***	***ESE 0 - 1/8 (0.010 mi.)***	***B11***	***17***
Facility Id: 19001824				
Status: A				

Other Ascertainable Records

RCRA NonGen / NLR: RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous waste.

A review of the RCRA NonGen / NLR list, as provided by EDR, and dated 09/13/2017 has revealed that there is 1 RCRA NonGen / NLR site within approximately 0.25 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
CHEVRON STATION NO 9	***7607 WOODLAKE***	***ESE 0 - 1/8 (0.010 mi.)***	***B15***	***21***

HIST CORTESE: The sites for the list are designated by the State Water Resource Control Board [LUST], the Integrated Waste Board [SWF/LS], and the Department of Toxic Substances Control [CALSITES]. This listing is no longer updated by the state agency.

A review of the HIST CORTESE list, as provided by EDR, and dated 04/01/2001 has revealed that there are 2 HIST CORTESE sites within approximately 0.5 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
CHEVRON #9-3113 Reg Id: 913040616	7607 WOODLAKE	ESE 0 - 1/8 (0.021 mi.)	B17	26
WEST HILLS REGIONAL Reg Id: 913070089	***7300 MEDICAL CENTER***	***SSE 1/4 - 1/2 (0.408 mi.)***	***19***	***27***

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR Hist Auto: EDR has searched selected national collections of business directories and has collected listings of potential gas station/filling station/service station sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include gas station/filling station/service station establishments. The categories reviewed included, but were not limited to gas, gas station, gasoline station, filling station, auto, automobile repair, auto service station, service station, etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

A review of the EDR Hist Auto list, as provided by EDR, has revealed that there is 1 EDR Hist Auto site within approximately 0.125 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
PAUL MAC CHEVRON	7607 WOODLAKE AV	ESE 0 - 1/8 (0.010 mi.)	B13	20

EXECUTIVE SUMMARY

EDR Hist Cleaner: EDR has searched selected national collections of business directories and has collected listings of potential dry cleaner sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include dry cleaning establishments. The categories reviewed included, but were not limited to dry cleaners, cleaners, laundry, laundromat, cleaning/laundry, wash & dry etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

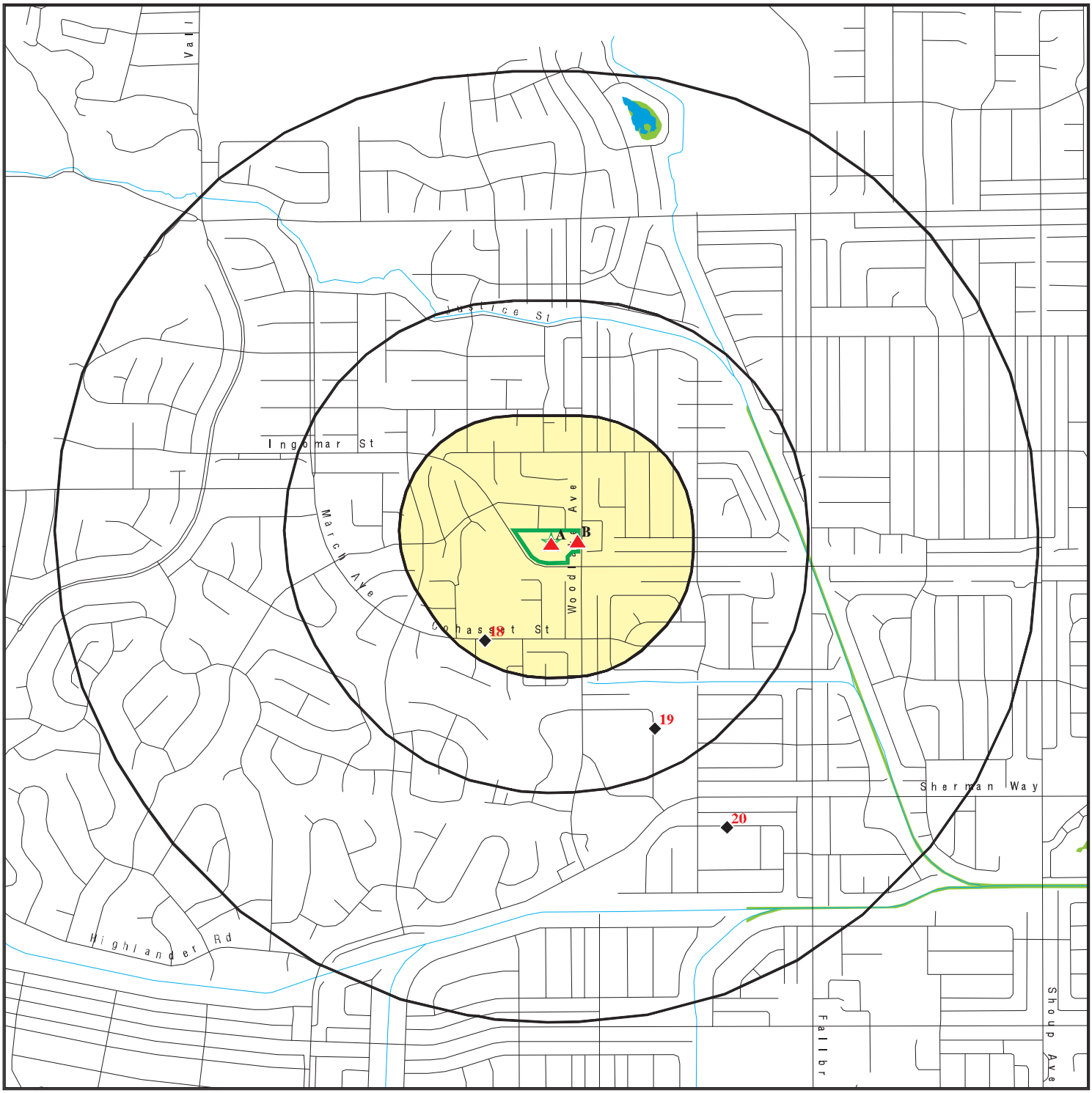
A review of the EDR Hist Cleaner list, as provided by EDR, has revealed that there is 1 EDR Hist Cleaner site within approximately 0.125 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
WOODLAKE CLEANERS	7621 WOODLAKE AVE	0 - 1/8 (0.000 mi.)	B10	17

EXECUTIVE SUMMARY

There were no unmapped sites in this report.

OVERVIEW MAP - 5076154.2S



Target Property
Sites at elevations higher than or equal to the target property
Sites at elevations lower than the target property
Manufactured Gas Plants
National Priority List Sites
Dept. Defense Sites

0 1/4 1/2 1 Miles

Indian Reservations BIA
100-year flood zone
500-year flood zone
National Wetland Inventory
State Wetlands

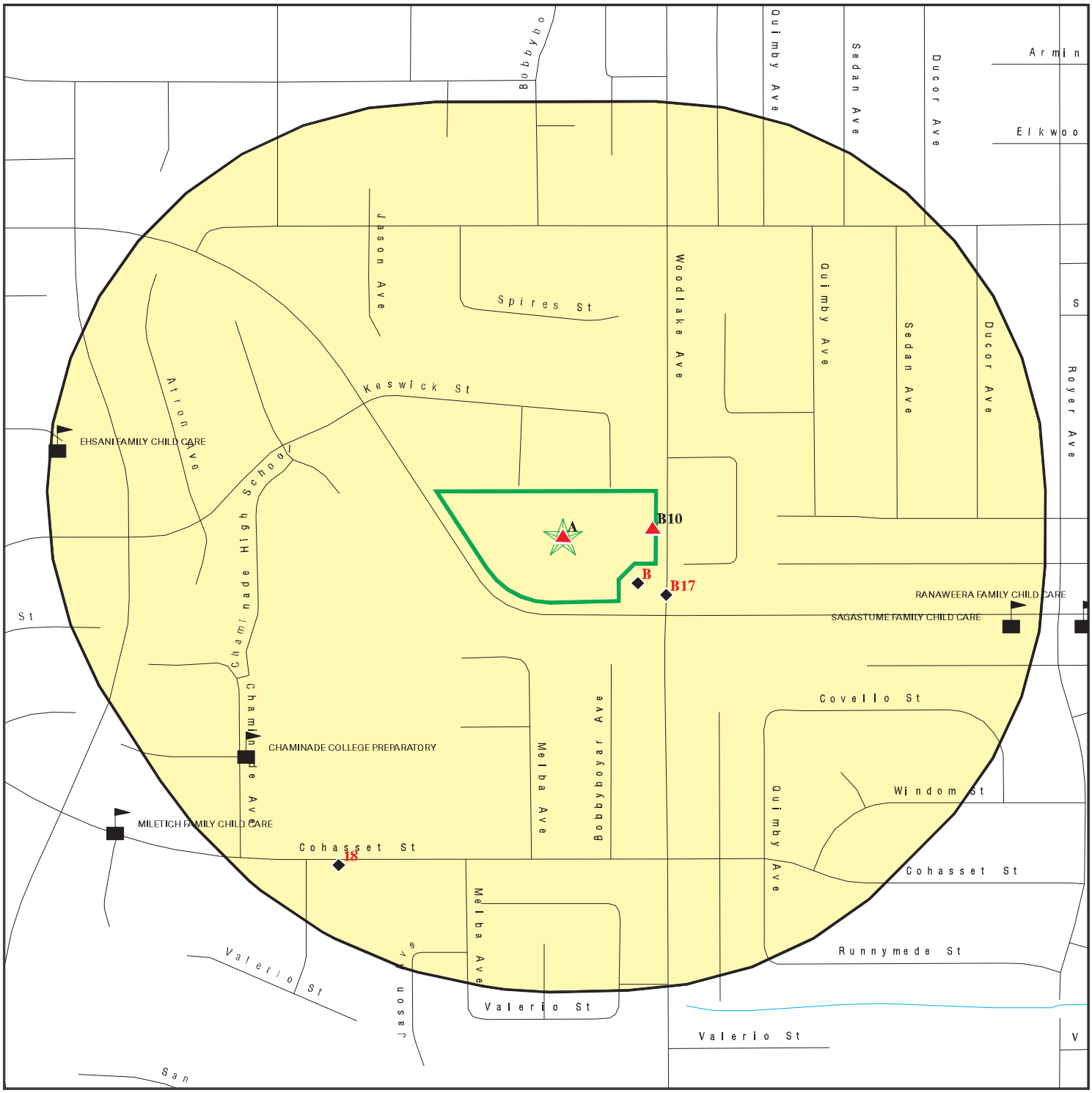
Upgradient Area
Areas of Concern

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME:	West Hills Shopping Center	CLIENT:	Dudek & Associates
ADDRESS:	23233 Saticoy Street Canoga Park CA 91304	CONTACT:	Susie Smith
LAT/LONG:	34.208972 / 118.633341	INQUIRY #:	5076154.2s
		DATE:	October 13, 2017 12:38 pm

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DETAIL MAP - 5076154.2S



Target Property

Sites at elevations higher than or equal to the target property

Sites at elevations lower than the target property

Manufactured Gas Plants

Sensitive Receptors

National Priority List Sites

Dept. Defense Sites

0 1/16 1/8 1/4 Miles

Indian Reservations BIA

100-year flood zone

500-year flood zone

Areas of Concern

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: West Hills Shopping Center	CLIENT: Dudek & Associates
ADDRESS: 23233 Saticoy Street Canoga Park CA 91304	CONTACT: Susie Smith
LAT/LONG: 34.208972 / 118.633341	INQUIRY #: 5076154.2s DATE: October 13, 2017 12:40 pm

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MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
STANDARD ENVIRONMENTAL RECORDS								
Federal NPL site list								
NPL	1.000		0	0	0	0	NR	0
Proposed NPL	1.000		0	0	0	0	NR	0
NPL LIENS	0.001		0	NR	NR	NR	NR	0
Federal Delisted NPL site list								
Delisted NPL	1.000		0	0	0	0	NR	0
Federal CERCLIS list								
FEDERAL FACILITY	0.500		0	0	0	NR	NR	0
SEMS	0.500		0	0	0	NR	NR	0
Federal CERCLIS NFRAP site list								
SEMS-ARCHIVE	0.500		0	0	0	NR	NR	0
Federal RCRA CORRACTS facilities list								
CORRACTS	1.000		0	0	0	0	NR	0
Federal RCRA non-CORRACTS TSD facilities list								
RCRA-TSDF	0.500		0	0	0	NR	NR	0
Federal RCRA generators list								
RCRA-LQG	0.250		0	0	NR	NR	NR	0
RCRA-SQG	0.250	2	0	0	NR	NR	NR	2
RCRA-CESQG	0.250		0	0	NR	NR	NR	0
Federal institutional controls / engineering controls registries								
LUCIS	0.500		0	0	0	NR	NR	0
US ENG CONTROLS	0.500		0	0	0	NR	NR	0
US INST CONTROL	0.500		0	0	0	NR	NR	0
Federal ERNS list								
ERNS	0.001		0	NR	NR	NR	NR	0
State- and tribal - equivalent NPL								
RESPONSE	1.000		0	0	0	0	NR	0
State- and tribal - equivalent CERCLIS								
ENVIROSTOR	1.000		0	0	0	1	NR	1
State and tribal landfill and/or solid waste disposal site lists								
SWF/LF	0.500		0	0	0	NR	NR	0
State and tribal leaking storage tank lists								
LUST	0.500		2	0	1	NR	NR	3

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
INDIAN LUST	0.500		0	0	0	NR	NR	0
SLIC	0.500		0	0	0	NR	NR	0
State and tribal registered storage tank lists								
FEMA UST	0.250		0	0	NR	NR	NR	0
UST	0.250		1	0	NR	NR	NR	1
AST	0.250		0	0	NR	NR	NR	0
INDIAN UST	0.250		0	0	NR	NR	NR	0
State and tribal voluntary cleanup sites								
VCP	0.500		0	0	0	NR	NR	0
INDIAN VCP	0.500		0	0	0	NR	NR	0
State and tribal Brownfields sites								
BROWNFIELDS	0.500		0	0	0	NR	NR	0
ADDITIONAL ENVIRONMENTAL RECORDS								
Local Brownfield lists								
US BROWNFIELDS	0.500		0	0	0	NR	NR	0
Local Lists of Landfill / Solid Waste Disposal Sites								
WMUDS/SWAT	0.500		0	0	0	NR	NR	0
SWRCY	0.500		0	0	0	NR	NR	0
HAULERS	0.001		0	NR	NR	NR	NR	0
INDIAN ODI	0.500		0	0	0	NR	NR	0
DEBRIS REGION 9	0.500		0	0	0	NR	NR	0
ODI	0.500		0	0	0	NR	NR	0
IHS OPEN DUMPS	0.500		0	0	0	NR	NR	0
Local Lists of Hazardous waste / Contaminated Sites								
US HIST CDL	0.001		0	NR	NR	NR	NR	0
AOCONCERN	1.000		0	0	0	0	NR	0
HIST Cal-Sites	1.000		0	0	0	0	NR	0
SCH	0.250		0	0	NR	NR	NR	0
CDL	0.001		0	NR	NR	NR	NR	0
Toxic Pits	1.000		0	0	0	0	NR	0
US CDL	0.001		0	NR	NR	NR	NR	0
Local Lists of Registered Storage Tanks								
SWEEPS UST	0.250		1	0	NR	NR	NR	1
HIST UST	0.250		1	1	NR	NR	NR	2
CA FID UST	0.250		1	0	NR	NR	NR	1
Local Land Records								
LIENS	0.001		0	NR	NR	NR	NR	0
LIENS 2	0.001		0	NR	NR	NR	NR	0
DEED	0.500		0	0	0	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
Records of Emergency Release Reports								
HMIRS	0.001		0	NR	NR	NR	NR	0
CHMIRS	0.001		0	NR	NR	NR	NR	0
LDS	0.001		0	NR	NR	NR	NR	0
MCS	0.001		0	NR	NR	NR	NR	0
SPILLS 90	0.001		0	NR	NR	NR	NR	0
Other Ascertainable Records								
RCRA NonGen / NLR	0.250		1	0	NR	NR	NR	1
FUDS	1.000		0	0	0	0	NR	0
DOD	1.000		0	0	0	0	NR	0
SCRD DRYCLEANERS	0.500		0	0	0	NR	NR	0
US FIN ASSUR	0.001		0	NR	NR	NR	NR	0
EPA WATCH LIST	0.001		0	NR	NR	NR	NR	0
2020 COR ACTION	0.250		0	0	NR	NR	NR	0
TSCA	0.001		0	NR	NR	NR	NR	0
TRIS	0.001		0	NR	NR	NR	NR	0
SSTS	0.001		0	NR	NR	NR	NR	0
ROD	1.000		0	0	0	0	NR	0
RMP	0.001		0	NR	NR	NR	NR	0
RAATS	0.001		0	NR	NR	NR	NR	0
PRP	0.001		0	NR	NR	NR	NR	0
PADS	0.001		0	NR	NR	NR	NR	0
ICIS	0.001		0	NR	NR	NR	NR	0
FTTS	0.001		0	NR	NR	NR	NR	0
MLTS	0.001		0	NR	NR	NR	NR	0
COAL ASH DOE	0.001		0	NR	NR	NR	NR	0
COAL ASH EPA	0.500		0	0	0	NR	NR	0
PCB TRANSFORMER	0.001		0	NR	NR	NR	NR	0
RADINFO	0.001		0	NR	NR	NR	NR	0
HIST FTTS	0.001		0	NR	NR	NR	NR	0
DOT OPS	0.001		0	NR	NR	NR	NR	0
CONSENT	1.000		0	0	0	0	NR	0
INDIAN RESERV	0.001		0	NR	NR	NR	NR	0
FUSRAP	1.000		0	0	0	0	NR	0
UMTRA	0.500		0	0	0	NR	NR	0
LEAD SMELTERS	0.001		0	NR	NR	NR	NR	0
US AIRS	0.001		0	NR	NR	NR	NR	0
US MINES	0.250		0	0	NR	NR	NR	0
ABANDONED MINES	0.001		0	NR	NR	NR	NR	0
FINDS	0.001	2	0	NR	NR	NR	NR	2
UXO	1.000		0	0	0	0	NR	0
DOCKET HWC	0.001		0	NR	NR	NR	NR	0
ECHO	0.001	1	0	NR	NR	NR	NR	1
FUELS PROGRAM	0.250		0	0	NR	NR	NR	0
CA BOND EXP. PLAN	1.000		0	0	0	0	NR	0
Cortese	0.500		0	0	0	NR	NR	0
CUPA Listings	0.250		0	0	NR	NR	NR	0
DRYCLEANERS	0.250	1	0	0	NR	NR	NR	1
EMI	0.001	1	0	NR	NR	NR	NR	1

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
ENF	0.001		0	NR	NR	NR	NR	0
Financial Assurance	0.001		0	NR	NR	NR	NR	0
HAZNET	0.001	3	0	NR	NR	NR	NR	3
ICE	0.001		0	NR	NR	NR	NR	0
HIST CORTESE	0.500		1	0	1	NR	NR	2
LOS ANGELES CO. HMS	0.001		0	NR	NR	NR	NR	0
HWP	1.000		0	0	0	0	NR	0
HWT	0.250		0	0	NR	NR	NR	0
MINES	0.001		0	NR	NR	NR	NR	0
MWMP	0.250		0	0	NR	NR	NR	0
NPDES	0.001		0	NR	NR	NR	NR	0
PEST LIC	0.001		0	NR	NR	NR	NR	0
PROC	0.500		0	0	0	NR	NR	0
Notify 65	1.000		0	0	0	0	NR	0
LA Co. Site Mitigation	0.001		0	NR	NR	NR	NR	0
UIC	0.001		0	NR	NR	NR	NR	0
WASTEWATER PITS	0.500		0	0	0	NR	NR	0
WDS	0.001		0	NR	NR	NR	NR	0
WIP	0.250		0	0	NR	NR	NR	0
EDR HIGH RISK HISTORICAL RECORDS								
EDR Exclusive Records								
EDR MGP	1.000		0	0	0	0	NR	0
EDR Hist Auto	0.125	1	1	NR	NR	NR	NR	2
EDR Hist Cleaner	0.125	1	1	NR	NR	NR	NR	2
EDR RECOVERED GOVERNMENT ARCHIVES								
Exclusive Recovered Govt. Archives								
RGA LF	0.001		0	NR	NR	NR	NR	0
RGA LUST	0.001		0	NR	NR	NR	NR	0
- Totals --		12	10	1	2	1	0	26

NOTES:

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database

A1 Target Property — **WEST HILL CLEANERS**, **23233 SATICOY ST STE 110**, **CANOGA PARK, CA 91304** — **RCRA-SQG**, **HAZNET** — **1000392236**, **CAD983598103**

Site 1 of 9 in cluster A

Actual: 844 ft.

RCRA-SQG:

Date form received by agency:	07/29/1991
Facility name:	WEST HILL CLEANERS
Facility address:	23233 SATICOY ST STE 110 CANOGA PARK, CA 91304
EPA ID:	CAD983598103
Mailing address:	SATICOY ST STE 110 CANOGA PARK, CA 91304
Contact:	JENNIE HONG
Contact address:	23233 SATICOY ST STE 110 CANOGA PARK, CA 91304
Contact country:	US
Contact telephone:	818-702-9027
Contact email:	Not reported
EPA Region:	09
Classification:	Small Small Quantity Generator
Description:	Handler: generates more than 100 and less than 1000 kg of hazardous waste during any calendar month and accumulates less than 6000 kg of hazardous waste at any time; or generates 100 kg or less of hazardous waste during any calendar month, and accumulates more than 1000 kg of hazardous waste at any time

Owner/Operator Summary:

Owner/operator name:	HONG JENNIE SUE
Owner/operator address:	NOT REQUIRED NOT REQUIRED, ME 99999
Owner/operator country:	Not reported
Owner/operator telephone:	415-555-1212
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported
Legal status:	Private
Owner/Operator Type:	Owner
Owner/Op start date:	Not reported
Owner/Op end date:	Not reported

Owner/operator name:	NOT REQUIRED
Owner/operator address:	NOT REQUIRED NOT REQUIRED, ME 99999
Owner/operator country:	Not reported
Owner/operator telephone:	415-555-1212
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported
Legal status:	Private
Owner/Operator Type:	Operator
Owner/Op start date:	Not reported
Owner/Op end date:	Not reported

Handler Activities Summary:

U.S. importer of hazardous waste:	No
Mixed waste (haz. and radioactive):	No

WEST HILL CLEANERS (Continued) **1000392236**

Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

Violation Status: No violations found

HAZNET:
envid: 1000392236
Year: 1996
GEPAID: CAD983598103
Contact: HONG JENNIE SUE
Telephone: 4155551212
Mailing Name: Not reported
Mailing Address: 23233 SATICOY ST STE 110
Mailing City,St,Zip: CANOGA PARK, CA 913045300
Gen County: Not reported
TSD EPA ID: CAD981397417
TSD County: Not reported
Waste Category: Halogenated solvents (chloroforms, methyl chloride, perchloroethylene, etc)
Disposal Method: Recycler
Tons: 1.0512
Cat Decode: Not reported
Method Decode: Not reported
Facility County: Los Angeles

envid: 1000392236
Year: 1995
GEPAID: CAD983598103
Contact: HONG JENNIE SUE
Telephone: 4155551212
Mailing Name: Not reported
Mailing Address: 23233 SATICOY ST STE 110
Mailing City,St,Zip: CANOGA PARK, CA 913045300
Gen County: Not reported
TSD EPA ID: CAD981397417
TSD County: Not reported
Waste Category: Halogenated solvents (chloroforms, methyl chloride, perchloroethylene, etc)
Disposal Method: Recycler
Tons: .7363
Cat Decode: Not reported
Method Decode: Not reported
Facility County: Los Angeles

A2 Target Property **WEST HILL CLEANERS**
23233 SATICOY ST STE 110
WEST HILLS, CA 91304

HAZNET **S113131950**
N/A

Site 2 of 9 in cluster A

Actual: 844 ft.

HAZNET:

envid:	S113131950
Year:	2015
GEPAID:	CAL000282103
Contact:	EUNICE LEE
Telephone:	8187029027
Mailing Name:	Not reported
Mailing Address:	23233 SATICOY ST STE 110
Mailing City,St,Zip:	WEST HILLS, CA 913040000
Gen County:	Los Angeles
TSD EPA ID:	NED981723513
TSD County:	99
Waste Category:	Liquids with halogenated organic compounds >= 1,000 Mg./L
Disposal Method:	Incineration--Thermal Destruction Other Than Use As A Fuel
Tons:	0.1
Cat Decode:	Liquids with halogenated organic compounds >= 1,000 Mg./L
Method Decode:	Incineration--Thermal Destruction Other Than Use As A Fuel
Facility County:	Los Angeles

envid:	S113131950
Year:	2010
GEPAID:	CAL000282103
Contact:	EUNICE LEE
Telephone:	8187029027
Mailing Name:	Not reported
Mailing Address:	23233 SATICOY ST STE 110
Mailing City,St,Zip:	WEST HILLS, CA 913040000
Gen County:	Not reported
TSD EPA ID:	CAT000613893
TSD County:	Not reported
Waste Category:	Liquids with halogenated organic compounds >= 1,000 Mg./L
Disposal Method:	Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)
Tons:	0.1
Cat Decode:	Not reported
Method Decode:	Not reported
Facility County:	Los Angeles

envid:	S113131950
Year:	2008
GEPAID:	CAL000282103
Contact:	EUNICE LEE
Telephone:	8187029027
Mailing Name:	Not reported
Mailing Address:	23233 SATICOY ST STE 110
Mailing City,St,Zip:	WEST HILLS, CA 913040000
Gen County:	Not reported
TSD EPA ID:	CAT000613893
TSD County:	Not reported
Waste Category:	Liquids with halogenated organic compounds >= 1,000 Mg./L
Disposal Method:	Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)
Tons:	0.1

WEST HILL CLEANERS (Continued) **S113131950**

Cat Decode: Not reported
Method Decode: Not reported
Facility County: Los Angeles

envid: S113131950
Year: 2007
GEPAID: CAL000282103
Contact: EUNICE LEE
Telephone: 8187029027
Mailing Name: Not reported
Mailing Address: 23233 SATICOY ST STE 110
Mailing City,St,Zip: WEST HILLS, CA 913040000
Gen County: Not reported
TSD EPA ID: CAT000613893
TSD County: Not reported
Waste Category: Liquids with halogenated organic compounds >= 1,000 Mg./L
Disposal Method: Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)
Tons: 0.09
Cat Decode: Not reported
Method Decode: Not reported
Facility County: Los Angeles

envid: S113131950
Year: 2005
GEPAID: CAL000282103
Contact: EUNICE LEE
Telephone: 8187029027
Mailing Name: Not reported
Mailing Address: 23233 SATICOY ST STE 110
Mailing City,St,Zip: WEST HILLS, CA 913040000
Gen County: Not reported
TSD EPA ID: CAT000613893
TSD County: Not reported
Waste Category: Liquids with halogenated organic compounds >= 1,000 Mg./L
Disposal Method: Transfer Station
Tons: 0.11
Cat Decode: Not reported
Method Decode: Not reported
Facility County: Los Angeles

Click this hyperlink while viewing on your computer to access
1 additional CA_HAZNET: record(s) in the EDR Site Report.

A3 **WEST HILLS POOL SUPPLY** **FINDS** **1023285437**
Target **23233 SATICOY ST UN 111** **N/A**
Property **WEST HILLS, CA 91304**

Site 3 of 9 in cluster A

Actual: 844 ft.

FINDS:

Registry ID: 110065764514

Environmental Interest/Information System
STATE MASTER

WEST HILLS POOL SUPPLY (Continued) **1023285437**

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

A4 **WEST HILLS CLEANERS** **EDR Hist Cleaner** **1018584700**
Target **23233 SATICOY ST STE 110** **N/A**
Property **CANOGA PARK, CA 91304**

Site 4 of 9 in cluster A

Actual: **844 ft.**

EDR Hist Cleaner

Year:	Name:	Type:
1994	WEST HILLS CLEANERS	Garment Pressing And Cleaners' Agents
1995	WEST HILLS CLEANERS	Garment Pressing And Cleaners' Agents
1996	WEST HILLS CLEANERS	Garment Pressing And Cleaners' Agents
1997	WEST HILLS CLEANERS	Garment Pressing And Cleaners' Agents
1998	WEST HILLS CLEANERS	Garment Pressing And Cleaners' Agents
1999	WEST HILLS CLEANERS	Garment Pressing And Cleaners' Agents
2000	WEST HILLS CLEANERS	Garment Pressing And Cleaners' Agents
2001	WEST HILLS CLEANERS	Garment Pressing And Cleaners' Agents
2002	WEST HILLS CLEANERS	Garment Pressing And Cleaners' Agents
2003	WEST HILLS CLEANERS	Garment Pressing And Cleaners' Agents
2004	WEST HILLS CLEANERS	Garment Pressing And Cleaners' Agents
2005	WEST HILLS CLEANERS	Garment Pressing And Cleaners' Agents
2006	WEST HILLS CLEANERS	Garment Pressing And Cleaners' Agents
2007	WEST HILLS CLEANERS	Garment Pressing And Cleaners' Agents
2008	WEST HILLS CLEANERS	Garment Pressing And Cleaners' Agents
2009	WEST HILLS CLEANERS	Garment Pressing And Cleaners' Agents
2010	WEST HILLS CLEANERS	Garment Pressing And Cleaners' Agents
2011	WEST HILLS CLEANERS	Garment Pressing And Cleaners' Agents
2012	WEST HILLS CLEANERS	Garment Pressing And Cleaners' Agents
2013	WEST HILLS CLEANERS	Garment Pressing And Cleaners' Agents
2014	WEST HILLS CLEANERS	Garment Pressing And Cleaners' Agents

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A5 **WEST HILL CLEANERS** **DRYCLEANERS** **S106661402**
Target **23233 SATICOY ST STE 110** **N/A**
Property **WEST HILLS, CA 91304**

Site 5 of 9 in cluster A

Actual: **844 ft.**

DRYCLEANERS:

EPA Id:	CAL000282103
NAICS Code:	81232
NAICS Description:	Drycleaning and Laundry Services (except Coin-Operated)
SIC Code:	7211
SIC Description:	Power Laundries, Family and Commercial
Create Date:	05/12/2004
Facility Active:	No
Inactive Date:	06/30/2015
Facility Addr2:	Not reported
Owner Name:	EUNICE LEE
Owner Address:	18347 SATICOY ST STE 16
Owner Address 2:	Not reported
Owner Telephone:	8183451504
Contact Name:	EUNICE LEE

WEST HILL CLEANERS (Continued) **S106661402**

Contact Address:	23233 SATICOY ST STE 110
Contact Address 2:	Not reported
Contact Telephone:	8187029027
Mailing Name:	Not reported
Mailing Address 1:	23233 SATICOY ST STE 110
Mailing Address 2:	Not reported
Mailing City:	WEST HILLS
Mailing State:	CA
Mailing Zip:	913040000
Owner Fax:	0000000000
Region Code:	3

A6 **WEST HILLS VETERINARY CLINIC** **HAZNET** **S113167146**
Target **23233 SATICOY ST** **N/A**
Property **WEST HILLS, CA 91304**

Site 6 of 9 in cluster A

Actual:
844 ft.

HAZNET:

envid:	S113167146
Year:	1997
GEPAID:	CAL921975487
Contact:	CHATOAK PET CLINIC INC
Telephone:	8183637444
Mailing Name:	Not reported
Mailing Address:	17659 CHATSWORTH ST
Mailing City,St,Zip:	GRANADA HILLS, CA 913670000
Gen County:	Not reported
TSD EPA ID:	CAL000121946
TSD County:	Not reported
Waste Category:	Photochemicals/photoprocessing waste
Disposal Method:	Recycler
Tons:	.0060
Cat Decode:	Not reported
Method Decode:	Not reported
Facility County:	Los Angeles

envid:	S113167146
Year:	1996
GEPAID:	CAL921975487
Contact:	CHATOAK PET CLINIC INC
Telephone:	8183637444
Mailing Name:	Not reported
Mailing Address:	17659 CHATSWORTH ST
Mailing City,St,Zip:	GRANADA HILLS, CA 913670000
Gen County:	Not reported
TSD EPA ID:	CAD981402522
TSD County:	Not reported
Waste Category:	Photochemicals/photoprocessing waste
Disposal Method:	Recycler
Tons:	.0030
Cat Decode:	Not reported
Method Decode:	Not reported
Facility County:	Los Angeles

envid:	S113167146
Year:	1995
GEPAID:	CAL921975487

WEST HILLS VETERINARY CLINIC (Continued) **S113167146**

Contact:	CHATOAK PET CLINIC INC
Telephone:	8183637444
Mailing Name:	Not reported
Mailing Address:	17659 CHATSWORTH ST
Mailing City,St,Zip:	GRANADA HILLS, CA 913670000
Gen County:	Not reported
TSD EPA ID:	CAL000013493
TSD County:	Not reported
Waste Category:	Metal sludge (Alkaline solution (pH >= 12.5) with metals)
Disposal Method:	Recycler
Tons:	.0030
Cat Decode:	Not reported
Method Decode:	Not reported
Facility County:	Los Angeles

envid:	S113167146
Year:	1994
GEPAID:	CAL921975487
Contact:	CHATOAK PET CLINIC INC
Telephone:	8183637444
Mailing Name:	Not reported
Mailing Address:	17659 CHATSWORTH ST
Mailing City,St,Zip:	GRANADA HILLS, CA 913670000
Gen County:	Not reported
TSD EPA ID:	CAD981402522
TSD County:	Not reported
Waste Category:	Metal sludge (Alkaline solution (pH >= 12.5) with metals)
Disposal Method:	Not reported
Tons:	.0030
Cat Decode:	Not reported
Method Decode:	Not reported
Facility County:	Los Angeles

envid:	S113167146
Year:	1994
GEPAID:	CAL921975487
Contact:	CHATOAK PET CLINIC INC
Telephone:	8183637444
Mailing Name:	Not reported
Mailing Address:	17659 CHATSWORTH ST
Mailing City,St,Zip:	GRANADA HILLS, CA 913670000
Gen County:	Not reported
TSD EPA ID:	Not reported
TSD County:	Not reported
Waste Category:	Metal sludge (Alkaline solution (pH >= 12.5) with metals)
Disposal Method:	Recycler
Tons:	.0030
Cat Decode:	Not reported
Method Decode:	Not reported
Facility County:	Los Angeles

Click this hyperlink while viewing on your computer to access
1 additional CA_HAZNET: record(s) in the EDR Site Report.

A7 Target Property — **WEST HILL CLEANERS**, **23233 SATICOY ST 110**, **CANOGA PARK, CA 91304**

Database(s): **RCRA-SQG, FINDS, ECHO**

EDR ID Number: **1000708812**

EPA ID Number: **CAD982503906**

Site 7 of 9 in cluster A

Actual: 844 ft.

RCRA-SQG:

Date form received by agency:	01/03/1990
Facility name:	WEST HILL CLEANERS
Facility address:	23233 SATICOY ST 110 CANOGA PARK, CA 91304
EPA ID:	CAD982503906
Contact:	ENVIRONMENTAL MANAGER
Contact address:	23233 SATICOY ST 110 LOS ANGELES, CA 91304
Contact country:	US
Contact telephone:	818-702-9027
Contact email:	Not reported
EPA Region:	09
Classification:	Small Small Quantity Generator
Description:	Handler: generates more than 100 and less than 1000 kg of hazardous waste during any calendar month and accumulates less than 6000 kg of hazardous waste at any time; or generates 100 kg or less of hazardous waste during any calendar month, and accumulates more than 1000 kg of hazardous waste at any time

Owner/Operator Summary:

Owner/operator name:	NOT REQUIRED
Owner/operator address:	NOT REQUIRED NOT REQUIRED, ME 99999
Owner/operator country:	Not reported
Owner/operator telephone:	415-555-1212
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported
Legal status:	Private
Owner/Operator Type:	Operator
Owner/Op start date:	Not reported
Owner/Op end date:	Not reported

Owner/operator name:	HONG IN UI
Owner/operator address:	NOT REQUIRED NOT REQUIRED, ME 99999
Owner/operator country:	Not reported
Owner/operator telephone:	415-555-1212
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported
Legal status:	Private
Owner/Operator Type:	Owner
Owner/Op start date:	Not reported
Owner/Op end date:	Not reported

Handler Activities Summary:

U.S. importer of hazardous waste:	No
Mixed waste (haz. and radioactive):	No
Recycler of hazardous waste:	No
Transporter of hazardous waste:	No

WEST HILL CLEANERS (Continued) **1000708812**

Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

Violation Status: No violations found

FINDS:

Registry ID: 110002855367

Environmental Interest/Information System
RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

STATE MASTER

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

ECHO:
Envid: 1000708812
Registry ID: 110002855367
DFR URL: http://echo.epa.gov/detailed-facility-report?fid=110002855367

A8 **WEST HILLS CLEANERS, IN UI HON** **EMI** **S106842426**
Target **23233 SATICOY ST, #110** **N/A**
Property **WEST HILLS, CA 91304**

Site 8 of 9 in cluster A

Actual:
844 ft.

EMI:
Year: 1990
County Code: 19
Air Basin: SC
Facility ID: 73792
Air District Name: SC
SIC Code: 7216
Air District Name: SOUTH COAST AQMD
Community Health Air Pollution Info System: Not reported
Consolidated Emission Reporting Rule: Not reported
Total Organic Hydrocarbon Gases Tons/Yr: 0
Reactive Organic Gases Tons/Yr: 0
Carbon Monoxide Emissions Tons/Yr: 0
NOX - Oxides of Nitrogen Tons/Yr: 0
SOX - Oxides of Sulphur Tons/Yr: 0

WEST HILLS CLEANERS, IN UI HON (Continued) **S106842426**

Particulate Matter Tons/Yr: 0
Part. Matter 10 Micrometers and Smllr Tons/Yr:0

A9 **RASE INC** **EDR Hist Auto** **1021113342**
Target **23233 SATICOY ST 146** **N/A**
Property **CANOGA PARK, CA 91304**

Site 9 of 9 in cluster A

Actual: EDR Hist Auto
844 ft.

Year:	Name:	Type:
1992	RASE INC	General Automotive Repair Shops
1993	RASE INC	General Automotive Repair Shops
1994	RASE INC	General Automotive Repair Shops
1996	RASE INC	General Automotive Repair Shops
1997	RASE INC	General Automotive Repair Shops

B10 **WOODLAKE CLEANERS** **EDR Hist Cleaner** **1018826290**
7621 WOODLAKE AVE **N/A**
< 1/8 **CANOGA PARK, CA 91304**
1 ft.

Site 1 of 8 in cluster B

Relative: EDR Hist Cleaner
Higher

Year:	Name:	Type:
1983	WOODLAKE CLEANERS	Drycleaning Plants, Except Rugs
1985	WOODLAKE CLEANERS	Drycleaning Plants, Except Rugs
1986	WOODLAKE CLEANERS	Drycleaning Plants, Except Rugs
1987	WOODLAKE CLEANERS	Drycleaning Plants, Except Rugs
1988	WOODLAKE CLEANERS	Drycleaning Plants, Except Rugs
1989	WOODLAKE CLEANERS	Drycleaning Plants, Except Rugs, NEC
1990	WOODLAKE CLEANERS	Drycleaning Plants, Except Rugs, NEC
1991	WOODLAKE CLEANERS	Drycleaning Plants, Except Rugs, NEC
1992	WOODLAKE CLEANERS	Drycleaning Plants, Except Rugs, NEC

Actual:
844 ft.

B11 **93113-CHEVRON STATION** **SWEEPS UST** **S101582911**
ESE **7607 WOODLAKE AVE** **CA FID UST** **N/A**
< 1/8 **CANOGA PARK, CA 91304**
0.010 mi.
54 ft.

Site 2 of 8 in cluster B

Relative: SWEEPS UST:
Lower

Status:	Active
Comp Number:	3538
Number:	1
Board Of Equalization:	44-013083
Referral Date:	02-25-93
Action Date:	04-19-94
Created Date:	02-29-88
Owner Tank Id:	Not reported
SWRCB Tank Id:	19-050-003538-000001
Tank Status:	A
Capacity:	8000

Actual:
843 ft.

93113-CHEVRON STATION (Continued) **S101582911**

Active Date: 04-20-88
Tank Use: CHEMICAL
STG: P
Content: UNKNOWN
Number Of Tanks: 4

Status: Active
Comp Number: 3538
Number: 1
Board Of Equalization: 44-013083
Referral Date: 02-25-93
Action Date: 04-19-94
Created Date: 02-29-88
Owner Tank Id: Not reported
SWRCB Tank Id: 19-050-003538-000002
Tank Status: A
Capacity: 6000
Active Date: 04-20-88
Tank Use: CHEMICAL
STG: P
Content: UNKNOWN
Number Of Tanks: Not reported

Status: Active
Comp Number: 3538
Number: 1
Board Of Equalization: 44-013083
Referral Date: 02-25-93
Action Date: 04-19-94
Created Date: 02-29-88
Owner Tank Id: Not reported
SWRCB Tank Id: 19-050-003538-000003
Tank Status: A
Capacity: 10000
Active Date: 04-20-88
Tank Use: CHEMICAL
STG: P
Content: UNKNOWN
Number Of Tanks: Not reported

Status: Active
Comp Number: 3538
Number: 1
Board Of Equalization: 44-013083
Referral Date: 02-25-93
Action Date: 04-19-94
Created Date: 02-29-88
Owner Tank Id: Not reported
SWRCB Tank Id: 19-050-003538-000004
Tank Status: A
Capacity: 550
Active Date: 04-20-88
Tank Use: CHEMICAL
STG: P
Content: UNKNOWN
Number Of Tanks: Not reported

93113-CHEVRON STATION (Continued) **S101582911**

CA FID UST:

Facility ID:	19001824
Regulated By:	UTNKA
Regulated ID:	00062391
Cortese Code:	Not reported
SIC Code:	Not reported
Facility Phone:	8183409938
Mail To:	Not reported
Mailing Address:	575 MARKET ST
Mailing Address 2:	Not reported
Mailing City,St,Zip:	CANOGA PARK 913040000
Contact:	Not reported
Contact Phone:	Not reported
DUNs Number:	Not reported
NPDES Number:	Not reported
EPA ID:	Not reported
Comments:	Not reported
Status:	Active

B12 **93113** **HIST UST** **U001567118**
ESE **7607 WOODLAKE** **N/A**
< 1/8 **CANOGA PARK, CA 91304**
0.010 mi.
54 ft. **Site 3 of 8 in cluster B**

Relative:
Lower

Actual:
843 ft.

HIST UST:

File Number:	00026D18
URL:	http://geotracker.waterboards.ca.gov/ustpdfs/pdf/00026D18.pdf
Region:	STATE
Facility ID:	00000062391
Facility Type:	Gas Station
Other Type:	Not reported
Contact Name:	MAC, SAT PAL SINGH
Telephone:	8183409938
Owner Name:	CHEVRON U.S.A. INC.
Owner Address:	575 MARKET
Owner City,St,Zip:	SAN FRANCISCO, CA 94105
Total Tanks:	0004
Tank Num:	001
Container Num:	1
Year Installed:	1965
Tank Capacity:	00007000
Tank Used for:	PRODUCT
Type of Fuel:	Not reported
Container Construction Thickness:	0000250
Leak Detection:	Stock Inventor
Tank Num:	002
Container Num:	2
Year Installed:	1965
Tank Capacity:	00006000
Tank Used for:	PRODUCT
Type of Fuel:	Not reported
Container Construction Thickness:	0000250
Leak Detection:	Stock Inventor

93113 (Continued) **U001567118**

Tank Num:	003
Container Num:	3
Year Installed:	1965
Tank Capacity:	00003000
Tank Used for:	PRODUCT
Type of Fuel:	Not reported
Container Construction Thickness:	0000170
Leak Detection:	Stock Inventor

Tank Num:	004
Container Num:	4
Year Installed:	1965
Tank Capacity:	00000550
Tank Used for:	WASTE
Type of Fuel:	Not reported
Container Construction Thickness:	0000100
Leak Detection:	Stock Inventor

Click here for Geo Tracker PDF:

B13 **PAUL MAC CHEVRON** **EDR Hist Auto** **1020671096**
ESE **7607 WOODLAKE AV** **N/A**
< 1/8 **CANOGA PARK, CA 91304**
0.010 mi.
54 ft. **Site 4 of 8 in cluster B**

Relative:
Lower

Actual:
843 ft.

EDR Hist Auto

Year:	Name:	Type:
1977	LARRYS CHEVRON SERVICE	Gasoline Service Stations
1978	LARRYS CHEVRON SERVICE	Gasoline Service Stations
1979	LARRYS CHEVRON SERVICE	Gasoline Service Stations
1980	LARRYS CHEVRON SERVICE	Gasoline Service Stations
1982	LARRYS CHEVRON SERVICE	Gasoline Service Stations
1986	PAUL MAC CHEVRON	Gasoline Service Stations
1987	PAUL MAC CHEVRON	Gasoline Service Stations
1988	PAUL MAC CHEVRON	Gasoline Service Stations
1989	PAUL MAC CHEVRON	Gasoline Service Stations
1989	MAC JATINDAR & SATPAL S	Gasoline Service Stations
1990	PAUL MAC CHEVRON	Gasoline Service Stations
1991	MAC JATINDAR & SATPAL S	Gasoline Service Stations
1991	PAUL MAC CHEVRON	Gasoline Service Stations
1992	MAC PAUL CHEVRON	Gasoline Service Stations
1993	MAC PAUL CHEVRON	Gasoline Service Stations
1994	MAC PAUL CHEVRON	Gasoline Service Stations
1995	MAC PAUL CHEVRON	Gasoline Service Stations
1996	MAC PAUL CHEVRON	Gasoline Service Stations
1997	MAC PAUL CHEVRON	Gasoline Service Stations
1998	MAC PAUL CHEVRON	Gasoline Service Stations
1999	MAC PAUL CHEVRON	Gasoline Service Stations
2000	AZ AUTO TECHNICIANS	General Automotive Repair Shops
2000	MAC PAUL CHEVRON	Gasoline Service Stations
2001	AZ AUTO TECHNICIANS	General Automotive Repair Shops
2002	WOODLAKE CHEVRON	Gasoline Service Stations, NEC
2002	AZ AUTO TECHNICIANS	General Automotive Repair Shops
2003	WOODLAKE CHEVRON	Gasoline Service Stations, NEC
2003	AZ AUTO TECHNICIANS	General Automotive Repair Shops
2004	WOODLAKE CHEVRON	General Automotive Repair Shops

PAUL MAC CHEVRON (Continued) **1020671096**

2005	WOODLAKE CHEVRON	Gasoline Service Stations, NEC
2006	WOODLAKE CHEVRON	Gasoline Service Stations, NEC
2007	WOODLAKE CHEVRON	Gasoline Service Stations, NEC
2008	WOODLAKE CHEVRON	Gasoline Service Stations, NEC
2009	WOODLAKE CHEVRON	Gasoline Service Stations, NEC
2010	WOODLAKE CHEVRON	Gasoline Service Stations, NEC
2011	WOODLAKE CHEVRON	Gasoline Service Stations, NEC
2012	WOODLAKE CHEVRON	Gasoline Service Stations, NEC
2013	WOODLAKE CHEVRON	Gasoline Service Stations, NEC
2014	WOODLAKE CHEVRON	Gasoline Service Stations, NEC

B14 **CHEVRON STATION #9-3113** **UST** **U003939071**
ESE **7607 WOODLAKE AVE** **N/A**
< 1/8 **CANOGA PARK, CA 91304**
0.010 mi.
54 ft. **Site 5 of 8 in cluster B**

Relative:
Lower

Actual:
843 ft.

UST:

Facility ID:	23811
Permitting Agency:	LOS ANGELES, CITY OF
Latitude:	34.2098638
Longitude:	-118.631121

B15 **CHEVRON STATION NO 93113** **LUST** **1005904333**
ESE **7607 WOODLAKE** **RCRA NonGen / NLR** **CAR000121426**
< 1/8 **WEST HILLS, CA 91304** **FINDS**
0.010 mi. **ECHO**
54 ft. **Site 6 of 8 in cluster B**

Relative:
Lower

Actual:
843 ft.

LUST:

Region:	STATE
Global Id:	T0603702103
Latitude:	34.2083064
Longitude:	-118.6323282
Case Type:	LUST Cleanup Site
Status:	Completed - Case Closed
Status Date:	02/02/2001
Lead Agency:	LOS ANGELES RWQCB (REGION 4)
Case Worker:	MB
Local Agency:	LOS ANGELES, CITY OF
RB Case Number:	913040616
LOC Case Number:	Not reported
File Location:	Not reported
Potential Media Affect:	Aquifer used for drinking water supply
Potential Contaminants of Concern:	Gasoline
Site History:	Not reported

Click here to access the California GeoTracker records for this facility:

Contact:

Global Id:	T0603702103
Contact Type:	Local Agency Caseworker
Contact Name:	ELOY LUNA
Organization Name:	LOS ANGELES, CITY OF
Address:	200 North Main Street, Suite 1780
City:	LOS ANGELES
Email:	eloy.luna@lacity.org

CHEVRON STATION NO 93113 (Continued) **1005904333**

Phone Number: Not reported

Global Id: T0603702103
Contact Type: Regional Board Caseworker
Contact Name: MAGDY BAIADY
Organization Name: LOS ANGELES RWQCB (REGION 4)
Address: 320 W. 4TH ST., SUITE 200
City: LOS ANGELES
Email: mbaiady@waterboards.ca.gov
Phone Number: 2135766699

Status History:
Global Id: T0603702103
Status: Completed - Case Closed
Status Date: 02/02/2001

Global Id: T0603702103
Status: Open - Case Begin Date
Status Date: 05/05/1988

Global Id: T0603702103
Status: Open - Remediation
Status Date: 05/12/1998

Global Id: T0603702103
Status: Open - Site Assessment
Status Date: 05/10/1988

Global Id: T0603702103
Status: Open - Site Assessment
Status Date: 01/02/1989

Global Id: T0603702103
Status: Open - Site Assessment
Status Date: 03/01/1989

Global Id: T0603702103
Status: Open - Site Assessment
Status Date: 04/01/1991

Regulatory Activities:
Global Id: T0603702103
Action Type: Other
Date: 06/10/1993
Action: Leak Reported

Global Id: T0603702103
Action Type: Other
Date: 05/05/1988
Action: Leak Discovery

RCRA NonGen / NLR:
Date form received by agency: 03/13/2013
Facility name: CHEVRON STA NO 93113
Facility address: 7607 WOODLAKE

CHEVRON STATION NO 93113 (Continued) **1005904333**

WEST HILLS, CA 91304
EPA ID: CAR000121426
Mailing address: PO BOX 6004
SAN RAMON, CA 94583
Contact: KATHY NORRIS SLUSHER
Contact address: PO BOX 6004
SAN RAMON, CA 94583
Contact country: US
Contact telephone: 877-386-6044
Contact email: NAWTDESK@CHEVRON.COM
EPA Region: 09
Classification: Non-Generator
Description: Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:
Owner/operator name: KATHY NORRIS SLUSHER
Owner/operator address: Not reported
Not reported
Owner/operator country: US
Owner/operator telephone: Not reported
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Operator
Owner/Op start date: 06/08/2005
Owner/Op end date: Not reported

Owner/operator name: CHEVRON USA
Owner/operator address: PO BOX 6004
SAN RAMON, CA 94583
Owner/operator country: US
Owner/operator telephone: 877-386-6044
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: 06/08/2005
Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No

CHEVRON STATION NO 93113 (Continued) **1005904333**

Used oil transporter: No

Historical Generators:

Date form received by agency: 02/16/2006
Site name: CHEVRON 93113
Classification: Small Quantity Generator

Date form received by agency: 02/16/2006
Site name: CHEVRON 93113
Classification: Large Quantity Generator

. Waste code: 223
. Waste name: Unspecified oil-containing waste

. Waste code: D001
. Waste name: IGNITABLE WASTE

. Waste code: D018
. Waste name: BENZENE

Date form received by agency: 05/16/2002
Site name: CHEVRON STATION NO 93113
Classification: Small Quantity Generator

. Waste code: D001
. Waste name: IGNITABLE WASTE

. Waste code: D018
. Waste name: BENZENE

Violation Status: No violations found

FINDS:

Registry ID: 110012543505

Environmental Interest/Information System

California Hazardous Waste Tracking System - Datamart (HWTS-DATAMART) provides California with information on hazardous waste shipments for generators, transporters, and treatment, storage, and disposal facilities.

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

HAZARDOUS WASTE BIENNIAL REPORTER

STATE MASTER

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

CHEVRON STATION NO 93113 (Continued) **1005904333**

ECHO:
Envid: 1005904333
Registry ID: 110012543505
DFR URL: http://echo.epa.gov/detailed-facility-report?fid=110012543505

B16 **CHEVRON #9-3113** **LUST** **S103066157**
ESE **7607 WOODLAKE AVE** **N/A**
< 1/8 **WEST HILLS, CA 91304**
0.010 mi.
54 ft. **Site 7 of 8 in cluster B**

Relative:
Lower

Actual:
843 ft.

LUST REG 4:

Region:	4	
Regional Board:	04	
County:	Los Angeles	
Facility Id:	913040616	
Status:	Case Closed	
Substance:	Gasoline	
Substance Quantity:	Not reported	
Local Case No:	Not reported	
Case Type:	Groundwater	
Abatement Method Used at the Site:		Not reported
Global ID:	T0603702103	
W Global ID:	W0606501096	
Staff:	MB	
Local Agency:	19050	
Cross Street:	SATICOY	
Enforcement Type:	Not reported	
Date Leak Discovered:	5/5/1988	
Date Leak First Reported:		6/10/1993
Date Leak Record Entered:	9/11/1988	
Date Confirmation Began:	5/10/1988	
Date Leak Stopped:	Not reported	
Date Case Last Changed on Database:		2/19/2001
Date the Case was Closed:		2/2/2001
How Leak Discovered:	OM	
How Leak Stopped:	Not reported	
Cause of Leak:	Overfill	
Leak Source:	UNK	
Operator:	MAC, PAL SINGH	
Water System:	HABONIM CAMP GILBOA	
Well Name:	Not reported	
Approx. Dist To Production Well (ft):		12555.637511252389694005617819
Source of Cleanup Funding:		UNK
Preliminary Site Assessment Workplan Submitted:		1/2/1989
Preliminary Site Assessment Began:		3/1/1989
Pollution Characterization Began:		4/1/1991
Remediation Plan Submitted:		5/12/1998
Remedial Action Underway:		Not reported
Post Remedial Action Monitoring Began:		Not reported
Enforcement Action Date:		Not reported
Historical Max MTBE Date:		10/15/1998
Hist Max MTBE Conc in Groundwater:		74
Hist Max MTBE Conc in Soil:		Not reported
Significant Interim Remedial Action Taken:		Not reported
GW Qualifier:	Not reported	
Soil Qualifier:	Not reported	

CHEVRON #9-3113 (Continued) **S103066157**

Organization:	Not reported
Owner Contact:	Not reported
Responsible Party:	CHEVRON, USA
RP Address:	145 S. STATE COLLEGE BLVD., #4084, BREA CA 92822
Program:	LUST
Lat/Long:	34.2083064 / -1
Local Agency Staff:	PEJ
Beneficial Use:	Not reported
Priority:	Not reported
Cleanup Fund Id:	Not reported
Suspended:	Not reported
Assigned Name:	3301096-001GEN
Summary:	2/3/00 REQUEST FOR SITE CLOSURE; 3/1/00 1ST QTR GW MON RPT 2000; 6/9/00 2ND QTR GW MON RPT 2000; 8/21/00 3RD QTR GW MON RPT 2000; 12/26/00 4TH QTR GW MON RPT 2000; 2/19/01 REQUEST FOR WELL ABANDONMENT

B17
ESE
< 1/8
0.021 mi.
112 ft.

CHEVRON #9-3113
7607 WOODLAKE
WEST HILLS, CA 93104

HIST CORTESE **S103955994**
N/A

Site 8 of 8 in cluster B

Relative:
Lower

Actual:
843 ft.

HIST CORTESE:

Region:	CORTESE
Facility County Code:	19
Reg By:	LTNKA
Reg Id:	913040616

18
SW
1/8-1/4
0.208 mi.
1096 ft.

OAKBROOK FARM
23254 COHASSET STREET
CANOGA PARK, CA 91304

HIST UST **U001567144**
N/A

Relative:
Lower

Actual:
840 ft.

HIST UST:

File Number:	00028856
URL:	http://geotracker.waterboards.ca.gov/ustpdfs/pdf/00028856.pdf
Region:	STATE
Facility ID:	00000047092
Facility Type:	Other
Other Type:	FARMS
Contact Name:	GENE TODD
Telephone:	8188870038
Owner Name:	WILLIAM P. & PATRICIA A. KLUSS
Owner Address:	23254 COHASSET STREET
Owner City,St,Zip:	CANOGA PARK, CA 91304
Total Tanks:	0001
Tank Num:	001
Container Num:	1
Year Installed:	Not reported
Tank Capacity:	00000300
Tank Used for:	PRODUCT
Type of Fuel:	UNLEADED
Container Construction Thickness:	Not reported
Leak Detection:	Stock Inventor

OAKBROOK FARM (Continued) **U001567144**

Click here for Geo Tracker PDF:

19
SSE
1/4-1/2
0.408 mi.
2156 ft.

Relative:
Lower

Actual:
822 ft.

WEST HILLS REGIONAL MEDICAL CENTER
7300 MEDICAL CENTER DRIVE
WEST HILLS, CA 91307

RCRA-LQG **1000151002**
LUST **CAD981383474**
UST
SWEEPS UST
CA FID UST
FINDS
ECHO
EMI
HIST CORTESE

RCRA-LQG:

Date form received by agency:	12/16/2016
Facility name:	WEST HILLS HOSPITAL AND MEDICAL CENTER
Facility address:	7300 MEDICAL CENTER DR WEST HILLS, CA 91307
EPA ID:	CAD981383474
Mailing address:	MEDICAL CENTER DR WEST HILLS, CA 91307
Contact:	HECTOR CORDON
Contact address:	MEDICAL CENTER DR WEST HILLS, CA 91307
Contact country:	US
Contact telephone:	818-676-4218
Contact email:	HECTOR.CORDON@HCAHEALTHCARE.COM
EPA Region:	09
Classification:	Large Quantity Generator
Description:	Handler: generates 1,000 kg or more of hazardous waste during any calendar month; or generates more than 1 kg of acutely hazardous waste during any calendar month; or generates more than 100 kg of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste during any calendar month; or generates 1 kg or less of acutely hazardous waste during any calendar month, and accumulates more than 1 kg of acutely hazardous waste at any time; or generates 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste during any calendar month, and accumulates more than 100 kg of that material at any time

Owner/Operator Summary:

Owner/operator name:	WEST HILLS HOSPITAL AND MEDICAL CENTER
Owner/operator address:	MEDICAL CENTER DR WEST HILLS, CA 91307
Owner/operator country:	US
Owner/operator telephone:	818-676-4000
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported
Legal status:	Private
Owner/Operator Type:	Owner
Owner/Op start date:	06/30/1969
Owner/Op end date:	Not reported
Owner/operator name:	HECTOR CORDON DIRECTOR
Owner/operator address:	Not reported

WEST HILLS REGIONAL MEDICAL CENTER (Continued) **1000151002**

Not reported
Owner/operator country: Not reported
Owner/operator telephone: Not reported
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Operator
Owner/Op start date: 09/13/2004
Owner/Op end date: Not reported

Owner/operator name: HECTOR CORDON DIRECTOR OF ENVIRONMENTAL SERVICES
Owner/operator address: Not reported
Not reported
Owner/operator country: Not reported
Owner/operator telephone: Not reported
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Operator
Owner/Op start date: 09/12/2004
Owner/Op end date: Not reported

Owner/operator name: WEST HILLS HOSPITAL AND MEDICAL CENTER
Owner/operator address: MEDICAL CENTER DR
WEST HILLS, CA 91307
Owner/operator country: US
Owner/operator telephone: 818-676-4000
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: 07/01/1969
Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

. Waste code: 133
. Waste name: Aqueous solution with 10% or more total organic residues

WEST HILLS REGIONAL MEDICAL CENTER (Continued) **1000151002**

. Waste code: 181
. Waste name: Other inorganic solid waste

. Waste code: 214
. Waste name: Unspecified solvent mixture

. Waste code: 221
. Waste name: Waste oil and mixed oil

. Waste code: 291
. Waste name: Latex waste

. Waste code: 343
. Waste name: Unspecified organic liquid mixture

. Waste code: 512
. Waste name: Other empty containers 30 gallons or more

. Waste code: 551
. Waste name: Laboratory waste chemicals

. Waste code: 791
. Waste name: Liquids with pH < 2

. Waste code: D001
. Waste name: IGNITABLE WASTE

. Waste code: D002
. Waste name: CORROSIVE WASTE

. Waste code: D003
. Waste name: REACTIVE WASTE

. Waste code: D006
. Waste name: CADMIUM

. Waste code: D007
. Waste name: CHROMIUM

. Waste code: D008
. Waste name: LEAD

. Waste code: D009
. Waste name: MERCURY

. Waste code: D010
. Waste name: SELENIUM

. Waste code: D011
. Waste name: SILVER

. Waste code: D022
. Waste name: CHLOROFORM

. Waste code: D024
. Waste name: M-CRESOL

WEST HILLS REGIONAL MEDICAL CENTER (Continued) **1000151002**

. Waste code: F003
. Waste name: THE FOLLOWING SPENT NONHALOGENATED SOLVENTS: XYLENE, ACETONE, ETHYL ACETATE, ETHYL BENZENE, ETHYL ETHER, METHYL ISOBUTYL KETONE, N-BUTYL ALCOHOL, CYCLOHEXANONE, AND METHANOL; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONLY THE ABOVE SPENT NONHALOGENATED SOLVENTS; AND ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONE OR MORE OF THE ABOVE NONHALOGENATED SOLVENTS, AND A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THOSE SOLVENTS LISTED IN F001, F002, F004, AND F005; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

. Waste code: P001
. Waste name: 2H-1-BENZOPYRAN-2-ONE, 4-HYDROXY-3-(3-OXO-1-PHENYLBUTYL)-, & SALTS, WHEN PRESENT AT CONCENTRATIONS GREATER THAN 0.3% (OR) WARFARIN, & SALTS, WHEN PRESENT AT CONCENTRATIONS GREATER THAN 0.3%

. Waste code: P012
. Waste name: ARSENIC OXIDE AS2O3 (OR) ARSENIC TRIOXIDE

. Waste code: P075
. Waste name: NICOTINE, & SALTS (OR) PYRIDINE, 3-(1-METHYL-2-PYRROLIDINYL)-,(S)-, & SALTS

. Waste code: P188
. Waste name: BENZOIC ACID, 2-HYDROXY-, COMPD. WITH (3AS-CIS)-1,2,3,3A,8,8A-HEXAHYDRO-1,3A,8-TRIMETHYLPYRROLO[2,3-B]INDOL--YL METHYLCARBAMATE ESTER (1:1) (OR) PHYSOSTIGMINE SALICYLATE

. Waste code: U010
. Waste name: AZIRINO [2',3':3,4]PYRROLO[1,2-A]INDOLE-4,7-DIONE, 6-AMINO-8-[[(AMINOCARBONYL)OXY]METHYL]-1,1A,2,8,8A,8B-HEXAHYDRO-8A-METOXY-5-METHYL-, [1AS-(1AALPHA, 8BETA, 8AALPHA, 8BALPHA)]- (OR) MITOMYCIN C

. Waste code: U058
. Waste name: 2H-1,3,2-OXAZAPHOSPHORIN-2-AMINE, N,N-BIS(2-CHLOROETHYL)TETRAHYDRO-, 2-OXIDE (OR) CYCLOPHOSPHAMIDE

. Waste code: U059
. Waste name: 5,12-NAPHTHACENEDIONE, 8-ACETYL-10-[(3-AMINO-2,3,6-TRIDEOXY)-ALPHA-L-LYXO-HEXOPYRANOSYL)OXY]-,8,9,10-TETRAHYDRO-6,8,11-TRIHYDROXY-1-METHOXY-, (8S-CIS)- (OR) DAUNOMYCIN

. Waste code: U132
. Waste name: HEXACHLOROPHENE (OR) PHENOL, 2,2'-METHYLENEBIS[3,4,6-TRICHLORO-

. Waste code: U188
. Waste name: PHENOL

Historical Generators:
Date form received by agency: 06/01/2016
Site name: WEST HILLS HOSPITAL AND MEDICAL CENTER
Classification: Large Quantity Generator

. Waste code: 133

WEST HILLS REGIONAL MEDICAL CENTER (Continued) **1000151002**

. Waste name: Aqueous solution with 10% or more total organic residues

. Waste code: 181
. Waste name: Other inorganic solid waste

. Waste code: 214
. Waste name: Unspecified solvent mixture

. Waste code: 221
. Waste name: Waste oil and mixed oil

. Waste code: 291
. Waste name: Latex waste

. Waste code: 311
. Waste name: Pharmaceutical waste

. Waste code: 343
. Waste name: Unspecified organic liquid mixture

. Waste code: 512
. Waste name: Other empty containers 30 gallons or more

. Waste code: 551
. Waste name: Laboratory waste chemicals

. Waste code: D001
. Waste name: IGNITABLE WASTE

. Waste code: D002
. Waste name: CORROSIVE WASTE

. Waste code: D003
. Waste name: REACTIVE WASTE

. Waste code: D006
. Waste name: CADMIUM

. Waste code: D007
. Waste name: CHROMIUM

. Waste code: D008
. Waste name: LEAD

. Waste code: D009
. Waste name: MERCURY

. Waste code: D010
. Waste name: SELENIUM

. Waste code: D011
. Waste name: SILVER

. Waste code: D022
. Waste name: CHLOROFORM

. Waste code: D024

WEST HILLS REGIONAL MEDICAL CENTER (Continued) **1000151002**

. Waste name: M-CRESOL

. Waste code: P001
. Waste name: 2H-1-BENZOPYRAN-2-ONE, 4-HYDROXY-3-(3-OXO-1-PHENYLBUTYL)-, & SALTS, WHEN PRESENT AT CONCENTRATIONS GREATER THAN 0.3% (OR) WARFARIN, & SALTS, WHEN PRESENT AT CONCENTRATIONS GREATER THAN 0.3%

. Waste code: P012
. Waste name: ARSENIC OXIDE AS2O3 (OR) ARSENIC TRIOXIDE

. Waste code: P075
. Waste name: NICOTINE, & SALTS (OR) PYRIDINE, 3-(1-METHYL-2-PYRROLIDINYL)-,(S)-, & SALTS

. Waste code: P188
. Waste name: BENZOIC ACID, 2-HYDROXY-, COMPD. WITH (3AS-CIS)-1,2,3,3A,8,8A-HEXAHYDRO-1,3A,8-TRIMETHYLPYRROLO[2,3-B]INDOL--YL METHYLCARBAMATE ESTER (1:1) (OR) PHYSOSTIGMINE SALICYLATE

. Waste code: U010
. Waste name: AZIRINO [2',3':3,4]PYRROLO[1,2-A]INDOLE-4,7-DIONE, 6-AMINO-8-[[(AMINOCARBONYL)OXY]METHYL]-1,1A,2,8,8A,8B-HEXAHYDRO-8A-METOXY-5-METHYL-, [1AS-(1AALPHA, 8BETA, 8AALPHA, 8BALPHA)]- (OR) MITOMYCIN C

. Waste code: U058
. Waste name: 2H-1,3,2-OXAZAPHOSPHORIN-2-AMINE, N,N-BIS(2-CHLOROETHYL)TETRAHYDRO-, 2-OXIDE (OR) CYCLOPHOSPHAMIDE

. Waste code: U059
. Waste name: 5,12-NAPHTHACENEDIONE, 8-ACETYL-10-[(3-AMINO-2,3,6-TRIDEOXY)-ALPHA-L-LYXO-HEXOPYRANOSYL)OXY]-,8,9,10-TETRAHYDRO-6,8,11-TRIHYDROXY-1-METHOXY-, (8S-CIS)- (OR) DAUNOMYCIN

. Waste code: U132
. Waste name: HEXACHLOROPHENE (OR) PHENOL, 2,2'-METHYLENEBIS[3,4,6-TRICHLORO-

. Waste code: U188
. Waste name: PHENOL

Date form received by agency: 05/11/2010
Site name: WEST HILLS HOSPITAL & MEDICAL CENTER
Classification: Large Quantity Generator

. Waste code: D001
. Waste name: IGNITABLE WASTE

. Waste code: D002
. Waste name: CORROSIVE WASTE

. Waste code: D003
. Waste name: REACTIVE WASTE

. Waste code: D006
. Waste name: CADMIUM

WEST HILLS REGIONAL MEDICAL CENTER (Continued) **1000151002**

. Waste code: D008
. Waste name: LEAD

Date form received by agency: 02/23/2004
Site name: WEST HILLS HOSPITAL AND MEDICAL CENTER
Classification: Large Quantity Generator

. Waste code: D001
. Waste name: IGNITABLE WASTE

. Waste code: D002
. Waste name: CORROSIVE WASTE

. Waste code: F003
. Waste name: THE FOLLOWING SPENT NONHALOGENATED SOLVENTS: XYLENE, ACETONE, ETHYL ACETATE, ETHYL BENZENE, ETHYL ETHER, METHYL ISOBUTYL KETONE, N-BUTYL ALCOHOL, CYCLOHEXANONE, AND METHANOL; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONLY THE ABOVE SPENT NONHALOGENATED SOLVENTS; AND ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONE OR MORE OF THE ABOVE NONHALOGENATED SOLVENTS, AND A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THOSE SOLVENTS LISTED IN F001, F002, F004, AND F005; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

. Waste code: U151
. Waste name: MERCURY

Date form received by agency: 02/23/2004
Site name: WEST HILLS HOSPITAL AND MEDICAL CENTER
Classification: Small Quantity Generator

Date form received by agency: 03/23/1993
Site name: WEST HILLS REGIONAL MEDICAL CENTER
Classification: Small Quantity Generator

Biennial Reports:

Last Biennial Reporting Year: 2017

Annual Waste Handled:
Waste code: D001
Waste name: IGNITABLE HAZARDOUS WASTES ARE THOSE WASTES WHICH HAVE A FLASHPOINT OF LESS THAN 140 DEGREES FAHRENHEIT AS DETERMINED BY A PENSKY-MARTENS CLOSED CUP FLASH POINT TESTER. ANOTHER METHOD OF DETERMINING THE FLASH POINT OF A WASTE IS TO REVIEW THE MATERIAL SAFETY DATA SHEET, WHICH CAN BE OBTAINED FROM THE MANUFACTURER OR DISTRIBUTOR OF THE MATERIAL. LACQUER THINNER IS AN EXAMPLE OF A COMMONLY USED SOLVENT WHICH WOULD BE CONSIDERED AS IGNITABLE HAZARDOUS WASTE.
Amount (Lbs): 7491

Waste code: P075
Waste name: NICOTINE, & SALTS
Amount (Lbs): 2377

Waste code: P188
Waste name: BENZOIC ACID, 2-HYDROXY-, COMPD. WITH (3AS-CIS)-1,2,3,3A,8,8A-HEXAHYDRO-1,3A,8-TRIMETHYLPYRROLO[2,3-

WEST HILLS REGIONAL MEDICAL CENTER (Continued) **1000151002**

Amount (Lbs): 2377

Waste code: U010
Waste name: AZIRINO[2',3':3,4]PYRROLO[1,2-A]INDOLE-4,7-DIONE, 6-AMINO-8-[[(AMINOCARBONYL)OXY]METHYL]-1,1A,2,8,8A,8B-HEXAHYDRO-8A-METHOXY-5-METHYL-, [1AS-(1AALPHA, 8BETA,8AALPHA,8BALPHA)]-
Amount (Lbs): 2377

Waste code: U059
Waste name: DAUNOMYCIN
Amount (Lbs): 2377

Waste code: U132
Waste name: HEXACHLOROPHENE
Amount (Lbs): 2377

Violation Status: No violations found

LUST:
Region: STATE
Global Id: T0603702126
Latitude: 34.2022695
Longitude: -118.62924
Case Type: LUST Cleanup Site
Status: Completed - Case Closed
Status Date: 12/30/1991
Lead Agency: LOS ANGELES, CITY OF
Case Worker: EL
Local Agency: LOS ANGELES, CITY OF
RB Case Number: 913070089
LOC Case Number: Not reported
File Location: Not reported
Potential Media Affect: Other Groundwater (uses other than drinking water)
Potential Contaminants of Concern: Diesel
Site History: Not reported

Click here to access the California GeoTracker records for this facility:

Contact:
Global Id: T0603702126
Contact Type: Local Agency Caseworker
Contact Name: ELOY LUNA
Organization Name: LOS ANGELES, CITY OF
Address: 200 North Main Street, Suite 1780
City: LOS ANGELES
Email: eloy.luna@lacity.org
Phone Number: Not reported

Global Id: T0603702126
Contact Type: Regional Board Caseworker
Contact Name: YUE RONG
Organization Name: LOS ANGELES RWQCB (REGION 4)
Address: 320 W. 4TH ST., SUITE 200
City: Los Angeles
Email: yrong@waterboards.ca.gov
Phone Number: Not reported

WEST HILLS REGIONAL MEDICAL CENTER (Continued) **1000151002**

Status History:

Global Id:	T0603702126
Status:	Completed - Case Closed
Status Date:	12/30/1991
Global Id:	T0603702126
Status:	Open - Case Begin Date
Status Date:	07/30/1991
Global Id:	T0603702126
Status:	Open - Remediation
Status Date:	08/26/1991

Regulatory Activities:

Global Id:	T0603702126
Action Type:	Other
Date:	08/26/1991
Action:	Leak Reported
Global Id:	T0603702126
Action Type:	Other
Date:	07/30/1991
Action:	Leak Discovery

LUST REG 4:

Region:	4	
Regional Board:	04	
County:	Los Angeles	
Facility Id:	913070089	
Status:	Case Closed	
Substance:	Diesel	
Substance Quantity:	Not reported	
Local Case No:	Not reported	
Case Type:	Groundwater	
Abatement Method Used at the Site:		Not reported
Global ID:	T0603702126	
W Global ID:	W0606501096	
Staff:	UNK	
Local Agency:	19050	
Cross Street:	SHERMAN WAY	
Enforcement Type:	Not reported	
Date Leak Discovered:	7/30/1991	
Date Leak First Reported:		8/26/1991
Date Leak Record Entered:	5/24/1992	
Date Confirmation Began:	Not reported	
Date Leak Stopped:	Not reported	
Date Case Last Changed on Database:		6/12/1992
Date the Case was Closed:		12/30/1991
How Leak Discovered:	OM	
How Leak Stopped:	Not reported	
Cause of Leak:	Overfill	
Leak Source:	Other Source	
Operator:	OLD CASENO WAS 061292-02	
Water System:	HABONIM CAMP GILBOA	
Well Name:	Not reported	

WEST HILLS REGIONAL MEDICAL CENTER (Continued) **1000151002**

Approx. Dist To Production Well (ft): 10190.566352878168074629121591
Source of Cleanup Funding: Other Source
Preliminary Site Assessment Workplan Submitted: Not reported
Preliminary Site Assessment Began: Not reported
Pollution Characterization Began: Not reported
Remediation Plan Submitted: 8/26/1991
Remedial Action Underway: Not reported
Post Remedial Action Monitoring Began: Not reported
Enforcement Action Date: Not reported
Historical Max MTBE Date: Not reported
Hist Max MTBE Conc in Groundwater: Not reported
Hist Max MTBE Conc in Soil: Not reported
Significant Interim Remedial Action Taken: Not reported
GW Qualifier: Not reported
Soil Qualifier: Not reported
Organization: Not reported
Owner Contact: Not reported
Responsible Party: DIALYSIS CO.
RP Address: 17151 SHERMAN WAY, VAN NUYS, 91406
Program: LUST
Lat/Long: 34.2022695 / -1
Local Agency Staff: PEJ
Beneficial Use: Not reported
Priority: Not reported
Cleanup Fund Id: Not reported
Suspended: Not reported
Assigned Name: 3301096-001GEN
Summary: CASE HANDLE BY DEPT. OF HEALTH SERVICES (818) 567-3134. DENISE HUME

UST:
Facility ID: 23652
Permitting Agency: LOS ANGELES, CITY OF
Latitude: 34.2037627
Longitude: -118.6280837

SWEEPS UST:
Status: Active
Comp Number: 5313
Number: 1
Board Of Equalization: Not reported
Referral Date: 03-23-93
Action Date: 03-23-93
Created Date: 02-29-88
Owner Tank Id: 0000005313
SWRCB Tank Id: 19-050-005313-000001
Tank Status: A
Capacity: 1000
Active Date: 03-23-93
Tank Use: M.V. FUEL
STG: P
Content: REG UNLEADED
Number Of Tanks: 2

Status: Active
Comp Number: 5313
Number: 1

WEST HILLS REGIONAL MEDICAL CENTER (Continued) **1000151002**

Board Of Equalization: Not reported
Referral Date: 03-23-93
Action Date: 03-23-93
Created Date: 02-29-88
Owner Tank Id: 0000005313
SWRCB Tank Id: 19-050-005313-000002
Tank Status: A
Capacity: 1000
Active Date: 03-23-93
Tank Use: M.V. FUEL
STG: P
Content: REG UNLEADED
Number Of Tanks: Not reported

CA FID UST:
Facility ID: 19003548
Regulated By: UTNKA
Regulated ID: Not reported
Cortese Code: Not reported
SIC Code: Not reported
Facility Phone: 2130000000
Mail To: Not reported
Mailing Address: 7300 MEDICAL CENTER DR
Mailing Address 2: Not reported
Mailing City,St,Zip: CANOGA PARK 913070000
Contact: Not reported
Contact Phone: Not reported
DUNs Number: Not reported
NPDES Number: Not reported
EPA ID: Not reported
Comments: Not reported
Status: Active

FINDS:

Registry ID: 110009534968

Environmental Interest/Information System
California Hazardous Waste Tracking System - Datamart (HWTS-DATAMART) provides California with information on hazardous waste shipments for generators, transporters, and treatment, storage, and disposal facilities.

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

HAZARDOUS AIR POLLUTANT MAJOR

HAZARDOUS WASTE BIENNIAL REPORTER

STATE MASTER

WEST HILLS REGIONAL MEDICAL CENTER (Continued) **1000151002**

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

ECHO:

Envid:	1000151002
Registry ID:	110009534968
DFR URL:	http://echo.epa.gov/detailed-facility-report?fid=110009534968

EMI:

Year:	1990
County Code:	19
Air Basin:	SC
Facility ID:	23399
Air District Name:	SC
SIC Code:	8062
Air District Name:	SOUTH COAST AQMD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	0
Reactive Organic Gases Tons/Yr:	0
Carbon Monoxide Emissions Tons/Yr:	1
NOX - Oxides of Nitrogen Tons/Yr:	3
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	0
Part. Matter 10 Micrometers and Smllr Tons/Yr:	0

Year:	1993
County Code:	19
Air Basin:	SC
Facility ID:	23399
Air District Name:	SC
SIC Code:	8062
Air District Name:	SOUTH COAST AQMD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	1
Reactive Organic Gases Tons/Yr:	0
Carbon Monoxide Emissions Tons/Yr:	1
NOX - Oxides of Nitrogen Tons/Yr:	3
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	0
Part. Matter 10 Micrometers and Smllr Tons/Yr:	0

Year:	1995
County Code:	19
Air Basin:	SC
Facility ID:	23399
Air District Name:	SC
SIC Code:	8062
Air District Name:	SOUTH COAST AQMD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	1
Reactive Organic Gases Tons/Yr:	0
Carbon Monoxide Emissions Tons/Yr:	1

WEST HILLS REGIONAL MEDICAL CENTER (Continued) **1000151002**

NOX - Oxides of Nitrogen Tons/Yr:	3
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	0
Part. Matter 10 Micrometers and Smllr Tons/Yr:	0

Year:	1996
County Code:	19
Air Basin:	SC
Facility ID:	23399
Air District Name:	SC
SIC Code:	8062
Air District Name:	SOUTH COAST AQMD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	1
Reactive Organic Gases Tons/Yr:	1
Carbon Monoxide Emissions Tons/Yr:	1
NOX - Oxides of Nitrogen Tons/Yr:	3
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	0
Part. Matter 10 Micrometers and Smllr Tons/Yr:	0

Year:	1997
County Code:	19
Air Basin:	SC
Facility ID:	23399
Air District Name:	SC
SIC Code:	8062
Air District Name:	SOUTH COAST AQMD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	1
Reactive Organic Gases Tons/Yr:	1
Carbon Monoxide Emissions Tons/Yr:	1
NOX - Oxides of Nitrogen Tons/Yr:	3
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	0
Part. Matter 10 Micrometers and Smllr Tons/Yr:	0

Year:	1998
County Code:	19
Air Basin:	SC
Facility ID:	23399
Air District Name:	SC
SIC Code:	8062
Air District Name:	SOUTH COAST AQMD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	1
Reactive Organic Gases Tons/Yr:	0
Carbon Monoxide Emissions Tons/Yr:	1
NOX - Oxides of Nitrogen Tons/Yr:	3
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	0
Part. Matter 10 Micrometers and Smllr Tons/Yr:	0

Year:	1999

WEST HILLS REGIONAL MEDICAL CENTER (Continued) **1000151002**

County Code:	19
Air Basin:	SC
Facility ID:	23399
Air District Name:	SC
SIC Code:	8062
Air District Name:	SOUTH COAST AQMD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	1
Reactive Organic Gases Tons/Yr:	1
Carbon Monoxide Emissions Tons/Yr:	1
NOX - Oxides of Nitrogen Tons/Yr:	3
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	0
Part. Matter 10 Micrometers and Smllr Tons/Yr:	0

Year:	2000
County Code:	19
Air Basin:	SC
Facility ID:	23399
Air District Name:	SC
SIC Code:	8062
Air District Name:	SOUTH COAST AQMD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	1
Reactive Organic Gases Tons/Yr:	1
Carbon Monoxide Emissions Tons/Yr:	1
NOX - Oxides of Nitrogen Tons/Yr:	3
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	0
Part. Matter 10 Micrometers and Smllr Tons/Yr:	0

Year:	2001
County Code:	19
Air Basin:	SC
Facility ID:	23399
Air District Name:	SC
SIC Code:	8062
Air District Name:	SOUTH COAST AQMD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	1
Reactive Organic Gases Tons/Yr:	1
Carbon Monoxide Emissions Tons/Yr:	1
NOX - Oxides of Nitrogen Tons/Yr:	3
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	0
Part. Matter 10 Micrometers and Smllr Tons/Yr:	0

HIST CORTESE:

Region:	CORTESE
Facility County Code:	19
Reg By:	LTNKA
Reg Id:	913070089

20
SSE
1/2-1
0.673 mi.
3553 ft.

ENADIA WAY ES RE-OPENING 5460038
22944 ENADIA WAY
CANOGA PARK, CA 91307

ENVIROSTOR **S118756601**
SCH **N/A**

Relative:
Lower

Actual:
818 ft.

ENVIROSTOR:

Facility ID:	19820127
Status:	No Action Required
Status Date:	06/07/2006
Site Code:	304505
Site Type:	School Investigation
Site Type Detailed:	School
Acres:	6.81
NPL:	NO
Regulatory Agencies:	SMBRP
Lead Agency:	SMBRP
Program Manager:	Stephanie Lewis
Supervisor:	Javier Hinojosa
Division Branch:	Southern California Schools & Brownfields Outreach
Assembly:	45
Senate:	27
Special Program:	Not reported
Restricted Use:	NO
Site Mgmt Req:	NONE SPECIFIED
Funding:	School District
Latitude:	34.1994
Longitude:	-118.6266
APN:	2026-004-900, 2026004900
Past Use:	* EDUCATIONAL SERVICES
Potential COC:	Lead
Confirmed COC:	30013-NO
Potential Description:	SOIL
Alias Name:	LAUSD-ENADIA WAY ES REOPENING 5640038
Alias Type:	Alternate Name
Alias Name:	2026-004-900
Alias Type:	APN
Alias Name:	2026004900
Alias Type:	APN
Alias Name:	304505
Alias Type:	Project Code (Site Code)
Alias Name:	19820127
Alias Type:	Envirostor ID Number

Completed Info:

Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Phase 1
Completed Date:	04/26/2005
Comments:	Not reported
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Phase 1 Addendum
Completed Date:	04/10/2006
Comments:	The LBP addendum assessment was implemented on 1-19-06
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Cost Recovery Closeout Memo

ENADIA WAY ES RE-OPENING 5460038 (Continued) **S118756601**

Completed Date:	06/27/2007
Comments:	Not reported
Future Area Name:	Not reported
Future Sub Area Name:	Not reported
Future Document Type:	Not reported
Future Due Date:	Not reported
Schedule Area Name:	Not reported
Schedule Sub Area Name:	Not reported
Schedule Document Type:	Not reported
Schedule Due Date:	Not reported
Schedule Revised Date:	Not reported

SCH:

Facility ID:	19820127
Site Type:	School Investigation
Site Type Detail:	School
Site Mgmt. Req.:	NONE SPECIFIED
Acres:	6.81
National Priorities List:	NO
Cleanup Oversight Agencies:	SMBRP
Lead Agency:	SMBRP
Lead Agency Description:	DTSC - Site Cleanup Program
Project Manager:	Stephanie Lewis
Supervisor:	Javier Hinojosa
Division Branch:	Southern California Schools & Brownfields Outreach
Site Code:	304505
Assembly:	45
Senate:	27
Special Program Status:	Not reported
Status:	No Action Required
Status Date:	06/07/2006
Restricted Use:	NO
Funding:	School District
Latitude:	34.1994
Longitude:	-118.6266
APN:	2026-004-900, 2026004900
Past Use:	* EDUCATIONAL SERVICES
Potential COC:	Lead
Confirmed COC:	30013-NO
Potential Description:	SOIL
Alias Name:	LAUSD-ENADIA WAY ES REOPENING 5640038
Alias Type:	Alternate Name
Alias Name:	2026-004-900
Alias Type:	APN
Alias Name:	2026004900
Alias Type:	APN
Alias Name:	304505
Alias Type:	Project Code (Site Code)
Alias Name:	19820127
Alias Type:	Envirostor ID Number

Completed Info:

Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Phase 1

ENADIA WAY ES RE-OPENING 5460038 (Continued) **S118756601**

Completed Date:	04/26/2005
Comments:	Not reported
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Phase 1 Addendum
Completed Date:	04/10/2006
Comments:	The LBP addendum assessment was implemented on 1-19-06
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Cost Recovery Closeout Memo
Completed Date:	06/27/2007
Comments:	Not reported
Future Area Name:	Not reported
Future Sub Area Name:	Not reported
Future Document Type:	Not reported
Future Due Date:	Not reported
Schedule Area Name:	Not reported
Schedule Sub Area Name:	Not reported
Schedule Document Type:	Not reported
Schedule Due Date:	Not reported
Schedule Revised Date:	Not reported

Count: 0 records.

ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
		NO SITES FOUND			

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

To maintain currency of the following federal and state databases, EDR contacts the appropriate governmental agency on a monthly or quarterly basis, as required.

Number of Days to Update: Provides confirmation that EDR is reporting records that have been updated within 90 days from the date the government agency made the information available to the public.

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL: National Priority List

National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA's Environmental Photographic Interpretation Center (EPIC) and regional EPA offices.

Date of Government Version: 05/30/2017
Date Data Arrived at EDR: 06/08/2017
Date Made Active in Reports: 09/15/2017
Number of Days to Update: 99

Source: EPA
Telephone: N/A
Last EDR Contact: 10/05/2017
Next Scheduled EDR Contact: 01/15/2018
Data Release Frequency: Quarterly

NPL Site Boundaries

Sources:

EPA's Environmental Photographic Interpretation Center (EPIC)
Telephone: 202-564-7333

EPA Region 1
Telephone 617-918-1143

EPA Region 3
Telephone 215-814-5418

EPA Region 4
Telephone 404-562-8033

EPA Region 5
Telephone 312-886-6686

EPA Region 6
Telephone: 214-655-6659

EPA Region 7
Telephone: 913-551-7247

EPA Region 8
Telephone: 303-312-6774

EPA Region 9
Telephone: 415-947-4246

EPA Region 10
Telephone 206-553-8665

Proposed NPL: Proposed National Priority List Sites

A site that has been proposed for listing on the National Priorities List through the issuance of a proposed rule in the Federal Register. EPA then accepts public comments on the site, responds to the comments, and places on the NPL those sites that continue to meet the requirements for listing.

Date of Government Version: 05/30/2017
Date Data Arrived at EDR: 06/09/2017
Date Made Active in Reports: 09/15/2017
Number of Days to Update: 98

Source: EPA
Telephone: N/A
Last EDR Contact: 10/05/2017
Next Scheduled EDR Contact: 01/15/2018
Data Release Frequency: Quarterly

NPL LIENS: Federal Superfund Liens

Federal Superfund Liens. Under the authority granted the USEPA by CERCLA of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner received notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.

Date of Government Version: 10/15/1991
Date Data Arrived at EDR: 02/02/1994
Date Made Active in Reports: 03/30/1994
Number of Days to Update: 56

Source: EPA
Telephone: 202-564-4267
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Federal Delisted NPL site list

Delisted NPL: National Priority List Deletions

The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

Date of Government Version: 05/30/2017
Date Data Arrived at EDR: 06/09/2017
Date Made Active in Reports: 09/15/2017
Number of Days to Update: 98

Source: EPA
Telephone: N/A
Last EDR Contact: 10/05/2017
Next Scheduled EDR Contact: 01/15/2018
Data Release Frequency: Quarterly

Federal CERCLIS list

FEDERAL FACILITY: Federal Facility Site Information listing

A listing of National Priority List (NPL) and Base Realignment and Closure (BRAC) sites found in the Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) Database where EPA Federal Facilities Restoration and Reuse Office is involved in cleanup activities.

Date of Government Version: 11/07/2016
Date Data Arrived at EDR: 01/05/2017
Date Made Active in Reports: 04/07/2017
Number of Days to Update: 92

Source: Environmental Protection Agency
Telephone: 703-603-8704
Last EDR Contact: 10/06/2017
Next Scheduled EDR Contact: 01/15/2018
Data Release Frequency: Varies

SEMS: Superfund Enterprise Management System

SEMS (Superfund Enterprise Management System) tracks hazardous waste sites, potentially hazardous waste sites, and remedial activities performed in support of EPA's Superfund Program across the United States. The list was formerly know as CERCLIS, renamed to SEMS by the EPA in 2015. The list contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). This dataset also contains sites which are either proposed to or on the National Priorities List (NPL) and the sites which are in the screening and assessment phase for possible inclusion on the NPL.

Date of Government Version: 07/11/2017
Date Data Arrived at EDR: 07/21/2017
Date Made Active in Reports: 10/06/2017
Number of Days to Update: 77

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 07/21/2017
Next Scheduled EDR Contact: 10/30/2017
Data Release Frequency: Quarterly

Federal CERCLIS NFRAP site list

SEMS-ARCHIVE: Superfund Enterprise Management System Archive

SEMS-ARCHIVE (Superfund Enterprise Management System Archive) tracks sites that have no further interest under the Federal Superfund Program based on available information. The list was formerly known as the CERCLIS-NFRAP, renamed to SEMS ARCHIVE by the EPA in 2015. EPA may perform a minimal level of assessment work at a site while it is archived if site conditions change and/or new information becomes available. Archived sites have been removed and archived from the inventory of SEMS sites. Archived status indicates that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list the site on the National Priorities List (NPL), unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time. The decision does not necessarily mean that there is no hazard associated with a given site; it only means that. based upon available information, the location is not judged to be potential NPL site.

Date of Government Version: 07/11/2017
Date Data Arrived at EDR: 07/28/2017
Date Made Active in Reports: 10/06/2017
Number of Days to Update: 70

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 07/28/2017
Next Scheduled EDR Contact: 10/30/2017
Data Release Frequency: Quarterly

Federal RCRA CORRACTS facilities list

CORRACTS: Corrective Action Report

CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

Date of Government Version: 09/13/2017
Date Data Arrived at EDR: 09/26/2017
Date Made Active in Reports: 10/06/2017
Number of Days to Update: 10

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 09/26/2017
Next Scheduled EDR Contact: 01/08/2018
Data Release Frequency: Quarterly

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF: RCRA - Treatment, Storage and Disposal

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Transporters are individuals or entities that move hazardous waste from the generator offsite to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

Date of Government Version: 09/13/2017
Date Data Arrived at EDR: 09/26/2017
Date Made Active in Reports: 10/06/2017
Number of Days to Update: 10

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 09/26/2017
Next Scheduled EDR Contact: 01/08/2018
Data Release Frequency: Quarterly

Federal RCRA generators list

RCRA-LQG: RCRA - Large Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Large quantity generators (LQGs) generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month.

Date of Government Version: 09/13/2017
Date Data Arrived at EDR: 09/26/2017
Date Made Active in Reports: 10/06/2017
Number of Days to Update: 10

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 09/26/2017
Next Scheduled EDR Contact: 01/08/2018
Data Release Frequency: Quarterly

RCRA-SQG: RCRA - Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month.

Date of Government Version: 09/13/2017
Date Data Arrived at EDR: 09/26/2017
Date Made Active in Reports: 10/06/2017
Number of Days to Update: 10

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 09/26/2017
Next Scheduled EDR Contact: 01/08/2018
Data Release Frequency: Quarterly

RCRA-CESQG: RCRA - Conditionally Exempt Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Conditionally exempt small quantity generators (CESQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month.

Date of Government Version: 09/13/2017
Date Data Arrived at EDR: 09/26/2017
Date Made Active in Reports: 10/06/2017
Number of Days to Update: 10

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 09/26/2017
Next Scheduled EDR Contact: 01/08/2018
Data Release Frequency: Quarterly

Federal institutional controls / engineering controls registries

LUCIS: Land Use Control Information System

LUCIS contains records of land use control information pertaining to the former Navy Base Realignment and Closure properties.

Date of Government Version: 05/22/2017
Date Data Arrived at EDR: 06/13/2017
Date Made Active in Reports: 09/15/2017
Number of Days to Update: 94

Source: Department of the Navy
Telephone: 843-820-7326
Last EDR Contact: 08/10/2017
Next Scheduled EDR Contact: 11/27/2017
Data Release Frequency: Varies

US ENG CONTROLS: Engineering Controls Sites List

A listing of sites with engineering controls in place. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health.

Date of Government Version: 02/13/2017
Date Data Arrived at EDR: 02/28/2017
Date Made Active in Reports: 06/09/2017
Number of Days to Update: 101

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 08/30/2017
Next Scheduled EDR Contact: 12/11/2017
Data Release Frequency: Varies

US INST CONTROL: Sites with Institutional Controls

A listing of sites with institutional controls in place. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls.

Date of Government Version: 02/13/2017
Date Data Arrived at EDR: 02/28/2017
Date Made Active in Reports: 06/09/2017
Number of Days to Update: 101

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 08/30/2017
Next Scheduled EDR Contact: 12/11/2017
Data Release Frequency: Varies

Federal ERNS list

ERNS: Emergency Response Notification System

Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

Date of Government Version: 09/26/2016
Date Data Arrived at EDR: 09/29/2016
Date Made Active in Reports: 11/11/2016
Number of Days to Update: 43

Source: National Response Center, United States Coast Guard
Telephone: 202-267-2180
Last EDR Contact: 09/21/2017
Next Scheduled EDR Contact: 01/08/2018
Data Release Frequency: Annually

State- and tribal - equivalent NPL

RESPONSE: State Response Sites

Identifies confirmed release sites where DTSC is involved in remediation, either in a lead or oversight capacity. These confirmed release sites are generally high-priority and high potential risk.

Date of Government Version: 07/31/2017
Date Data Arrived at EDR: 08/01/2017
Date Made Active in Reports: 08/15/2017
Number of Days to Update: 14

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 08/01/2017
Next Scheduled EDR Contact: 11/13/2017
Data Release Frequency: Quarterly

State- and tribal - equivalent CERCLIS

ENVIROSTOR: EnviroStor Database

The Department of Toxic Substances Control's (DTSC's) Site Mitigation and Brownfields Reuse Program's (SMBRP's) EnviroStor database identifes sites that have known contamination or sites for which there may be reasons to investigate further. The database includes the following site types: Federal Superfund sites (National Priorities List (NPL)); State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites. EnviroStor provides similar information to the information that was available in CalSites, and provides additional site information, including, but not limited to, identification of formerly-contaminated properties that have been released for reuse, properties where environmental deed restrictions have been recorded to prevent inappropriate land uses, and risk characterization information that is used to assess potential impacts to public health and the environment at contaminated sites.

Date of Government Version: 07/31/2017
Date Data Arrived at EDR: 08/01/2017
Date Made Active in Reports: 08/15/2017
Number of Days to Update: 14

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 08/01/2017
Next Scheduled EDR Contact: 11/13/2017
Data Release Frequency: Quarterly

State and tribal landfill and/or solid waste disposal site lists

SWF/LF (SWIS): Solid Waste Information System

Active, Closed and Inactive Landfills. SWF/LF records typically contain an inve ntory of solid waste disposal facilities or landfills. These may be active or i nactive facilities or open dumps that failed to meet RCRA Section 4004 criteria for solid waste landfills or disposal sites.

Date of Government Version: 08/14/2017
Date Data Arrived at EDR: 08/17/2017
Date Made Active in Reports: 09/21/2017
Number of Days to Update: 35

Source: Department of Resources Recycling and Recovery
Telephone: 916-341-6320
Last EDR Contact: 08/17/2017
Next Scheduled EDR Contact: 11/27/2017
Data Release Frequency: Quarterly

State and tribal leaking storage tank lists

LUST REG 7: Leaking Underground Storage Tank Case Listing
Leaking Underground Storage Tank locations. Imperial, Riverside, San Diego, Santa Barbara counties.

Date of Government Version: 02/26/2004
Date Data Arrived at EDR: 02/26/2004
Date Made Active in Reports: 03/24/2004
Number of Days to Update: 27

Source: California Regional Water Quality Control Board Colorado River Basin Region (7)
Telephone: 760-776-8943
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

LUST: Leaking Underground Fuel Tank Report (GEOTRACKER)
Leaking Underground Storage Tank (LUST) Sites included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 06/12/2017
Date Data Arrived at EDR: 06/14/2017
Date Made Active in Reports: 08/22/2017
Number of Days to Update: 69

Source: State Water Resources Control Board
Telephone: see region list
Last EDR Contact: 09/12/2017
Next Scheduled EDR Contact: 12/25/2017
Data Release Frequency: Quarterly

LUST REG 9: Leaking Underground Storage Tank Report
Orange, Riverside, San Diego counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 03/01/2001
Date Data Arrived at EDR: 04/23/2001
Date Made Active in Reports: 05/21/2001
Number of Days to Update: 28

Source: California Regional Water Quality Control Board San Diego Region (9)
Telephone: 858-637-5595
Last EDR Contact: 09/26/2011
Next Scheduled EDR Contact: 01/09/2012
Data Release Frequency: No Update Planned

LUST REG 8: Leaking Underground Storage Tanks
California Regional Water Quality Control Board Santa Ana Region (8). For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 02/14/2005
Date Data Arrived at EDR: 02/15/2005
Date Made Active in Reports: 03/28/2005
Number of Days to Update: 41

Source: California Regional Water Quality Control Board Santa Ana Region (8)
Telephone: 909-782-4496
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: Varies

LUST REG 6V: Leaking Underground Storage Tank Case Listing
Leaking Underground Storage Tank locations. Inyo, Kern, Los Angeles, Mono, San Bernardino counties.

Date of Government Version: 06/07/2005
Date Data Arrived at EDR: 06/07/2005
Date Made Active in Reports: 06/29/2005
Number of Days to Update: 22

Source: California Regional Water Quality Control Board Victorville Branch Office (6)
Telephone: 760-241-7365
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: No Update Planned

LUST REG 6L: Leaking Underground Storage Tank Case Listing
For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 09/09/2003
Date Data Arrived at EDR: 09/10/2003
Date Made Active in Reports: 10/07/2003
Number of Days to Update: 27

Source: California Regional Water Quality Control Board Lahontan Region (6)
Telephone: 530-542-5572
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: No Update Planned

LUST REG 5: Leaking Underground Storage Tank Database
Leaking Underground Storage Tank locations. Alameda, Alpine, Amador, Butte, Colusa, Contra Costa, Calveras, El Dorado, Fresno, Glenn, Kern, Kings, Lake, Lassen, Madera, Mariposa, Merced, Modoc, Napa, Nevada, Placer, Plumas, Sacramento, San Joaquin, Shasta, Solano, Stanislaus, Sutter, Tehama, Tulare, Tuolumne, Yolo, Yuba counties.

Date of Government Version: 07/01/2008
Date Data Arrived at EDR: 07/22/2008
Date Made Active in Reports: 07/31/2008
Number of Days to Update: 9

Source: California Regional Water Quality Control Board Central Valley Region (5)
Telephone: 916-464-4834
Last EDR Contact: 07/01/2011
Next Scheduled EDR Contact: 10/17/2011
Data Release Frequency: No Update Planned

LUST REG 4: Underground Storage Tank Leak List

Los Angeles, Ventura counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 09/07/2004
Date Data Arrived at EDR: 09/07/2004
Date Made Active in Reports: 10/12/2004
Number of Days to Update: 35

Source: California Regional Water Quality Control Board Los Angeles Region (4)
Telephone: 213-576-6710
Last EDR Contact: 09/06/2011
Next Scheduled EDR Contact: 12/19/2011
Data Release Frequency: No Update Planned

LUST REG 3: Leaking Underground Storage Tank Database

Leaking Underground Storage Tank locations. Monterey, San Benito, San Luis Obispo, Santa Barbara, Santa Cruz counties.

Date of Government Version: 05/19/2003
Date Data Arrived at EDR: 05/19/2003
Date Made Active in Reports: 06/02/2003
Number of Days to Update: 14

Source: California Regional Water Quality Control Board Central Coast Region (3)
Telephone: 805-542-4786
Last EDR Contact: 07/18/2011
Next Scheduled EDR Contact: 10/31/2011
Data Release Frequency: No Update Planned

LUST REG 2: Fuel Leak List

Leaking Underground Storage Tank locations. Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, Sonoma counties.

Date of Government Version: 09/30/2004
Date Data Arrived at EDR: 10/20/2004
Date Made Active in Reports: 11/19/2004
Number of Days to Update: 30

Source: California Regional Water Quality Control Board San Francisco Bay Region (2)
Telephone: 510-622-2433
Last EDR Contact: 09/19/2011
Next Scheduled EDR Contact: 01/02/2012
Data Release Frequency: Quarterly

LUST REG 1: Active Toxic Site Investigation

Del Norte, Humboldt, Lake, Mendocino, Modoc, Siskiyou, Sonoma, Trinity counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 02/01/2001
Date Data Arrived at EDR: 02/28/2001
Date Made Active in Reports: 03/29/2001
Number of Days to Update: 29

Source: California Regional Water Quality Control Board North Coast (1)
Telephone: 707-570-3769
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

INDIAN LUST R6: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in New Mexico and Oklahoma.

Date of Government Version: 04/24/2017
Date Data Arrived at EDR: 07/27/2017
Date Made Active in Reports: 10/06/2017
Number of Days to Update: 71

Source: EPA Region 6
Telephone: 214-665-6597
Last EDR Contact: 07/27/2017
Next Scheduled EDR Contact: 11/08/2017
Data Release Frequency: Varies

INDIAN LUST R4: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Florida, Mississippi and North Carolina.

Date of Government Version: 10/14/2016
Date Data Arrived at EDR: 01/27/2017
Date Made Active in Reports: 05/05/2017
Number of Days to Update: 98

Source: EPA Region 4
Telephone: 404-562-8677
Last EDR Contact: 07/28/2017
Next Scheduled EDR Contact: 11/08/2017
Data Release Frequency: Semi-Annually

INDIAN LUST R7: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Iowa, Kansas, and Nebraska

Date of Government Version: 04/14/2017
Date Data Arrived at EDR: 07/27/2017
Date Made Active in Reports: 10/06/2017
Number of Days to Update: 71
Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 07/27/2017
Next Scheduled EDR Contact: 11/08/2017
Data Release Frequency: Varies

INDIAN LUST R5: Leaking Underground Storage Tanks on Indian Land
Leaking underground storage tanks located on Indian Land in Michigan, Minnesota and Wisconsin.

Date of Government Version: 11/14/2016
Date Data Arrived at EDR: 01/26/2017
Date Made Active in Reports: 05/05/2017
Number of Days to Update: 99
Source: EPA, Region 5
Telephone: 312-886-7439
Last EDR Contact: 07/27/2017
Next Scheduled EDR Contact: 11/08/2017
Data Release Frequency: Varies

INDIAN LUST R8: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Colorado, Montana, North Dakota, South Dakota, Utah and Wyoming.

Date of Government Version: 10/17/2016
Date Data Arrived at EDR: 01/26/2017
Date Made Active in Reports: 05/05/2017
Number of Days to Update: 99
Source: EPA Region 8
Telephone: 303-312-6271
Last EDR Contact: 07/27/2017
Next Scheduled EDR Contact: 11/08/2017
Data Release Frequency: Quarterly

INDIAN LUST R9: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Arizona, California, New Mexico and Nevada

Date of Government Version: 10/06/2016
Date Data Arrived at EDR: 01/26/2017
Date Made Active in Reports: 05/05/2017
Number of Days to Update: 99
Source: Environmental Protection Agency
Telephone: 415-972-3372
Last EDR Contact: 07/27/2017
Next Scheduled EDR Contact: 11/08/2017
Data Release Frequency: Quarterly

INDIAN LUST R10: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Alaska, Idaho, Oregon and Washington.

Date of Government Version: 10/07/2016
Date Data Arrived at EDR: 01/26/2017
Date Made Active in Reports: 05/05/2017
Number of Days to Update: 99
Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 07/27/2017
Next Scheduled EDR Contact: 11/08/2017
Data Release Frequency: Quarterly

INDIAN LUST R1: Leaking Underground Storage Tanks on Indian Land
A listing of leaking underground storage tank locations on Indian Land.

Date of Government Version: 04/14/2017
Date Data Arrived at EDR: 07/27/2017
Date Made Active in Reports: 10/06/2017
Number of Days to Update: 71
Source: EPA Region 1
Telephone: 617-918-1313
Last EDR Contact: 07/27/2017
Next Scheduled EDR Contact: 11/08/2017
Data Release Frequency: Varies

SLIC: Statewide SLIC Cases (GEOTRACKER)
Cleanup Program Sites (CPS; also known as Site Cleanups [SC] and formerly known as Spills, Leaks, Investigations, and Cleanups [SLIC] sites) included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 06/12/2017
Date Data Arrived at EDR: 06/14/2017
Date Made Active in Reports: 08/23/2017
Number of Days to Update: 70
Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 09/12/2017
Next Scheduled EDR Contact: 12/25/2017
Data Release Frequency: Varies

SLIC REG 1: Active Toxic Site Investigations
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/03/2003
Date Data Arrived at EDR: 04/07/2003
Date Made Active in Reports: 04/25/2003
Number of Days to Update: 18

Source: California Regional Water Quality Control Board, North Coast Region (1)
Telephone: 707-576-2220
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

SLIC REG 2: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/30/2004
Date Data Arrived at EDR: 10/20/2004
Date Made Active in Reports: 11/19/2004
Number of Days to Update: 30

Source: Regional Water Quality Control Board San Francisco Bay Region (2)
Telephone: 510-286-0457
Last EDR Contact: 09/19/2011
Next Scheduled EDR Contact: 01/02/2012
Data Release Frequency: Quarterly

SLIC REG 3: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 05/18/2006
Date Data Arrived at EDR: 05/18/2006
Date Made Active in Reports: 06/15/2006
Number of Days to Update: 28

Source: California Regional Water Quality Control Board Central Coast Region (3)
Telephone: 805-549-3147
Last EDR Contact: 07/18/2011
Next Scheduled EDR Contact: 10/31/2011
Data Release Frequency: Semi-Annually

SLIC REG 4: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 11/17/2004
Date Data Arrived at EDR: 11/18/2004
Date Made Active in Reports: 01/04/2005
Number of Days to Update: 47

Source: Region Water Quality Control Board Los Angeles Region (4)
Telephone: 213-576-6600
Last EDR Contact: 07/01/2011
Next Scheduled EDR Contact: 10/17/2011
Data Release Frequency: Varies

SLIC REG 5: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/01/2005
Date Data Arrived at EDR: 04/05/2005
Date Made Active in Reports: 04/21/2005
Number of Days to Update: 16

Source: Regional Water Quality Control Board Central Valley Region (5)
Telephone: 916-464-3291
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: Semi-Annually

SLIC REG 6V: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 05/24/2005
Date Data Arrived at EDR: 05/25/2005
Date Made Active in Reports: 06/16/2005
Number of Days to Update: 22

Source: Regional Water Quality Control Board, Victorville Branch
Telephone: 619-241-6583
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: Semi-Annually

SLIC REG 6L: SLIC Sites
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/07/2004
Date Data Arrived at EDR: 09/07/2004
Date Made Active in Reports: 10/12/2004
Number of Days to Update: 35
Source: California Regional Water Quality Control Board, Lahontan Region
Telephone: 530-542-5574
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

SLIC REG 7: SLIC List
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 11/24/2004
Date Data Arrived at EDR: 11/29/2004
Date Made Active in Reports: 01/04/2005
Number of Days to Update: 36
Source: California Regional Quality Control Board, Colorado River Basin Region
Telephone: 760-346-7491
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

SLIC REG 8: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/03/2008
Date Data Arrived at EDR: 04/03/2008
Date Made Active in Reports: 04/14/2008
Number of Days to Update: 11
Source: California Region Water Quality Control Board Santa Ana Region (8)
Telephone: 951-782-3298
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: Semi-Annually

SLIC REG 9: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/10/2007
Date Data Arrived at EDR: 09/11/2007
Date Made Active in Reports: 09/28/2007
Number of Days to Update: 17
Source: California Regional Water Quality Control Board San Diego Region (9)
Telephone: 858-467-2980
Last EDR Contact: 08/08/2011
Next Scheduled EDR Contact: 11/21/2011
Data Release Frequency: Annually

State and tribal registered storage tank lists

FEMA UST: Underground Storage Tank Listing
A listing of all FEMA owned underground storage tanks.

Date of Government Version: 01/01/2010
Date Data Arrived at EDR: 02/16/2010
Date Made Active in Reports: 04/12/2010
Number of Days to Update: 55
Source: FEMA
Telephone: 202-646-5797
Last EDR Contact: 07/14/2017
Next Scheduled EDR Contact: 10/23/2017
Data Release Frequency: Varies

UST: Active UST Facilities
Active UST facilities gathered from the local regulatory agencies

Date of Government Version: 06/12/2017
Date Data Arrived at EDR: 06/14/2017
Date Made Active in Reports: 08/23/2017
Number of Days to Update: 70
Source: SWRCB
Telephone: 916-341-5851
Last EDR Contact: 09/12/2017
Next Scheduled EDR Contact: 12/25/2017
Data Release Frequency: Semi-Annually

AST: Aboveground Petroleum Storage Tank Facilities
A listing of aboveground storage tank petroleum storage tank locations.

Date of Government Version: 07/06/2016
Date Data Arrived at EDR: 07/12/2016
Date Made Active in Reports: 09/19/2016
Number of Days to Update: 69
Source: California Environmental Protection Agency
Telephone: 916-327-5092
Last EDR Contact: 09/25/2017
Next Scheduled EDR Contact: 01/08/2018
Data Release Frequency: Quarterly

INDIAN UST R5: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 5 (Michigan, Minnesota and Wisconsin and Tribal Nations).

Date of Government Version: 04/26/2017
Date Data Arrived at EDR: 07/27/2017
Date Made Active in Reports: 10/06/2017
Number of Days to Update: 71
Source: EPA Region 5
Telephone: 312-886-6136
Last EDR Contact: 07/27/2017
Next Scheduled EDR Contact: 11/08/2017
Data Release Frequency: Varies

INDIAN UST R7: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 7 (Iowa, Kansas, Missouri, Nebraska, and 9 Tribal Nations).

Date of Government Version: 05/02/2017
Date Data Arrived at EDR: 07/27/2017
Date Made Active in Reports: 10/06/2017
Number of Days to Update: 71
Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 07/27/2017
Next Scheduled EDR Contact: 11/08/2017
Data Release Frequency: Varies

INDIAN UST R4: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 4 (Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee and Tribal Nations)

Date of Government Version: 10/14/2016
Date Data Arrived at EDR: 01/27/2017
Date Made Active in Reports: 05/05/2017
Number of Days to Update: 98
Source: EPA Region 4
Telephone: 404-562-9424
Last EDR Contact: 07/28/2017
Next Scheduled EDR Contact: 11/08/2017
Data Release Frequency: Semi-Annually

INDIAN UST R1: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 1 (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont and ten Tribal Nations).

Date of Government Version: 04/14/2017
Date Data Arrived at EDR: 07/27/2017
Date Made Active in Reports: 10/06/2017
Number of Days to Update: 71
Source: EPA, Region 1
Telephone: 617-918-1313
Last EDR Contact: 07/27/2017
Next Scheduled EDR Contact: 11/08/2017
Data Release Frequency: Varies

INDIAN UST R10: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 10 (Alaska, Idaho, Oregon, Washington, and Tribal Nations).

Date of Government Version: 10/07/2016
Date Data Arrived at EDR: 01/26/2017
Date Made Active in Reports: 05/05/2017
Number of Days to Update: 99
Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 07/27/2017
Next Scheduled EDR Contact: 11/08/2017
Data Release Frequency: Quarterly

INDIAN UST R9: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 9 (Arizona, California, Hawaii, Nevada, the Pacific Islands, and Tribal Nations).

Date of Government Version: 10/06/2016
Date Data Arrived at EDR: 01/26/2017
Date Made Active in Reports: 05/05/2017
Number of Days to Update: 99

Source: EPA Region 9
Telephone: 415-972-3368
Last EDR Contact: 07/27/2017
Next Scheduled EDR Contact: 11/08/2017
Data Release Frequency: Quarterly

INDIAN UST R8: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 8 (Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming and 27 Tribal Nations).

Date of Government Version: 10/17/2016
Date Data Arrived at EDR: 01/26/2017
Date Made Active in Reports: 05/05/2017
Number of Days to Update: 99

Source: EPA Region 8
Telephone: 303-312-6137
Last EDR Contact: 07/27/2017
Next Scheduled EDR Contact: 11/08/2017
Data Release Frequency: Quarterly

INDIAN UST R6: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 6 (Louisiana, Arkansas, Oklahoma, New Mexico, Texas and 65 Tribes).

Date of Government Version: 10/01/2016
Date Data Arrived at EDR: 01/26/2017
Date Made Active in Reports: 05/05/2017
Number of Days to Update: 99

Source: EPA Region 6
Telephone: 214-665-7591
Last EDR Contact: 07/27/2017
Next Scheduled EDR Contact: 11/08/2017
Data Release Frequency: Semi-Annually

State and tribal voluntary cleanup sites

INDIAN VCP R1: Voluntary Cleanup Priority Listing

A listing of voluntary cleanup priority sites located on Indian Land located in Region 1.

Date of Government Version: 07/27/2015
Date Data Arrived at EDR: 09/29/2015
Date Made Active in Reports: 02/18/2016
Number of Days to Update: 142

Source: EPA, Region 1
Telephone: 617-918-1102
Last EDR Contact: 09/25/2017
Next Scheduled EDR Contact: 01/08/2018
Data Release Frequency: Varies

INDIAN VCP R7: Voluntary Cleanup Priority Lisitng

A listing of voluntary cleanup priority sites located on Indian Land located in Region 7.

Date of Government Version: 03/20/2008
Date Data Arrived at EDR: 04/22/2008
Date Made Active in Reports: 05/19/2008
Number of Days to Update: 27

Source: EPA, Region 7
Telephone: 913-551-7365
Last EDR Contact: 04/20/2009
Next Scheduled EDR Contact: 07/20/2009
Data Release Frequency: Varies

VCP: Voluntary Cleanup Program Properties

Contains low threat level properties with either confirmed or unconfirmed releases and the project proponents have request that DTSC oversee investigation and/or cleanup activities and have agreed to provide coverage for DTSC's costs.

Date of Government Version: 07/31/2017
Date Data Arrived at EDR: 08/01/2017
Date Made Active in Reports: 08/15/2017
Number of Days to Update: 14

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 08/01/2017
Next Scheduled EDR Contact: 11/13/2017
Data Release Frequency: Quarterly

State and tribal Brownfields sites

BROWNFIELDS: Considered Brownfieds Sites Listing
A listing of sites the SWRCB considers to be Brownfields since these are sites have come to them through the MOA Process.

Date of Government Version: 06/27/2017
Date Data Arrived at EDR: 06/28/2017
Date Made Active in Reports: 09/21/2017
Number of Days to Update: 85
Source: State Water Resources Control Board
Telephone: 916-323-7905
Last EDR Contact: 09/21/2017
Next Scheduled EDR Contact: 01/08/2018
Data Release Frequency: Varies

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS: A Listing of Brownfields Sites
Brownfields are real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. Cleaning up and reinvesting in these properties takes development pressures off of undeveloped, open land, and both improves and protects the environment. Assessment, Cleanup and Redevelopment Exchange System (ACRES) stores information reported by EPA Brownfields grant recipients on brownfields properties assessed or cleaned up with grant funding as well as information on Targeted Brownfields Assessments performed by EPA Regions. A listing of ACRES Brownfield sites is obtained from Cleanups in My Community. Cleanups in My Community provides information on Brownfields properties for which information is reported back to EPA, as well as areas served by Brownfields grant programs.

Date of Government Version: 06/19/2017
Date Data Arrived at EDR: 06/20/2017
Date Made Active in Reports: 09/15/2017
Number of Days to Update: 87
Source: Environmental Protection Agency
Telephone: 202-566-2777
Last EDR Contact: 09/20/2017
Next Scheduled EDR Contact: 01/01/2018
Data Release Frequency: Semi-Annually

Local Lists of Landfill / Solid Waste Disposal Sites

WMUDS/SWAT: Waste Management Unit Database
Waste Management Unit Database System. WMUDS is used by the State Water Resources Control Board staff and the Regional Water Quality Control Boards for program tracking and inventory of waste management units. WMUDS is composed of the following databases: Facility Information, Scheduled Inspections Information, Waste Management Unit Information, SWAT Program Information, SWAT Report Summary Information, SWAT Report Summary Data, Chapter 15 (formerly Subchapter 15) Information, Chapter 15 Monitoring Parameters, TPCA Program Information, RCRA Program Information, Closure Information, and Interested Parties Information.

Date of Government Version: 04/01/2000
Date Data Arrived at EDR: 04/10/2000
Date Made Active in Reports: 05/10/2000
Number of Days to Update: 30
Source: State Water Resources Control Board
Telephone: 916-227-4448
Last EDR Contact: 08/03/2017
Next Scheduled EDR Contact: 11/20/2017
Data Release Frequency: No Update Planned

SWRCY: Recycler Database
A listing of recycling facilities in California.

Date of Government Version: 09/11/2017
Date Data Arrived at EDR: 09/12/2017
Date Made Active in Reports: 09/21/2017
Number of Days to Update: 9
Source: Department of Conservation
Telephone: 916-323-3836
Last EDR Contact: 09/12/2017
Next Scheduled EDR Contact: 12/25/2017
Data Release Frequency: Quarterly

HAULERS: Registered Waste Tire Haulers Listing
A listing of registered waste tire haulers.

Date of Government Version: 05/30/2017
Date Data Arrived at EDR: 05/31/2017
Date Made Active in Reports: 08/15/2017
Number of Days to Update: 76

Source: Integrated Waste Management Board
Telephone: 916-341-6422
Last EDR Contact: 08/10/2017
Next Scheduled EDR Contact: 11/27/2017
Data Release Frequency: Varies

INDIAN ODI: Report on the Status of Open Dumps on Indian Lands

Location of open dumps on Indian land.

Date of Government Version: 12/31/1998
Date Data Arrived at EDR: 12/03/2007
Date Made Active in Reports: 01/24/2008
Number of Days to Update: 52

Source: Environmental Protection Agency
Telephone: 703-308-8245
Last EDR Contact: 08/01/2017
Next Scheduled EDR Contact: 11/13/2017
Data Release Frequency: Varies

ODI: Open Dump Inventory

An open dump is defined as a disposal facility that does not comply with one or more of the Part 257 or Part 258 Subtitle D Criteria.

Date of Government Version: 06/30/1985
Date Data Arrived at EDR: 08/09/2004
Date Made Active in Reports: 09/17/2004
Number of Days to Update: 39

Source: Environmental Protection Agency
Telephone: 800-424-9346
Last EDR Contact: 06/09/2004
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

DEBRIS REGION 9: Torres Martinez Reservation Illegal Dump Site Locations

A listing of illegal dump sites location on the Torres Martinez Indian Reservation located in eastern Riverside County and northern Imperial County, California.

Date of Government Version: 01/12/2009
Date Data Arrived at EDR: 05/07/2009
Date Made Active in Reports: 09/21/2009
Number of Days to Update: 137

Source: EPA, Region 9
Telephone: 415-947-4219
Last EDR Contact: 07/24/2017
Next Scheduled EDR Contact: 11/08/2017
Data Release Frequency: No Update Planned

IHS OPEN DUMPS: Open Dumps on Indian Land

A listing of all open dumps located on Indian Land in the United States.

Date of Government Version: 04/01/2014
Date Data Arrived at EDR: 08/06/2014
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 176

Source: Department of Health & Human Serivces, Indian Health Service
Telephone: 301-443-1452
Last EDR Contact: 08/29/2017
Next Scheduled EDR Contact: 11/13/2017
Data Release Frequency: Varies

Local Lists of Hazardous waste / Contaminated Sites

US HIST CDL: National Clandestine Laboratory Register

A listing of clandestine drug lab locations that have been removed from the DEAs National Clandestine Laboratory Register.

Date of Government Version: 07/13/2017
Date Data Arrived at EDR: 09/06/2017
Date Made Active in Reports: 10/06/2017
Number of Days to Update: 30

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 08/30/2017
Next Scheduled EDR Contact: 12/11/2017
Data Release Frequency: No Update Planned

HIST CAL-SITES: Calsites Database

The Calsites database contains potential or confirmed hazardous substance release properties. In 1996, California EPA reevaluated and significantly reduced the number of sites in the Calsites database. No longer updated by the state agency. It has been replaced by ENVIROSTOR.

Date of Government Version: 08/08/2005
Date Data Arrived at EDR: 08/03/2006
Date Made Active in Reports: 08/24/2006
Number of Days to Update: 21

Source: Department of Toxic Substance Control
Telephone: 916-323-3400
Last EDR Contact: 02/23/2009
Next Scheduled EDR Contact: 05/25/2009
Data Release Frequency: No Update Planned

SCH: School Property Evaluation Program

This category contains proposed and existing school sites that are being evaluated by DTSC for possible hazardous materials contamination. In some cases, these properties may be listed in the CalSites category depending on the level of threat to public health and safety or the environment they pose.

Date of Government Version: 07/31/2017
Date Data Arrived at EDR: 08/01/2017
Date Made Active in Reports: 08/15/2017
Number of Days to Update: 14

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 08/01/2017
Next Scheduled EDR Contact: 11/13/2017
Data Release Frequency: Quarterly

CDL: Clandestine Drug Labs

A listing of drug lab locations. Listing of a location in this database does not indicate that any illegal drug lab materials were or were not present there, and does not constitute a determination that the location either requires or does not require additional cleanup work.

Date of Government Version: 06/30/2017
Date Data Arrived at EDR: 08/18/2017
Date Made Active in Reports: 09/21/2017
Number of Days to Update: 34

Source: Department of Toxic Substances Control
Telephone: 916-255-6504
Last EDR Contact: 10/10/2017
Next Scheduled EDR Contact: 01/22/2018
Data Release Frequency: Varies

TOXIC PITS: Toxic Pits Cleanup Act Sites

Toxic PITS Cleanup Act Sites. TOXIC PITS identifies sites suspected of containing hazardous substances where cleanup has not yet been completed.

Date of Government Version: 07/01/1995
Date Data Arrived at EDR: 08/30/1995
Date Made Active in Reports: 09/26/1995
Number of Days to Update: 27

Source: State Water Resources Control Board
Telephone: 916-227-4364
Last EDR Contact: 01/26/2009
Next Scheduled EDR Contact: 04/27/2009
Data Release Frequency: No Update Planned

US CDL: Clandestine Drug Labs

A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 07/13/2017
Date Data Arrived at EDR: 09/06/2017
Date Made Active in Reports: 10/06/2017
Number of Days to Update: 30

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 08/30/2017
Next Scheduled EDR Contact: 12/11/2017
Data Release Frequency: Quarterly

Local Lists of Registered Storage Tanks

SWEEPS UST: SWEEPS UST Listing

Statewide Environmental Evaluation and Planning System. This underground storage tank listing was updated and maintained by a company contacted by the SWRCB in the early 1990's. The listing is no longer updated or maintained. The local agency is the contact for more information on a site on the SWEEPS list.

Date of Government Version: 06/01/1994
Date Data Arrived at EDR: 07/07/2005
Date Made Active in Reports: 08/11/2005
Number of Days to Update: 35

Source: State Water Resources Control Board
Telephone: N/A
Last EDR Contact: 06/03/2005
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

UST MENDOCINO: Mendocino County UST Database
A listing of underground storage tank locations in Mendocino County.

Date of Government Version: 06/02/2017
Date Data Arrived at EDR: 06/06/2017
Date Made Active in Reports: 08/25/2017
Number of Days to Update: 80

Source: Department of Public Health
Telephone: 707-463-4466
Last EDR Contact: 08/24/2017
Next Scheduled EDR Contact: 12/11/2017
Data Release Frequency: Annually

HIST UST: Hazardous Substance Storage Container Database
The Hazardous Substance Storage Container Database is a historical listing of UST sites. Refer to local/county source for current data.

Date of Government Version: 10/15/1990
Date Data Arrived at EDR: 01/25/1991
Date Made Active in Reports: 02/12/1991
Number of Days to Update: 18

Source: State Water Resources Control Board
Telephone: 916-341-5851
Last EDR Contact: 07/26/2001
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

CA FID UST: Facility Inventory Database
The Facility Inventory Database (FID) contains a historical listing of active and inactive underground storage tank locations from the State Water Resource Control Board. Refer to local/county source for current data.

Date of Government Version: 10/31/1994
Date Data Arrived at EDR: 09/05/1995
Date Made Active in Reports: 09/29/1995
Number of Days to Update: 24

Source: California Environmental Protection Agency
Telephone: 916-341-5851
Last EDR Contact: 12/28/1998
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

Local Land Records

LIENS: Environmental Liens Listing
A listing of property locations with environmental liens for California where DTSC is a lien holder.

Date of Government Version: 06/02/2017
Date Data Arrived at EDR: 06/06/2017
Date Made Active in Reports: 08/22/2017
Number of Days to Update: 77

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 08/31/2017
Next Scheduled EDR Contact: 12/18/2017
Data Release Frequency: Varies

LIENS 2: CERCLA Lien Information
A Federal CERCLA ('Superfund') lien can exist by operation of law at any site or property at which EPA has spent Superfund monies. These monies are spent to investigate and address releases and threatened releases of contamination. CERCLIS provides information as to the identity of these sites and properties.

Date of Government Version: 02/18/2014
Date Data Arrived at EDR: 03/18/2014
Date Made Active in Reports: 04/24/2014
Number of Days to Update: 37

Source: Environmental Protection Agency
Telephone: 202-564-6023
Last EDR Contact: 07/26/2017
Next Scheduled EDR Contact: 11/08/2017
Data Release Frequency: Varies

DEED: Deed Restriction Listing

Site Mitigation and Brownfields Reuse Program Facility Sites with Deed Restrictions & Hazardous Waste Management Program Facility Sites with Deed / Land Use Restriction. The DTSC Site Mitigation and Brownfields Reuse Program (SMBRP) list includes sites cleaned up under the program's oversight and generally does not include current or former hazardous waste facilities that required a hazardous waste facility permit. The list represents deed restrictions that are active. Some sites have multiple deed restrictions. The DTSC Hazardous Waste Management Program (HWMP) has developed a list of current or former hazardous waste facilities that have a recorded land use restriction at the local county recorder's office. The land use restrictions on this list were required by the DTSC HWMP as a result of the presence of hazardous substances that remain on site after the facility (or part of the facility) has been closed or cleaned up. The types of land use restriction include deed notice, deed restriction, or a land use restriction that binds current and future owners.

Date of Government Version: 06/05/2017
Date Data Arrived at EDR: 06/06/2017
Date Made Active in Reports: 08/10/2017
Number of Days to Update: 65

Source: DTSC and SWRCB
Telephone: 916-323-3400
Last EDR Contact: 09/06/2017
Next Scheduled EDR Contact: 12/18/2017
Data Release Frequency: Semi-Annually

Records of Emergency Release Reports

HMIRS: Hazardous Materials Information Reporting System

Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

Date of Government Version: 12/28/2016
Date Data Arrived at EDR: 12/28/2016
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 37

Source: U.S. Department of Transportation
Telephone: 202-366-4555
Last EDR Contact: 09/21/2017
Next Scheduled EDR Contact: 01/08/2018
Data Release Frequency: Annually

CHMIRS: California Hazardous Material Incident Report System

California Hazardous Material Incident Reporting System. CHMIRS contains information on reported hazardous material incidents (accidental releases or spills).

Date of Government Version: 05/09/2017
Date Data Arrived at EDR: 07/26/2017
Date Made Active in Reports: 09/21/2017
Number of Days to Update: 57

Source: Office of Emergency Services
Telephone: 916-845-8400
Last EDR Contact: 07/26/2017
Next Scheduled EDR Contact: 11/08/2017
Data Release Frequency: Varies

LDS: Land Disposal Sites Listing (GEOTRACKER)

Land Disposal sites (Landfills) included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 06/12/2017
Date Data Arrived at EDR: 06/14/2017
Date Made Active in Reports: 08/18/2017
Number of Days to Update: 65

Source: State Water Qualilty Control Board
Telephone: 866-480-1028
Last EDR Contact: 09/12/2017
Next Scheduled EDR Contact: 12/25/2017
Data Release Frequency: Quarterly

MCS: Military Cleanup Sites Listing (GEOTRACKER)

Military sites (consisting of: Military UST sites; Military Privatized sites; and Military Cleanup sites [formerly known as DoD non UST]) included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 06/12/2017
Date Data Arrived at EDR: 06/14/2017
Date Made Active in Reports: 08/22/2017
Number of Days to Update: 69

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 09/12/2017
Next Scheduled EDR Contact: 12/25/2017
Data Release Frequency: Quarterly

SPILLS 90: SPILLS90 data from FirstSearch

Spills 90 includes those spill and release records available exclusively from FirstSearch databases. Typically, they may include chemical, oil and/or hazardous substance spills recorded after 1990. Duplicate records that are already included in EDR incident and release records are not included in Spills 90.

Date of Government Version: 06/06/2012
Date Data Arrived at EDR: 01/03/2013
Date Made Active in Reports: 02/22/2013
Number of Days to Update: 50

Source: FirstSearch
Telephone: N/A
Last EDR Contact: 01/03/2013
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

Other Ascertainable Records

RCRA NonGen / NLR: RCRA - Non Generators / No Longer Regulated

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous waste.

Date of Government Version: 09/13/2017
Date Data Arrived at EDR: 09/26/2017
Date Made Active in Reports: 10/06/2017
Number of Days to Update: 10

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 09/26/2017
Next Scheduled EDR Contact: 01/08/2018
Data Release Frequency: Quarterly

FUDS: Formerly Used Defense Sites

The listing includes locations of Formerly Used Defense Sites properties where the US Army Corps of Engineers is actively working or will take necessary cleanup actions.

Date of Government Version: 01/31/2015
Date Data Arrived at EDR: 07/08/2015
Date Made Active in Reports: 10/13/2015
Number of Days to Update: 97

Source: U.S. Army Corps of Engineers
Telephone: 202-528-4285
Last EDR Contact: 08/25/2017
Next Scheduled EDR Contact: 12/04/2017
Data Release Frequency: Varies

DOD: Department of Defense Sites

This data set consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 11/10/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 62

Source: USGS
Telephone: 888-275-8747
Last EDR Contact: 07/12/2017
Next Scheduled EDR Contact: 10/23/2017
Data Release Frequency: Semi-Annually

FEDLAND: Federal and Indian Lands

Federally and Indian administrated lands of the United States. Lands included are administrated by: Army Corps of Engineers, Bureau of Reclamation, National Wild and Scenic River, National Wildlife Refuge, Public Domain Land, Wilderness, Wilderness Study Area, Wildlife Management Area, Bureau of Indian Affairs, Bureau of Land Management, Department of Justice, Forest Service, Fish and Wildlife Service, National Park Service.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 02/06/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 339

Source: U.S. Geological Survey
Telephone: 888-275-8747
Last EDR Contact: 10/11/2017
Next Scheduled EDR Contact: 01/22/2018
Data Release Frequency: N/A

SCRD DRYCLEANERS: State Coalition for Remediation of Drycleaners Listing

The State Coalition for Remediation of Drycleaners was established in 1998, with support from the U.S. EPA Office of Superfund Remediation and Technology Innovation. It is comprised of representatives of states with established drycleaner remediation programs. Currently the member states are Alabama, Connecticut, Florida, Illinois, Kansas, Minnesota, Missouri, North Carolina, Oregon, South Carolina, Tennessee, Texas, and Wisconsin.

Date of Government Version: 01/01/2017
Date Data Arrived at EDR: 02/03/2017
Date Made Active in Reports: 04/07/2017
Number of Days to Update: 63
Source: Environmental Protection Agency
Telephone: 615-532-8599
Last EDR Contact: 08/18/2017
Next Scheduled EDR Contact: 11/27/2017
Data Release Frequency: Varies

US FIN ASSUR: Financial Assurance Information

All owners and operators of facilities that treat, store, or dispose of hazardous waste are required to provide proof that they will have sufficient funds to pay for the clean up, closure, and post-closure care of their facilities.

Date of Government Version: 05/10/2017
Date Data Arrived at EDR: 05/17/2017
Date Made Active in Reports: 09/15/2017
Number of Days to Update: 121
Source: Environmental Protection Agency
Telephone: 202-566-1917
Last EDR Contact: 09/26/2017
Next Scheduled EDR Contact: 01/08/2018
Data Release Frequency: Quarterly

EPA WATCH LIST: EPA WATCH LIST

EPA maintains a "Watch List" to facilitate dialogue between EPA, state and local environmental agencies on enforcement matters relating to facilities with alleged violations identified as either significant or high priority. Being on the Watch List does not mean that the facility has actually violated the law only that an investigation by EPA or a state or local environmental agency has led those organizations to allege that an unproven violation has in fact occurred. Being on the Watch List does not represent a higher level of concern regarding the alleged violations that were detected, but instead indicates cases requiring additional dialogue between EPA, state and local agencies - primarily because of the length of time the alleged violation has gone unaddressed or unresolved.

Date of Government Version: 08/30/2013
Date Data Arrived at EDR: 03/21/2014
Date Made Active in Reports: 06/17/2014
Number of Days to Update: 88
Source: Environmental Protection Agency
Telephone: 617-520-3000
Last EDR Contact: 08/07/2017
Next Scheduled EDR Contact: 11/20/2017
Data Release Frequency: Quarterly

2020 COR ACTION: 2020 Corrective Action Program List

The EPA has set ambitious goals for the RCRA Corrective Action program by creating the 2020 Corrective Action Universe. This RCRA cleanup baseline includes facilities expected to need corrective action. The 2020 universe contains a wide variety of sites. Some properties are heavily contaminated while others were contaminated but have since been cleaned up. Still others have not been fully investigated yet, and may require little or no remediation. Inclusion in the 2020 Universe does not necessarily imply failure on the part of a facility to meet its RCRA obligations.

Date of Government Version: 04/22/2013
Date Data Arrived at EDR: 03/03/2015
Date Made Active in Reports: 03/09/2015
Number of Days to Update: 6
Source: Environmental Protection Agency
Telephone: 703-308-4044
Last EDR Contact: 08/24/2017
Next Scheduled EDR Contact: 11/20/2017
Data Release Frequency: Varies

TSCA: Toxic Substances Control Act

Toxic Substances Control Act. TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.

Date of Government Version: 12/31/2012
Date Data Arrived at EDR: 01/15/2015
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 14
Source: EPA
Telephone: 202-260-5521
Last EDR Contact: 09/22/2017
Next Scheduled EDR Contact: 01/01/2018
Data Release Frequency: Every 4 Years

TRIS: Toxic Chemical Release Inventory System

Toxic Release Inventory System. TRIS identifies facilities which release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.

Date of Government Version: 12/31/2014
Date Data Arrived at EDR: 11/24/2015
Date Made Active in Reports: 04/05/2016
Number of Days to Update: 133
Source: EPA
Telephone: 202-566-0250
Last EDR Contact: 08/23/2017
Next Scheduled EDR Contact: 12/04/2017
Data Release Frequency: Annually

SSTS: Section 7 Tracking Systems

Section 7 of the Federal Insecticide, Fungicide and Rodenticide Act, as amended (92 Stat. 829) requires all registered pesticide-producing establishments to submit a report to the Environmental Protection Agency by March 1st each year. Each establishment must report the types and amounts of pesticides, active ingredients and devices being produced, and those having been produced and sold or distributed in the past year.

Date of Government Version: 12/31/2009
Date Data Arrived at EDR: 12/10/2010
Date Made Active in Reports: 02/25/2011
Number of Days to Update: 77
Source: EPA
Telephone: 202-564-4203
Last EDR Contact: 07/28/2017
Next Scheduled EDR Contact: 11/08/2017
Data Release Frequency: Annually

ROD: Records Of Decision

Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.

Date of Government Version: 11/25/2013
Date Data Arrived at EDR: 12/12/2013
Date Made Active in Reports: 02/24/2014
Number of Days to Update: 74
Source: EPA
Telephone: 703-416-0223
Last EDR Contact: 09/08/2017
Next Scheduled EDR Contact: 12/18/2017
Data Release Frequency: Annually

RMP: Risk Management Plans

When Congress passed the Clean Air Act Amendments of 1990, it required EPA to publish regulations and guidance for chemical accident prevention at facilities using extremely hazardous substances. The Risk Management Program Rule (RMP Rule) was written to implement Section 112(r) of these amendments. The rule, which built upon existing industry codes and standards, requires companies of all sizes that use certain flammable and toxic substances to develop a Risk Management Program, which includes a(n): Hazard assessment that details the potential effects of an accidental release, an accident history of the last five years, and an evaluation of worst-case and alternative accidental releases; Prevention program that includes safety precautions and maintenance, monitoring, and employee training measures; and Emergency response program that spells out emergency health care, employee training measures and procedures for informing the public and response agencies (e.g the fire department) should an accident occur.

Date of Government Version: 02/01/2017
Date Data Arrived at EDR: 02/09/2017
Date Made Active in Reports: 04/07/2017
Number of Days to Update: 57
Source: Environmental Protection Agency
Telephone: 202-564-8600
Last EDR Contact: 07/24/2017
Next Scheduled EDR Contact: 11/08/2017
Data Release Frequency: Varies

RAATS: RCRA Administrative Action Tracking System

RCRA Administration Action Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA will retain a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.

Date of Government Version: 04/17/1995
Date Data Arrived at EDR: 07/03/1995
Date Made Active in Reports: 08/07/1995
Number of Days to Update: 35
Source: EPA
Telephone: 202-564-4104
Last EDR Contact: 06/02/2008
Next Scheduled EDR Contact: 09/01/2008
Data Release Frequency: No Update Planned

PRP: Potentially Responsible Parties
A listing of verified Potentially Responsible Parties

Date of Government Version: 10/25/2013
Date Data Arrived at EDR: 10/17/2014
Date Made Active in Reports: 10/20/2014
Number of Days to Update: 3
Source: EPA
Telephone: 202-564-6023
Last EDR Contact: 08/08/2017
Next Scheduled EDR Contact: 11/20/2017
Data Release Frequency: Quarterly

PADS: PCB Activity Database System
PCB Activity Database. PADS Identifies generators, transporters, commercial storers and/or brokers and disposers of PCB's who are required to notify the EPA of such activities.

Date of Government Version: 01/20/2016
Date Data Arrived at EDR: 04/28/2016
Date Made Active in Reports: 09/02/2016
Number of Days to Update: 127
Source: EPA
Telephone: 202-566-0500
Last EDR Contact: 04/10/2017
Next Scheduled EDR Contact: 07/24/2017
Data Release Frequency: Annually

ICIS: Integrated Compliance Information System
The Integrated Compliance Information System (ICIS) supports the information needs of the national enforcement and compliance program as well as the unique needs of the National Pollutant Discharge Elimination System (NPDES) program.

Date of Government Version: 11/18/2016
Date Data Arrived at EDR: 11/23/2016
Date Made Active in Reports: 02/10/2017
Number of Days to Update: 79
Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 10/11/2017
Next Scheduled EDR Contact: 01/22/2018
Data Release Frequency: Quarterly

FTTS: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
FTTS tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act). To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25
Source: EPA/Office of Prevention, Pesticides and Toxic Substances
Telephone: 202-566-1667
Last EDR Contact: 08/18/2017
Next Scheduled EDR Contact: 12/04/2017
Data Release Frequency: Quarterly

FTTS INSP: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
A listing of FIFRA/TSCA Tracking System (FTTS) inspections and enforcements.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25
Source: EPA
Telephone: 202-566-1667
Last EDR Contact: 08/18/2017
Next Scheduled EDR Contact: 12/04/2017
Data Release Frequency: Quarterly

MLTS: Material Licensing Tracking System
MLTS is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements. To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 08/30/2016
Date Data Arrived at EDR: 09/08/2016
Date Made Active in Reports: 10/21/2016
Number of Days to Update: 43
Source: Nuclear Regulatory Commission
Telephone: 301-415-7169
Last EDR Contact: 08/01/2017
Next Scheduled EDR Contact: 11/20/2017
Data Release Frequency: Quarterly

COAL ASH DOE: Steam-Electric Plant Operation Data
A listing of power plants that store ash in surface ponds.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 08/07/2009
Date Made Active in Reports: 10/22/2009
Number of Days to Update: 76
Source: Department of Energy
Telephone: 202-586-8719
Last EDR Contact: 10/03/2017
Next Scheduled EDR Contact: 12/18/2017
Data Release Frequency: Varies

COAL ASH EPA: Coal Combustion Residues Surface Impoundments List
A listing of coal combustion residues surface impoundments with high hazard potential ratings.

Date of Government Version: 07/01/2014
Date Data Arrived at EDR: 09/10/2014
Date Made Active in Reports: 10/20/2014
Number of Days to Update: 40
Source: Environmental Protection Agency
Telephone: N/A
Last EDR Contact: 09/08/2017
Next Scheduled EDR Contact: 12/18/2017
Data Release Frequency: Varies

PCB TRANSFORMER: PCB Transformer Registration Database
The database of PCB transformer registrations that includes all PCB registration submittals.

Date of Government Version: 02/01/2011
Date Data Arrived at EDR: 10/19/2011
Date Made Active in Reports: 01/10/2012
Number of Days to Update: 83
Source: Environmental Protection Agency
Telephone: 202-566-0517
Last EDR Contact: 07/28/2017
Next Scheduled EDR Contact: 11/08/2017
Data Release Frequency: Varies

RADINFO: Radiation Information Database
The Radiation Information Database (RADINFO) contains information about facilities that are regulated by U.S. Environmental Protection Agency (EPA) regulations for radiation and radioactivity.

Date of Government Version: 01/04/2017
Date Data Arrived at EDR: 01/06/2017
Date Made Active in Reports: 02/10/2017
Number of Days to Update: 35
Source: Environmental Protection Agency
Telephone: 202-343-9775
Last EDR Contact: 10/05/2017
Next Scheduled EDR Contact: 01/15/2018
Data Release Frequency: Quarterly

HIST FTTS: FIFRA/TSCA Tracking System Administrative Case Listing
A complete administrative case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40
Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2007
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

HIST FTTS INSP: FIFRA/TSCA Tracking System Inspection & Enforcement Case Listing
A complete inspection and enforcement case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40
Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2008
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

DOT OPS: Incident and Accident Data
Department of Transporation, Office of Pipeline Safety Incident and Accident data.

Date of Government Version: 07/31/2012
Date Data Arrived at EDR: 08/07/2012
Date Made Active in Reports: 09/18/2012
Number of Days to Update: 42
Source: Department of Transporation, Office of Pipeline Safety
Telephone: 202-366-4595
Last EDR Contact: 08/01/2017
Next Scheduled EDR Contact: 11/13/2017
Data Release Frequency: Varies

CONSENT: Superfund (CERCLA) Consent Decrees
Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters.

Date of Government Version: 09/30/2016
Date Data Arrived at EDR: 11/18/2016
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 77
Source: Department of Justice, Consent Decree Library
Telephone: Varies
Last EDR Contact: 09/25/2017
Next Scheduled EDR Contact: 01/08/2018
Data Release Frequency: Varies

BRS: Biennial Reporting System
The Biennial Reporting System is a national system administered by the EPA that collects data on the generation and management of hazardous waste. BRS captures detailed data from two groups: Large Quantity Generators (LQG) and Treatment, Storage, and Disposal Facilities.

Date of Government Version: 12/31/2015
Date Data Arrived at EDR: 02/22/2017
Date Made Active in Reports: 09/28/2017
Number of Days to Update: 218
Source: EPA/NTIS
Telephone: 800-424-9346
Last EDR Contact: 09/21/2017
Next Scheduled EDR Contact: 12/04/2017
Data Release Frequency: Biennially

INDIAN RESERV: Indian Reservations
This map layer portrays Indian administered lands of the United States that have any area equal to or greater than 640 acres.

Date of Government Version: 12/31/2014
Date Data Arrived at EDR: 07/14/2015
Date Made Active in Reports: 01/10/2017
Number of Days to Update: 546
Source: USGS
Telephone: 202-208-3710
Last EDR Contact: 10/11/2017
Next Scheduled EDR Contact: 01/22/2018
Data Release Frequency: Semi-Annually

FUSRAP: Formerly Utilized Sites Remedial Action Program
DOE established the Formerly Utilized Sites Remedial Action Program (FUSRAP) in 1974 to remediate sites where radioactive contamination remained from Manhattan Project and early U.S. Atomic Energy Commission (AEC) operations.

Date of Government Version: 12/23/2016
Date Data Arrived at EDR: 12/27/2016
Date Made Active in Reports: 02/17/2017
Number of Days to Update: 52
Source: Department of Energy
Telephone: 202-586-3559
Last EDR Contact: 08/03/2017
Next Scheduled EDR Contact: 11/20/2017
Data Release Frequency: Varies

UMTRA: Uranium Mill Tailings Sites
Uranium ore was mined by private companies for federal government use in national defense programs. When the mills shut down, large piles of the sand-like material (mill tailings) remain after uranium has been extracted from the ore. Levels of human exposure to radioactive materials from the piles are low; however, in some cases tailings were used as construction materials before the potential health hazards of the tailings were recognized.

Date of Government Version: 09/14/2010
Date Data Arrived at EDR: 10/07/2011
Date Made Active in Reports: 03/01/2012
Number of Days to Update: 146

Source: Department of Energy
Telephone: 505-845-0011
Last EDR Contact: 10/10/2017
Next Scheduled EDR Contact: 12/04/2017
Data Release Frequency: Varies

LEAD SMELTER 1: Lead Smelter Sites

A listing of former lead smelter site locations.

Date of Government Version: 05/30/2017
Date Data Arrived at EDR: 06/09/2017
Date Made Active in Reports: 09/15/2017
Number of Days to Update: 98

Source: Environmental Protection Agency
Telephone: 703-603-8787
Last EDR Contact: 10/05/2017
Next Scheduled EDR Contact: 01/15/2018
Data Release Frequency: Varies

LEAD SMELTER 2: Lead Smelter Sites

A list of several hundred sites in the U.S. where secondary lead smelting was done from 1931and 1964. These sites may pose a threat to public health through ingestion or inhalation of contaminated soil or dust

Date of Government Version: 04/05/2001
Date Data Arrived at EDR: 10/27/2010
Date Made Active in Reports: 12/02/2010
Number of Days to Update: 36

Source: American Journal of Public Health
Telephone: 703-305-6451
Last EDR Contact: 12/02/2009
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

US AIRS (AFS): Aerometric Information Retrieval System Facility Subsystem (AFS)

The database is a sub-system of Aerometric Information Retrieval System (AIRS). AFS contains compliance data on air pollution point sources regulated by the U.S. EPA and/or state and local air regulatory agencies. This information comes from source reports by various stationary sources of air pollution, such as electric power plants, steel mills, factories, and universities, and provides information about the air pollutants they produce. Action, air program, air program pollutant, and general level plant data. It is used to track emissions and compliance data from industrial plants.

Date of Government Version: 10/12/2016
Date Data Arrived at EDR: 10/26/2016
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 100

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 09/26/2017
Next Scheduled EDR Contact: 01/08/2018
Data Release Frequency: Annually

US AIRS MINOR: Air Facility System Data

A listing of minor source facilities.

Date of Government Version: 10/12/2016
Date Data Arrived at EDR: 10/26/2016
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 100

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 09/26/2017
Next Scheduled EDR Contact: 01/08/2018
Data Release Frequency: Annually

US MINES: Mines Master Index File

Contains all mine identification numbers issued for mines active or opened since 1971. The data also includes violation information.

Date of Government Version: 02/08/2017
Date Data Arrived at EDR: 02/28/2017
Date Made Active in Reports: 04/07/2017
Number of Days to Update: 38

Source: Department of Labor, Mine Safety and Health Administration
Telephone: 303-231-5959
Last EDR Contact: 08/30/2017
Next Scheduled EDR Contact: 12/11/2017
Data Release Frequency: Semi-Annually

US MINES 2: Ferrous and Nonferrous Metal Mines Database Listing

This map layer includes ferrous (ferrous metal mines are facilities that extract ferrous metals, such as iron ore or molybdenum) and nonferrous (Nonferrous metal mines are facilities that extract nonferrous metals, such as gold, silver, copper, zinc, and lead) metal mines in the United States.

Date of Government Version: 12/05/2005
Date Data Arrived at EDR: 02/29/2008
Date Made Active in Reports: 04/18/2008
Number of Days to Update: 49

Source: USGS
Telephone: 703-648-7709
Last EDR Contact: 09/01/2017
Next Scheduled EDR Contact: 12/11/2017
Data Release Frequency: Varies

US MINES 3: Active Mines & Mineral Plants Database Listing

Active Mines and Mineral Processing Plant operations for commodities monitored by the Minerals Information Team of the USGS.

Date of Government Version: 04/14/2011
Date Data Arrived at EDR: 06/08/2011
Date Made Active in Reports: 09/13/2011
Number of Days to Update: 97

Source: USGS
Telephone: 703-648-7709
Last EDR Contact: 09/01/2017
Next Scheduled EDR Contact: 12/11/2017
Data Release Frequency: Varies

ABANDONED MINES: Abandoned Mines

An inventory of land and water impacted by past mining (primarily coal mining) is maintained by OSMRE to provide information needed to implement the Surface Mining Control and Reclamation Act of 1977 (SMCRA). The inventory contains information on the location, type, and extent of AML impacts, as well as, information on the cost associated with the reclamation of those problems. The inventory is based upon field surveys by State, Tribal, and OSMRE program officials. It is dynamic to the extent that it is modified as new problems are identified and existing problems are reclaimed.

Date of Government Version: 03/14/2017
Date Data Arrived at EDR: 03/17/2017
Date Made Active in Reports: 04/07/2017
Number of Days to Update: 21

Source: Department of Interior
Telephone: 202-208-2609
Last EDR Contact: 09/25/2017
Next Scheduled EDR Contact: 12/25/2017
Data Release Frequency: Quarterly

FINDS: Facility Index System/Facility Registry System

Facility Index System. FINDS contains both facility information and 'pointers' to other sources that contain more detail. EDR includes the following FINDS databases in this report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System).

Date of Government Version: 07/23/2017
Date Data Arrived at EDR: 09/06/2017
Date Made Active in Reports: 09/15/2017
Number of Days to Update: 9

Source: EPA
Telephone: (415) 947-8000
Last EDR Contact: 09/06/2017
Next Scheduled EDR Contact: 12/18/2017
Data Release Frequency: Quarterly

UXO: Unexploded Ordnance Sites

A listing of unexploded ordnance site locations

Date of Government Version: 10/25/2015
Date Data Arrived at EDR: 01/29/2016
Date Made Active in Reports: 04/05/2016
Number of Days to Update: 67

Source: Department of Defense
Telephone: 571-373-0407
Last EDR Contact: 07/17/2017
Next Scheduled EDR Contact: 10/30/2017
Data Release Frequency: Varies

ECHO: Enforcement & Compliance History Information

ECHO provides integrated compliance and enforcement information for about 800,000 regulated facilities nationwide.

Date of Government Version: 03/19/2017
Date Data Arrived at EDR: 03/21/2017
Date Made Active in Reports: 05/12/2017
Number of Days to Update: 52

Source: Environmental Protection Agency
Telephone: 202-564-2280
Last EDR Contact: 09/06/2017
Next Scheduled EDR Contact: 12/18/2017
Data Release Frequency: Quarterly

DOCKET HWC: Hazardous Waste Compliance Docket Listing
A complete list of the Federal Agency Hazardous Waste Compliance Docket Facilities.

Date of Government Version: 06/02/2016
Date Data Arrived at EDR: 06/03/2016
Date Made Active in Reports: 09/02/2016
Number of Days to Update: 91
Source: Environmental Protection Agency
Telephone: 202-564-0527
Last EDR Contact: 09/21/2017
Next Scheduled EDR Contact: 12/11/2017
Data Release Frequency: Varies

FUELS PROGRAM: EPA Fuels Program Registered Listing
This listing includes facilities that are registered under the Part 80 (Code of Federal Regulations) EPA Fuels Programs. All companies now are required to submit new and updated registrations.

Date of Government Version: 08/17/2017
Date Data Arrived at EDR: 08/17/2017
Date Made Active in Reports: 09/15/2017
Number of Days to Update: 29
Source: EPA
Telephone: 800-385-6164
Last EDR Contact: 08/17/2017
Next Scheduled EDR Contact: 12/04/2017
Data Release Frequency: Quarterly

CA BOND EXP. PLAN: Bond Expenditure Plan
Department of Health Services developed a site-specific expenditure plan as the basis for an appropriation of Hazardous Substance Cleanup Bond Act funds. It is not updated.

Date of Government Version: 01/01/1989
Date Data Arrived at EDR: 07/27/1994
Date Made Active in Reports: 08/02/1994
Number of Days to Update: 6
Source: Department of Health Services
Telephone: 916-255-2118
Last EDR Contact: 05/31/1994
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

CORTESE: "Cortese" Hazardous Waste & Substances Sites List
The sites for the list are designated by the State Water Resource Control Board (LUST), the Integrated Waste Board (SWF/LS), and the Department of Toxic Substances Control (Cal-Sites).

Date of Government Version: 12/28/2016
Date Data Arrived at EDR: 12/28/2016
Date Made Active in Reports: 03/02/2017
Number of Days to Update: 64
Source: CAL EPA/Office of Emergency Information
Telephone: 916-323-3400
Last EDR Contact: 09/21/2017
Next Scheduled EDR Contact: 01/01/2018
Data Release Frequency: Quarterly

DRYCLEANERS: Cleaner Facilities
A list of drycleaner related facilities that have EPA ID numbers. These are facilities with certain SIC codes: power laundries, family and commercial; garment pressing and cleaner's agents; linen supply; coin-operated laundries and cleaning; drycleaning plants, except rugs; carpet and upholster cleaning; industrial launderers; laundry and garment services.

Date of Government Version: 03/09/2017
Date Data Arrived at EDR: 04/11/2017
Date Made Active in Reports: 05/23/2017
Number of Days to Update: 42
Source: Department of Toxic Substance Control
Telephone: 916-327-4498
Last EDR Contact: 08/08/2017
Next Scheduled EDR Contact: 12/18/2017
Data Release Frequency: Annually

EMI: Emissions Inventory Data
Toxics and criteria pollutant emissions data collected by the ARB and local air pollution agencies.

Date of Government Version: 12/31/2015
Date Data Arrived at EDR: 03/21/2017
Date Made Active in Reports: 08/15/2017
Number of Days to Update: 147
Source: California Air Resources Board
Telephone: 916-322-2990
Last EDR Contact: 09/22/2017
Next Scheduled EDR Contact: 01/01/2018
Data Release Frequency: Varies

ENF: Enforcement Action Listing

A listing of Water Board Enforcement Actions. Formal is everything except Oral/Verbal Communication, Notice of Violation, Expedited Payment Letter, and Staff Enforcement Letter.

Date of Government Version: 05/01/2017
Date Data Arrived at EDR: 05/03/2017
Date Made Active in Reports: 08/15/2017
Number of Days to Update: 104

Source: State Water Resoruces Control Board
Telephone: 916-445-9379
Last EDR Contact: 08/18/2017
Next Scheduled EDR Contact: 11/08/2017
Data Release Frequency: Varies

Financial Assurance 1: Financial Assurance Information Listing

Financial Assurance information

Date of Government Version: 06/05/2017
Date Data Arrived at EDR: 06/09/2017
Date Made Active in Reports: 08/15/2017
Number of Days to Update: 67

Source: Department of Toxic Substances Control
Telephone: 916-255-3628
Last EDR Contact: 07/21/2017
Next Scheduled EDR Contact: 10/30/2017
Data Release Frequency: Varies

Financial Assurance 2: Financial Assurance Information Listing

A listing of financial assurance information for solid waste facilities. Financial assurance is intended to ensure that resources are available to pay for the cost of closure, post-closure care, and corrective measures if the owner or operator of a regulated facility is unable or unwilling to pay.

Date of Government Version: 05/16/2017
Date Data Arrived at EDR: 05/19/2017
Date Made Active in Reports: 08/15/2017
Number of Days to Update: 88

Source: California Integrated Waste Management Board
Telephone: 916-341-6066
Last EDR Contact: 08/10/2017
Next Scheduled EDR Contact: 11/27/2017
Data Release Frequency: Varies

HAZNET: Facility and Manifest Data

Facility and Manifest Data. The data is extracted from the copies of hazardous waste manifests received each year by the DTSC. The annual volume of manifests is typically 700,000 - 1,000,000 annually, representing approximately 350,000 - 500,000 shipments. Data are from the manifests submitted without correction, and therefore many contain some invalid values for data elements such as generator ID, TSD ID, waste category, and disposal method. This database begins with calendar year 1993.

Date of Government Version: 12/31/2015
Date Data Arrived at EDR: 10/12/2016
Date Made Active in Reports: 12/15/2016
Number of Days to Update: 64

Source: California Environmental Protection Agency
Telephone: 916-255-1136
Last EDR Contact: 10/10/2017
Next Scheduled EDR Contact: 01/22/2018
Data Release Frequency: Annually

ICE: ICE

Contains data pertaining to the Permitted Facilities with Inspections / Enforcements sites tracked in Envirostor.

Date of Government Version: 05/22/2017
Date Data Arrived at EDR: 05/24/2017
Date Made Active in Reports: 08/18/2017
Number of Days to Update: 86

Source: Department of Toxic Subsances Control
Telephone: 877-786-9427
Last EDR Contact: 08/22/2017
Next Scheduled EDR Contact: 12/04/2017
Data Release Frequency: Quarterly

HIST CORTESE: Hazardous Waste & Substance Site List

The sites for the list are designated by the State Water Resource Control Board [LUST], the Integrated Waste Board [SWF/LS], and the Department of Toxic Substances Control [CALSITES]. This listing is no longer updated by the state agency.

Date of Government Version: 04/01/2001
Date Data Arrived at EDR: 01/22/2009
Date Made Active in Reports: 04/08/2009
Number of Days to Update: 76

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 01/22/2009
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

HWP: EnviroStor Permitted Facilities Listing
Detailed information on permitted hazardous waste facilities and corrective action ("cleanups") tracked in EnviroStor.

Date of Government Version: 05/22/2017
Date Data Arrived at EDR: 05/24/2017
Date Made Active in Reports: 08/18/2017
Number of Days to Update: 86
Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 08/22/2017
Next Scheduled EDR Contact: 12/04/2017
Data Release Frequency: Quarterly

HWT: Registered Hazardous Waste Transporter Database
A listing of hazardous waste transporters. In California, unless specifically exempted, it is unlawful for any person to transport hazardous wastes unless the person holds a valid registration issued by DTSC. A hazardous waste transporter registration is valid for one year and is assigned a unique registration number.

Date of Government Version: 04/11/2017
Date Data Arrived at EDR: 04/13/2017
Date Made Active in Reports: 04/26/2017
Number of Days to Update: 13
Source: Department of Toxic Substances Control
Telephone: 916-440-7145
Last EDR Contact: 10/10/2017
Next Scheduled EDR Contact: 01/22/2018
Data Release Frequency: Quarterly

MINES: Mines Site Location Listing
A listing of mine site locations from the Office of Mine Reclamation.

Date of Government Version: 09/12/2016
Date Data Arrived at EDR: 09/14/2016
Date Made Active in Reports: 10/14/2016
Number of Days to Update: 30
Source: Department of Conservation
Telephone: 916-322-1080
Last EDR Contact: 09/12/2017
Next Scheduled EDR Contact: 12/25/2017
Data Release Frequency: Varies

MWMP: Medical Waste Management Program Listing
The Medical Waste Management Program (MWMP) ensures the proper handling and disposal of medical waste by permitting and inspecting medical waste Offsite Treatment Facilities (PDF) and Transfer Stations (PDF) throughout the state. MWMP also oversees all Medical Waste Transporters.

Date of Government Version: 05/25/2017
Date Data Arrived at EDR: 06/06/2017
Date Made Active in Reports: 08/23/2017
Number of Days to Update: 78
Source: Department of Public Health
Telephone: 916-558-1784
Last EDR Contact: 09/06/2017
Next Scheduled EDR Contact: 12/18/2017
Data Release Frequency: Varies

NPDES: NPDES Permits Listing
A listing of NPDES permits, including stormwater.

Date of Government Version: 11/14/2016
Date Data Arrived at EDR: 11/15/2016
Date Made Active in Reports: 03/02/2017
Number of Days to Update: 107
Source: State Water Resources Control Board
Telephone: 916-445-9379
Last EDR Contact: 08/17/2017
Next Scheduled EDR Contact: 11/27/2017
Data Release Frequency: Quarterly

PEST LIC: Pesticide Regulation Licenses Listing
A listing of licenses and certificates issued by the Department of Pesticide Regulation. The DPR issues licenses and/or certificates to: Persons and businesses that apply or sell pesticides; Pest control dealers and brokers; Persons who advise on agricultural pesticide applications.

Date of Government Version: 06/05/2017
Date Data Arrived at EDR: 06/07/2017
Date Made Active in Reports: 08/25/2017
Number of Days to Update: 79
Source: Department of Pesticide Regulation
Telephone: 916-445-4038
Last EDR Contact: 09/06/2017
Next Scheduled EDR Contact: 12/18/2017
Data Release Frequency: Quarterly

PROC: Certified Processors Database
A listing of certified processors.

Date of Government Version: 03/13/2017
Date Data Arrived at EDR: 03/14/2017
Date Made Active in Reports: 05/03/2017
Number of Days to Update: 50
Source: Department of Conservation
Telephone: 916-323-3836
Last EDR Contact: 09/12/2017
Next Scheduled EDR Contact: 12/25/2017
Data Release Frequency: Quarterly

NOTIFY 65: Proposition 65 Records
Listings of all Proposition 65 incidents reported to counties by the State Water Resources Control Board and the Regional Water Quality Control Board. This database is no longer updated by the reporting agency.

Date of Government Version: 12/16/2016
Date Data Arrived at EDR: 12/22/2016
Date Made Active in Reports: 03/02/2017
Number of Days to Update: 70
Source: State Water Resources Control Board
Telephone: 916-445-3846
Last EDR Contact: 09/18/2017
Next Scheduled EDR Contact: 01/01/2018
Data Release Frequency: No Update Planned

UIC: UIC Listing
A listing of wells identified as underground injection wells, in the California Oil and Gas Wells database.

Date of Government Version: 01/20/2017
Date Data Arrived at EDR: 03/14/2017
Date Made Active in Reports: 05/03/2017
Number of Days to Update: 50
Source: Deaprtment of Conservation
Telephone: 916-445-2408
Last EDR Contact: 09/12/2017
Next Scheduled EDR Contact: 12/25/2017
Data Release Frequency: Varies

WASTEWATER PITS: Oil Wastewater Pits Listing
Water officials discovered that oil producers have been dumping chemical-laden wastewater into hundreds of unlined pits that are operating without proper permits. Inspections completed by the Central Valley Regional Water Quality Control Board revealed the existence of previously unidentified waste sites. The water board?s review found that more than one-third of the region?s active disposal pits are operating without permission.

Date of Government Version: 04/15/2015
Date Data Arrived at EDR: 04/17/2015
Date Made Active in Reports: 06/23/2015
Number of Days to Update: 67
Source: RWQCB, Central Valley Region
Telephone: 559-445-5577
Last EDR Contact: 07/14/2017
Next Scheduled EDR Contact: 10/23/2017
Data Release Frequency: Varies

WDS: Waste Discharge System
Sites which have been issued waste discharge requirements.

Date of Government Version: 06/19/2007
Date Data Arrived at EDR: 06/20/2007
Date Made Active in Reports: 06/29/2007
Number of Days to Update: 9
Source: State Water Resources Control Board
Telephone: 916-341-5227
Last EDR Contact: 08/18/2017
Next Scheduled EDR Contact: 12/04/2017
Data Release Frequency: Quarterly

WIP: Well Investigation Program Case List
Well Investigation Program case in the San Gabriel and San Fernando Valley area.

Date of Government Version: 07/03/2009
Date Data Arrived at EDR: 07/21/2009
Date Made Active in Reports: 08/03/2009
Number of Days to Update: 13
Source: Los Angeles Water Quality Control Board
Telephone: 213-576-6726
Last EDR Contact: 09/25/2017
Next Scheduled EDR Contact: 01/08/2018
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP: EDR Proprietary Manufactured Gas Plants

The EDR Proprietary Manufactured Gas Plant Database includes records of coal gas plants (manufactured gas plants) compiled by EDR's researchers. Manufactured gas sites were used in the United States from the 1800's to 1950's to produce a gas that could be distributed and used as fuel. These plants used whale oil, rosin, coal, or a mixture of coal, oil, and water that also produced a significant amount of waste. Many of the byproducts of the gas production, such as coal tar (oily waste containing volatile and non-volatile chemicals), sludges, oils and other compounds are potentially hazardous to human health and the environment. The byproduct from this process was frequently disposed of directly at the plant site and can remain or spread slowly, serving as a continuous source of soil and groundwater contamination.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

EDR Hist Auto: EDR Exclusive Historic Gas Stations

EDR has searched selected national collections of business directories and has collected listings of potential gas station/filling station/service station sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include gas station/filling station/service station establishments. The categories reviewed included, but were not limited to gas, gas station, gasoline station, filling station, auto, automobile repair, auto service station, service station, etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR Hist Cleaner: EDR Exclusive Historic Dry Cleaners

EDR has searched selected national collections of business directories and has collected listings of potential dry cleaner sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include dry cleaning establishments. The categories reviewed included, but were not limited to dry cleaners, cleaners, laundry, laundromat, cleaning/laundry, wash & dry etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA LF: Recovered Government Archive Solid Waste Facilities List

The EDR Recovered Government Archive Landfill database provides a list of landfills derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the Department of Resources Recycling and Recovery in California.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 01/13/2014
Number of Days to Update: 196

Source: Department of Resources Recycling and Recovery
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

RGA LUST: Recovered Government Archive Leaking Underground Storage Tank

The EDR Recovered Government Archive Leaking Underground Storage Tank database provides a list of LUST incidents derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the State Water Resources Control Board in California.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 12/30/2013
Number of Days to Update: 182

Source: State Water Resources Control Board
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

COUNTY RECORDS

ALAMEDA COUNTY:

Contaminated Sites

A listing of contaminated sites overseen by the Toxic Release Program (oil and groundwater contamination from chemical releases and spills) and the Leaking Underground Storage Tank Program (soil and ground water contamination from leaking petroleum USTs).

Date of Government Version: 09/22/2017
Date Data Arrived at EDR: 09/22/2017
Date Made Active in Reports: 10/10/2017
Number of Days to Update: 18

Source: Alameda County Environmental Health Services
Telephone: 510-567-6700
Last EDR Contact: 09/21/2017
Next Scheduled EDR Contact: 01/22/2018
Data Release Frequency: Semi-Annually

Underground Tanks

Underground storage tank sites located in Alameda county.

Date of Government Version: 07/07/2017
Date Data Arrived at EDR: 07/11/2017
Date Made Active in Reports: 08/23/2017
Number of Days to Update: 43

Source: Alameda County Environmental Health Services
Telephone: 510-567-6700
Last EDR Contact: 10/10/2017
Next Scheduled EDR Contact: 04/24/2047
Data Release Frequency: Semi-Annually

AMADOR COUNTY:

CUPA Facility List

Cupa Facility List

Date of Government Version: 06/20/2017
Date Data Arrived at EDR: 06/21/2017
Date Made Active in Reports: 08/09/2017
Number of Days to Update: 49

Source: Amador County Environmental Health
Telephone: 209-223-6439
Last EDR Contact: 08/31/2017
Next Scheduled EDR Contact: 12/18/2017
Data Release Frequency: Varies

BUTTE COUNTY:

CUPA Facility Listing

Cupa facility list.

Date of Government Version: 04/21/2017
Date Data Arrived at EDR: 04/25/2017
Date Made Active in Reports: 08/09/2017
Number of Days to Update: 106

Source: Public Health Department
Telephone: 530-538-7149
Last EDR Contact: 09/18/2017
Next Scheduled EDR Contact: 10/23/2017
Data Release Frequency: No Update Planned

CALVERAS COUNTY:

CUPA Facility Listing
Cupa Facility Listing

Date of Government Version: 04/25/2017
Date Data Arrived at EDR: 04/27/2017
Date Made Active in Reports: 08/09/2017
Number of Days to Update: 104

Source: Calveras County Environmental Health
Telephone: 209-754-6399
Last EDR Contact: 09/05/2017
Next Scheduled EDR Contact: 01/08/2018
Data Release Frequency: Quarterly

COLUSA COUNTY:

CUPA Facility List
Cupa facility list.

Date of Government Version: 02/23/2017
Date Data Arrived at EDR: 02/24/2017
Date Made Active in Reports: 05/12/2017
Number of Days to Update: 77

Source: Health & Human Services
Telephone: 530-458-0396
Last EDR Contact: 08/03/2017
Next Scheduled EDR Contact: 11/20/2017
Data Release Frequency: Varies

CONTRA COSTA COUNTY:

Site List
List includes sites from the underground tank, hazardous waste generator and business plan/2185 programs.

Date of Government Version: 05/26/2017
Date Data Arrived at EDR: 05/30/2017
Date Made Active in Reports: 07/27/2017
Number of Days to Update: 58

Source: Contra Costa Health Services Department
Telephone: 925-646-2286
Last EDR Contact: 07/31/2017
Next Scheduled EDR Contact: 11/13/2017
Data Release Frequency: Semi-Annually

DEL NORTE COUNTY:

CUPA Facility List
Cupa Facility list

Date of Government Version: 05/02/2017
Date Data Arrived at EDR: 05/04/2017
Date Made Active in Reports: 08/04/2017
Number of Days to Update: 92

Source: Del Norte County Environmental Health Division
Telephone: 707-465-0426
Last EDR Contact: 07/27/2017
Next Scheduled EDR Contact: 11/13/2017
Data Release Frequency: Varies

EL DORADO COUNTY:

CUPA Facility List
CUPA facility list.

Date of Government Version: 06/19/2017
Date Data Arrived at EDR: 06/20/2017
Date Made Active in Reports: 08/09/2017
Number of Days to Update: 50

Source: El Dorado County Environmental Management Department
Telephone: 530-621-6623
Last EDR Contact: 07/31/2017
Next Scheduled EDR Contact: 11/13/2017
Data Release Frequency: Varies

FRESNO COUNTY:

CUPA Resources List

Certified Unified Program Agency. CUPA's are responsible for implementing a unified hazardous materials and hazardous waste management regulatory program. The agency provides oversight of businesses that deal with hazardous materials, operate underground storage tanks or aboveground storage tanks.

Date of Government Version: 06/30/2017
Date Data Arrived at EDR: 07/05/2017
Date Made Active in Reports: 08/04/2017
Number of Days to Update: 30

Source: Dept. of Community Health
Telephone: 559-445-3271
Last EDR Contact: 09/27/2017
Next Scheduled EDR Contact: 01/15/2018
Data Release Frequency: Semi-Annually

GLENN COUNTY:

CUPA Facility List

Cupa facility list

Date of Government Version: 12/02/2016
Date Data Arrived at EDR: 02/03/2017
Date Made Active in Reports: 05/25/2017
Number of Days to Update: 111

Source: Glenn County Air Pollution Control District
Telephone: 830-934-6500
Last EDR Contact: 07/21/2017
Next Scheduled EDR Contact: 11/08/2017
Data Release Frequency: Varies

HUMBOLDT COUNTY:

CUPA Facility List

CUPA facility list.

Date of Government Version: 03/20/2017
Date Data Arrived at EDR: 03/21/2017
Date Made Active in Reports: 05/17/2017
Number of Days to Update: 57

Source: Humboldt County Environmental Health
Telephone: N/A
Last EDR Contact: 08/03/2017
Next Scheduled EDR Contact: 12/04/2017
Data Release Frequency: Varies

IMPERIAL COUNTY:

CUPA Facility List

Cupa facility list.

Date of Government Version: 04/24/2017
Date Data Arrived at EDR: 04/25/2017
Date Made Active in Reports: 08/04/2017
Number of Days to Update: 101

Source: San Diego Border Field Office
Telephone: 760-339-2777
Last EDR Contact: 07/21/2017
Next Scheduled EDR Contact: 11/08/2017
Data Release Frequency: Varies

INYO COUNTY:

CUPA Facility List
Cupa facility list.

Date of Government Version: 06/08/2017
Date Data Arrived at EDR: 06/09/2017
Date Made Active in Reports: 08/04/2017
Number of Days to Update: 56

Source: Inyo County Environmental Health Services
Telephone: 760-878-0238
Last EDR Contact: 08/31/2017
Next Scheduled EDR Contact: 12/04/2017
Data Release Frequency: Varies

KERN COUNTY:

Underground Storage Tank Sites & Tank Listing
Kern County Sites and Tanks Listing.

Date of Government Version: 08/07/2017
Date Data Arrived at EDR: 08/08/2017
Date Made Active in Reports: 09/21/2017
Number of Days to Update: 44

Source: Kern County Environment Health Services Department
Telephone: 661-862-8700
Last EDR Contact: 08/03/2017
Next Scheduled EDR Contact: 11/20/2017
Data Release Frequency: Quarterly

KINGS COUNTY:

CUPA Facility List
A listing of sites included in the county's Certified Unified Program Agency database. California's Secretary for Environmental Protection established the unified hazardous materials and hazardous waste regulatory program as required by chapter 6.11 of the California Health and Safety Code. The Unified Program consolidates the administration, permits, inspections, and enforcement activities.

Date of Government Version: 03/06/2017
Date Data Arrived at EDR: 03/07/2017
Date Made Active in Reports: 05/17/2017
Number of Days to Update: 71

Source: Kings County Department of Public Health
Telephone: 559-584-1411
Last EDR Contact: 09/22/2017
Next Scheduled EDR Contact: 12/04/2017
Data Release Frequency: Varies

LAKE COUNTY:

CUPA Facility List
Cupa facility list

Date of Government Version: 05/09/2017
Date Data Arrived at EDR: 05/11/2017
Date Made Active in Reports: 08/09/2017
Number of Days to Update: 90

Source: Lake County Environmental Health
Telephone: 707-263-1164
Last EDR Contact: 07/17/2017
Next Scheduled EDR Contact: 10/30/2017
Data Release Frequency: Varies

LASSEN COUNTY:

CUPA Facility List
Cupa facility list

Date of Government Version: 01/13/2017
Date Data Arrived at EDR: 04/25/2017
Date Made Active in Reports: 08/04/2017
Number of Days to Update: 101

Source: Lassen County Environmental Health
Telephone: 530-251-8528
Last EDR Contact: 07/21/2017
Next Scheduled EDR Contact: 11/08/2017
Data Release Frequency: Varies

LOS ANGELES COUNTY:

San Gabriel Valley Areas of Concern
San Gabriel Valley areas where VOC contamination is at or above the MCL as designated by region 9 EPA office.

Date of Government Version: 03/30/2009
Date Data Arrived at EDR: 03/31/2009
Date Made Active in Reports: 10/23/2009
Number of Days to Update: 206
Source: EPA Region 9
Telephone: 415-972-3178
Last EDR Contact: 09/18/2017
Next Scheduled EDR Contact: 01/01/2018
Data Release Frequency: No Update Planned

HMS: Street Number List
Industrial Waste and Underground Storage Tank Sites.

Date of Government Version: 04/18/2017
Date Data Arrived at EDR: 04/25/2017
Date Made Active in Reports: 08/18/2017
Number of Days to Update: 115
Source: Department of Public Works
Telephone: 626-458-3517
Last EDR Contact: 10/10/2017
Next Scheduled EDR Contact: 01/22/2018
Data Release Frequency: Semi-Annually

List of Solid Waste Facilities
Solid Waste Facilities in Los Angeles County.

Date of Government Version: 07/17/2017
Date Data Arrived at EDR: 07/18/2017
Date Made Active in Reports: 09/21/2017
Number of Days to Update: 65
Source: La County Department of Public Works
Telephone: 818-458-5185
Last EDR Contact: 07/18/2017
Next Scheduled EDR Contact: 10/30/2017
Data Release Frequency: Varies

City of Los Angeles Landfills
Landfills owned and maintained by the City of Los Angeles.

Date of Government Version: 01/01/2017
Date Data Arrived at EDR: 04/21/2017
Date Made Active in Reports: 10/09/2017
Number of Days to Update: 171
Source: Engineering & Construction Division
Telephone: 213-473-7869
Last EDR Contact: 07/13/2017
Next Scheduled EDR Contact: 10/30/2017
Data Release Frequency: Varies

Site Mitigation List
Industrial sites that have had some sort of spill or complaint.

Date of Government Version: 03/29/2016
Date Data Arrived at EDR: 04/06/2016
Date Made Active in Reports: 06/13/2016
Number of Days to Update: 68
Source: Community Health Services
Telephone: 323-890-7806
Last EDR Contact: 07/17/2017
Next Scheduled EDR Contact: 10/30/2017
Data Release Frequency: Annually

City of El Segundo Underground Storage Tank
Underground storage tank sites located in El Segundo city.

Date of Government Version: 01/21/2017
Date Data Arrived at EDR: 04/19/2017
Date Made Active in Reports: 05/10/2017
Number of Days to Update: 21
Source: City of El Segundo Fire Department
Telephone: 310-524-2236
Last EDR Contact: 07/13/2017
Next Scheduled EDR Contact: 10/30/2017
Data Release Frequency: Semi-Annually

City of Long Beach Underground Storage Tank
Underground storage tank sites located in the city of Long Beach.

Date of Government Version: 03/09/2017
Date Data Arrived at EDR: 03/10/2017
Date Made Active in Reports: 05/03/2017
Number of Days to Update: 54
Source: City of Long Beach Fire Department
Telephone: 562-570-2563
Last EDR Contact: 07/21/2017
Next Scheduled EDR Contact: 11/08/2017
Data Release Frequency: Annually

City of Torrance Underground Storage Tank
Underground storage tank sites located in the city of Torrance.

Date of Government Version: 07/11/2017
Date Data Arrived at EDR: 07/14/2017
Date Made Active in Reports: 09/21/2017
Number of Days to Update: 69

Source: City of Torrance Fire Department
Telephone: 310-618-2973
Last EDR Contact: 10/10/2017
Next Scheduled EDR Contact: 01/22/2018
Data Release Frequency: Semi-Annually

MADERA COUNTY:

CUPA Facility List
A listing of sites included in the county's Certified Unified Program Agency database. California's Secretary for Environmental Protection established the unified hazardous materials and hazardous waste regulatory program as required by chapter 6.11 of the California Health and Safety Code. The Unified Program consolidates the administration, permits, inspections, and enforcement activities.

Date of Government Version: 06/01/2017
Date Data Arrived at EDR: 06/02/2017
Date Made Active in Reports: 08/04/2017
Number of Days to Update: 63

Source: Madera County Environmental Health
Telephone: 559-675-7823
Last EDR Contact: 08/21/2017
Next Scheduled EDR Contact: 12/04/2017
Data Release Frequency: Varies

MARIN COUNTY:

Underground Storage Tank Sites
Currently permitted USTs in Marin County.

Date of Government Version: 07/03/2017
Date Data Arrived at EDR: 09/06/2017
Date Made Active in Reports: 09/21/2017
Number of Days to Update: 15

Source: Public Works Department Waste Management
Telephone: 415-473-6647
Last EDR Contact: 09/27/2017
Next Scheduled EDR Contact: 01/15/2018
Data Release Frequency: Semi-Annually

MERCED COUNTY:

CUPA Facility List
CUPA facility list.

Date of Government Version: 02/22/2017
Date Data Arrived at EDR: 02/23/2017
Date Made Active in Reports: 05/17/2017
Number of Days to Update: 83

Source: Merced County Environmental Health
Telephone: 209-381-1094
Last EDR Contact: 09/27/2017
Next Scheduled EDR Contact: 12/04/2017
Data Release Frequency: Varies

MONO COUNTY:

CUPA Facility List
CUPA Facility List

Date of Government Version: 02/21/2017
Date Data Arrived at EDR: 03/02/2017
Date Made Active in Reports: 05/17/2017
Number of Days to Update: 76

Source: Mono County Health Department
Telephone: 760-932-5580
Last EDR Contact: 08/08/2017
Next Scheduled EDR Contact: 12/11/2017
Data Release Frequency: Varies

MONTEREY COUNTY:

CUPA Facility Listing
CUPA Program listing from the Environmental Health Division.

Date of Government Version: 06/22/2017
Date Data Arrived at EDR: 06/23/2017
Date Made Active in Reports: 08/09/2017
Number of Days to Update: 47
Source: Monterey County Health Department
Telephone: 831-796-1297
Last EDR Contact: 08/21/2017
Next Scheduled EDR Contact: 12/04/2017
Data Release Frequency: Varies

NAPA COUNTY:

Sites With Reported Contamination
A listing of leaking underground storage tank sites located in Napa county.

Date of Government Version: 01/09/2017
Date Data Arrived at EDR: 01/11/2017
Date Made Active in Reports: 03/02/2017
Number of Days to Update: 50
Source: Napa County Department of Environmental Management
Telephone: 707-253-4269
Last EDR Contact: 08/24/2017
Next Scheduled EDR Contact: 12/11/2017
Data Release Frequency: No Update Planned

Closed and Operating Underground Storage Tank Sites
Underground storage tank sites located in Napa county.

Date of Government Version: 05/31/2017
Date Data Arrived at EDR: 06/01/2017
Date Made Active in Reports: 08/25/2017
Number of Days to Update: 85
Source: Napa County Department of Environmental Management
Telephone: 707-253-4269
Last EDR Contact: 08/24/2017
Next Scheduled EDR Contact: 12/11/2017
Data Release Frequency: No Update Planned

NEVADA COUNTY:

CUPA Facility List
CUPA facility list.

Date of Government Version: 05/08/2017
Date Data Arrived at EDR: 05/09/2017
Date Made Active in Reports: 08/09/2017
Number of Days to Update: 92
Source: Community Development Agency
Telephone: 530-265-1467
Last EDR Contact: 07/27/2017
Next Scheduled EDR Contact: 11/13/2017
Data Release Frequency: Varies

ORANGE COUNTY:

List of Industrial Site Cleanups
Petroleum and non-petroleum spills.

Date of Government Version: 08/07/2017
Date Data Arrived at EDR: 08/11/2017
Date Made Active in Reports: 10/11/2017
Number of Days to Update: 61
Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 08/07/2017
Next Scheduled EDR Contact: 11/20/2017
Data Release Frequency: Annually

List of Underground Storage Tank Cleanups
Orange County Underground Storage Tank Cleanups (LUST).

Date of Government Version: 08/07/2017
Date Data Arrived at EDR: 08/11/2017
Date Made Active in Reports: 09/21/2017
Number of Days to Update: 41
Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 08/07/2017
Next Scheduled EDR Contact: 11/20/2017
Data Release Frequency: Quarterly

List of Underground Storage Tank Facilities
Orange County Underground Storage Tank Facilities (UST).

Date of Government Version: 08/07/2017
Date Data Arrived at EDR: 08/09/2017
Date Made Active in Reports: 09/21/2017
Number of Days to Update: 43
Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 08/09/2017
Next Scheduled EDR Contact: 11/20/2017
Data Release Frequency: Quarterly

PLACER COUNTY:

Master List of Facilities
List includes aboveground tanks, underground tanks and cleanup sites.

Date of Government Version: 06/02/2017
Date Data Arrived at EDR: 06/06/2017
Date Made Active in Reports: 08/22/2017
Number of Days to Update: 77
Source: Placer County Health and Human Services
Telephone: 530-745-2363
Last EDR Contact: 08/31/2017
Next Scheduled EDR Contact: 12/18/2017
Data Release Frequency: Semi-Annually

PLUMAS COUNTY:

CUPA Facility List
Plumas County CUPA Program facilities.

Date of Government Version: 06/19/2017
Date Data Arrived at EDR: 07/05/2017
Date Made Active in Reports: 08/09/2017
Number of Days to Update: 35
Source: Plumas County Environmental Health
Telephone: 530-283-6355
Last EDR Contact: 07/21/2017
Next Scheduled EDR Contact: 11/08/2017
Data Release Frequency: Varies

RIVERSIDE COUNTY:

Listing of Underground Tank Cleanup Sites
Riverside County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 07/11/2017
Date Data Arrived at EDR: 07/14/2017
Date Made Active in Reports: 09/21/2017
Number of Days to Update: 69
Source: Department of Environmental Health
Telephone: 951-358-5055
Last EDR Contact: 09/18/2017
Next Scheduled EDR Contact: 01/01/2018
Data Release Frequency: Quarterly

Underground Storage Tank Tank List
Underground storage tank sites located in Riverside county.

Date of Government Version: 07/11/2017
Date Data Arrived at EDR: 07/14/2017
Date Made Active in Reports: 09/21/2017
Number of Days to Update: 69
Source: Department of Environmental Health
Telephone: 951-358-5055
Last EDR Contact: 09/18/2017
Next Scheduled EDR Contact: 01/01/2018
Data Release Frequency: Quarterly

SACRAMENTO COUNTY:

Toxic Site Clean-Up List
List of sites where unauthorized releases of potentially hazardous materials have occurred.

Date of Government Version: 08/02/2017
Date Data Arrived at EDR: 10/03/2017
Date Made Active in Reports: 10/06/2017
Number of Days to Update: 3

Source: Sacramento County Environmental Management
Telephone: 916-875-8406
Last EDR Contact: 10/03/2017
Next Scheduled EDR Contact: 01/15/2018
Data Release Frequency: Quarterly

Master Hazardous Materials Facility List

Any business that has hazardous materials on site - hazardous material storage sites, underground storage tanks, waste generators.

Date of Government Version: 05/03/2017
Date Data Arrived at EDR: 07/06/2017
Date Made Active in Reports: 08/22/2017
Number of Days to Update: 47

Source: Sacramento County Environmental Management
Telephone: 916-875-8406
Last EDR Contact: 10/03/2017
Next Scheduled EDR Contact: 01/15/2018
Data Release Frequency: Quarterly

SAN BENITO COUNTY:

CUPA Facility List

Cupa facility list

Date of Government Version: 11/30/2016
Date Data Arrived at EDR: 02/09/2017
Date Made Active in Reports: 05/25/2017
Number of Days to Update: 105

Source: San Benito County Environmental Health
Telephone: N/A
Last EDR Contact: 08/03/2017
Next Scheduled EDR Contact: 11/20/2017
Data Release Frequency: Varies

SAN BERNARDINO COUNTY:

Hazardous Material Permits

This listing includes underground storage tanks, medical waste handlers/generators, hazardous materials handlers, hazardous waste generators, and waste oil generators/handlers.

Date of Government Version: 05/30/2017
Date Data Arrived at EDR: 06/01/2017
Date Made Active in Reports: 08/25/2017
Number of Days to Update: 85

Source: San Bernardino County Fire Department Hazardous Materials Division
Telephone: 909-387-3041
Last EDR Contact: 08/07/2017
Next Scheduled EDR Contact: 11/20/2017
Data Release Frequency: Quarterly

SAN DIEGO COUNTY:

Hazardous Materials Management Division Database

The database includes: HE58 - This report contains the business name, site address, business phone number, establishment 'H' permit number, type of permit, and the business status. HE17 - In addition to providing the same information provided in the HE58 listing, HE17 provides inspection dates, violations received by the establishment, hazardous waste generated, the quantity, method of storage, treatment/disposal of waste and the hauler, and information on underground storage tanks. Unauthorized Release List - Includes a summary of environmental contamination cases in San Diego County (underground tank cases, non-tank cases, groundwater contamination, and soil contamination are included.)

Date of Government Version: 06/05/2017
Date Data Arrived at EDR: 06/07/2017
Date Made Active in Reports: 08/15/2017
Number of Days to Update: 69

Source: Hazardous Materials Management Division
Telephone: 619-338-2268
Last EDR Contact: 09/06/2017
Next Scheduled EDR Contact: 12/18/2017
Data Release Frequency: Quarterly

Solid Waste Facilities
San Diego County Solid Waste Facilities.

Date of Government Version: 10/31/2015
Date Data Arrived at EDR: 11/07/2015
Date Made Active in Reports: 01/04/2016
Number of Days to Update: 58
Source: Department of Health Services
Telephone: 619-338-2209
Last EDR Contact: 07/21/2017
Next Scheduled EDR Contact: 11/08/2017
Data Release Frequency: Varies

Environmental Case Listing
The listing contains all underground tank release cases and projects pertaining to properties contaminated with hazardous substances that are actively under review by the Site Assessment and Mitigation Program.

Date of Government Version: 03/23/2010
Date Data Arrived at EDR: 06/15/2010
Date Made Active in Reports: 07/09/2010
Number of Days to Update: 24
Source: San Diego County Department of Environmental Health
Telephone: 619-338-2371
Last EDR Contact: 08/31/2017
Next Scheduled EDR Contact: 12/18/2017
Data Release Frequency: No Update Planned

SAN FRANCISCO COUNTY:

Local Oversite Facilities
A listing of leaking underground storage tank sites located in San Francisco county.

Date of Government Version: 09/19/2008
Date Data Arrived at EDR: 09/19/2008
Date Made Active in Reports: 09/29/2008
Number of Days to Update: 10
Source: Department Of Public Health San Francisco County
Telephone: 415-252-3920
Last EDR Contact: 08/07/2017
Next Scheduled EDR Contact: 11/20/2017
Data Release Frequency: Quarterly

Underground Storage Tank Information
Underground storage tank sites located in San Francisco county.

Date of Government Version: 05/03/2017
Date Data Arrived at EDR: 05/08/2017
Date Made Active in Reports: 08/25/2017
Number of Days to Update: 109
Source: Department of Public Health
Telephone: 415-252-3920
Last EDR Contact: 08/21/2017
Next Scheduled EDR Contact: 11/20/2017
Data Release Frequency: Quarterly

SAN JOAQUIN COUNTY:

San Joaquin Co. UST
A listing of underground storage tank locations in San Joaquin county.

Date of Government Version: 10/03/2017
Date Data Arrived at EDR: 10/06/2017
Date Made Active in Reports: 10/10/2017
Number of Days to Update: 4
Source: Environmental Health Department
Telephone: N/A
Last EDR Contact: 08/28/2017
Next Scheduled EDR Contact: 01/01/2018
Data Release Frequency: Semi-Annually

SAN LUIS OBISPO COUNTY:

CUPA Facility List
Cupa Facility List.

Date of Government Version: 06/05/2017
Date Data Arrived at EDR: 06/16/2017
Date Made Active in Reports: 08/09/2017
Number of Days to Update: 54
Source: San Luis Obispo County Public Health Department
Telephone: 805-781-5596
Last EDR Contact: 08/18/2017
Next Scheduled EDR Contact: 12/04/2017
Data Release Frequency: Varies

SAN MATEO COUNTY:

Business Inventory
List includes Hazardous Materials Business Plan, hazardous waste generators, and underground storage tanks.

Date of Government Version: 03/15/2017
Date Data Arrived at EDR: 04/07/2017
Date Made Active in Reports: 05/10/2017
Number of Days to Update: 33
Source: San Mateo County Environmental Health Services Division
Telephone: 650-363-1921
Last EDR Contact: 09/07/2017
Next Scheduled EDR Contact: 12/25/2017
Data Release Frequency: Annually

Fuel Leak List
A listing of leaking underground storage tank sites located in San Mateo county.

Date of Government Version: 06/15/2017
Date Data Arrived at EDR: 06/19/2017
Date Made Active in Reports: 08/22/2017
Number of Days to Update: 64
Source: San Mateo County Environmental Health Services Division
Telephone: 650-363-1921
Last EDR Contact: 09/07/2017
Next Scheduled EDR Contact: 12/25/2017
Data Release Frequency: Semi-Annually

SANTA BARBARA COUNTY:

CUPA Facility Listing
CUPA Program Listing from the Environmental Health Services division.

Date of Government Version: 09/08/2011
Date Data Arrived at EDR: 09/09/2011
Date Made Active in Reports: 10/07/2011
Number of Days to Update: 28
Source: Santa Barbara County Public Health Department
Telephone: 805-686-8167
Last EDR Contact: 08/18/2017
Next Scheduled EDR Contact: 12/04/2017
Data Release Frequency: Varies

SANTA CLARA COUNTY:

Cupa Facility List
Cupa facility list

Date of Government Version: 02/22/2017
Date Data Arrived at EDR: 02/23/2017
Date Made Active in Reports: 05/23/2017
Number of Days to Update: 89
Source: Department of Environmental Health
Telephone: 408-918-1973
Last EDR Contact: 08/07/2017
Next Scheduled EDR Contact: 12/04/2017
Data Release Frequency: Varies

HIST LUST - Fuel Leak Site Activity Report
A listing of open and closed leaking underground storage tanks. This listing is no longer updated by the county. Leaking underground storage tanks are now handled by the Department of Environmental Health.

Date of Government Version: 03/29/2005
Date Data Arrived at EDR: 03/30/2005
Date Made Active in Reports: 04/21/2005
Number of Days to Update: 22
Source: Santa Clara Valley Water District
Telephone: 408-265-2600
Last EDR Contact: 03/23/2009
Next Scheduled EDR Contact: 06/22/2009
Data Release Frequency: No Update Planned

LOP Listing
A listing of leaking underground storage tanks located in Santa Clara county.

Date of Government Version: 03/03/2014
Date Data Arrived at EDR: 03/05/2014
Date Made Active in Reports: 03/18/2014
Number of Days to Update: 13
Source: Department of Environmental Health
Telephone: 408-918-3417
Last EDR Contact: 08/24/2017
Next Scheduled EDR Contact: 12/11/2017
Data Release Frequency: Annually

Hazardous Material Facilities
Hazardous material facilities, including underground storage tank sites.

Date of Government Version: 05/04/2017
Date Data Arrived at EDR: 05/08/2017
Date Made Active in Reports: 07/27/2017
Number of Days to Update: 80

Source: City of San Jose Fire Department
Telephone: 408-535-7694
Last EDR Contact: 08/03/2017
Next Scheduled EDR Contact: 11/20/2017
Data Release Frequency: Annually

SANTA CRUZ COUNTY:

CUPA Facility List
CUPA facility listing.

Date of Government Version: 01/21/2017
Date Data Arrived at EDR: 02/22/2017
Date Made Active in Reports: 05/23/2017
Number of Days to Update: 90

Source: Santa Cruz County Environmental Health
Telephone: 831-464-2761
Last EDR Contact: 08/18/2017
Next Scheduled EDR Contact: 12/04/2017
Data Release Frequency: Varies

SHASTA COUNTY:

CUPA Facility List
Cupa Facility List.

Date of Government Version: 06/15/2017
Date Data Arrived at EDR: 06/19/2017
Date Made Active in Reports: 08/09/2017
Number of Days to Update: 51

Source: Shasta County Department of Resource Management
Telephone: 530-225-5789
Last EDR Contact: 08/21/2017
Next Scheduled EDR Contact: 12/04/2017
Data Release Frequency: Varies

SOLANO COUNTY:

Leaking Underground Storage Tanks
A listing of leaking underground storage tank sites located in Solano county.

Date of Government Version: 06/15/2017
Date Data Arrived at EDR: 06/20/2017
Date Made Active in Reports: 08/22/2017
Number of Days to Update: 63

Source: Solano County Department of Environmental Management
Telephone: 707-784-6770
Last EDR Contact: 09/25/2017
Next Scheduled EDR Contact: 12/25/2017
Data Release Frequency: Quarterly

Underground Storage Tanks
Underground storage tank sites located in Solano county.

Date of Government Version: 06/15/2017
Date Data Arrived at EDR: 06/21/2017
Date Made Active in Reports: 08/29/2017
Number of Days to Update: 69

Source: Solano County Department of Environmental Management
Telephone: 707-784-6770
Last EDR Contact: 09/25/2017
Next Scheduled EDR Contact: 12/25/2017
Data Release Frequency: Quarterly

SONOMA COUNTY:

Cupa Facility List
Cupa Facility list

Date of Government Version: 06/23/2017
Date Data Arrived at EDR: 06/27/2017
Date Made Active in Reports: 08/09/2017
Number of Days to Update: 43

Source: County of Sonoma Fire & Emergency Services Department
Telephone: 707-565-1174
Last EDR Contact: 09/25/2017
Next Scheduled EDR Contact: 01/01/2018
Data Release Frequency: Varies

Leaking Underground Storage Tank Sites

A listing of leaking underground storage tank sites located in Sonoma county.

Date of Government Version: 07/05/2017
Date Data Arrived at EDR: 07/06/2017
Date Made Active in Reports: 08/22/2017
Number of Days to Update: 47

Source: Department of Health Services
Telephone: 707-565-6565
Last EDR Contact: 09/25/2017
Next Scheduled EDR Contact: 01/08/2018
Data Release Frequency: Quarterly

STANISLAUS COUNTY:

CUPA Facility List

Cupa facility list

Date of Government Version: 05/10/2017
Date Data Arrived at EDR: 05/16/2017
Date Made Active in Reports: 08/09/2017
Number of Days to Update: 85

Source: Stanislaus County Department of Ennvironmental Protection
Telephone: 209-525-6751
Last EDR Contact: 07/17/2017
Next Scheduled EDR Contact: 10/30/2017
Data Release Frequency: Varies

SUTTER COUNTY:

Underground Storage Tanks

Underground storage tank sites located in Sutter county.

Date of Government Version: 06/02/2017
Date Data Arrived at EDR: 06/06/2017
Date Made Active in Reports: 08/25/2017
Number of Days to Update: 80

Source: Sutter County Department of Agriculture
Telephone: 530-822-7500
Last EDR Contact: 08/31/2017
Next Scheduled EDR Contact: 12/18/2017
Data Release Frequency: Semi-Annually

TEHAMA COUNTY:

CUPA Facility List

Cupa facilities

Date of Government Version: 05/01/2017
Date Data Arrived at EDR: 05/08/2017
Date Made Active in Reports: 08/09/2017
Number of Days to Update: 93

Source: Tehama County Department of Environmental Health
Telephone: 530-527-8020
Last EDR Contact: 08/03/2017
Next Scheduled EDR Contact: 11/20/2017
Data Release Frequency: Varies

TRINITY COUNTY:

CUPA Facility List

Cupa facility list

Date of Government Version: 04/24/2017
Date Data Arrived at EDR: 04/25/2017
Date Made Active in Reports: 08/09/2017
Number of Days to Update: 106

Source: Department of Toxic Substances Control
Telephone: 760-352-0381
Last EDR Contact: 07/21/2017
Next Scheduled EDR Contact: 11/08/2017
Data Release Frequency: Varies

TULARE COUNTY:

CUPA Facility List
Cupa program facilities

Date of Government Version: 01/05/2017
Date Data Arrived at EDR: 02/10/2017
Date Made Active in Reports: 05/25/2017
Number of Days to Update: 104

Source: Tulare County Environmental Health Services Division
Telephone: 559-624-7400
Last EDR Contact: 09/22/2017
Next Scheduled EDR Contact: 11/20/2017
Data Release Frequency: Varies

TUOLUMNE COUNTY:

CUPA Facility List
Cupa facility list

Date of Government Version: 04/27/2017
Date Data Arrived at EDR: 04/27/2017
Date Made Active in Reports: 08/10/2017
Number of Days to Update: 105

Source: Divison of Environmental Health
Telephone: 209-533-5633
Last EDR Contact: 08/18/2017
Next Scheduled EDR Contact: 11/08/2017
Data Release Frequency: Varies

VENTURA COUNTY:

Business Plan, Hazardous Waste Producers, and Operating Underground Tanks
The BWT list indicates by site address whether the Environmental Health Division has Business Plan (B), Waste Producer (W), and/or Underground Tank (T) information.

Date of Government Version: 12/27/2016
Date Data Arrived at EDR: 01/27/2017
Date Made Active in Reports: 05/10/2017
Number of Days to Update: 103

Source: Ventura County Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 07/24/2017
Next Scheduled EDR Contact: 11/08/2017
Data Release Frequency: Quarterly

Inventory of Illegal Abandoned and Inactive Sites
Ventura County Inventory of Closed, Illegal Abandoned, and Inactive Sites.

Date of Government Version: 12/01/2011
Date Data Arrived at EDR: 12/01/2011
Date Made Active in Reports: 01/19/2012
Number of Days to Update: 49

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 09/27/2017
Next Scheduled EDR Contact: 01/15/2018
Data Release Frequency: Annually

Listing of Underground Tank Cleanup Sites
Ventura County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 05/29/2008
Date Data Arrived at EDR: 06/24/2008
Date Made Active in Reports: 07/31/2008
Number of Days to Update: 37

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 08/10/2017
Next Scheduled EDR Contact: 11/27/2017
Data Release Frequency: Quarterly

Medical Waste Program List
To protect public health and safety and the environment from potential exposure to disease causing agents, the Environmental Health Division Medical Waste Program regulates the generation, handling, storage, treatment and disposal of medical waste throughout the County.

Date of Government Version: 09/26/2016
Date Data Arrived at EDR: 10/27/2016
Date Made Active in Reports: 01/24/2017
Number of Days to Update: 89

Source: Ventura County Resource Management Agency
Telephone: 805-654-2813
Last EDR Contact: 07/24/2017
Next Scheduled EDR Contact: 11/08/2017
Data Release Frequency: Quarterly

Underground Tank Closed Sites List
Ventura County Operating Underground Storage Tank Sites (UST)/Underground Tank Closed Sites List.

Date of Government Version: 08/28/2017
Date Data Arrived at EDR: 09/12/2017
Date Made Active in Reports: 09/21/2017
Number of Days to Update: 9
Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 09/12/2017
Next Scheduled EDR Contact: 12/25/2017
Data Release Frequency: Quarterly

YOLO COUNTY:

Underground Storage Tank Comprehensive Facility Report
Underground storage tank sites located in Yolo county.

Date of Government Version: 06/29/2017
Date Data Arrived at EDR: 07/05/2017
Date Made Active in Reports: 08/25/2017
Number of Days to Update: 51
Source: Yolo County Department of Health
Telephone: 530-666-8646
Last EDR Contact: 09/27/2017
Next Scheduled EDR Contact: 01/15/2018
Data Release Frequency: Annually

YUBA COUNTY:

CUPA Facility List
CUPA facility listing for Yuba County.

Date of Government Version: 01/30/2017
Date Data Arrived at EDR: 01/31/2017
Date Made Active in Reports: 05/23/2017
Number of Days to Update: 112
Source: Yuba County Environmental Health Department
Telephone: 530-749-7523
Last EDR Contact: 07/27/2017
Next Scheduled EDR Contact: 11/13/2017
Data Release Frequency: Varies

OTHER DATABASE(S)

Depending on the geographic area covered by this report, the data provided in these specialty databases may or may not be complete. For example, the existence of wetlands information data in a specific report does not mean that all wetlands in the area covered by the report are included. Moreover, the absence of any reported wetlands information does not necessarily mean that wetlands do not exist in the area covered by the report.

CT MANIFEST: Hazardous Waste Manifest Data
Facility and manifest data. Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a tsd facility.

Date of Government Version: 07/30/2013
Date Data Arrived at EDR: 08/19/2013
Date Made Active in Reports: 10/03/2013
Number of Days to Update: 45
Source: Department of Energy & Environmental Protection
Telephone: 860-424-3375
Last EDR Contact: 08/18/2017
Next Scheduled EDR Contact: 11/27/2017
Data Release Frequency: No Update Planned

NJ MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 12/31/2016
Date Data Arrived at EDR: 04/11/2017
Date Made Active in Reports: 07/27/2017
Number of Days to Update: 107
Source: Department of Environmental Protection
Telephone: N/A
Last EDR Contact: 10/05/2017
Next Scheduled EDR Contact: 01/22/2018
Data Release Frequency: Annually

NY MANIFEST: Facility and Manifest Data
Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a TSD facility.

Date of Government Version: 07/31/2017
Date Data Arrived at EDR: 08/03/2017
Date Made Active in Reports: 10/12/2017
Number of Days to Update: 70

Source: Department of Environmental Conservation
Telephone: 518-402-8651
Last EDR Contact: 08/03/2017
Next Scheduled EDR Contact: 11/13/2017
Data Release Frequency: Quarterly

PA MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 12/31/2016
Date Data Arrived at EDR: 07/25/2017
Date Made Active in Reports: 09/25/2017
Number of Days to Update: 62

Source: Department of Environmental Protection
Telephone: 717-783-8990
Last EDR Contact: 07/17/2017
Next Scheduled EDR Contact: 10/30/2017
Data Release Frequency: Annually

RI MANIFEST: Manifest information
Hazardous waste manifest information

Date of Government Version: 12/31/2013
Date Data Arrived at EDR: 06/19/2015
Date Made Active in Reports: 07/15/2015
Number of Days to Update: 26

Source: Department of Environmental Management
Telephone: 401-222-2797
Last EDR Contact: 08/21/2017
Next Scheduled EDR Contact: 12/04/2017
Data Release Frequency: Annually

WI MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 12/31/2016
Date Data Arrived at EDR: 04/13/2017
Date Made Active in Reports: 07/14/2017
Number of Days to Update: 92

Source: Department of Natural Resources
Telephone: N/A
Last EDR Contact: 09/11/2017
Next Scheduled EDR Contact: 12/25/2017
Data Release Frequency: Annually

Oil/Gas Pipelines
Source: PennWell Corporation
Petroleum Bundle (Crude Oil, Refined Products, Petrochemicals, Gas Liquids (LPG/NGL), and Specialty Gases (Miscellaneous)) N = Natural Gas Bundle (Natural Gas, Gas Liquids (LPG/NGL), and Specialty Gases (Miscellaneous)). This map includes information copyrighted by PennWell Corporation. This information is provided on a best effort basis and PennWell Corporation does not guarantee its accuracy nor warrant its fitness for any particular purpose. Such information has been reprinted with the permission of PennWell.

Electric Power Transmission Line Data
Source: PennWell Corporation
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Sensitive Receptors: There are individuals deemed sensitive receptors due to their fragile immune systems and special sensitivity to environmental discharges. These sensitive receptors typically include the elderly, the sick, and children. While the location of all sensitive receptors cannot be determined, EDR indicates those buildings and facilities - schools, daycares, hospitals, medical centers, and nursing homes - where individuals who are sensitive receptors are likely to be located.

AHA Hospitals:
Source: American Hospital Association, Inc.
Telephone: 312-280-5991
The database includes a listing of hospitals based on the American Hospital Association's annual survey of hospitals.

Medical Centers: Provider of Services Listing
Source: Centers for Medicare & Medicaid Services
Telephone: 410-786-3000
A listing of hospitals with Medicare provider number, produced by Centers of Medicare & Medicaid Services, a federal agency within the U.S. Department of Health and Human Services.

Nursing Homes
Source: National Institutes of Health
Telephone: 301-594-6248
Information on Medicare and Medicaid certified nursing homes in the United States.

Public Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on elementary and secondary public education in the United States. It is a comprehensive, annual, national statistical database of all public elementary and secondary schools and school districts, which contains data that are comparable across all states.

Private Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on private school locations in the United States.

Daycare Centers: Licensed Facilities
Source: Department of Social Services
Telephone: 916-657-4041

Flood Zone Data: This data was obtained from the Federal Emergency Management Agency (FEMA). It depicts 100-year and 500-year flood zones as defined by FEMA. It includes the National Flood Hazard Layer (NFHL) which incorporates Flood Insurance Rate Map (FIRM) data and Q3 data from FEMA in areas not covered by NFHL.
Source: FEMA
Telephone: 877-336-2627
Date of Government Version: 2003, 2015

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005 and 2010 from the U.S. Fish and Wildlife Service.

State Wetlands Data: Wetland Inventory
Source: Department of Fish & Game
Telephone: 916-445-0411

Current USGS 7.5 Minute Topographic Map
Source: U.S. Geological Survey

STREET AND ADDRESS INFORMATION

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Appendix D

Agency Records

WEST HILLS CLEANERS

Professional Dry Cleaning

Expert Alterations,
Wedding Gowns,
Suede and Leather,
Bedspread, Etc...



Mon.-Fri. 7am-7pm
Sat. 8am-6pm

Ou Y. Lee

Owner

23233 Saticoy St. #110
West Hills, CA 91304
(818) 702-9027

County of Los Angeles • Fire Department
Prevention Bureau
Health Hazardous Materials Division
14425 Olive View Dr., Sylmar, CA 91342

LOG SHEET

Page _____ of

Site Name: West Hills Cleaner | #

Address:

Date	HMS Init	Findings /Remarks
MAY 0 2 2001	DB	Reviewed File DB
7/25/03	D.C	PROVIDED A ROUTINE INSPECTION, NO NOV ISSUED.
AUG 1 1 2003		
3/25/04	D.C	AN UPDATE TO HWL OWNERSHIP WILL BE MADE ONCE BUS. LICENSE COPY IS SUBMITTED. NO NOV ISSUED AT THIS TIME.
APR 0 5 2004		File Reviewed DB
1/23/07	K.S.	OOT Conducted. NO Violation observed. please file NW
11/17/09	KS	OOT conducted. NO Violation. file NW
4/8/2013	KS	OOT conducted. no significant Violations. file NW

HHMD•LS.G3•11/95

3/92

WEST HILLS CLEANERS

23233 #110 SATICOY ST.,
WEST HILLS. CA. 91304
TEL. (818)-702-9027

COUNTY OF LOS ANGELES • DEPARTMENT OF HEALTH SERVICES
ENVIRONMENTAL HEALTH / HEALTH FACILITIES • HAZARDOUS MATERIALS CONTROL PROGRAM

CASE UPDATE / PHONE LOG

Company / Case Name: West Hills Cleaners | Log #:

DATE	HMS INIT.	FINDINGS / REMARKS
3/10/92	Dgj	DLPHL # 585237 1000 and NOV #022502 issued ✓
5/21/92	Dg	P/C. Left msge W/ Kristen Hong, daughter. Father/ owner is out of town
5/29/92	dg	Re-explained contingency forms to fiel rst. Re: Used Plant + sample Contingency plan issued. yellow copy of NOV #022502 to Kristen Hong. Requested to mail in copies by next week
6/3/92	Dg	Rec'd contingency plan. File ✓
10/6/95	Dc	NEW BUSINESS AS OF 11/18/94
		DBA West Hills Cleaner
		Owner Ou Yun Lee
		DHL new # 812646-1000
		Deleted 585237-1000
		conducted routine biennial inspecti
		NO NOV issued
10/23/95	Bjw	File Reviewed
NOV 17 1995	MK	Data entered.
6/18/96	Dc	site visit as result of returned pd HWL invoice notifying of owner name Chang. Mowener no change appeared necessary. HWL Correction Form completed to correct correct Community Name from Canoga Park to West Hills. No further action conducted at this time. Ok to file
6/25/96	Bjw	File Reviewed
4/17/98	D.C	PERFORMED ROUTINE INSPECTION, NO NOV ISSUED.
6/17/98	DS	File Reviewed for BAT
JUN 23 1998	MK	DATA ENTERED
4/11/01	D.C	PROVIDED A ROUTINE INSPECTION.

HMCP-APP-011

LA County Fire Department
Facility Information Report

OWNER FILE INFORMATION

☐ Ownership change: _____ (Effective Date) ☐ Update ☐ Out of Business _____ (Effective Date)

Owner ID: OW0024060
Owner Name: EUNICE E. LEE — Tax ID :
Owner DBA: WEST HILLS CLEANERS — Drvr Licns :
Owner Address:

Work/Business Phone: 818-702-9027
Billing/Mailing Address: 23233 SATICOY ST #110
CANOGA PARK, CA 91304
ATTN/Care of:
Ownership Type:

CERS Tracking:
User Login: Status: Date:
Note:

FACILITY FILE INFORMATION

CERS ID:
Facility ID: FA0024060 — Account ID: AR0024061
Facility Name: WEST HILLS CLEANERS
No. of Employee: 2
Site Location: 23233 SATICOY ST # 110
CANOGA PARK, CA 91304 — **EPA ID**
Phone: 818-702-9027 — **CERS #**
Mailing Address: 23233 SATICOY ST #110
CANOGA PARK, CA 91304
Operator/Care of: — E-Mail : **Not Specified**
District: N - NORTH
City Code: LAC LOS ANGELES
CUPA Jurisdiction: LA
Operating Hours: Days: Hours:
SIC Code: 7216 - Drycleaning plants, except rug
Business Type / Code:
Station: LFD

GENERAL HEALTH PROGRAM ELEMENTS

Record ID	Current Program Element	Current Status	# of Unit	Effective Date Beg.	Effective Date End	Changes: Program Element	Changes: Status
PR0033789	1001 - HW GEN, 0-5 EMPLOYEES	Active, billable		06/18/96			
PR0038961	8040 - CALIFORNIA ELECTRONIC REPORTING SURCHARGE	Inactive, non-billable					

Add Program Element:

Program Element	Status	Effective Date	Program Element	Status	Effective Date

CA Waste Code					
RCRA Waste Code					
AMOUNT per quarter					
UNITS (PQTY) Pounds, Gallons, Tons, Yards					

CONSENT GIVEN BY: Hung Lee — INSPECTOR SIGNATURE: XS — EMPLOYEE ID: 135

1st DATE & TIME OF INSPECTION: 4/8/2013 — 2nd DATE & TIME OF INSPECTION:

3rd DATE & TIME OF INSPECTION:

PREVIOUS INSPECTIONS

Activity Date	Program Element		Service	Result	Action	Activity Min	Travel Min	Inspector ID	Violation Code
04/17/1998	1001	PR0033789	001	00	00	0	0	EE0000999	0
04/27/2001	1001	PR0033789	001	00	00	90		EE0000107	
07/25/2003	1001	PR0033789	001	01	00	60		EE0000107	
03/25/2004	1001	PR0033789	001	01	00	60		EE0000107	
03/25/2004	1001	PR0033789	012	09	15	30		EE0000107	
01/23/2007	1001	PR0033789	001	01	00	80	50	EE0000135	
11/17/2009	1001	PR0033789	001	01	00	60	50	EE0000135	
11/17/2009	1001	PR0033789	051	00	00	20	0	EE0000135	

VIOLATIONS LIST

Open	Activity Date	Program Element	Viol Status	Service	Result	Action	Violation Code	Violation Degree	Description

CONSENT GIVEN BY: _____ INSPECTOR SIGNATURE: _____ EMPLOYEE ID: _____

1st DATE & TIME OF INSPECTION: _____ 2nd DATE & TIME OF INSPECTION: _____

3rd DATE & TIME OF INSPECTION:

COUNTY OF LOS ANGELES FIRE DEPARTMENT
HEALTH HAZARDOUS MATERIALS DIVISION

INSPECTION REPORT

CERTIFIED UNIFIED PROGRAM AGENCY • PARTICIPATING AGENCY

14425 OLIVE VIEW DRIVE, SYLMAR, CA 91342
PHONE: (818) 364-7120 FAX: (818) 364-7127

BUSINESS: WEST HILLS LIQUORS	OWNER: EUNICE LEE	DATE: 4/8/2013
ADDRESS: 23233 Sabion St #110, Canoga Park 91304		FACILITY ID: 0034060

The following requirements, if applicable, have been inspected. This document constitutes a summary of violations and notice to comply if the violation column (V) is checked. ***References:*** *Titles 19 and 22 of the California Code of Regulations (CCR); Chapters 6.5, 6.67, and 6.95 of the California Health and Safety Code (HSC); Titles 11 and 12 of the Los Angeles County Code (Co Ord); and Title 40 Code of Federal Regulations (CFR).* ***NOTE:*** *For all CFR sections refer to CCR 66262.34(d)(2) for applicability.*

INSPECTION TYPE: ☒ INITIAL ☐ RE-INSPECTION ☐ OTHER:

	V	HAZARDOUS WASTE (HW) GENERATOR	SECTION
1		HW accumulation time	22CCR12 66262.34(a-d)
2		Satellite accumulation	22CCR12 66262.34(e)
3		HW labeling	22CCR12 66262.34(f)
4		Hazardous materials storage and labeling	22CCR11 66261.2(f)
5		Containers leaking or not in good condition	22CCR15 66265.171 | 40CFR1 265.171
6		Compatibility of waste with containers	22CCR15 66265.172 | 40CFR1 265.172
7		HW containers closed	22CCR15 66265.173(a) | 40CFR1 265.173(a)
8		Container inspection – weekly	22CCR15 66265.174 | 40CFR1 265.174
9		Separation of incompatibles	22CCR15 66265.177 | 40CFR1 265.177
10		Tank overflow and spill prevention	22CCR15 66265.194 | 40CFR1 265.201(b)
11		Tank inspection	22CCR15 66265.195 | 40CFR1 265.201(d)
12		Tank system management	22CCR15 66265.190-.202 | 40CFR1 265.201
13		Empty containers	22CCR11 66261.7
14		Used oil management	HSC 6.5 25250.4
15		Used oil / fuel filter management	22CCR16 66266.130 / HSC 6.5 25250.22
16		Used battery management	22CCR16 66266.81
17		Contaminated textile management	HSC 6.5 25144.6
18		EPA ID number [submit DTSC form 1358]	22CCR12 66262.12
19		HW manifest complete	22CCR12 66262.23(a)
20		Manifest copies to DTSC	22CCR12 66262.23(a)(4)
21		Manifest copies retained for 3 years	22CCR12 66262.40(a)
22		Consolidated manifest requirements	HSC 6.5 25160.2
23		Manifest exception reporting	22CCR12 66262.42
24		HW transported with manifest	22CCR12 66262.20
25		HW transported by registered hauler	HSC 6.5 25163(a)
26		Land disposal restriction requirements	22CCR18 66268.7(a)

	V	HAZARDOUS WASTE GENERATOR	SECTION
27		HW analysis retained for 3 years	22CCR12 66262.40(c)
28		HW determination	22CCR12 66262.11
29		Proper disposal of HW	HSC 6.5 25189.5(a)
30		Reckless management of HW	HSC 6.5 25189.6
31		Quarantine order	HSC 6.5 25187.6
32		Maintain/operate to prevent release/fire	22CCR15 66265.31 | 40CFR1 265.31
33		Required equipment and maintenance	22CCR15 66265.32-.33 | 40CFR 265.32-.33
34		Required aisle space	22CCR15 66265.35 | 40CFR1 265.35
35		Personnel training	22CCR15 66265.16 | 40CFR1 262.34(d)(5)(iii)
36		Emergency information posting [SQGs]	40CFR1 262.34(d)(5)(ii)
37		Contingency plan [LQGs]	22CCR15 66265.51
38		Source reduction requirements [LQGs]	22CCR31 67100.3
39		Biennial report requirements [RCRA LQGs]	22CCR12 66262.40-.41
40		Closure requirements [LQGs]	22CCR15 66265.111 / .114
41		Site assessment requirements	HSC 6.5 25187(a)(1)
42		Excluded recyclable material management	HSC 6.5 25143.2 / .9
43		Recyclable material report	HSC 6.5 25143.10
44		Universal waste management | Aerosol cans	22CCR23 66273.1-.8 | HSC 6.5 25201.16
45		Other violation(s)	
	V	**HAZARDOUS MATERIALS HANDLER**	**SECTION**
50		HMBP established and implemented	HSC 6.95 25503.5
51		HMBP submitted; updated/accurate	HSC 6.95 25505
52		CalARP General Requirements	19CCR4.5 2735.5(a)
	V	**ABOVEGROUND PETROLEUM STORAGE**	**SECTION**
60		SPCC plan	HSC 6.67 25270.4.5(a)
70		**PERMIT REQUIRED** – Submit UP Forms	Co Ord 12.50.075

☒ **NO SIGNIFICANT VIOLATIONS OBSERVED ON DATE OF INSPECTION.**

☐ **NOTICE TO COMPLY: THE VIOLATION(S) CITED MUST BE CORRECTED BY** _____.

☐ **RETURN CERTIFICATION OF COMPLIANCE FOUND ON BACK OF THIS NOTICE.**

Attention: The requirements checked are in violation. Non-compliance could result in re-inspection fees, permit revocation, and/or administrative/civil/criminal penalties. A re-inspection may occur at any time to verify compliance. Any time granted for correction of the violation(s) does not preclude any enforcement action by this Department or other agencies.

It is improper and illegal for any County officer, employee or inspector to solicit bribes, gifts or gratuities in connection with performing their official duties. Improper solicitations include requests for anything of value such as cash, discounts, free services, paid travel or entertainment, or tangible items such as food or beverages. Any attempt by a County employee to solicit bribes, gifts or gratuities for any reason should be reported immediately to either the County manager responsible for supervising the employee or the Fraud hotline at (800) 544-6861 or www.lacountyfraud.org. YOU MAY REMAIN ANONYMOUS.

Inspected By:	Consent Given By:	Authorized Representative's Signature:
X STERLING	Hung Lee	Hung Lee

Field Notes

LIST ORDER OF INSPECTION AS FOLLOWS: I. OPENING CONFERENCE II. WALK THROUGH III. DOCUMENTS IV. CLOSING CONFERENCE V. VIOLATIONS

Machine is still on site.

Right now only sending out to other location for dry cleaning.

No HW manifest for a while

CONSENT GIVEN BY: _____ **INSPECTOR SIGNATURE:** _____ **EMPLOYEE ID:** _____

1st DATE & TIME OF INSPECTION: _____ **2nd DATE & TIME OF INSPECTION:** _____

3rd DATE & TIME OF INSPECTION:

LA County Fire Department
Facility Information Report

OWNER FILE INFORMATION

* Clearly make changes/corrections here.

Owner ID: OW0024060 ✓ New Owner ID:
Owner Name: EUNICE E. LEE ✓ Tax ID :
Owner DBA: WEST HILLS CLEANERS ✓ Drvr Licns :
Owner Address:

Work/Business Phone: 818-702-9027
Billing/Mailing Address: 23233 SATICOY ST #110
CANOGA PARK, CA 91304
ATTN/Care of:
Ownership Type:

FACILITY FILE INFORMATION

Facility ID: FA0024060 ✓ ✓ Account ID: AR0024061
Facility Name: WEST HILLS CLEANERS
No. of Employee: 2
Site Location: 23233 SATICOY ST # 110
CANOGA PARK, CA 91304
Phone: 818-702-9027 ✓
Mailing Address: 23233 SATICOY ST #110
CANOGA PARK, CA 91304
Operator/Care of: E-Mail Address:
District: N - NORTH
City Code: LAC **LOS ANGELES**
CUPA Jurisdiction: LA
Operating Hours: Days: Hours:
SIC Code: 7216 - Drycleaning plants, except rug
Business Type / Code:
Station: LFD

GENERAL HEALTH PROGRAM ELEMENTS

Record ID	Current Program Element	Current Status	EPA #	Effective Date Beg.	Effective Date End	------- Changes ------- Program Element	Status
PR0033789	1001 - HW GEN, 0-5 EMPLOYEES	Active, billable		06/18/96			
PR0078961	8040 - CALIFORNIA ELECTRONIC REPORTING SURCHARGE	Active, billable					

Addition Program Element:

CA Waste Code	211				
RCRA Waste Code					
AMOUNT per quarter	55				
UNITS (PGTY) Pounds, Gallons, Tons, Yards	P				

CONSENT GIVEN BY: Hung Sun Lee INSPECTOR SIGNATURE: XS EMPLOYEE ID: 135
1st DATE & TIME OF INSPECTION: 11/17/09 2nd DATE & TIME OF INSPECTION:
3rd DATE & TIME OF INSPECTION:

PREVIOUS INSPECTIONS

Activity Date	Program Element		Service	Result	Action	Activity Min	Travel Min	Inspector ID	Violation Code
04/17/1998	1001	PR0033789	001	00	00	0	0	EE0000999	0
04/27/2001	1001	PR0033789	001	00	00	90		EE0000107	
07/25/2003	1001	PR0033789	001	01	00	60		EE0000107	
03/25/2004	1001	PR0033789	001	01	00	60		EE0000107	
03/25/2004	1001	PR0033789	012	09	15	30		EE0000107	
01/23/2007	1001	PR0033789	001	01	00	80	50	EE0000135	

VIOLATIONS LIST

Open	Activity Date	Program Element	Viol Status	Service	Result	Action	Violation Code	Violation Degree	Description

CONSENT GIVEN BY: _____ INSPECTOR SIGNATURE: _____ EMPLOYEE ID: _____

1st DATE & TIME OF INSPECTION: _____ 2nd DATE & TIME OF INSPECTION: _____

3rd DATE & TIME OF INSPECTION:

Los Angeles County Fire Dept • Health Hazardous Materials Division
Certified Unified Program Agency • Participating Agency

REFER REPLY TO:
North (Sylmar) District Office
14425 Olive View Drive
Sylmar, CA 91342
P (818) 364-7120
F (818) 364-7127

INSPECTION REPORT

BUSINESS: WEST HILLS CLEANERS	OWNER: EUNICE · E · LEE	DATE: 11/17/09
ADDRESS: 23233 Saticoy St #110, CANOGA PARK, CA 91304		FA 0024060

The following items, if applicable, have been inspected. This document constitutes a Summary of Violations and Notice to Comply if the violation (V) column is checked. *Reference: Titles 19 and 22 of the California Code of Regulations (CCR), Chapters 6.5, 6.67, and 6.95 of the Health and Safety Code (HSC), and Titles 11 and 12 of the Los Angeles County Code (Co Ord)*

HAZARDOUS WASTE GENERATOR				HAZARDOUS WASTE GENERATOR			
	V	*SUBJECT*	*SECTION*		V	*SUBJECT*	*SECTION*
1		Hazardous waste determination	CCR 66262.11	24		Manifest copies retained for 3 years	CCR 66262.40(a)
2		Proper disposal of hazardous waste	HSC 25189.5 (a)	25		Consolidated manifest requirements	HSC 25160.2
3		Maintain/operate to prevent release/fire	CCR 66265.31	26		Hazardous waste transported by registered hauler	HSC 25163(a)
4		Hazardous waste labeling	CCR 66262.34(f)	27		LDR documents retained onsite	CCR 66268.7(a)(6)
5		Hazardous waste accumulation time	CCR 66262.34(a-d)	28		Hazardous waste analysis retained for 3 years	CCR 66262.40(c)
6		Hazardous materials storage and labeling	CCR 66261.2(f)	29		Personnel training	CCR 66265.16
7		Satellite accumulation	CCR 66262.34(e)	30		Contingency plan	CCR 66265.51
8		Containers leaking or not in good condition	CCR 66265.171	31		Emergency preparedness/prevention	CCR 66265.30-.37
9		Hazardous waste containers closed	CCR 66265.173(a)	32		Source Reduction requirements for LQGs	CCR 67100.3
10		Separation of incompatibles	CCR 66265.177	33		Biennial Report requirements	CCR 66262.40-.41
11		Retrograde/accumulated speculatively	CCR 66262.10	34		Excluded recyclable material management	HSC 25143.2/.9
12		Empty containers	CCR 66261.7	35		Recyclable Material Report	HSC 25143.10
13		Used oil management	CHSC 25250.4	36		Site assessment requirements	HSC 25187(a)(1)
14		Used oil filter management	CCR 66266.130	37		Closure requirements	CCR 66265.111/114
15		Used battery management	CCR 66266.81	38		Reckless management of hazardous waste	HSC 25189.6
16		Contaminated textile management	HSC 25144.6	39		Other violation(s)	
17		Container inspection - weekly	CCR 66265.174			**HAZARDOUS MATERIALS HANDLER**	
18		Tank inspection - daily	CCR 66265.195	50		Contingency plan/inventory submitted	HSC 25503.5
19		Tank operating requirements	CCR 66265.194	51		Plan and inventory updated & accurate	HSC 25505
20		EPA ID number[submit DTSC form 1358]	CCR 66262.12	52		Regulated substance registration	HSC 25533(a)
21		Hazardous waste transported with manifest	CCR 66262.20			**ABOVEGROUND PETROLEUM STORAGE TANK**	
22		Hazardous waste manifest complete	CCR 66262.23(a)	60		SPCC Plan Referral to RWQCB (213) 576-6600	HSC 25270.3
23		Manifest copies to DTSC	CCR 66262.23(a)(4)	70		**PERMIT REQUIRED** – Submit UP Forms	Co Ord 12.50.075

☒ **NO SIGNIFICANT VIOLATIONS OBSERVED ON DATE OF INSPECTION.**

☐ **NOTICE TO COMPLY: THE VIOLATION(S) CITED MUST BE CORRECTED BY** _____.

☐ **RETURN CERTIFICATION OF COMPLIANCE FOUND ON BACK OF THIS NOTICE.**

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Inspected By: X. SEVERINO	Consent Given By: Hung Sun Lee	Authorized Representative's Signature:

LA County Fire Department
Facility Information Report

Field Notes

LIST ORDER OF INSPECTION AS FOLLOWS: I. OPENING CONFERENCE II. WALK THROUGH III. DOCUMENTS IV. CLOSING CONFERENCE V. VIOLATIONS

CAL000282103

MW

used perc: 12 55g #74

200 P

4/24/08 70g

0010982754

CONSENT GIVEN BY: _____ INSPECTOR SIGNATURE: _____ EMPLOYEE ID: _____

1st DATE & TIME OF INSPECTION: _____ 2nd DATE & TIME OF INSPECTION: _____

3rd DATE & TIME OF INSPECTION:

Los Angeles County Fire Dept • Health Hazardous Materials Division
Certified Unified Program Agency • Participating Agency

INSPECTION REPORT

REFER REPLY TO:

North (Sylmar) District Office
14425 Olive View Drive
Sylmar, CA. 91342
(818) 364-7120

BUSINESS: WEST HILLS CLEANERS	OWNER: EUNICE LEE	DATE: 1/23/07
ADDRESS: 23233 Saticoy st #110, CANOGA PARK		FA 0024067

The following items, if applicable, have been inspected. This document constitutes a Summary of Violations and Notice to Comply if the violation (V) column is checked.

Reference: Titles 19 and 22 of the California Code of Regulations (CCR), Chapters 6.5, 6.67, and 6.95 of the Health and Safety Code (HSC), and Titles 11 and 12 of the Los Angeles County Code (Co Ord)

	HAZARDOUS WASTE GENERATOR				HAZARDOUS WASTE GENERATOR		
	V	*SUBJECT*	*SECTION*		V	*SUBJECT*	*SECTION*
1		Hazardous waste determination	CCR 66262.11	24		Manifest copies retained for 3 years	CCR 66262.40(a)
2		Proper disposal of hazardous waste	HSC 25189.5 (a)	25		Consolidated manifest requirements	HSC 25160.2
3		Maintain/operate to prevent release/fire	CCR 66265.31	26		Hazardous waste transported by registered hauler	HSC 25163(a)
4		Hazardous waste labeling	CCR 66262.34(f)	27		LDR documents retained onsite	CCR 66268.7(a)(6)
5		Hazardous waste accumulation time	CCR 66262.34(a-d)	28		Hazardous waste analysis retained for 3 years	CCR 66262.40(c)
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7		Satellite accumulation	CCR 66262.34(e)	30		Contingency plan	CCR 66265.51
8		Containers leaking or not in good condition	CCR 66265.171	31		Emergency preparedness/prevention	CCR 66265.30-.37
9		Hazardous waste containers closed	CCR 66265.173(a)	32		Source Reduction requirements for LQGs	CCR 67100.3
10		Separation of incompatibles	CCR 66265.177	33		Biennial Report requirements	CCR 66262.40-.41
11		Retrograde/accumulated speculatively	CCR 66262.10	34		Excluded recyclable material management	HSC 25143.2/.9
12		Empty containers	CCR 66261.7	35		Recyclable Material Report	HSC 25143.10
13		Used oil management	CHSC 25250.4	36		Site assessment requirements	HSC 25187(a)(1)
14		Used oil filter management	CCR 66266.130	37		Closure requirements	CCR 66265.111/114
15		Used battery management	CCR 66266.81	38		Reckless management of hazardous waste	HSC 25189.6
16		Contaminated textile management	HSC 25144.6	39		Other violation(s)	
17		Container inspection - weekly	CCR 66265.174			**HAZARDOUS MATERIALS HANDLER**	
18		Tank inspection - daily	CCR 66265.195	50		Contingency plan/inventory submitted	HSC 25503.5
19		Tank operating requirements	CCR 66265.194	51		Plan and inventory updated & accurate	HSC 25505
20		EPA ID number[submit DTSC form 1358]	CCR 66262.12	52		Regulated substance registration	HSC 25533(a)
21		Hazardous waste transported with manifest	CCR 66262.20			**ABOVEGROUND PETROLEUM STORAGE TANK**	
22		Hazardous waste manifest complete	CCR 66262.23(a)	60		SPCC Plan Referral to RWQCB (213) 576-6600	HSC 25270.3
23		Manifest copies to DTSC	CCR 66262.23(a)(4)	70		**PERMIT REQUIRED** – Submit UP Forms	Co Ord 12.50.075 HSC 25404.1.1

☒ **NO SIGNIFICANT VIOLATIONS OBSERVED ON DATE OF INSPECTION.**

☐ **NOTICE TO COMPLY: THE VIOLATION(S) CITED MUST BE CORRECTED BY_____.**

☐ **RETURN CERTIFICATION OF COMPLIANCE FOUND ON BACK OF THIS NOTICE.**

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Inspected By:	Consent Given By; **Print Name:**	Authorized Representative's Signature:
X. SEVERINO	Hung Sin Lee	Lee

LA County Fire Department
Facility Information Report

Field Notes

LIST ORDER OF INSPECTION AS FOLLOWS: I. OPENING CONFERENCE II. WALK THROUGH III. DOCUMENTS IV. CLOSING CONFERENCE V. VIOLATIONS

Waste perc & fumes: 1x55g

Safetykleen

180P

ODD 1654265[illegible]

No longer using the machine

1x55g

Safetykleen

4/20/2010

200P 925/4PC

ODD 32

LA County Fire Department
Facility Information Report

OWNER FILE INFORMATION

* Clearly make changes/corrections here.

Owner ID: OW0024060 New Owner ID:
Owner Name: EUNICE E. LEE Tax ID :
Owner DBA: WEST HILLS CLEANERS Drvr Licns :
Owner Address:

Work/Business Phone: 818-702-9027
Billing/Mailing Address: 23233 SATICOY ST #110
CANOGA PARK, CA 91304
ATTN/Care of:
Ownership Type:

FACILITY FILE INFORMATION

Facility ID: FA0024060
Facility Name: WEST HILLS CLEANERS
No. of Employee: 2
Site Location: 23233 SATICOY ST # 110
CANOGA PARK, CA 91304
Phone: 818-702-9027
Mailing Address: 23233 SATICOY ST #110
CANOGA PARK, CA 91304
Operator/Care of: E-Mail Address:
District: N - NORTH
City Code: LAC **LOS ANGELES**
CUPA Jurisdiction: LA
Operating Hours: Days: Hours:
SIC Code: 7216 Drycleaning plants, except rug Nature of Business:
Business Type / Code:
Station: LFD
Date First Became Operational:

GENERAL HEALTH PROGRAM ELEMENTS

Record ID	Current Program Element	Current Status	EPA #	Effective Date Beg.	Effective Date End	Changes Program Element	Changes Status
PR0033789	1001 - HW GEN, 0-5 EMPLOYEES	Active, billable		06/18/96			

Addition Program Element:

CA Waste Code	211				
RCRA Waste Code					
AMOUNT per quarter	180				
UNITS (PGTY) Pounds, Gallons, Tons, Yards	P				

CONSENT GIVEN BY: Hung Lee INSPECTOR SIGNATURE: EMPLOYEE ID: 133

1st DATE & TIME OF INSPECTION: 1/22/07 2nd DATE & TIME OF INSPECTION:

3rd DATE & TIME OF INSPECTION:

ENVIRONMENTAL CONTACT INFORMATION *** For Haz Mat Handlers.**

Contact Name: Phone : Not Specified

Dun & Bradst.: * Please Fill-Out

EMERGENCY CONTACT INFORMATION

	PRIMARY CONTACT:	SECONDARY CONTACT:
Name :		
Title :		
Business Phone :	Not Specified	Not Specified
24 - Hour Phone :	Not Specified	Not Specified
Pager # :	Not Specified	Not Specified

PREVIOUS INSPECTIONS

Activity Date	Program Element	Service	Result	Action	Violation Code	Inspector ID
04/17/98	1001	001	00	00	0	EE0000999
04/27/01	1001	001	00	00		EE0000107
07/25/03	1001	001	01	00		EE0000107
03/25/04	1001	001	01	00		EE0000107
03/25/04	1001	012	09	15		EE0000107

VIOLATIONS LIST

Activity Date	Program Element	Viol Status	Service	Result	Action	Violation Code	Violation Degree	Description

CONSENT GIVEN BY: _____ INSPECTOR SIGNATURE: _____ EMPLOYEE ID: _____

1st DATE & TIME OF INSPECTION: _____ 2nd DATE & TIME OF INSPECTION: _____

3rd DATE & TIME OF INSPECTION:

CITY OF LOS ANGELES
OFFICE OF FINANCE
TAXES AND PERMITS
P.O. BOX 53200
LOS ANGELES, CA 90053-0200

19 100-001073 0404 1

EUNICE EUNIM LEE
WEST HILLS CLEANER
23233 SATICOY ST #110
WEST HILLS CA 91304-5322

: Mary

)364-7127

THIS CERTIFICATE MUST BE POSTED AT PLACE OF BUSINESS

CITY OF LOS ANGELES TAX REGISTRATION CERTIFICATE

THIS CERTIFICATE IS GOOD UNTIL SUSPENDED OR CANCELLED

BUSINESS TAX

ACCOUNT NO.	FUND	CLASS	DESCRIPTION	ISSUED: 04-17-04 V
529257-99	L	102	LNDRY/CLNR/SHOE REPR	STARTED 03-19-04

DISCUSS TO

EUNICE EUNIM LEE
WEST HILLS CLEANER
23233 SATICOY ST #110
WEST HILLS CA 91304-5322



ISSUED BY:
Antoinette D. Christandl
DIRECTOR OF FINANCE

NOTIFY THE OFFICE OF FINANCE IN WRITING OF ANY CHANGE

Christian K. Hunter

From: Quidilla, Clarita@Waterboards <Clarita.Quidilla@waterboards.ca.gov> on behalf of WB-RB4-PublicRecords <RB4-PublicRecords.RB4-PublicRecords@waterboards.ca.gov>
Sent: Monday, June 5, 2017 2:47 PM
To: Christian K. Hunter
Cc: WB-RB4-PublicRecords
Subject: Public Records Request / Tracking 2017052513
Attachments: RWQCB Request 1.pdf

********* Please submit future file review requests to the LARWQCB via e-mail to RB4-publicrecords@waterboards.ca.gov.*********

Thank you for your request to review Regional Board records concerning the property on:

- West Hills Shopping Center, 23221- 23233 Saticoy Street , West Hills, CA 91101
- 7629 Woodlake Avenue, West Hills, CA 91101

The Regional Board has reviewed its files and has concluded that it does not have any records that are responsive to your request.

Thank you,

Clarita Quidilla
Los Angeles Regional Water Quality Control Board

From: Christian K. Hunter [mailto:ckhunter@dudek.com]
Sent: Thursday, May 25, 2017 1:38 PM
To: WB-RB4-PublicRecords <RB4-PublicRecords.RB4-PublicRecords@waterboards.ca.gov>
Subject: Public Records Request

Esteemed Board Official,
Please see the attached Public Records Request form.

Thank you,

Christian Hunter, PhD
QSP #25984, CESSWI #4702
Water Resource Engineer

DUDEK
38 North Marengo Ave

Pasadena, CA 91101
T: 760 . 479 . 4157
C: 760 . 214 . 4675
www.Dudek.com

COUNTY OF LOS ANGELES
Public Health

CYNTHIA A. HARDING, M.P.H.
Interim Director

JEFFREY D. GUNZENHAUSER, M.D., M.P.H.
Interim Health Officer

Public Health Investigation Administration
LEOLA MERCADEL
Chief, Public Health Investigation

5555 Ferguson Drive, Suite 120-04
Commerce, California 90022
TEL (323) 890-7801 • FAX (323) 728-0217

www.publichealth.lacounty.gov

BOARD OF SUPERVISORS

Hilda Solis
First District

Mark Ridley-Thomas
Second District

Sheila Kuehl
Third District

Don Knabe
Fourth District

Michael D. Antonovich
Fifth District

March 30, 2017

DUDEK
Christian Hunter
605 Third St.
Encinitas, CA 92024

RE: 7629 WOODLAKE AVE, WEST HILLS, CA 91304

I, the undersigned, being the Custodian or the Keeper of Records, certify that a thorough search for the records you requested was carried out under my direction and control.

This search revealed no records.

It should be understood that this does not mean that the records you requested do not exist. It is possible that such records may be misfiled; exist under another spelling, another name, or under another classification. However, with the information furnished to our office, and to the best of our knowledge, no records were located.

If you have any questions regarding your request, please contact our office at (323) 890-7806.

Sincerely,

Yvonne Curtis, Deputy Health Officer
Public Health Investigation

COR ID No.171843

MAY-04-2017 06:37AM From:3237280217 To:17606320164 Page:1/1

South Coast Air Quality Management District

NC D25166

Run Date : 3/22/2017 15:14:29

Company

Facility:	WEST HILLS CLEANERS, EUNICE E. LEE DBA (ID: 140713)
Location Address:	23233 SATICOY ST., WEST HILLS, CA 91304
Mailing Address:	
AIRS ID	

Violation

Notice Issued Date:	7/14/2009
Violation Date:	7/14/2009
Serve To:	HUNG SUN LEE
Title:	OWNER
Issue By:	MAJID GHORAYSHI (Team: I)
Assignment No.:	1121542
Compliance Achieved Date:	08/07/2009
Equipment Description:	Perc dry cleaning machine.
Compliance Requirements:	The gaskets for still door, front door, button trap, and lint trap must be replaced at least once every 2 years. Provide the copy of the receipt.

Disposition

Final Action Code:	
Due Date:	7/28/2009
Violation Days:	0

Rule/Comment

1421

Emittent

Follow-Up

Status: INCOMP Inspector ID: MG06 Inspection Date: 08/07/09 00:00 Number:

Device IDs.

Inspector Comment

08/07/2009.

They replaced the gaskets for front door, lint trap, button trap, and still door on July 20, 2009. WEst Hills Cleaners is operating in compliance now.

INSPECTOR: _____ DATE: _____

signature

SUPERVISOR: _____ DATE: _____

signature

User ID: ltrapp

South Coast Air Quality Management District

NC E19504

Run Date : 3/22/2017 15:14:04

Company

Facility:	WEST HILLS CLEANERS, EUNICE E. LEE DBA (ID: 140713)
Location Address:	23233 SATICOY ST. WEST HILLS, CA 91304
Mailing Address:	
AIRS ID	

Violation

Notice Issued Date:	2/5/2013
Violation Date:	2/5/2013
Serve To:	EUNICE EUNIM LEE
Title:	OWNER
Issue By:	MAJID GHORAYSHI (Team: I)
Assignment No.:	1356015
Compliance Achieved Date:	02/27/2013
Equipment Description:	Perc dry cleaning machine.
Compliance Requirements:	Complete and submit the Quadrennial update report.

Disposition

Final Action Code:	
Due Date:	2/19/2013
Violation Days:	0

Rule/Comment

1421

Emittent

Follow-Up

Status: INCOMP Inspector ID: MG06 Inspection Date: 02/27/13 00:00 Number:

Device IDs.

Inspector Comment

02/27/2013.

West Hills Cleaners completed the Quad. Update Report and submitted that to Att: Cher Snyder.

The facility is operating in compliance now.

INSPECTOR: _____ DATE: _____
signature

SUPERVISOR: _____ DATE: _____
signature

User ID: ltrapp

Information Management
Public Records Unit

Direct Dial (909) 396-3700
Fax:(909) 396-3330

COMPLETION LETTER

March 23, 2017

CHRISTIAN HUNTER
DUDEK
38N. MARENGO
PASADENA, CA 91101

Ref.: CONTROL NO. 89614
Received 3/21/2017

Re: P/O'S, EQL'S, I/R'S, NOV'S, & N/C'S FOR 7629 WOODLAKE AVE., WEST HILLS, CA 91304, FROM 03/01/1917 TO 03/21/2017.

After a thorough search of this agency's records:

NO REQUESTED RECORDS WERE FOUND FOR THE ABOVE-REFERENCED FACILITY OR FACILITY SITE.

If you have any questions, please do not hesitate to contact me, Tuesday through Friday, **8:00 a.m**. to **4:30 p.m.**

Sincerely,

STACEY WALKOWIAK x2383
For COLLEEN PAINE
Public Records Coordinator

:SW

Information Management
Public Records Unit

Direct Dial (909) 396-3700
Fax:(909) 396-3330

COMPLETION LETTER

March 23, 2017

CHRISTIAN HUNTER
DUDEK
38N. MARENGO
PASADENA, CA 91101

Ref.: CONTROL NO. 89615
Received 3/21/2017

Re: P/O'S, EQL'S, I/R'S, NOV'S, & N/C'S FOR 23229 SATICOY ST., WEST HILLS, CA 91304, FROM 03/01/1917 TO 03/21/2017.

After a thorough search of this agency's records:

NO REQUESTED RECORDS WERE FOUND FOR THE ABOVE-REFERENCED FACILITY OR FACILITY SITE.

If you have any questions, please do not hesitate to contact me, Tuesday through Friday, **8:00 a.m**. to **4:30 p.m.**

Sincerely,

STACEY WALKOWIAK x2383
For COLLEEN PAINE
Public Records Coordinator

:SW

Information Management
Public Records Unit

Direct Dial (909) 396-3700
Fax:(909) 396-3330

COMPLETION LETTER

March 23, 2017

CHRISTIAN HUNTER
DUDEK
38N. MARENGO
PASADENA, CA 91101

Ref.: CONTROL NO. 89617
Received 3/21/2017

Re: P/O'S, EQL'S, I/R'S, NOV'S, & N/C'S FOR 23221 SATICOY ST., WEST HILLS, CA 91304, FROM 03/01/1917 TO 03/21/2017.

After a thorough search of this agency's records:

NO REQUESTED RECORDS WERE FOUND FOR THE ABOVE-REFERENCED FACILITY OR FACILITY SITE.

If you have any questions, please do not hesitate to contact me, Tuesday through Friday, **8:00 a.m**. to **4:30 p.m.**

Sincerely,

STACEY WALKOWIAK x2383
For COLLEEN PAINE
Public Records Coordinator

:SW

Information Management
Public Records Unit

Direct Dial (909) 396-3700
Fax:(909) 396-3330

COMPLETION LETTER

March 23, 2017

CHRISTIAN HUNTER
DUDEK
38N. MARENGO
PASADENA, CA 91101

Ref.: CONTROL NO. 89619
Received 3/21/2017

Re: P/O'S, EQL'S, I/R'S, NOV'S, & N/C'S FOR 23217 SATICOY ST., WEST HILLS, CA 91304, FROM 03/01/1917 TO 03/21/2017.

After a thorough search of this agency's records:

NO REQUESTED RECORDS WERE FOUND FOR THE ABOVE-REFERENCED FACILITY OR FACILITY SITE.

If you have any questions, please do not hesitate to contact me, Tuesday through Friday, **8:00 a.m**. to **4:30 p.m.**

Sincerely,

STACEY WALKOWIAK x2383
For COLLEEN PAINE
Public Records Coordinator

:SW

South Coast Air Quality Management District

NOV P28344

Run Date : 3/22/2017 15:12:14

Company

Facility:	WEST HILLS CLEANERS (ID: 73792)
Location Address:	23233 SATICOY, ST WEST HILLS, CA 91304-5310
Mailing Address:	23233 SATICOY, ST WEST HILLS, CA 91304-5310
AIRS ID	

Violation

Notice Issued Date:	4/13/2000
Violation Date:	4/13/2000
Serve To:	OU LEE
Title:	OWNER
Issue By:	TIM KOBATA (Team:)
Assignment No.:	614333
Equipment Description:	
Violation:	OPERATING ONE MULTIMATIC DRY CLNG MACHN WITHOUT A VALID PERMIT TO OPERATE. NO RECRD OF COMPLETION OF ATCM REQUIED TRAINING REFRESHER COURSE.

Disposition

Final Action Code:	CLO 8/11/2000 00:00:00
Achieved Date:	08/10/2000
Due Date:	
Violation Days:	0

Rule/Comment

1421 e,3,B
203 a

Emittent

Follow-Up

Status: INCOMP Inspector ID: Inspection Date: 08/10/00 00:00 Number:

Lap Sample Numbers

Device IDs.

Inspector Comment

INSPECTOR: _____ DATE: _____
signature

SUPERVISOR: _____ DATE: _____
signature

User ID: ltrapp

South Coast Air Quality Management District

NOV P35672

Run Date : 3/22/2017 15:13:23

Company

Facility:	WEST HILLS CLEANERS (ID: 123981)
Location Address:	23233 SATICOY, ST WEST HILLS, CA 91304
Mailing Address:	SATICOY WEST HILLS, CA 91304
AIRS ID	

Violation

Notice Issued Date:	5/22/2002
Violation Date:	5/22/2002
Serve To:	OY YUN LEE
Title:	OWNER
Issue By:	MAJID GHORAYSHI (Team: I)
Assignment No.:	706615
Equipment Description:	DRY CLEANING EQUIPMENT
Violation:	OPERATING 1 MULTIMATIC/VAPORE 300 CS DRY CLEANING MACHINE W/O A VALID PERMIT TO OPERATE/FAILING TO PLACE LINT FROM BUTTON TRAPS & LINT TRAPS INTO TIGHTLY SEALED CONTAINER/UNDOCUMENTED, UNMARKED VAPOR LEAK AROUND DISTILLATION UNIT MUCK COOKER/FAILURE

Disposition

Final Action Code:	CLO 1/21/2003 00:00:00
Achieved Date:	10/01/2002
Due Date:	
Violation Days:	0

Rule/Comment

1421 e,1,A,vii/e,2,C/i,1,C
203

Emittent

Follow-Up

Status: INCOMP Inspector ID: Inspection Date: 10/01/02 00:00 Number:

Lap Sample Numbers

Device IDs.

Inspector Comment

INSPECTOR: _____ DATE: _____
signature

SUPERVISOR: _____ DATE: _____
signature

User ID: ltrapp

User: ltrapp

SCAQMD Facility Equipment List Report

Run Date : 03/22/2017 02:35 PM

Facility: 123981 WEST HILLS CLEANERS
Status: Sold
MR:
SIC: 7216
Team:
Last Inspection: 05/14/2004
On Hold: N
Suspended: N
TS: TS-12 Industrial Sources - Out of Business and Cl
Quarter: none - do not inspect
Contact:
RECLAIM: N
TITLE V: N
AIRS ID:
Assignment: 826802
Location Address: 23233 SATICOY ST, WEST HILLS 91304 Sector:VE
Inspector: MG06 MAJID GHORAYSHI
Mailing Address: 23233 SATICOY ST, WEST HILLS 91304 Sector:VE
Inspection Date: 05/14/2004
Instruction:
Disposition: Out of Business

Application No.	Permit No.	Permit Issue Date	Permit Status	Equipment Category	BCAT/CCAT Description	Application Date	Application Status
371677				000601 BCAT	DRY CLEANING, DRY-TO-DRY NON-VENT, PERC	07/05/2000	APPLICATION DENIED
406941	F55199	09/27/2002	INACTIVE	000603 BCAT	DRY CLEANING,DRY-TO-DRY NV,W/ SIC,PERC	09/20/2002	PERMIT TO OPERATE GRANTED

REPORT: Date: 05/14/2004, Time: 0920.

West Hills Cleaners is out of business and is operating under a new ownership.

Inspector: _____ Date: _____ Reviewed By: _____ Date: _____

User: ltrapp

SCAQMD Facility Equipment List Report

Run Date : 03/22/2017 02:35 PM

Facility: 123981 WEST HILLS CLEANERS
Status: Sold
MR:
SIC: 7216
Team:
Last Inspection: 05/14/2004
On Hold: N
Suspended: N
TS: TS-12 Industrial Sources - Out of Business and Cl
Quarter: none - do not inspect
Contact:
RECLAIM: N
TITLE V: N
AIRS ID:
Assignment: 770431
Location Address: 23233 SATICOY ST, WEST HILLS 91304 Sector:VE
Inspector: MG06 MAJID GHORAYSHI
Mailing Address: 23233 SATICOY ST, WEST HILLS 91304 Sector:VE
Inspection Date: 06/20/2003
Instruction:
Disposition: Operating in Compliance at time of inspection

Application No.	Permit No.	Permit Issue Date	Permit Status	Equipment Category		BCAT/CCAT Description	Application Date	Application Status
371677				000601	BCAT	DRY CLEANING, DRY-TO-DRY NON-VENT, PERC	07/05/2000	APPLICATION DENIED
406941	F55199	09/27/2002	INACTIVE	000603	BCAT	DRY CLEANING,DRY-TO-DRY NV,W/ SIC,PERC	09/20/2002	PERMIT TO OPERATE GRANTED

REPORT: Date: 06/20/2003, Time: 0930.

I met with Ms. Ou Yun Lee, the owner of West Hills Cleaners.

The Firbimatic, model # Vortex 40 dry cleaner machine was operating. A calibrated PID was used to monitor any vapor leaks, but none were found.

The ATCM certificate (# 012207) was issued on July 30, 2000, and Ms. Lee has signed up for the refresher course.

All records of daily operations, maintenance and checklist records, weekly inspection records, and annual mileage reports were available.

Inspector: _____ Date: _____ Reviewed By: _____ Date: _____

User: ltrapp

SCAQMD Facility Equipment List Report

Run Date : 03/22/2017 02:35 PM

Facility: 123981 WEST HILLS CLEANERS
Status: Sold
MR:
SIC: 7216
Team:
Last Inspection: 05/14/2004
On Hold: N
Suspended: N
TS: TS-12 Industrial Sources - Out of Business and Cl
Quarter: none - do not inspect
Contact:
RECLAIM: N
TITLE V: N
AIRS ID:
Assignment: 704349
Location Address: 23233 SATICOY ST, WEST HILLS 91304 Sector:VE
Inspector: MG06 MAJID GHORAYSHI
Mailing Address: 23233 SATICOY ST, WEST HILLS 91304 Sector:VE
Inspection Date: 05/10/2002
Instruction:
Disposition: Notice Of Violation

Application No.	Permit No.	Permit Issue Date	Permit Status	Equipment Category	BCAT/CCAT Description	Application Date	Application Status

REPORT: Date: 05/10/2002, Time: 0720.

Met with Ms. Ou Yun Lee, the owner of West Hills Cleaners.

The Multimatic dry cleaner is operating.

Ms. Lee submitted an application to get a permit to operate. I found out that her application was denied. Communication with Ms. Lee was difficult because of language problems.

She has her ATCM certificate (# 012207) that was issued on July 30, 2000.

The record keeping is deficient.

The inspection was not completed and is pending upon the permit status.

05/22/2002

The dry cleaning machine was in operation without a valid permit to operate.

Other deficiencies in the operation of the dry cleaning machine were also noticed. The lint from button trap and lint trap was not placed in a tightly sealed container.

The distillation unit muck cooker was operating during the inspection. A perc vapor reading of 20 to 70 ppmV was recorded around this unit, using the calibrated ToxiRae PID.

Ms. Lee did not have the weekly operation and maintenance/leak inspection checklists.

I provided Ms. Lee a Korean edition of the dry cleaning brochure and a complete set of record keeping tables.

I issued Notice of Violation # P 35672 as per District's Rules 203 and 1421 (e)(1)(A)(vii); (e)(2)(C); and (i)(1)(C).

Inspector: _____ Date: _____ Reviewed By: _____ Date: _____

User: ltrapp

SCAQMD Facility Equipment List Report

Run Date : 03/22/2017 02:36 PM

Facility: 140713 WEST HILLS CLEANERS, EUNICE E. LEE DBA Status: Active MR: SIC: 7216 Team: I
Last Inspection: 03/13/2015 On Hold: N Suspended: N TS: TS-11 Industrial: Sector-based Inspections Quarter: 1000 - inspect in 1st quarter, every year
Contact: EUNICE EUNIM LEE (818) 7029027 RECLAIM: N TITLE V: N AIRS ID: Assignment: 1356005
Location Address: 23233 SATICOY ST, WEST HILLS 91304 Sector:VE Inspector: MG06 MAJID GHORAYSHI
Mailing Address: 23233 SATICOY ST, WEST HILLS 91304 Sector:VE Inspection Date: 02/05/2013
Instruction: Disposition: Notice To Comply

Application No.	Permit No.	Permit Issue Date	Permit Status	Equipment Category		BCAT/CCAT *Description*	Application Date	Application Status
467923	F89819	05/17/2007	INACT_NR	000603	BCAT	DRY CLEANING,DRY-TO-DRY NV,W/ SIC,PERC	04/19/2007	PERMIT TO OPERATE GRANTED
429988	F69767	07/22/2004	INACTIVE	000603	BCAT	DRY CLEANING,DRY-TO-DRY NV,W/ SIC,PERC	04/30/2004	PERMIT TO OPERATE GRANTED

Inspector: _____ Date: _____ Reviewed By: _____ Date: _____

User: ltrapp

SCAQMD Facility Equipment List Report

Run Date : 03/22/2017 02:36 PM

Facility: 140713 WEST HILLS CLEANERS, EUNICE E. LEE DBA
Status: Active
MR:
SIC: 7216
Team: I
Last Inspection: 03/13/2015
On Hold: N
Suspended: N
TS: TS-11 Industrial: Sector-based Inspections
Quarter: 1000 - inspect in 1st quarter, every year
Contact: EUNICE EUNIM LEE (818) 7029027
RECLAIM: N
TITLE V: N
AIRS ID:
Assignment: 1356005
Location Address: 23233 SATICOY ST, WEST HILLS 91304 Sector:VE
Inspector: MG06 MAJID GHORAYSHI
Mailing Address: 23233 SATICOY ST, WEST HILLS 91304 Sector:VE
Inspection Date: 02/05/2013
Instruction:
Disposition: Notice To Comply

Application No.	Permit No.	Permit Issue Date	Permit Status	Equipment Category	BCAT/CCAT Description	Application Date	Application Status

REPORT: Date: 02/05/2013, Time: 12:30 p.m.

Applicable rules: 109, 203, 206, 1146.2, and 1421.

I arrived at West Hills Cleaners, where I met with Mr. and Mrs. Lee, the owners.

Mr. Lee showed me one Fibrimatic SPA Vortex 40 Plus Perc dry cleaning machine that was not operating. I used the facility's perc detector to check for any possible leaks which I did not find any.

Mr. Lee showed me the daily operation logs, and the weekly inspection check lists. According to him they stopped operating their Perc machine since July 2012 and do only wet cleaning.

ATCM certificate was issued to Mr. Hung Sun Lee on April 17, 2010 and it expires on April 17, 2013.

They operate one Parker boiler with maximum heat input capacity of 398,000 Btu/hr., N.B. # 37258 that was manufactured in 1989. There are no emission requirements for this size boiler in Rule 1146.2 at this time.

I issued NC # E19504 to complete and submit the Quadrennial update report.

02/27/2013.

West Hills Cleaners completed the Quad. Update Report and submitted that to Att: Cher Snyder. The facility is operating in compliance now.

Reviewed 4/3/13 sj

Inspector: _____ Date: _____ Reviewed By: _____ Date: _____

User: ltrapp

SCAQMD Facility Equipment List Report

Run Date : 03/22/2017 02:36 PM

Facility: 140713 WEST HILLS CLEANERS, EUNICE E. LEE DBA
Status: Active
MR:
SIC: 7216
Team: I
Last Inspection: 03/13/2015
On Hold: N
Suspended: N
TS: TS-11 Industrial: Sector-based Inspections
Quarter: 1000 - inspect in 1st quarter, every year
Contact: EUNICE EUNIM LEE (818) 7029027
RECLAIM: N
TITLE V: N
AIRS ID:
Assignment: 1216337
Location Address: 23233 SATICOY ST, WEST HILLS 91304 Sector:VE
Inspector: MG06 MAJID GHORAYSHI
Mailing Address: 23233 SATICOY ST, WEST HILLS 91304 Sector:VE
Inspection Date: 02/04/2011
Instruction:
Disposition: Operating in Compliance at time of inspection

Application No.	Permit No.	Permit Issue Date	Permit Status	Equipment Category	BCAT/CCAT Description	Application Date	Application Status

REPORT: Date: 02/04/2011, Time: 13:00 p.m.

Applicable rules: 109, 203, 206, 1402, and 1421.

I arrived at West Hills Cleaners, where I met with Mr. and Mrs. Lee, the owners.

Mr. Lee showed me one Fibrimatic SPA Vortex 40 Plus perc dry cleaning machine that was not operating. I used the facility's perc detector to check for any possible leaks which I did not find any.

Mr. Lee showed me the daily operation logs, the weekly inspection check lists, Facility Annual Mileage, and the maintenance & operation logs. The facility cleaned a total of 12,241 pounds of clothes in 2010 and added 10 gallons of perc to the machine. The Annual Facility Mileage was 1,224 lbs./gal.

ATCM certificate was issued to Mr. Hung Sun Lee on April 17, 2010 and it expires on April 17, 2013.

They replaced the gaskets for the front door, lint trap, button trap, and still door on July 20, 2009. I reminded Mr. Lee to replace the gaskets again this year, since the rule requires them to be replaced at least once every two years.

West Hills Cleaners was operating in compliance.

Reviewed 2/11/11 sj

Inspector: _____ Date: _____ Reviewed By: _____ Date: _____

User: ltrapp

SCAQMD Facility Equipment List Report

Run Date : 03/22/2017 02:36 PM

Facility: 140713 WEST HILLS CLEANERS, EUNICE E. LEE DBA Status: Active MR: SIC: 7216 Team: I
Last Inspection: 03/13/2015 On Hold: N Suspended: N TS: TS-11 Industrial: Sector-based Inspections Quarter: 1000 - inspect in 1st quarter, every year
Contact: EUNICE EUNIM LEE (818) 7029027 RECLAIM: N TITLE V: N AIRS ID: Assignment: 1122158
Location Address: 23233 SATICOY ST, WEST HILLS 91304 Sector:VE Inspector: MG06 MAJID GHORAYSHI
Mailing Address: 23233 SATICOY ST, WEST HILLS 91304 Sector:VE Inspection Date: 07/14/2009
Instruction: Disposition: Notice To Comply

Application No.	Permit No.	Permit Issue Date	Permit Status	Equipment Category	BCAT/CCAT Description	Application Date	Application Status
467923	F89819	05/17/2007	INACT_NR	000603 BCAT	DRY CLEANING,DRY-TO-DRY NV,W/ SIC,PERC	04/19/2007	PERMIT TO OPERATE GRANTED
429988	F69767	07/22/2004	INACTIVE	000603 BCAT	DRY CLEANING,DRY-TO-DRY NV,W/ SIC,PERC	04/30/2004	PERMIT TO OPERATE GRANTED

REPORT: Date: 07/14/2009, Time: 09:30.

Applicable rules 203, 206, 1402, and 1421.

I arrived at West Hills Cleaners, where I met with Mr. Lee, the owner.

Mr. Lee showed me one Firbimatic SPA Vortex 40 Plus perc dry cleaning machine that was not operating. I used the facility's perc detector and subsequently verified the readings with a calibrated Toxi Rae PID to check for vapor leaks. I did not find any.

Mr. Lee showed me the daily records of operation, the weekly inspection check lists, and the maintenance and operation logs. The facility washed a total of 15,405 pounds of clothes in 2008 and according to Mr. Lee they did not need to add any perc.

ATCM certificate # 022036 was issued to Mr. Hung Sun Lee on April 29, 2007 and it expires on April 28, 2010.

Mr. Lee said he did not replace the gaskets for front door, lint trap, button trap, and still door during the last two years.

I issued NC # D25166 to replace the gaskets for front door, lint trap, button trap, and still door and provide the copy of the receipt.

08/07/2009.

They replaced the gaskets for front door, lint trap, button trap, and still door on July 20, 2009. WEst Hills Cleaners is operating in compliance now.

Inspector: _____ Date: _____ Reviewed By: _____ Date: _____

User: ltrapp

SCAQMD Facility Equipment List Report

Run Date : 03/22/2017 02:36 PM

Facility: 140713 WEST HILLS CLEANERS, EUNICE E. LEE DBA
Status: Active
MR:
SIC: 7216
Team: I
Last Inspection: 03/13/2015
On Hold: N
Suspended: N
TS: TS-11 Industrial: Sector-based Inspections
Quarter: 1000 - inspect in 1st quarter, every year
Contact: EUNICE EUNIM LEE (818) 7029027
RECLAIM: N
TITLE V: N
AIRS ID:
Assignment: 961936
Location Address: 23233 SATICOY ST, WEST HILLS 91304 Sector:VE
Inspector: MG06 MAJID GHORAYSHI
Mailing Address: 23233 SATICOY ST, WEST HILLS 91304 Sector:VE
Inspection Date: 10/13/2006
Instruction:
Disposition: Operating in Compliance at time of inspection

	Application No.	Permit No.	Permit Issue Date	Permit Status	Equipment Category		BCAT/CCAT Description	Application Date	Application Status
_____	467923	F89819	05/17/2007	INACT_NR	000603	BCAT	DRY CLEANING,DRY-TO-DRY NV,W/ SIC,PERC	04/19/2007	PERMIT TO OPERATE GRANTED
_____	429988	F69767	07/22/2004	INACTIVE	000603	BCAT	DRY CLEANING,DRY-TO-DRY NV,W/ SIC,PERC	04/30/2004	PERMIT TO OPERATE GRANTED

REPORT: Date: 10/13/2006, Time: 08:35.

I met with Mr. and Mrs. Lee, the owners of West Hills Cleaners.

Mr. Lee showed me one Fibrimatic perc dry cleaning machine that was operating. I used the facility's perc detector and subsequently verified the readings with a calibrated Toxi Rae PID to check for any vapor leaks. I did not find any.

Mr. Lee showed me the daily records of operation, the weekly inspection check lists, and the maintenance and operation logs. The facility washed a total of 14,224 pounds of clothes in 2005 and used 20 gallons of perc. The Annual Mileage for 2005 was 711 lbs./gal. .

ATCM certificate # 018293 was issued to Mr. Hung Sun Lee on April 25, 2004 and it expires on April 24, 2007.

Mr. Lee showed me a receipt showing that he replaced the front door, lint trap door, and still door gaskets on September 13, 2006.

Inspector: _____ Date: _____ Reviewed By: _____ Date: _____

User: ltrapp

SCAQMD Facility Equipment List Report

Run Date : 03/22/2017 02:36 PM

Facility: 140713 WEST HILLS CLEANERS, EUNICE E. LEE DBA
Status: Active
MR: SIC: 7216 Team: I
Last Inspection: 03/13/2015 On Hold: N Suspended: N
TS: TS-11 Industrial: Sector-based Inspections
Quarter: 1000 - inspect in 1st quarter, every year
Contact: EUNICE EUNIM LEE (818) 7029027 RECLAIM: N TITLE V: N AIRS ID:
Assignment: 886770
Location Address: 23233 SATICOY ST, WEST HILLS 91304 Sector:VE
Inspector: MG06 MAJID GHORAYSHI
Mailing Address: 23233 SATICOY ST, WEST HILLS 91304 Sector:VE
Inspection Date: 05/19/2005
Instruction:
Disposition: Operating in Compliance at time of inspection

Application No.	Permit No.	Permit Issue Date	Permit Status	Equipment Category		BCAT/CCAT Description	Application Date	Application Status
467923	F89819	05/17/2007	INACT_NR	000603	BCAT	DRY CLEANING,DRY-TO-DRY NV,W/ SIC,PERC	04/19/2007	PERMIT TO OPERATE GRANTED
429988	F69767	07/22/2004	INACTIVE	000603	BCAT	DRY CLEANING,DRY-TO-DRY NV,W/ SIC,PERC	04/30/2004	PERMIT TO OPERATE GRANTED

REPORT: Date: 05/19/2005, Time: 0915.

I met with Mr. Hung Sun Lee, the co-owner of West Hills Cleaners.

The dry cleaning machine was operating and I used the facility's perc detector and subsequently used a calibrated Toxi Rae PID to check for any vapor leaks. I did not find any leaks.

ATCM certificate # 018293 was issued to Mr. Hung Sun Lee on April 25, 2004 and it expires on April 24, 2007.

The facility had all the records of operation, the weekly inspection check lists, the maintenance and operation logs, and receipts of perc purchase. The facility washes 40-60 lbs. of clothes daily. It washed a total of 14,968 pounds of clothes in 2004 and used 20 gallons of perc. The Annual Mileage for 2004 was 748 lbs./gal. .

Inspector: _____ Date: _____ Reviewed By: _____ Date: _____

User: ltrapp

SCAQMD Facility Equipment List Report

Run Date : 03/22/2017 02:36 PM

Facility: 140713 WEST HILLS CLEANERS, EUNICE E. LEE DBA Status: Active MR: SIC: 7216 Team: I
Last Inspection: 03/13/2015 On Hold: N Suspended: N TS: TS-11 Industrial: Sector-based Inspections Quarter: 1000 - inspect in 1st quarter, every year
Contact: EUNICE EUNIM LEE (818) 7029027 RECLAIM: N TITLE V: N AIRS ID: Assignment: 826807
Location Address: 23233 SATICOY ST, WEST HILLS 91304 Sector:VE Inspector: MG06 MAJID GHORAYSHI
Mailing Address: 23233 SATICOY ST, WEST HILLS 91304 Sector:VE Inspection Date: 05/14/2004
Instruction: Disposition: Operating in Compliance at time of inspection

Application No.	Permit No.	Permit Issue Date	Permit Status	Equipment Category		BCAT/CCAT Description	Application Date	Application Status
467923	F89819	05/17/2007	INACT_NR	000603	BCAT	DRY CLEANING,DRY-TO-DRY NV,W/ SIC,PERC	04/19/2007	PERMIT TO OPERATE GRANTED
429988	F69767	07/22/2004	INACTIVE	000603	BCAT	DRY CLEANING,DRY-TO-DRY NV,W/ SIC,PERC	04/30/2004	PERMIT TO OPERATE GRANTED

REPORT: Date: 05/14/2004, Time: 0925.

I met with Mrs. Eunice Lee, the owner of, and Mr. Hung Sun Lee, an employee of, West Hills Cleaners.

Mrs. Lee told me that they purchased this facility about a month ago and submitted the application form and the fees to apply for change of permittee on April 27, 2004.

ATCM certificate # 018293 was issued to Mr. Hung Sun Lee on April 25, 2004.

The dry cleaning machine was not operating, but I checked it for any possible vapor leaks and found none.

The facility washes 2-3 loads (40-60 lbs.) of clothes per day, and had all daily operation logs. All records of weekly inspection check lists and maintenance and operation records were also available.

Inspector: _____ Date: _____ Reviewed By: _____ Date: _____

User: ltrapp

SCAQMD Facility Equipment List Report

Run Date : 03/22/2017 02:40 PM

Facility: 73792 WEST HILLS CLEANERS
Status: Out of Business
MR: 1311 SIC: 7216 Team:
Last Inspection: 04/24/1990 On Hold: Suspended: TS: Quarter: none - do not inspect
Contact: RECLAIM: N TITLE V: N AIRS ID: Assignment:
Location Address: 23233 SATICOY ST, WEST HILLS 91304-5310 Sector:VE Inspector:
Mailing Address: 23233 SATICOY ST, WEST HILLS 91304-5310 Sector:VE Inspection Date:
Instruction: Disposition:

Application No.	Permit No.	Permit Issue Date	Permit Status	Equipment Category		BCAT/CCAT Description	Application Date	Application Status
211222	D11855	11/17/1989	INACTIVE	000234	BCAT	DRY CLEANING EQUIP PERCHLOROETHYLENE	07/11/1989	PERMIT TO OPERATE GRANTED
211222	D11855	11/17/1989	INACTIVE	04	CCAT	VAPOR RECOVERY UNIT COMPRESS & CONDENSE	07/11/1989	PERMIT TO OPERATE GRANTED
211223				011000	BCAT	BOILER, NATURAL GAS	07/18/1989	APPLICATION CANCELLED, REFUND ALL FEES

Inspector: _____ Date: _____ Reviewed By: _____ Date: _____

Information Management
Public Records Unit

Direct Dial (909) 396-3700
Fax:(909) 396-3330

COMPLETION LETTER

March 23, 2017

CHRISTIAN HUNTER
DUDEK
38N. MARENGO
PASADENA, CA 91101

Ref.: CONTROL NO. 89616
Received 3/21/2017

Re: P/O'S, EQL'S, I/R'S, NOV'S, N/C'S FOR 23233 SATICOY ST., WEST HILLS, CA 91304, FROM 3/1/1917 TO 3/21/2017.

After a thorough search of this agency's records, the following records were found:
P/O'S, EQL'S, I/R'S, NOV'S, N/C'S FOR 23233 SATICOY ST., WEST HILLS, CA 91304, FROM 3/1/1917 TO 3/21/2017.

YOUR REQUESTED RECORDS WERE PROVIDED ELECTRONICALLY ON 03/23/2017

If you have any questions, please do not hesitate to contact me, Tuesday through Friday, **8:00 a.m**. to **4:30 p.m.**

Sincerely,

LORA TRAPP x2854
For COLLEEN PAINE
Public Records Coordinator

:lt

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

PERMIT TO CONSTRUCT/OPERATE

9150 FLAIR DRIVE, EL MONTE, CALIFORNIA 91731

Permit No.
D11855
A/N 211222
Page 1

This initial permit must be renewed by 01/01 ANNUALLY unless the equipment is moved, or changes ownership. If the billing for annual renewal fee (Rule 301.f) is not received by the expiration date, contact the District.

Legal Owner Or Operator:

WEST HILLS CLEANERS,
IN UI HONG DBA
23233 #110 SATICOY STREET
WEST HILLS, CA 91304
ATTN: I. HONG

ID 73792

Equipment located at: SAME AS ABOVE

Equipment Description:

SYNTHETIC SOLVENT DRY CLEANING UNIT, MULTIMATIC, VALORE 300CS, SERIAL NO. 30-0689-3608, WITH A BUILT-IN REFRIGERATED VAPOR CONDENSER.

Conditions:

1. OPERATION OF THIS EQUIPMENT MUST BE CONDUCTED IN COMPLIANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED UNLESS OTHERWISE NOTED BELOW.

2. THIS EQUIPMENT MUST BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES.

3. A TEMPERATURE GAGE WITH A MINIMUM RANGE FROM 0 DEGREES F TO 150 DEGREES F MUST BE INSTALLED IN THE OUTLET DUCT OF THE CONDENSER.

4. THE REFRIGERATION CONDENSER ON THE DRY-TO-DRY UNIT MUST BE OPERATED DURING THIS CLOSED LOOP COOL-DOWN PERIOD UNTIL AN AIR TEMPERATURE FROM THE CONDENSER OUTLET IS 45 DEGREES F OR LOWER.

5. THE TOTAL QUANTITY OF SOLVENT LOSS FROM THIS EQUIPMENT MUST NOT EXCEED 5 GALLONS IN ONE MONTH.

6. THE OPERATOR SHALL KEEP ADEQUATE RECORDS TO VERIFY MONTHLY USAGE. SUCH RECORDS SHALL BE RETAINED FOR A PERIOD OF TWO YEARS.

ALPHA FILE

CONTINUATION OF PERMIT TO CONSTRUCT/OPERATE

NOTICE

IN ACCORDANCE WITH RULE 206, THIS PERMIT TO OPERATE OR COPY MUST BE POSTED ON OR WITHIN 8 METERS OF THE EQUIPMENT.

THIS PERMIT DOES NOT AUTHORIZE THE EMISSION OF AIR CONTAMINANTS IN EXCESS OF THOSE ALLOWED BY DIVISION 26 OF THE HEALTH AND SAFETY CODE OF THE STATE OF CALIFORNIA OR THE RULES OF THE AIR QUALITY MANAGEMENT DISTRICT. THIS PERMIT CANNOT BE CONSIDERED AS PERMISSION TO VIOLATE EXISTING LAWS, ORDINANCES, REGULATIONS OR STATUTES OF OTHER GOVERNMENT AGENCIES.

EXECUTIVE OFFICER

By Raquel Puerta/mjd
November 17, 1989

ALPHA FILE

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
21865 Copley Drive, Diamond Bar, CA 91765

PERMIT TO OPERATE

Permit No
F89819
A/N 467923

This initial permit must be renewed ANNUALLY unless the equipment is moved, or changes ownership
If the billing for the annual renewal fee (Rule 301 f) is not received by the expiration date, contact the District

ID 140713

Legal Owner
or Operator

WEST HILLS CLEANERS, EUNICE E LEE DBA
23233 SATICOY ST, #110
WEST HILLS, CA 91304

Equipment Location 23233 SATICOY ST, #110, WEST HILLS, CA 91304

Equipment Description

SYNTHETIC SOLVENT DRY CLEANING UNIT, PERCHLOROETHYLENE, FIRBIMATIC, MODEL NO VORTEX 40 PLUS, WITH A BUILT-IN REFRIGERATED VAPOR CONDENSER AND SECONDARY CONTROL SYSTEM

Conditions

1 OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN ACCORDANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED UNLESS OTHERWISE NOTED BELOW

2 THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES

3 THE TOTAL QUANTITY OF PERCHLOROETHYLENE THAT IS USED AT THIS FACILITY SHALL NOT EXCEED 42 GALLONS PER CALENDAR YEAR

4 A TEMPERATURE GAUGE WITH A MINIMUM RANGE OF 0 TO 150 DEGREES FAHRENHEIT SHALL BE INSTALLED IN THE OUTLET DUCT OF THE CONDENSER

5 THE REFRIGERATED VAPOR CONDENSER ON THE DRY-TO-DRY UNIT SHALL BE OPERATED DURING THE CLOSED LOOP COOL-DOWN PERIOD UNTIL THE AIR TEMPERATURE AT THE CONDENSER OUTLET IS 45 DEGREES FAHRENHEIT OR LOWER

6 COMPLETE RECORDS OF MONTHLY REPLENISHED SOLVENT SHALL BE PREPARED, KEPT FOR AT LEAST TWO YEARS AND BE MADE AVAILABLE TO SCAQMD PERSONNEL UPON REQUEST

7 ALL WASTE MATERIALS WHICH HAVE COME INTO CONTACT WITH ANY SOLVENT SHALL BE DISCARDED AS HAZARDOUS WASTE

8 THIS EQUIPMENT SHALL COMPLY WITH THE APPLICABLE REQUIREMENTS OF RULE 1421 AND 1402

FILE COPY

PERMIT TO OPERATE

NOTICE

IN ACCORDANCE WITH RULE 206, THIS PERMIT TO OPERATE OR COPY SHALL BE POSTED ON OR WITHIN 8 METERS OF THE EQUIPMENT

THIS PERMIT DOES NOT AUTHORIZE THE EMISSION OF AIR CONTAMINANTS IN EXCESS OF THOSE ALLOWED BY DIVISION 26 OF THE HEALTH AND SAFETY CODE OF THE STATE OF CALIFORNIA OR THE RULES OF THE AIR QUALITY MANAGEMENT DISTRICT THIS PERMIT CANNOT BE CONSIDERED AS PERMISSION TO VIOLATE EXISTING LAWS, ORDINANCES, REGULATIONS OR STATUTES OF OTHER GOVERNMENT AGENCIES

EXECUTIVE OFFICER

Dorris M Bailey

By Dorris M Bailey/SM07
5/17/2007

FILE COPY

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
21865 East Copley Drive, Diamond Bar, CA 91765

Permit No.
F69767
A/N 429988

PERMIT TO OPERATE

This initial permit must be renewed ANNUALLY unless the equipment is moved, or changes ownership.
If the billing for the annual renewal fee (Rule 301.f) is not received by the expiration date, contact the District.

Legal Owner
or Operator:

ID 140713

WEST HILLS CLEANERS, EUNICE E. LEE DBA
23233 SATICOY ST, #110
WEST HILLS, CA 91304

Equipment Location: 23233 SATICOY ST, #110, WEST HILLS, CA 91304

Equipment Description :

SYNTHETIC SOLVENT DRY CLEANING UNIT, PERCHLOROETHYLENE, FIRBIMATIC, MODEL NO. VORTEX 40, WITH A BUILT-IN REFRIGERATED VAPOR CONDENSER AND A SECONDARY CONTROL SYSTEM.

Conditions :

1. OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN ACCORDANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED UNLESS OTHERWISE NOTED BELOW.

2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES.

3. THE TOTAL QUANTITY OF SOLVENT THAT IS REPLENISHED IN THIS EQUIPMENT SHALL NOT EXCEED 8.5 GALLONS PER MONTH.

4. A TEMPERATURE GAUGE WITH A MINIMUM RANGE OF 0 TO 150 DEGREES FAHRENHEIT SHALL BE INSTALLED IN THE OUTLET DUCT OF THE CONDENSER.

5. THE REFRIGERATED VAPOR CONDENSER ON THE DRY-TO-DRY UNIT SHALL BE OPERATED DURING THE CLOSED LOOP COOL-DOWN PERIOD UNTIL THE AIR TEMPERATURE AT THE CONDENSER OUTLET IS 45 DEGREES FAHRENHEIT OR LOWER.

6. COMPLETE RECORDS OF MONTHLY REPLENISHED SOLVENT SHALL BE PREPARED, KEPT FOR AT LEAST TWO YEARS AND BE MADE AVAILABLE TO SCAQMD PERSONNEL UPON REQUEST.

7. ALL WASTE MATERIALS WHICH HAVE COME INTO CONTACT WITH ANY SOLVENT SHALL BE DISCARDED AS HAZARDOUS WASTE.

8. RULE 1421 SHALL APPLY TO THIS EQUIPMENT.

FILE COPY

CONTINUATION OF PERMIT TO OPERATE

NOTICE

IN ACCORDANCE WITH RULE 206, THIS PERMIT TO OPERATE OR COPY SHALL BE POSTED ON OR WITHIN 8 METERS OF THE EQUIPMENT.

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EXECUTIVE OFFICER

Dorris M Bailey

By Dorris M.Bailey/LK04
7/22/2004

FILE COPY

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
21865 East Copley Drive, Diamond Bar, CA 91765

PERMIT TO CONSTRUCT/OPERATE

Permit No.
F55199
A/N 406941

This initial permit must be renewed ANNUALLY unless the equipment is moved, or changes ownership.
If the billing for annual renewal fee (Rule 301.f) is not received by the expiration date, contact the District.

LEGAL OWNER
OR OPERATOR: WEST HILLS CLEANERS
23233 SATICOY ST #110
WEST HILLS, CA 91304

ID 123981

Equipment Location: 23233 SATICOY ST #110, WEST HILLS, CA 91304

Equipment Description:

SYNTHETIC SOLVENT DRY CLEANING UNIT, PERCHLOROETHYLENE, FIRBIMATIC, MODEL NO. VORTEX 40, WITH A BUILT-IN REFRIGERATED VAPOR CONDENSER AND A SECONDARY CONTROL SYSTEM.

Conditions:

1) OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN ACCORDANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED UNLESS OTHERWISE NOTED BELOW.

2) THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES.

3) THE TOTAL QUANTITY OF SOLVENT THAT IS REPLENISHED IN THIS EQUIPMENT SHALL NOT EXCEED 8.5 GALLONS PER MONTH.

4) A TEMPERATURE GAUGE WITH A MINIMUM RANGE OF 0 TO 150 DEGREES FAHRENHEIT SHALL BE INSTALLED IN THE OUTLET DUCT OF THE CONDENSER.

5) THE REFRIGERATED VAPOR CONDENSER ON THE DRY-TO-DRY UNIT SHALL BE OPERATED DURING THE CLOSED LOOP COOL-DOWN PERIOD UNTIL THE AIR TEMPERATURE AT THE CONDENSER OUTLET IS 45 DEGREES FAHRENHEIT OR LOWER.

6) COMPLETE RECORDS OF MONTHLY REPLENISHED SOLVENT SHALL BE PREPARED, KEPT FOR AT LEAST TWO YEARS AND BE MADE AVAILABLE TO SCAQMD PERSONNEL UPON REQUEST.

7) ALL WASTE MATERIALS WHICH HAVE COME INTO CONTACT WITH ANY SOLVENT SHALL BE DISCARDED AS HAZARDOUS WASTE.

8) THIS EQUIPMENT SHALL COMPLY WITH RULE 1421.

FILE COPY

PERMIT TO CONSTRUCT/OPERATE

CONTINUATION OF PERMIT TO CONSTRUCT/OPERATE

NOTICE

IN ACCORDANCE WITH RULE 206, THIS PERMIT TO OPERATE OR COPY SHALL BE POSTED ON OR WITHIN 8 METERS OF THE EQUIPMENT.

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EXECUTIVE OFFICER

Dorris M Bailey

By Dorris M. Bailey/gv02
9/27/2002

FILE COPY

Department of Toxic Substances Control

Barbara A. Lee, Director
9211 Oakdale Avenue
Chatsworth, California 91311

Matthew Rodriquez
Secretary for
Environmental Protection

Edmund G. Brown *Jr*
Governor

March 24, 2017

Ms. Christian Hunter
DUDEK
605 Third Street
Encinitas, CA 92024

VARIOUS SITES
PR3-032117-05

Dear Ms. Hunter:

We have received your Public Records Act Request for records from the Department of Toxic Substances Control.

After a thorough review of our files we have found that no such records exist at this office pertaining to the sites/facilities referenced below.

- 23221-23233 Saticoy Street, West Hills, CA 91304
- 7629 Woodlake Avenue, West Hills, CA 91304
- APN's: 2027-005-005, 2027-005-006 & 2027-005-007

We would like to inform you about Envirostor, a database that provides information and documents on over 5,000 DTSC cleanup sites. EnviroStor can be accessed at: http://www.envirostor.dtsc.ca.gov/public. Also, a computer is available in the Central Files of each DTSC Regional Office for use by community members to view EnviroStor. If you have any questions or would like further information regarding your request, please contact me at (818) 717-6522.

Sincerely,

Glenn Castillo /bh
Regional Records Coordinator

Printed on Recycled Paper

HOLGUIN, FAHAN & ASSOCIATES, INC.
ENVIRONMENTAL MANAGEMENT CONSULTANTS

February 3, 2000

UST UNIT
CASE NO. 7130/9616
DATE 2/8/00
STAFF MB
REPORT TYPE:
CAR
WORK PLAN
MONITORING
OTHER
DATE REV'D.
STAFF INITIAL

Mr. Magdy Baiady
California Regional Water Quality Control Board
Los Angeles Region
320 West 4th Street, Suite 200
Los Angeles, California 90013

Subject: **REQUEST FOR SITE CLOSURE FOR CHEVRON PRODUCTS COMPANY SERVICE STATION #9-3113 7607 WOODLAKE AVENUE, WEST HILLS, CALIFORNIA**

Dear Mr. Baiady:

On behalf of Chevron Products Company (Chevron), Holguin, Fahan, & Associates, Inc. (HFA) has prepared this request for regulatory site closure for the above-referenced site. The closure request is based on the results of previous subsurface investigations, the State Water Resources Control Board interpretation of UST regulations, and the published "common sense" criteria outlined in the California Regional Water Quality Control Board, Los Angeles Region's (4) (CRWQCB-LAR's) correspondence dated August 12, 1996 (see Attachment 1 for HFA's responses to "common sense" questions and Attachment 2 for the case review form).

Chevron Service Station #9-3113 is located at 7607 Woodlake Avenue, on the northwestern corner of the intersection of Woodlake Avenue and Saticoy Street in West Hills, California (see Figure 1 - Site Location Map). The former site features included two dispenser islands, three gasoline USTs (one 7,000-gallon, one 6,000-gallon, and one 3,000-gallon), one 550-gallon used-oil UST, and the associated product piping. Current site features include three 10,000-gallon, double-walled, gasoline USTs; four dispensers, and the associated product piping. Eight groundwater monitoring wells (MW-1, MW-3 through MW-6, and T-1 through T-3) are located at the site (see Figure 2 - Plot Plan for current and former site features).

The site contact is Mr. Y.M. Tuan, Chevron Products Company, Post Office Box 2833, La Habra, California, 90632-2833, (562) 694-9183. The consultant contact is Mr. James M. Haslett, Holguin, Fahan & Associates, Inc., 5940 Lakeshore Drive, Cypress, California, 90630, (714) 236-1741. The regulatory contact is Mr. Magdy Baiady, California Regional Water Quality Control Board, Los Angeles Region (4), 320 West 4th Street, Suite 200, Los Angeles, California, 90013, (213) 576-6699.

SITE HISTORY

SITE ASSESSMENT

In May 1988, GeoResearch drilled three soil borings (T-1 through T-3) and completed each soil boring as a 35-foot-deep groundwater monitoring well (GeoResearch, 1988, Revised Site Investigation, August 17, 1988). Groundwater was encountered at a depth of approximately 20 fbg. Laboratory analytical results of the soil samples collected from soil borings T-1 and T-2 did not indicate detectable TPH as gasoline or BTEX concentrations. Laboratory analytical results of the soil samples collected from soil boring T-3 indicated a maximum TPH as gasoline concentration of 9,730 mg/kg and a maximum benzene concentration of 9.18 mg/kg. Laboratory analytical results of groundwater samples indicated a maximum benzene concentration of 1,860 µg/l in the groundwater sample collected from monitoring well T-2 (see Attachment 2, Appendices A through E for the historical site documentation).

In December 1988, Harding Lawson Associates (HLA) conducted groundwater sampling at the site (HLA, 1989, Phase I Data Review and Initial Sampling, February 28, 1989). Laboratory analytical results of groundwater samples indicated a maximum benzene concentration of 206 µg/l in the groundwater sample collected from monitoring well T-3 (see Attachment 2, Appendices A through E).

In March 1989, HLA installed three additional groundwater monitoring wells (MW-1 through MW-3) at the site (HLA, 1989, Phase II Investigation, July 24, 1989). Soils encountered during drilling included sandy silt and silty clay in the interval ranging in depth from surface grade to approximately 16 fbg. The silt and clay is underlain by the siltstone of the Modelo Formation to a depth of 40 fbg, the maximum depth of the investigation. Laboratory analytical results of soil samples collected from the soil borings indicated a maximum TPH as gasoline concentration of 240 mg/kg and a maximum benzene concentration of 0.37 mg/kg. Laboratory analytical results of groundwater samples indicated a maximum benzene concentration of 57 µg/l in the groundwater sample collected from monitoring well T-3 (see Attachment 2, Appendices A through E). The groundwater flow direction for the site was determined to be toward the northeast.

In April 1991, HLA installed three additional groundwater monitoring wells (MW-4 through MW-6) and advanced two off-site cone penetrometer testing locations (HLA, 1991, Phase III Investigation and Recommendations, July 5, 1991). Monitoring well MW-4 replaced monitoring well MW-2, which was abandoned prior to installation of three new USTs at the site (see below). Laboratory analytical results of the soil samples collected from soil borings MW-4 through MW-6 indicated a maximum TPH as gasoline concentration of 600 mg/kg and a maximum

benzene concentration of 0.081 mg/kg. Laboratory analytical results of the groundwater samples collected from monitoring wells MW-1, MW-3 through MW-6, and T-1 through T-3 indicated a maximum TPH as gasoline concentration of 5,000 µg/l and a maximum benzene concentration of 800 µg/l (see Attachment 2, Appendices A through E).

UNDERGROUND STORAGE TANK REMOVAL (DECEMBER 1989)

In December 1989, Chevron's contractor removed one 7,000-gallon gasoline UST, one 6,000-gallon gasoline UST, one 3,000-gallon gasoline UST, one 550-gallon used-oil UST and two dispenser islands (HLA, 1990, Soil Sampling During Tank Removal, April 12, 1990). Soil samples were collected from beneath each UST and dispenser island. Laboratory analytical results of the soil samples did not indicate detectable TPH as gasoline concentrations, however, a maximum benzene concentration of 0.29 mg/kg was detected (see Attachment 2, Appendices A through E). Three new 10,000-gallon, double-walled, USTs were installed southeast of the station building (see Figure 2 for UST locations).

FACILITY UPGRADE (MAY 1998)

In May 1998, JMC Construction performed a station upgrade at the site, including replacement of the dispensers (HFA, 1998, Soil Sampling and Air Monitoring Report, May 28, 1998). Laboratory analytical results of the soil samples collected from beneath the dispenser islands did not indicate detectable TPH as gasoline, BTEX, or MTBE concentrations, with the exception of soil sample D4-2, which indicated an MTBE concentration of 0.11 mg/kg (see Attachment 2, Appendices A through E).

GROUNDWATER MONITORING

Groundwater monitoring and sampling began at the site in April 1989, and has been performed quarterly since January 1992. A total of 32 episodes of groundwater monitoring, sampling, and reporting has been conducted for the 8 existing groundwater monitoring wells. Dissolved-phase MTBE concentrations have been quantified since July 1997. The groundwater flow direction for the site during the most recent quarterly monitoring episode was determined to be toward the northeast, which is consistent with the previously-measured flow direction (see Attachment 2, Appendices A through E).

The most recent quarterly groundwater monitoring episode, conducted on October 14, 1999, indicated a maximum TPH as gasoline concentration of 42 µg/l, a maximum benzene concentration of 1.0 µg/l, and a maximum MTBE concentration of 42 µg/l (Blaine Tech Services, Inc., 1999, Fourth Quarter 1999 Monitoring Report, December 2, 1999).

Dissolved-phase hydrocarbon and MTBE concentrations detected in the groundwater samples collected from monitoring wells MW-1, MW-3 through MW-6, and T-1 through T-3 have significantly decreased since quarterly monitoring began, indicating that intrinsic bioremediation may be aiding in the remediation of subsurface hydrocarbons. The downgradient extent of dissolved-phase hydrocarbon plume has been delineated (monitoring well MW-1) and the extent of the plume has substantially decreased in size since the initiation of groundwater monitoring (see Attachment 2, Appendices A through E).

TOPOGRAPHY, GEOLOGY, AND HYDROGEOLOGY

TOPOGRAPHY

The site is located at an elevation of approximately 840 feet above MSL. The local topography slopes gently to the east at a gradient of approximately 0.01 (1 foot per 100 feet) (United States Geological Survey, 1952, Canoga Park 7.5 Minute Series Quadrangle Map, photorevised 1967).

GEOLOGY

Soil beneath the site consists of a very thin veneer of Quaternary alluvium consisting of silt and clay derived from erosion of the Santa Monica Mountains to the south and the Simi Hills to the west (Department of Water Resources, 1961, Bulletin No. 104, Planned Utilization of the Ground Water Basins of the Coastal Plain of Los Angeles County, June 1961). In the site vicinity, Quaternary alluvium is underlain by the Miocene Modelo Formation.

Soils encountered during drilling included sandy silt and silty clay in the interval ranging in depth from approximately 6 inches below surface grade to 16 fbg. The silt and clay is underlain by the siltstone of the Modelo Formation in the interval ranging in depth from 16 to 45.5 fbg, the maximum depth investigated.

HYDROGEOLOGY

The site is located in the extreme western portion of the San Fernando Valley Basin in the Upper Los Angeles River Basin Area, which is drained primarily by the Los Angeles River. According to the Los Angeles County Department of Public Works, the western portion of the basin contains fine-grained sediments that exhibit low water yields. The regional groundwater gradient is toward the southeast.

According to the Los Angeles Watermaster Service (May 1990), groundwater beneath the site is not utilized due to the presence of chlorinated solvents, which have been detected in groundwater throughout the San Fernando Valley. However, groundwater beneath the site does have potential uses.

The nearest surface body of water is Chatsworth Creek, an ephemeral stream located approximately 2,500 feet east of the site. Chatsworth Creek flows into Bell Creek, another ephemeral stream, approximately 1 mile southeast of the site.

According to the Los Angeles County Flood Control District (LACFCD), there are no groundwater production wells located within 1 mile of the site. The nearest well (well #3580C) is an observation well located approximately 1.25 miles southeast of the site near the intersection of Shoup Avenue and Bell Creek. On May 11, 1999, the depth to groundwater in well #3580C was was measured to be 14.9 fbg.

Based on quarterly groundwater monitoring results at the site, water levels were measured at depths ranging from 15.97 to 25.31 fbg. Groundwater levels in monitoring wells MW-1, MW-3 through MW-6, and T-1 through T-3 have fluctuated as much as 8 feet since the first quarterly monitoring episode. The groundwater flow direction for the site during the most recent quarterly monitoring episode was determined to be toward the northeast.

FUTURE SITE USE

According to Chevron, the site will remain a service station for the foreseeable future.

REQUEST FOR REGULATORY SITE CLOSURE

In letters from the CRWQCB-LAR dated August 12, 1996, and September 30, 1996, a list of "common sense" questions was included to help the regulatory agency reviewer evaluate sites for closure. For the regulatory reviewer's convenience, HFA's responses to the "common sense" questions are included in Attachment 1. A case review form with appendices is included in Attachment 2.

In CRWQCB-LAR's August 12, 1996, letter, "low risk groundwater contamination sites" are ready for closure when the following conditions (in bold) are met:

1. **The leak has been stopped and ongoing sources, including free product, have been removed or remediated.** Free product has never been observed at the site. The former gasoline USTs have been replaced by new 10-gallon, double-walled, USTs (December 1989) and the dispensers were upgraded in May 1998. Only one soil sample collected during site assessment and UST removal contained a benzene concentration greater than 1.0 mg/kg; therefore, the risk to the environment and to human health is considered to be minimal. Concrete or asphalt at the surface should act as an additional barrier to the

upward movement of hydrocarbon vapors beneath the site and should also minimize the future downward migration of surface water.

2. **The site has been adequately characterized and the groundwater contamination plume is stable.** The downgradient extent of the dissolved-phase hydrocarbon plume (MW-1) was evaluated. The dissolved-phase hydrocarbon concentrations have significantly decreased since the inception of groundwater monitoring. No potential horizontal and vertical conduits are known, which could act as preferential pathways for the dissolved-phase plume.

3. **No drinking water wells, aquifers, or surface waters have been or are likely to be affected.** According to the LACFCD, there are no groundwater production wells located within 1 mile of the site. The nearest well (well #3580C) is an observation well located approximately 1.25 miles southeast of the site near the intersection of Shoup Avenue and Bell Creek.

   The nearest surface body of water is Chatsworth Creek, an ephemeral stream located approximately 2,500 feet east of the site. Chatsworth Creek flows into Bell Creek, another ephemeral stream, approximately 1 mile southeast of the site.

   Drinking water wells or surface waters are not likely to be affected. Based on the shallow occurrence of the Modelo Formation beneath the site, it is unlikely that a drinking water aquifer underlies the site; therefore, drinking water aquifers should not be affected.

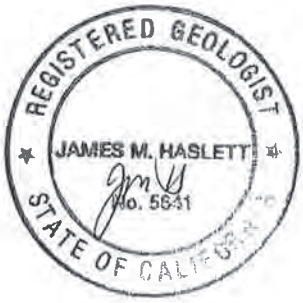
4. **Groundwater has been impacted and contaminant levels exceed MCLs; however, the consideration of the use of the aquifer and the potential exposure of receptors such as public drinking water wells should determine the need for remediation and not just the fact that MCLs are being exceeded.** There are no known groundwater production water wells within 1 mile of the site. Based on the shallow occurrence of the Modelo Formation beneath the site, it is unlikely that a drinking water aquifer underlies the site; therefore, drinking water aquifers should not be affected. The dissolved-phase hydrocarbon concentrations beneath the site have significantly decreased since quarterly monitoring began and should continue to decrease with time.

On behalf of Chevron Products Company, Holguin, Fahan & Associates, Inc., requests that the site be classified as a "low risk groundwater case" and granted regulatory site closure. If you have any questions or require additional information, please contact me at (714) 236-1741 or at e-mail address Jim_Haslett@oc.hfa.com.

Respectfully submitted,

James M. Haslett

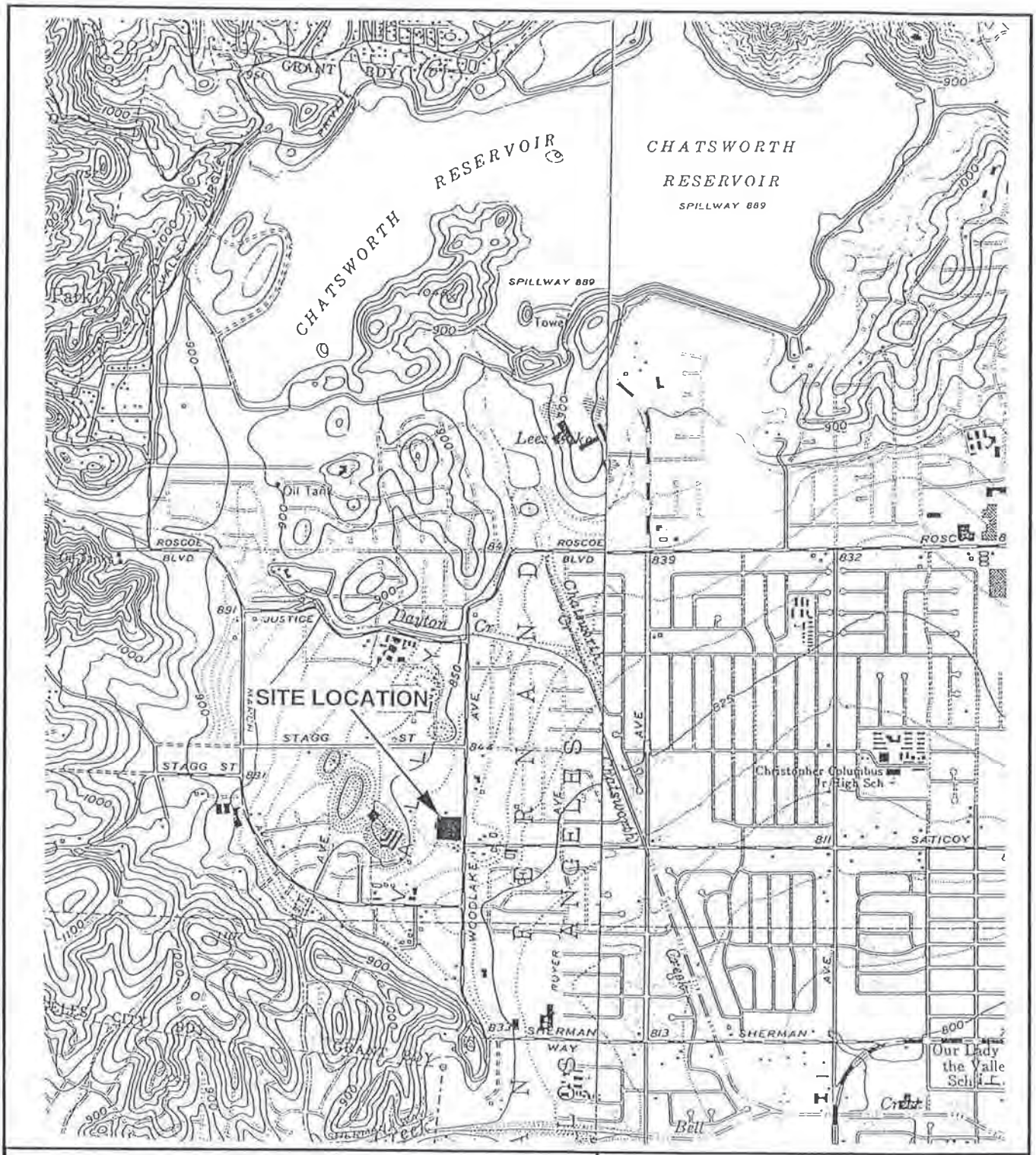
James M. Haslett, RG, REA
Senior Geologist
Holguin, Fahan & Associates, Inc.



JMH:pi:rri

Enclosures:
- Figure 1 - Site Location Map
- Figure 2 - Plot Plan
- Attachment 1 - HFA's Responses to "Common Sense" Questions
- Attachment 2 - Case Review Form (with Appendices A through F)
  - Appendix A - Historical Plot Plans and Summary Tables Documenting Hydrocarbon Concentrations in Soil
  - Appendix B - Blaine's Fourth Quarter 1999 Groundwater Monitoring Map
  - Appendix C - Historical Plot Plans and Summary Tables Documenting Hydrocarbon Concentrations in Groundwater
  - Appendix D - Historical Logs of Exploratory Borings
  - Appendix E - List of Known Reports for Subject Site

cc: Mr. Y.M. Tuan, Chevron



LEGEND

0 0.5 1 MILE
0 1,000 2,000 3,000 4,000 5,000 FEET
0 0.5 1 KILOMETER

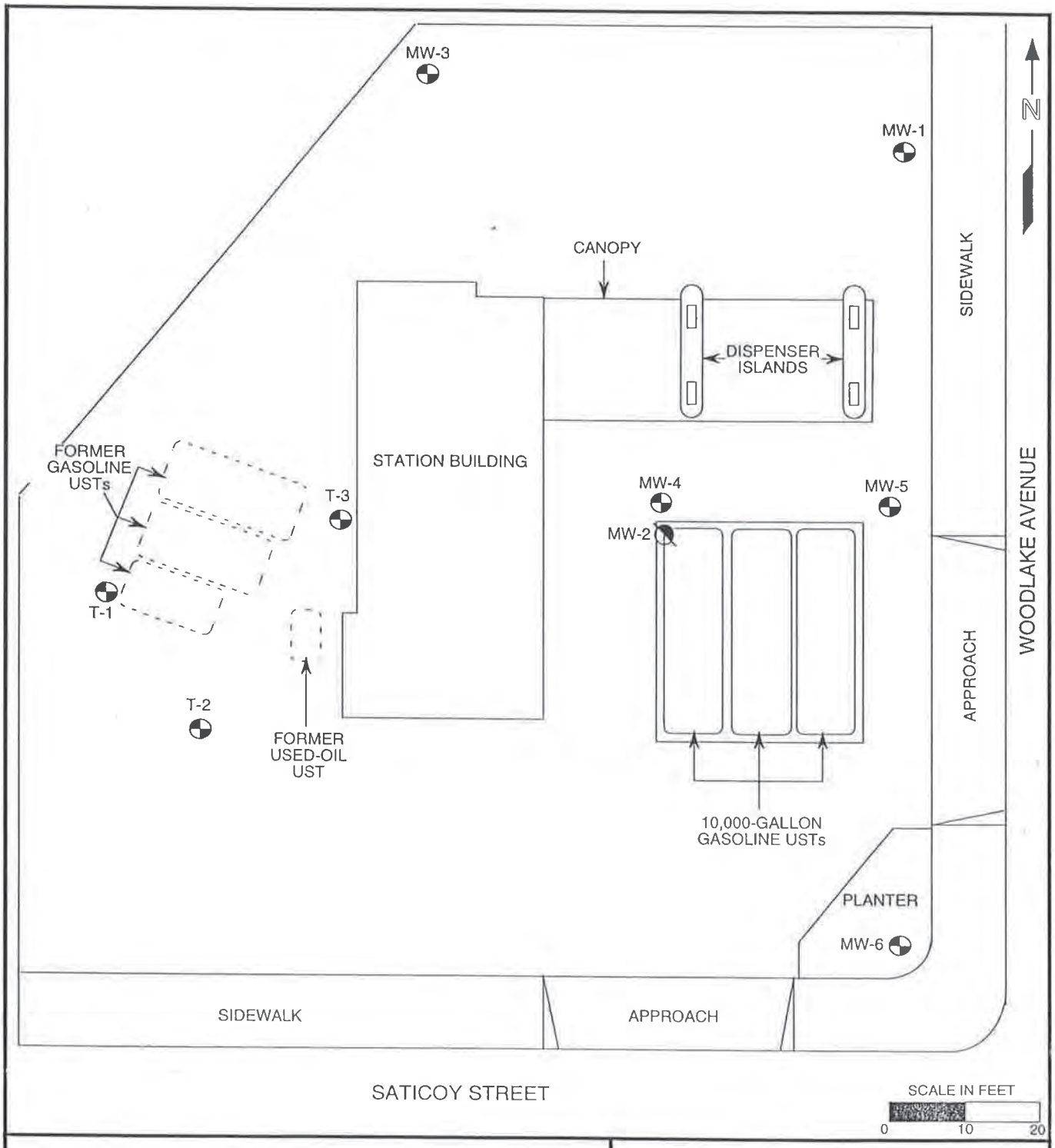
USGS CANOGA PARK AND CALABASAS 7.5 MINUTE SERIES QUADRANGLES

N

CHEVRON PRODUCTS COMPANY

SERVICE STATION #9-3113
7607 WOODLAKE AVENUE
WEST HILLS, CALIFORNIA
FIGURE 1 - SITE LOCATION MAP

HOLGUIN, FAHAN & ASSOCIATES, INC.



LEGEND	CHEVRON PRODUCTS COMPANY
GROUNDWATER MONITORING WELL ABANDONED GROUNDWATER MONITORING WELL	SERVICE STATION #9-3113 7607 WOODLAKE AVENUE WEST HILLS, CALIFORNIA FIGURE 2 - PLOT PLAN
	HOLGUIN, FAHAN & ASSOCIATES, INC.

REVISION DATE: FEBRUARY 3, 2000: PI

HFA's RESPONSES TO "COMMON SENSE" QUESTIONS

1. **Has a leaking tank or piping been documented as repaired or removed?**
   Three former gasoline USTs and one former used-oil UST were removed in December 1989. The dispensers were replaced in May 1998.

2. **If present, was petroleum-saturated soil in tank pit removed?**
   Petroleum-saturated soil was not encountered during UST removal or site assessment at the site.

3. **If free product was discovered, was it removed?**
   Free product has not been encountered at the site.

4. **Was any active remediation performed?**
   No.

5. **Were monitoring wells installed and has the plume been delineated?**
   Eight groundwater monitoring wells are located at the site. The extent of the adsorbed-phase hydrocarbon plume was evaluated and is contained within the station property boundaries. The dissolved-phase benzene plume has been delineated in the downgradient direction (monitoring well MW-1). Dissolved-phase hydrocarbon and MTBE concentrations have been decreasing since the initiation of groundwater monitoring in 1991.

6. **What do monitoring results and trends indicate?**
   Results of groundwater monitoring indicate a decreasing trend in the dissolved-phase hydrocarbon concentrations. The dissolved-phase hydrocarbon plume appears to be stable.

7. **What is the geology beneath the site?**
   Soil beneath the site consists of Quaternary alluvium consisting of silt and in the interval ranging in depth from approximately 6 inches below surface grade to 16 fbg. Siltstone of the Modelo Formation underlies the Quaternary alluvium in the interval ranging in depth from 16 to 45.5 fbg, the maximum depth investigated.

8. **If groundwater is involved, what is the direction of gradient?**
   During the most recent quarterly groundwater monitoring episode conducted on October 14, 1999, Blaine Technical Services, Inc., determined the direction of the groundwater gradient to be toward the northeast. This is consistent with the previously-measured flow direction for the site.

9. **What is the horizontal distance to the nearest groundwater well or surface water?**
According to the Los Angeles County Flood Control District, there are no groundwater production wells located within 1 mile of the site. The nearest well (well #3580C) is an observation well located approximately 1.25 miles southeast of the site near the intersection of Shoup Avenue and Bell Creek.

The nearest surface body of water is Chatsworth Creek, an ephemeral stream located approximately 2,500 feet east of the site. Chatsworth Creek flows into Bell Creek, another ephemeral stream, approximately 1 mile southeast of the site.

10. **What is the vertical distance between tank bottom and groundwater table?**
During a monitoring and sampling episode conducted on October 14, 1999, groundwater levels in monitoring wells MW-1, MW-3 through MW-6, and T-1 through T-3 ranged in depth from 18.07 to 19.40 fbg. The bottoms of tanks are generally at a depth of approximately 15 fbg; therefore, the bottoms of the tanks were 3 to 4 feet above groundwater.

11. **What are groundwater fluctuations (if any) at the site?**
Fluctuations in groundwater levels in monitoring wells MW-1, MW-3 through MW-6, and T-1 through T-3 have been as much as 8 feet since the initial monitoring conducted in 1991.

12. **If groundwater is impacted, does it (1) have any designated beneficial uses; (2) is it being used; and (3) what depth is it being drawn at?**
Groundwater beneath the site has been impacted by dissolved-phase hydrocarbons. (1) According to the Los Angeles Watermaster Service (May 1990), groundwater beneath the site is not utilized due to the presence of chlorinated solvents, which have been detected in groundwater throughout the San Fernando Valley. However, groundwater beneath the site does have potential uses; (2) No known production wells are located within 1 mile of the subject site; (3) Not applicable.

13. **If "soils only" case, is the plume contained by geology and will not impact groundwater due to vertical distance separation?**
Not applicable

14. **Has site closure been requested by the RP or their consultant?**
This letter is HFA's request for site closure.

State of California
Environmental Protection Agency

UNDERGROUND STORAGE TANK
CASE REVIEW FORM

Los Angeles Regional
Water Quality Control Board

Date: February 3, 2000	CRWQCB-LAR file no: 913040616	Case reviewer: Mr. Magdy Baiady	
Site name/address: Chevron Service Station #9-3113 7607 Woodlake Avenue West Hills, California	**Responsible parties:** Chevron Products Company Attention: Mr. Y.M. Tuan	**Address:** Post Office Box 2833 La Habra, California 90632-2833	**Phone no.:** (562) 694-9183

I. CASE INFORMATION (N/A = Not Applicable)

Tank No.	Size in Gallons	Contents	Closed in-place/Removed?	Date
1	7,000	Gasoline	Removed	12/89
2	6,000	Gasoline	Removed	12/89
3	3,000	Gasoline	Removed	12/89
4	550	Used-oil	Removed	12/89

II. SITE CHARACTERIZATION INFORMATION (GW = groundwater)

GW basin: San Fernando	**Beneficial uses:**	Mun/Ind/Agr	**Depth to drinking water aquifer:**	Unknown	
Distance to nearest municipal supply well:		>1 mile	**Distance between known shallow GW contamination and aquifer:**	N/A	
GW highest depth:	15.77	**GW lowest depth:** 25.31	**Screen intvl:** 10 to 35	**Flow Dirctn:**	NE
Soil type:	Sandy silt and silty clay overlying siltstone of Modelo Formation		**Maximum depth sampled:**	40 fbg	

III. MAXIMUM DOCUMENTED CONTAMINANT CONCENTRATIONS - Initial and Latest. -- = Not reported. ND = Not detected.

Contaminant	Soil (mg/kg)		Water (µg/l)		Contaminant	Soil (mg/kg)		Water (µg/l)	
	Initial	Latest 5/11/98	Initial	Latest 10/14/99		Initial	Latest 5/11/98	Initial	Latest 10/14/99
TPH (Gas)	9,730	ND	16,000	<500	Ethylbenzene	33.7	ND	1,300	9.0
TPH (Diesel)	NA	NA	NA	NA	Xylenes	252	ND	2,600	2.0
Benzene	9.18	ND	2,600	1.0	MTBE	--	0.11	360	42
Toluene	92.9	ND	1,600	1.0	Total Lead	--	--	--	--

IV. SOIL REMEDIATION

Method:	N/A	Duration of remediation:	N/A

V. GROUNDWATER REMEDIATION

Method:	N/A	Duration of remediation:	N/A

VI. FREE PRODUCT

Was free product encountered?	No	Has free product been totally recovered?	N/A
When was free product recovery project completed?	N/A		

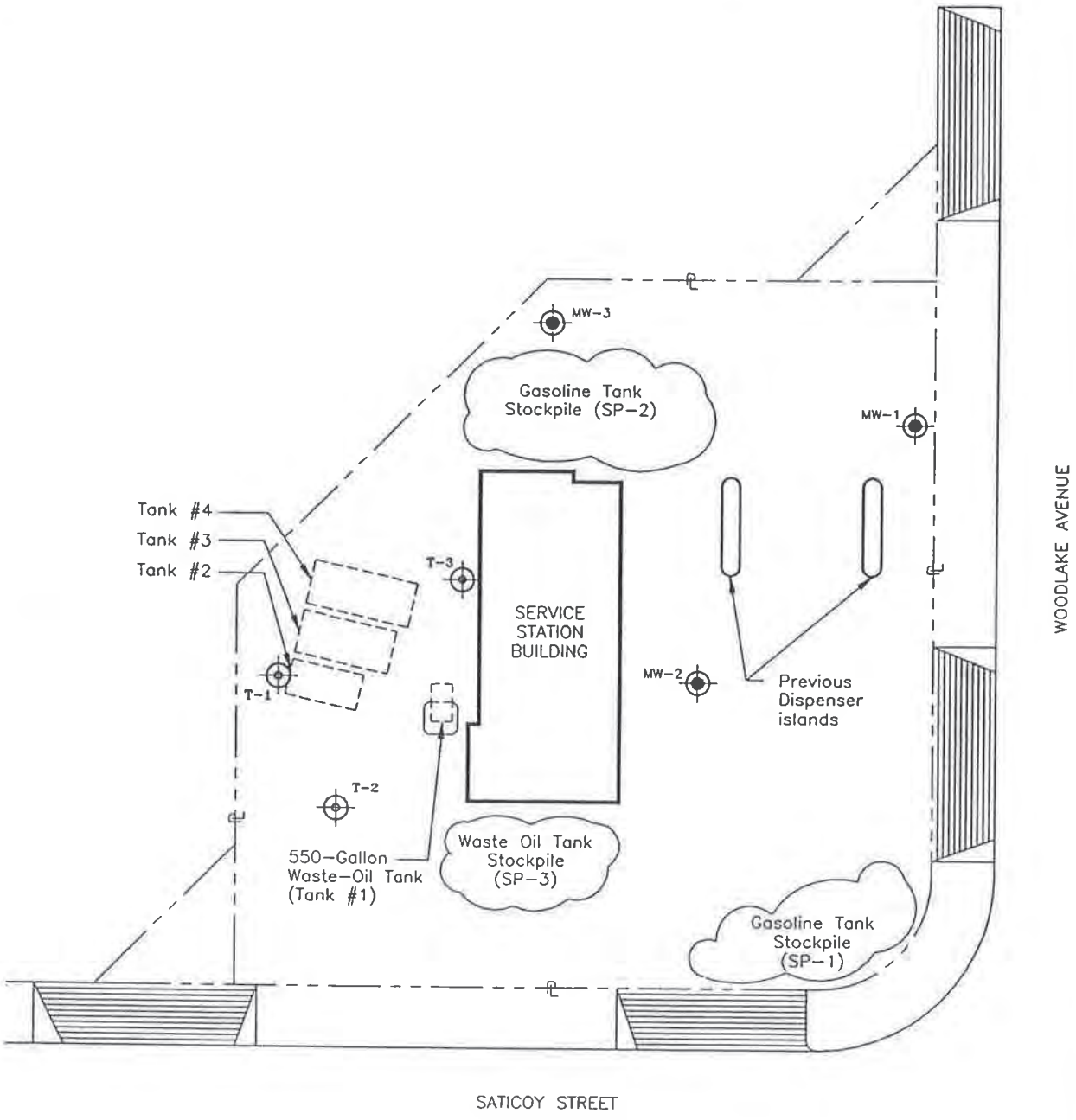
VII. RECOMMENDED ACTION

Soil Closure only:	Case Closure: X	Solvent Case:
Additional Action Required (i.e.: additional site assessment, remediation, monitoring):		

VIII. JUSTIFICATION FOR CLOSURE

Low risk groundwater contamination. No drinking water wells, aquifers, or surface water have been, or are likely to be, affected. The site has been adequately characterized, and the plume is stable. There has been a significant decrease in dissolved-phase hydrocarbon concentrations. USTs, product piping, and dispensers have been removed and replaced.

12\9611322\SITE



EXPLANATION

MW-1 HLA monitoring well

T-1 Previous monitoring well (by others)

N

Scale 0 15 30 feet

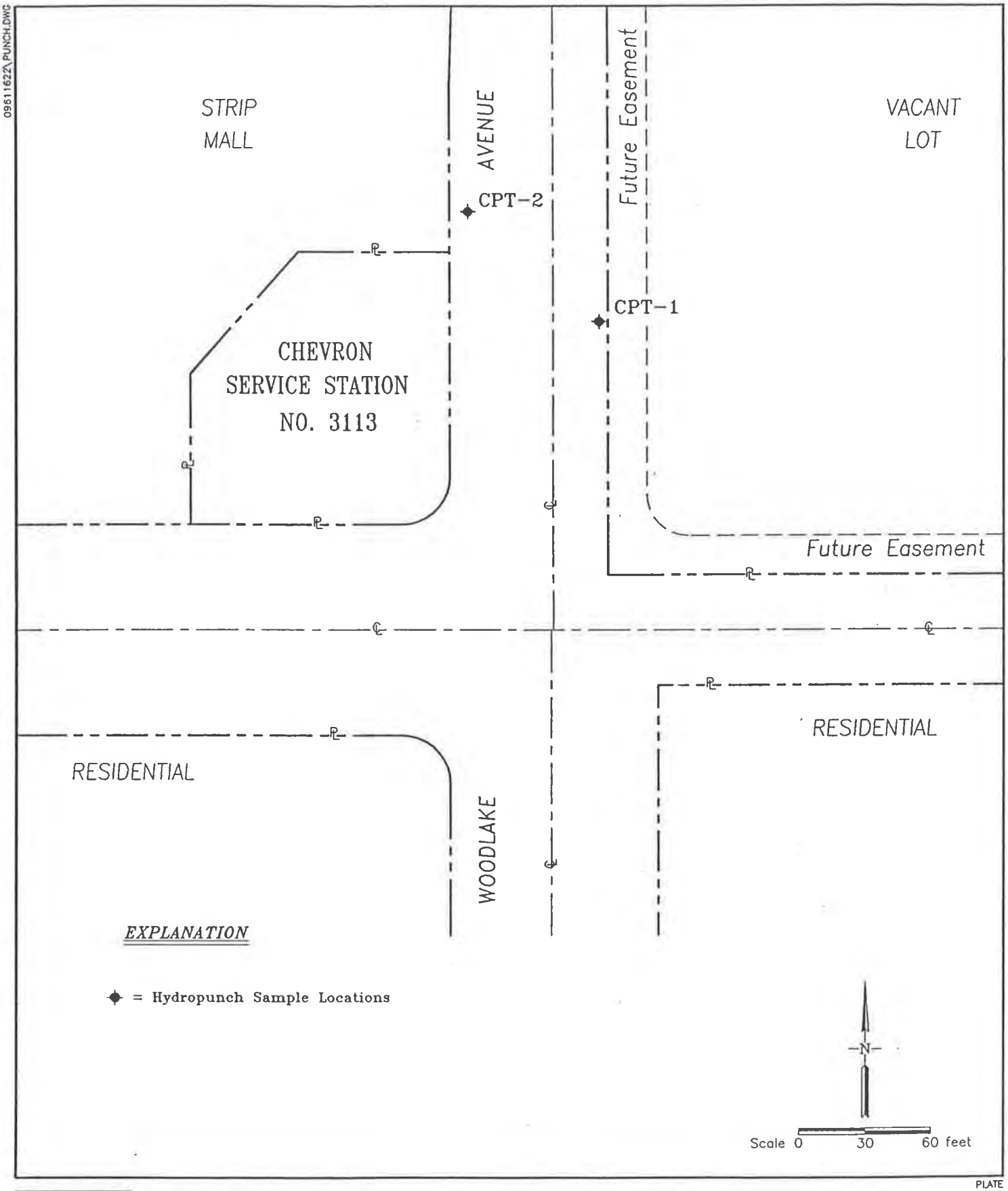
Reference: Ground and Grade Plan, S.S. No. 3113, Chevron U.S.A. Inc., 1987

Harding Lawson Associates
Engineers and Geoscientists

SITE PLAN
Chevron Service Station 3113
Canoga Park, California

PLATE 2

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED	DATE
DLS	9611,456.16		1/90		

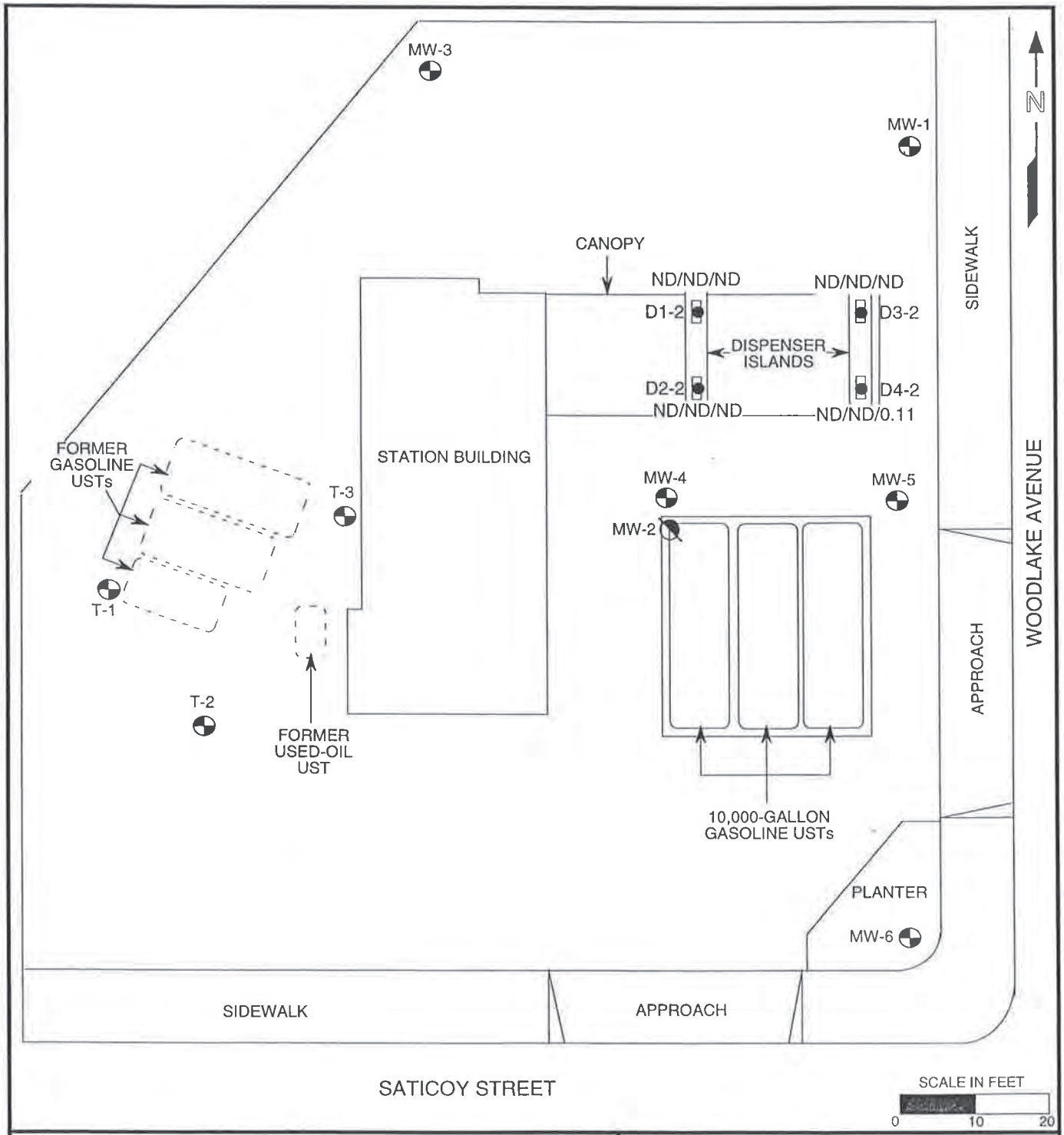


Harding Lawson Associates
Engineering and
Environmental Services

HYDROPUNCH SAMPLE LOCATIONS
Chevron Service Station No. 3113
Canoga Park, California

PLATE
6

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED DATE
JCM	9611,622.16	MAR	6/91	



LEGEND	CHEVRON PRODUCTS COMPANY
GROUNDWATER MONITORING WELL ABANDONED GROUNDWATER MONITORING WELL SOIL SAMPLE LOCATION #/#/# TPH AS GASOLINE/BENZENE/MTBE CONCENTRATIONS IN SOIL (mg/kg)	SERVICE STATION #9-3113 7607 WOODLAKE AVENUE WEST HILLS, CALIFORNIA PLOT PLAN SHOWING TPH AS GASOLINE/ BENZENE/MTBE CONCENTRATIONS IN DISPENSER ISLAND SAMPLES **HOLGUIN, FAHAN & ASSOCIATES, INC.**

REVISION DATE: FEBRUARY 3, 2000: PI

TABLE 1: SOIL SAMPLE ANALYSES

SITE ID	DATE ANALYZED	DEPTH BGS (FEET)	EPA METHOD	TPH	B	T	E	X
				---------	(mg/kg)			-------
T1-5	5-10-88	5	8015	<1.0				
T1-10	5-10-88	10	8015	<1.0				
T1-20	5-10-88	20	8015	<1.0				
	5-10-88		8020		ND	ND	ND	ND
T1-30	5-10-88	30	8015	<1.0				
T1-40	5-10-88	40	8015	<1.0				
T2-5	5-10-88	5	8015	<1.0				
T2-10	5-10-88	10	8015	<1.0				
T2-15	5-10-88	15	8015	<1.0				
T2-20	5-10-88	20	8015	<1.0				
	5-10-88		8020		ND	ND	ND	ND
T2-25	5-10-88	25	8015	<1.0				
T3-5	5-10-88	5	8015	24.3				
T3-10	5-10-88	10	8015	700				
T3-15	5-10-88	15	8015	481				
T3-20	5-10-88	20	8015	1070				
T3-23	5-10-88	23	8015	9730				
	5-10-88		8020		9.18	92.9	33.7	252
T3-25	5-10-88	25	8015	218				

NOTE: BGS = below ground surface
ND = non-detectable below accepted limits
mg/kg = milligrams per kilogram

TPH = total petroleum hydrocarbons
B = benzene
T = toluene
X = total xylenes
E = ethylbenzene

Soil analyses performed by GEOTEST of Long Beach, California.

Table 2. Soil Sample Analyses Summary

Gasoline tank excavation and dispenser island area:

Sample	Depth [1]	Total Petroleum Hydrocarbons (mg/kg) [2] Modified EPA 8015	EPA 8020 (mg/kg) Benzene	Toluene	Ethyl-benzene	Total Xylenes	Total Lead (mg/kg) EPA 7420
2E-1	11	<1[3]	<0.01	0.06	0.05	0.29	NA [4]
2W-1	12	<1	0.04	<0.01	<0.05	<0.05	NA
3E-1	12	<1	0.10	0.44	0.09	0.60	NA
3W-1	13	<1	0.15	0.08	0.05	0.33	5.6
4E-1	13	<1	0.20	0.64	0.10	1.0	NA
4W-1	13	<1	0.08	0.15	<0.05	0.34	NA
PL-1	1	<1	0.29	0.61	0.23	1.4	NA
PL-2	1	<1	0.04	<0.01	<0.05	0.15	NA

Waste oil tank excavation and stockpile:

Sample	Depth	Total Petroleum Hydrocarbons (mg/kg) EPA 418.1	PCBs (mg/kg) EPA 8080	Total Lead (mg/kg) EPA 7420
1A	8[1]	<10	NA	NA
SP-3	1[5]	900	<17	8.1

Notes:
1. feet below ground surface.
2. mg/kg = milligrams per kilogram.
3. < = constituent not detected at or above indicated laboratory detection limit.
4. NA = not analyzed.
5. feet below stockpile surface.

Table 3. Soil Sample Analysis Summary
(March 22-24, 1989 Sample Date)

Harding Lawson Associates

Boring	Depth (feet)	Total Petroleum Hydro-carbons (mg/kg)	Benzene (mg/kg)	Toulene (mg/kg)	Ethyl-benzene (mg/kg)	Xylenes (mg/kg)	Total BTEX (mg/kg)	Total Lead (mg/kg)	Flash-point (^{O}F)
MW-1	26	170	0.37	5.2	3.8	26	35	--	--
MW-2	8	<10	--	--	--	--	--	--	--
	19	240	0.36	5.3	6.2	42	54	--	--
MW-3	20	70	--	--	--	--	--	--	--
	22	120	0.16	1.8	1.8	11	15	--	--
	24	<10	--	--	--	--	--	--	--
Composite from bin	--	<10	<0.005	0.014	0.027	0.17	--	<80	>140

Notes:
1. Total Petroleum Hydrocarbons (TPH) analyzed by modified EPA Test Method 8015.
2. Benzene, Toluene, Ethylbenzene, and Xylene (BTEX) analyzed by EPA Test Method 8020.
3. Total Lead analyzed by EPA Test Method 7040.
4. Flashpoint measured by modified EPA Test Method 1010.
5. mg/kg = milligrams per kilogram.

Table 1. Sample Collection Data

Sample	Sample Date	Depth Below Ground Surface (feet)	PID [1]	Location
1A	01/02/90	8	3	Center, waste oil tank excavation
SP-3	01/02/90	1[2]	NR[3]	Waste oil tank stockpile
2E-1	01/02/90	11	150	East (turbine) end of Tank #2 (Regular)
3E-1	01/02/90	12	70	East (turbine) end of Tank #3 (Super Unleaded)
4E-1	01/02/90	13	20	East (turbine) end of Tank #4 (Unleaded)
2W-1	01/02/90	12	15	West (fill) end of Tank #2 (Regular)
3W-1	01/02/90	13	80	West (fill) end of Tank #3 (Super Unleaded)
4W-1	01/02/90	13	10	West (fill) end of Tank #4 (Unleaded)
PL-1	01/02/90	1	NR	North end of west dispenser island
PL-2	01/02/90	1	NR	South end of east dispenser island

Notes:
1. PID = Photoionization detector reading. PID calibrated to a benzene standard and equipped with a 10.2 electron volt lamp.
2. Depth below surface of stockpile.
3. NR = no PID reading taken.

Table 1. Summary of Laboratory Test Results - Soil

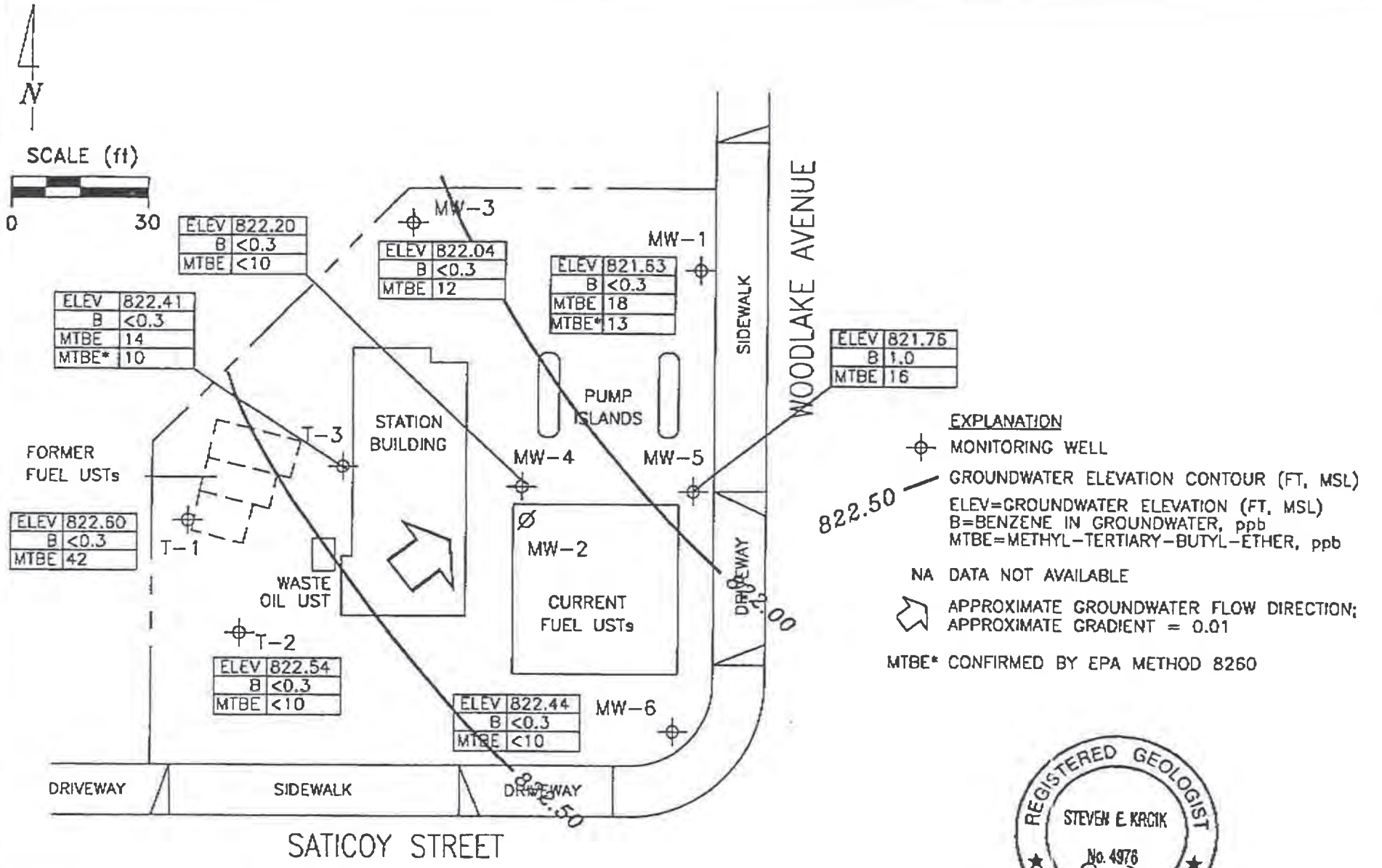
Sample ID		Date	Constituent Concentration (milligrams per kilogram)				
			EPA Test Method 8020				EPA Test Method 8015
Boring No.	Depth (feet)		Benzene	Toluene	Ethylbenzene	Xylenes	TPH (as gasoline)
MW-1	26	03/89	0.37	5.2	3.8	26	170
MW-2	8	03/89	NA	NA	NA	NA	<10
	19	03/89	0.36	5.3	6.2	42	240
MW-3	20	03/89	NA	NA	NA	NA	70
	22	03/89	0.16	1.8	1.8	11	120
	24	03/89	NA	NA	NA	NA	<10
MW-4	20	04/91	<0.5	0.64	1.5	4.3	120*
	25	04/91	<0.5	0.57	6.2	20	89*
MW-5	20	04/91	<2.5	23	18	10	600
	25	04/91	0.081	0.07	0.08	0.13	24
MW-6	25	04/91	<0.005	0.11	<0.005	<0.015	<1

Notes:
1. Samples from MW-1 through MW-3 were analyzed during previous field work.
2. NA = not analyzed.
3. < indicates constituent not detected at the reported detection limit.
4. * indicates higher boiling point hydrocarbon.

TABLE 1.
SUMMARY OF SOIL SAMPLE ANALYTICAL RESULTS
CHEVRON PRODUCTS COMPANY SERVICE STATION #9-3113

SAMPLE SOURCE	DATE SAMPLED	SAMPLE ID	TPH AS GASOLINE (mg/kg)	BENZENE (mg/kg)	TOLUENE (mg/kg)	ETHYL-BENZENE (mg/kg)	TOTAL XYLENES (mg/kg)	MTBE (mg/kg)	REF
EPA ANALYTICAL METHOD			8015 (M)	8020					N/A
METHOD REPORTING LIMIT			10	0.005	0.005	0.005	0.015	0.05	N/A
SP1	5-11-98	SP1-1	ND	ND	ND	ND	ND	ND	A
D1	5-12-98	D1-2	ND	ND	ND	ND	ND	ND	A
D2	5-12-98	D2-2	ND	ND	ND	ND	ND	ND	A
D3	5-12-98	D3-2	ND	ND	ND	ND	ND	ND	A
D4	5-12-98	D4-2	ND	ND	ND	ND	ND	0.11	A

REF = Report Reference. N/A = Not applicable. ND = Not detected.
A = Holguin, Fahan & Associates, Inc.'s, current report.



Ref. 3113-gm.dwg
Basemap from Holguin, Fahan & Associates, Inc.

REGISTERED GEOLOGIST
STEVEN E. KROIK
No. 4976
9-00
STATE OF CALIFORNIA

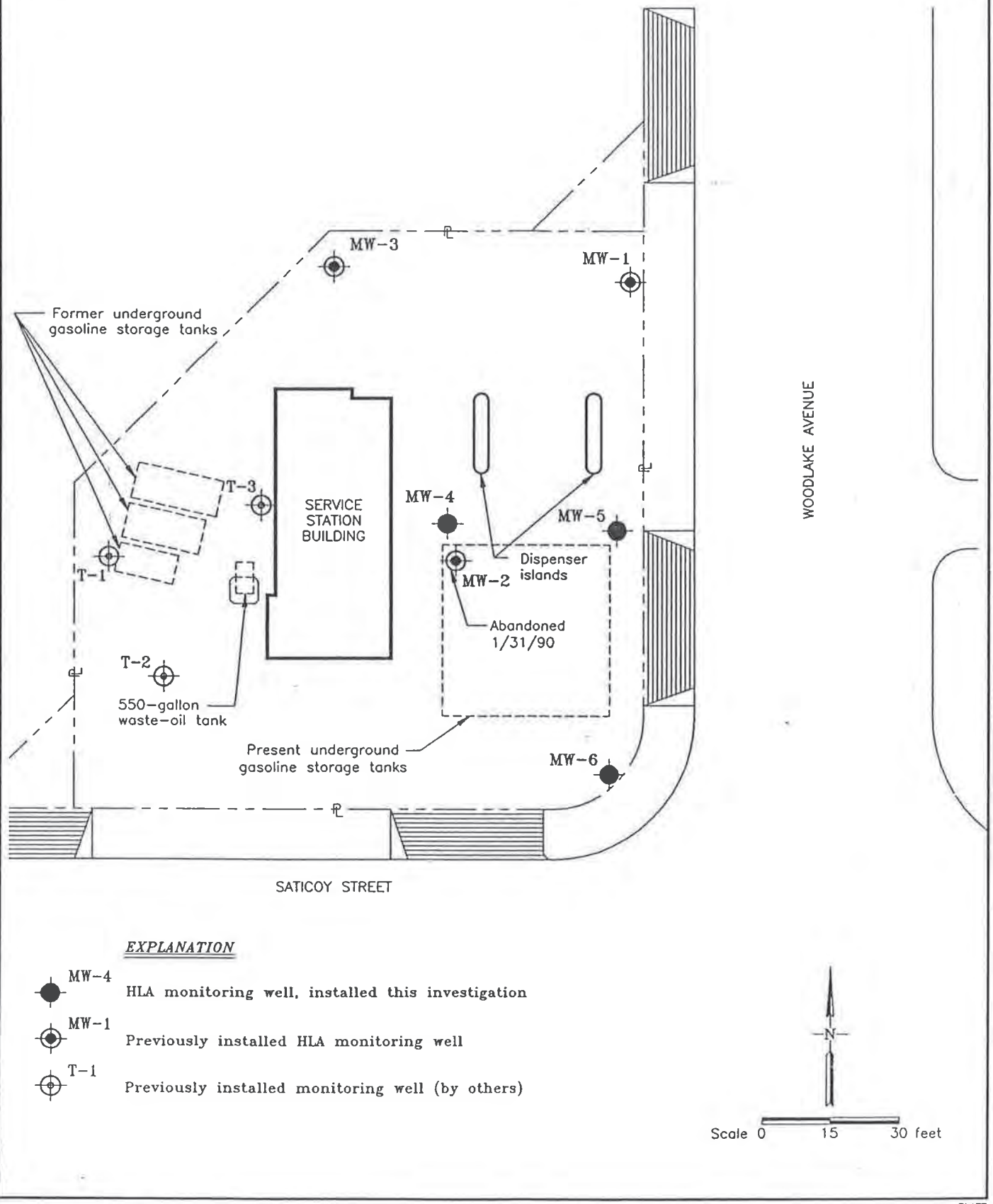
PREPARED BY
RRM
engineering contracting firm

Chevron Station 9-3113
7607 Woodlake Avenue
West Hills, California

GROUNDWATER MONITORING MAP, OCTOBER 14, 1999

FIGURE: **3**
PROJECT: DAC04

09611622\SITE-2.DWG

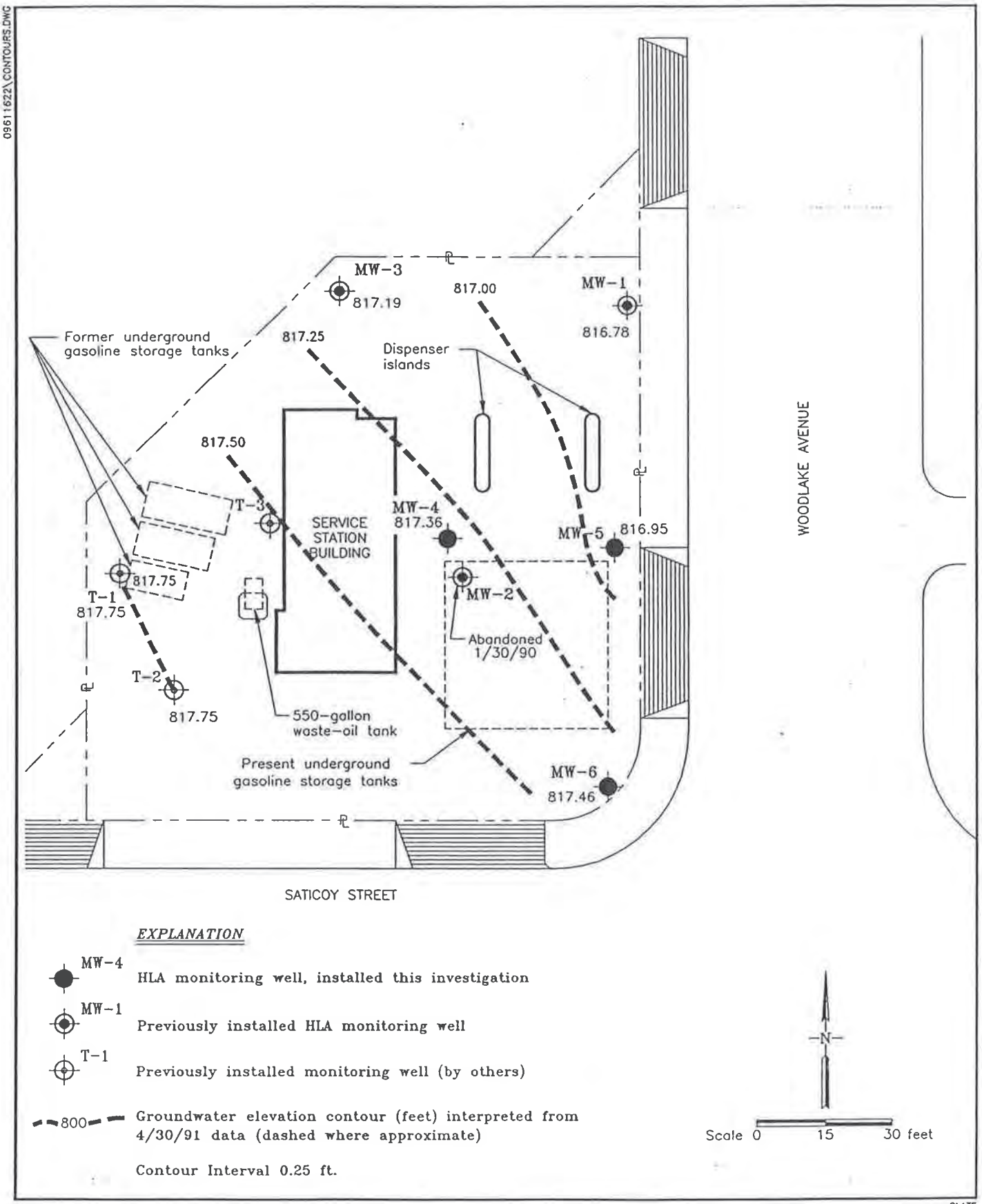


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Engineers and
Environmental Services

SITE PLAN
Chevron Service Station No. 3113
Canoga Park, California

PLATE 2

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED DATE
JCM	09611,622.16	MR	6/91	



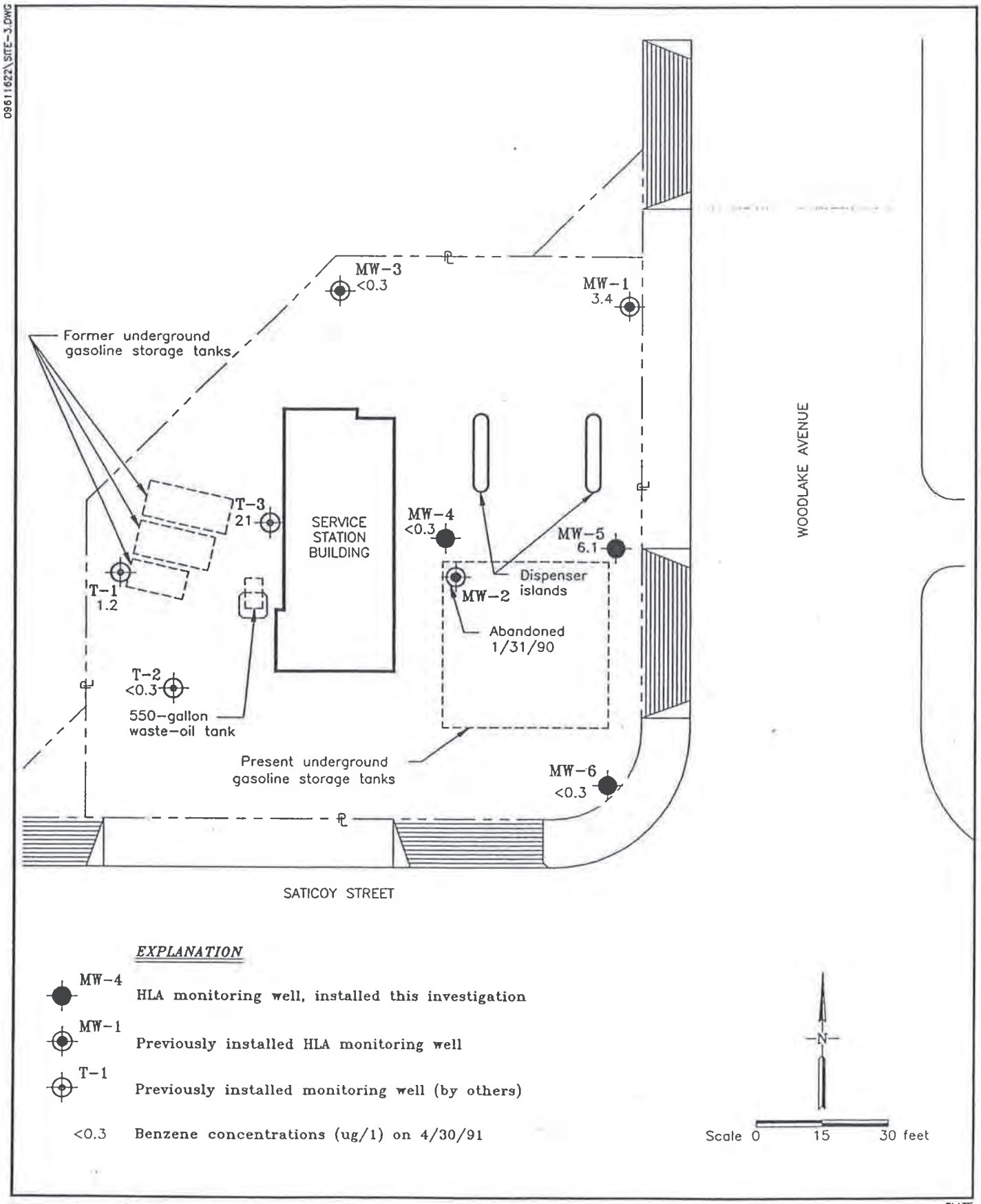
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Environmental Services

INTERPRETED GROUNDWATER ELEVATION CONTOUR MAP

Chevron Service Station No. 3113
Canoga Park, California

PLATE 3

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED DATE
JCM	09611,622.16	MAR	6/91	



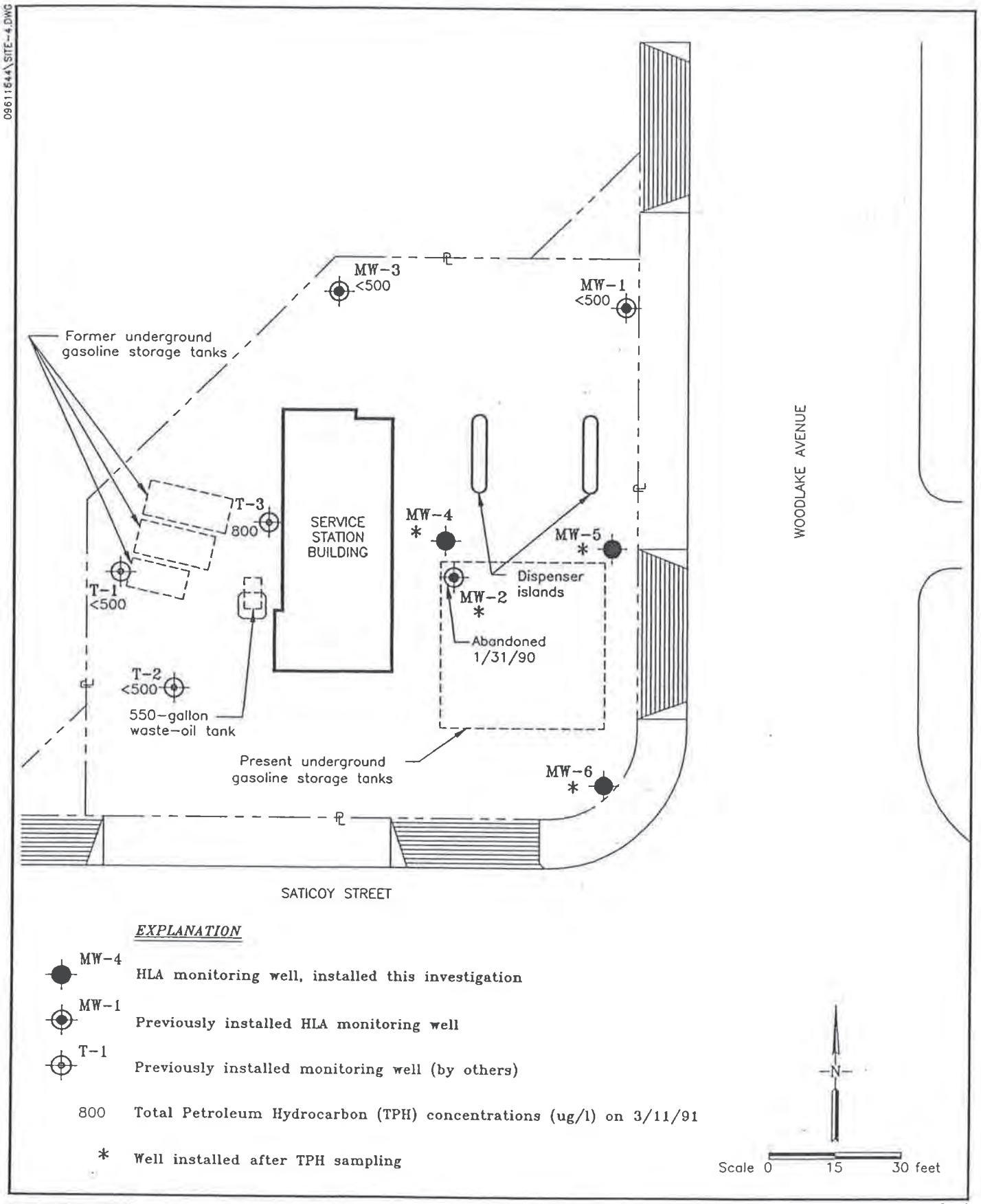
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Environmental Services

BENZENE CONCENTRATION DISTRIBUTION MAP

Chevron Service Station No. 3113
Canoga Park, California

PLATE 4

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED DATE
JCM	09611,622.16	MAR	6/91	



Harding Lawson Associates
Engineers and
Environmental Services

TPH CONCENTRATION DISTRIBUTION MAP
Chevron Service Station No. 3113
Canoga Park, California

PLATE 5

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED DATE
JCM	09611,622.16	MAR	6/91	

Table 1: Current Water Level Data and Analytical Results

	Vertical Measurements are in feet.					Analytical results are in parts per billion (ppb)					
WELL ID	DATE	Well Head Elev.	Ground Water Elev.	Depth To Water	Notes	TPH-Gasoline	Benzene	Toluene	Ethyl-Benzene	Xylene	MTBE
MW-1	10/14/99	840.83	821.63	19.20	--	18*	<0.3	<0.3	<0.3	<0.6	18
MW-1	10/14/99	840.83	821.63	19.20	Confirmation run	--	--	--	--	--	13
MW-3	10/14/99	841.44	822.04	19.40	--	12*	<0.3	1.0	<0.3	2.0	12
MW-4	10/14/99	841.26	822.20	19.06	--	<500	<0.3	<0.3	<0.3	<0.6	<10
MW-5	10/14/99	840.96	821.76	19.20	--	16*	1.0	1.0	9.0	2.0	16
MW-6	10/14/99	840.51	822.44	18.07	--	<500	<0.3	<0.3	<0.3	<0.6	<10
T-1	10/14/99	841.17	822.60	18.57	--	42*	<0.3	<0.3	<0.3	<0.6	42
T-2	10/14/99	841.28	822.54	18.74	--	<500	<0.3	<0.3	<0.3	<0.6	<10
T-3	10/14/99	841.72	822.41	19.31	--	<500	<0.3	<0.3	<0.3	2.0	14
T-3	10/14/99	841.72	822.41	19.31	Confirmation run	--	--	--	--	--	10

* MTBE included in gasoline result.

Cumulative Table of Well Data and Analytical Results

Vertical Measurements are in feet. Analytical results are in parts per billion (ppb)

DATE	Well Head Elev.	Ground Water Elev.	Depth To Water	Notes	TPH-Gasoline	Benzene	Toluene	Ethyl-Benzene	Xylene	MTBE
MW-1										
03/28/89	840.83	819.12	21.71	--	--	9.0	ND	0.3	180	--
04/11/89	840.83	819.15	21.68	--	--	--	--	--	--	--
03/11/91	840.83	816.24	24.59	--	ND	1.4	1.2	0.4	1.9	--
04/30/91	840.83	816.78	24.05	--	--	3.4	ND	1.0	ND	--
08/20/92	840.83	818.54	22.29	--	5000	230	50	200	97	--
10/12/92	840.83	817.23	23.60	--	640	200	26	70	130	--
01/05/93	840.83	816.01	24.82	--	570	140	51	39	50	--
04/05/93	840.83	821.93	18.90	--	1400	370	22	200	130	--
09/09/93	840.83	821.38	19.45	--	2700	690	110	540	450	--
11/16/93	840.83	820.92	19.91	--	16,000	2600	1600	1300	2600	--
02/23/94	840.83	820.73	20.10	--	5.7	1000	470	710	980	--
03/19/94	840.83	820.50	20.33	--	--	--	--	--	--	--
04/27/94	840.83	820.80	20.03	--	9100	1200	720	850	990	--
08/17/94	840.83	820.38	20.45	--	7500	720	460	330	670	--
11/14/94	840.83	819.73	21.10	--	730	80	63	41	86	--
03/02/95	840.83	821.88	18.95	--	230	25	41	16	41	--
05/18/95	840.83	822.83	18.00	--	330	31	41	19	41	--
08/22/95	840.83	822.18	18.65	--	ND	ND	ND	ND	ND	--
11/13/95	840.83	821.48	19.35	--	ND	ND	ND	ND	ND	--
02/13/96	840.83	821.18	19.65	--	ND	7.0	2.3	19	8.3	--
05/02/96	840.83	822.93	17.90	--	ND	1.0	26	0.5	3.5	--
07/16/96	840.83	821.31	19.52	--	54	7.0	ND	4.2	6.6	--
10/24/96	840.83	820.48	20.35	--	ND	8.6	ND	0.7	0.9	--
02/03/97	840.83	821.64	19.19	--	ND	1.2	29	ND	1.5	--
04/15/97	840.83	815.78	25.05	--	ND	1.1	7.4	ND	ND	33
07/02/97	840.83	--	--	--	--	--	--	--	--	21
07/02/97	840.83	821.28	19.55	--	ND	3.2	ND	1.2	1.0	20
10/03/97	840.83	--	--	--	--	--	--	--	--	ND
10/03/97	840.83	820.43	20.40	--	ND	0.4	ND	ND	ND	4.1
10/03/97	840.83	--	--	--	ND	0.4	ND	ND	ND	3.9
01/13/98	840.83	--	--	--	--	--	--	--	--	ND
01/13/98	840.83	820.54	20.29	--	ND	ND	ND	ND	940	ND
04/10/98	840.83	--	--	--	--	--	--	--	--	11
04/10/98	840.83	824.19	16.64	--	<50	0.6	3.2	<0.6	0.8	4.9

CONTINUED ON NEXT PAGE

Cumulative Table of Well Data and Analytical Results

Vertical Measurements are in feet. Analytical results are in parts per billion (ppb)

DATE	Well Head Elev.	Ground Water Elev.	Depth To Water	Notes	TPH-Gasoline	Benzene	Toluene	Ethyl-Benzene	Xylene	MTBE
MW-1 (CONT'D)										
07/10/98	840.83	--	--	--	--	--	--	--	--	9.1
07/10/98	840.83	824.28	16.55	--	<50	2.6	4.8	1.9	2.2	8.1
10/15/98	840.83	823.12	17.71	--	<500	4.0	3.0	<0.3	14	13
10/15/98	840.83	823.12	17.71	Confirmation run	--	--	--	--	--	16
01/21/99	840.83	822.69	18.14	--	<500	1.8	0.9	0.8	4.4	<10
04/13/99	840.83	822.71	18.12	--	<500	<0.3	<0.3	<0.3	<0.6	<10
07/22/99	840.83	822.36	18.47	--	<500	<0.3	<0.3	<0.3	<0.6	<10
10/14/99	840.83	821.63	19.20	--	18*	<0.3	<0.3	<0.3	<0.6	18
10/14/99	840.83	821.63	19.20	Confirmation run	--	--	--	--	--	13

* MTBE included in gasoline result.

Cumulative Table of Well Data and Analytical Results

Vertical Measurements are in feet. Analytical results are in parts per billion (ppb)

DATE	Well Head Elev.	Ground Water Elev.	Depth To Water	Notes	TPH-Gasoline	Benzene	Toluene	Ethyl-Benzene	Xylene	MTBE
MW-2										
03/27/85	--	--	21.83	--	--	50	6.0	3.0	190	--
NO LONGER MONITORED OR SAMPLED										
MW-3										
04/11/89	841.44	819.69	21.75	--	--	--	--	--	--	--
03/11/91	841.44	816.61	24.83	--	ND	ND	ND	ND	ND	--
04/30/91	841.44	817.19	24.25	--	--	ND	ND	ND	ND	--
08/20/92	841.44	818.97	22.47	--	ND	1.9	ND	0.9	1.9	--
10/12/92	841.44	818.48	22.96	--	ND	0.7	0.8	ND	0.9	--
01/05/93	841.44	818.24	23.20	--	ND	ND	ND	ND	ND	--
04/05/93	841.44	822.34	19.10	--	ND	3.7	1.3	0.7	6.2	--
09/09/93	841.44	821.83	19.61	--	ND	9.0	14	11	40	--
11/16/93	841.44	821.36	20.08	--	ND	14	32	16	89	--
02/23/94	841.44	821.10	20.34	--	ND	8.6	24	12	61	--
03/19/94	841.44	821.30	20.14	--	--	--	--	--	--	--
04/27/94	841.44	821.46	19.98	--	1600	77	140	73	260	--
08/17/94	841.44	820.84	20.60	--	320	14	25	15	73	--
11/14/94	841.44	820.34	21.10	--	330	12	24	14	76	--
03/02/95	841.44	822.49	18.95	--	1300	53	110	61	300	--
08/22/95	841.44	822.64	18.80	--	4400	720	190	350	580	--
11/13/95	841.44	821.89	19.55	--	1400	75	35	100	200	--
02/13/96	841.44	821.64	19.80	--	680	107	8.5	75	194	--
05/02/96	841.44	822.49	18.95	--	ND	0.6	2.0	0.5	4.0	--
07/16/96	841.44	821.56	19.88	--	280	19	4.8	3.1	80	--
10/24/96	841.44	820.90	20.54	--	50	6.4	0.5	2.9	7.8	--
02/03/97	841.44	822.05	19.39	--	150	11	2.6	12	39	--
04/15/97	841.44	822.28	19.16	--	330	19	2.4	21	67	2.2
07/02/97	841.44	821.64	19.80	--	1100	57	4.8	64	190	5.0
10/03/97	841.44	820.64	20.80	--	12,000	650	37	990	2600	46
01/13/98	841.44	820.86	20.58	--	280	11	0.5	13	35	ND
01/13/98	841.44	--	--	--	180	7.8	0.4	8.7	23	2.1
04/10/98	841.44	824.59	16.85	--	360	18	3.0	22	45	1.2
05/18/98	841.44	823.29	18.15	--	970	36	74	41	220	--

CONTINUED ON NEXT PAGE

Cumulative Table of Well Data and Analytical Results

Vertical Measurements are in feet. Analytical results are in parts per billion (ppb)

DATE	Well Head Elev.	Ground Water Elev.	Depth To Water	Notes	TPH-Gasoline	Benzene	Toluene	Ethyl-Benzene	Xylene	MTBE
MW-3 (CONT'D)										
07/10/98	841.44	824.74	16.70	--	780	44	2.6	51	140	4.1
10/15/98	841.44	823.56	17.88	--	2220	892	40	912	2120	74
01/21/99	841.44	823.11	18.33	--	570	11	0.8	12	30	<10
04/13/99	841.44	823.17	18.27	--	997	58.5	<1.5	34.3	155	<50
07/22/99	841.44	822.69	18.75	--	327	15	<0.3	19	47	<10
10/14/99	841.44	822.04	19.40	--	12*	<0.3	1.0	<0.3	2.0	12

* MTBE included in gasoline result.

Cumulative Table of Well Data and Analytical Results

Vertical Measurements are in feet. Analytical results are in parts per billion (ppb)

DATE	Well Head Elev.	Ground Water Elev.	Depth To Water	Notes	TPH-Gasoline	Benzene	Toluene	Ethyl-Benzene	Xylene	MTBE
MW-4										
04/30/91	841.26	817.36	23.90	--	--	ND	ND	ND	ND	--
08/20/92	841.26	819.11	22.15	--	ND	9.0	ND	9.4	19	--
10/12/92	841.26	818.54	22.72	--	ND	2.3	4.4	2.7	8.3	--
01/05/93	841.26	818.39	22.87	--	ND	19	1.6	6.6	15	--
04/05/93	841.26	822.56	18.70	--	ND	14	1.5	3.1	6.5	--
09/09/93	841.26	821.90	19.36	--	ND	ND	ND	0.5	ND	--
11/16/93	841.26	821.47	19.79	--	ND	0.5	0.6	1.23	1.8	--
02/23/94	841.26	821.31	19.95	--	ND	ND	ND	ND	ND	--
03/19/94	841.26	821.47	19.79	--	--	--	--	--	--	--
04/27/94	841.26	821.64	19.62	--	ND	ND	ND	ND	ND	--
08/17/94	841.26	820.96	20.30	--	ND	ND	ND	ND	2.8	--
11/14/94	841.26	820.31	20.95	--	ND	ND	ND	ND	ND	--
03/02/95	841.26	822.66	18.60	--	ND	ND	ND	ND	ND	--
05/18/95	841.26	823.48	17.78	--	ND	ND	ND	ND	ND	--
08/22/95	841.26	822.82	18.44	--	ND	ND	ND	ND	ND	--
11/13/95	841.26	822.11	19.15	--	ND	ND	ND	ND	ND	--
02/13/96	841.26	821.78	19.48	--	ND	ND	0.5	ND	ND	--
05/02/96	841.26	822.66	18.60	--	ND	0.9	2.5	0.7	4.4	--
07/16/96	841.26	821.93	19.33	--	ND	ND	0.64	ND	ND	--
10/24/96	841.26	821.03	20.23	--	ND	--	ND	ND	ND	--
02/03/97	841.26	822.33	18.93	--	ND	ND	0.4	ND	ND	--
04/15/97	841.26	815.95	25.31	--	ND	ND	ND	ND	ND	2.1
07/02/97	841.26	821.81	19.45	--	ND	ND	ND	ND	ND	2.3
10/03/97	841.26	821.76	19.50	--	ND	ND	ND	ND	ND	1.6
01/13/98	841.26	820.98	20.28	--	ND	ND	ND	ND	ND	ND
04/10/98	841.26	824.90	16.36	--	<50	<0.3	<0.3	<0.6	<0.6	1.3
07/10/98	841.26	824.93	16.33	--	<50	<0.3	<0.3	<0.6	<0.6	2.3
10/15/98	841.26	823.74	17.52	--	<500	2.0	0.4	4.0	15	9.0
01/21/99	841.26	823.26	18.00	--	611	2.3	1.3	33	86	<20
04/13/99	841.26	823.28	17.98	--	<500	<0.3	<0.3	<0.3	<0.6	<10
07/22/99	841.26	822.75	18.51	--	<500	<0.3	<0.3	<0.3	<0.6	<10
10/14/99	841.26	822.20	19.06	--	<500	<0.3	<0.3	<0.3	<0.6	<10

Cumulative Table of Well Data and Analytical Results

Vertical Measurements are in feet. Analytical results are in parts per billion (ppb)

DATE	Well Head Elev.	Ground Water Elev.	Depth To Water	Notes	TPH-Gasoline	Benzene	Toluene	Ethyl-Benzene	Xylene	MTBE
MW-5										
04/30/91	840.96	816.95	24.01	--	--	6.1	ND	ND	7.3	--
08/20/92	840.96	818.71	22.25	--	1800	180	130	140	270	--
10/12/92	840.96	818.15	22.81	--	900	170	130	86	170	--
01/05/93	840.96	817.99	22.97	--	1400	140	120	41	190	--
04/05/93	840.96	822.16	18.80	--	560	64	5.8	63	63	--
09/09/93	840.96	821.52	19.44	--	ND	25	1.2	33	23	--
11/16/93	840.96	821.04	19.92	--	ND	27	1.2	45	39	--
02/23/94	840.96	820.81	20.15	--	ND	19	1.4	31	30	--
03/19/94	840.96	821.00	19.96	--	--	--	--	--	--	--
04/27/94	840.96	821.13	19.83	--	300	13	0.48	35	22	--
08/17/94	840.96	820.46	20.50	--	190	6.3	ND	15	14	--
11/14/94	840.96	819.86	21.10	--	470	12	2.1	21	19	--
03/02/95	840.96	822.18	18.78	--	840	36	3.6	77	74	--
05/18/95	840.96	822.98	17.98	--	420	20	1.4	40	43	--
08/22/95	840.96	822.46	18.50	--	690	50	1.0	140	40	--
11/13/95	840.96	821.84	19.12	--	ND	7.0	2.0	10	20	--
02/13/96	840.96	821.36	19.60	--	ND	0.5	ND	0.5	0.7	--
05/02/96	840.96	822.36	18.60	--	ND	3.0	6.0	1.0	5.0	--
07/16/96	840.96	821.60	19.36	--	330	24	0.78	45	18	--
10/24/96	840.96	820.61	20.35	--	130	9.4	0.5	17	3.0	--
02/03/97	840.96	821.84	19.12	--	110	4.3	0.9	18	5.0	--
02/03/97	840.96	--	--	--	130	5.0	0.8	19	5.6	--
04/15/97	840.96	821.98	18.98	--	170	5.0	0.6	21	5.2	10
07/02/97	840.96	821.41	19.55	--	310	9.8	0.9	33	14	39
10/03/97	840.96	820.26	20.70	--	ND	0.6	ND	ND	ND	360
01/13/98	840.96	820.61	20.35	--	ND	0.4	ND	ND	ND	66
04/10/98	840.96	824.68	16.28	--	500	19	0.4	58	32	45
07/10/98	840.96	824.57	16.39	--	570	24	0.6	54	28	64
10/15/98	840.96	823.33	17.63	--	<500	8.0	0.5	29	13	35
01/21/99	840.96	822.96	18.00	--	<500	<0.3	<0.3	<0.3	<0.6	<10
04/13/99	840.96	822.94	18.02	--	<500	<0.3	<0.3	<0.3	<0.6	16.8
07/22/99	840.96	822.69	18.27	--	628*	7.8	1.1	40	7.3	94
10/14/99	840.96	821.76	19.20	--	16*	1.0	1.0	9.0	2.0	16

* MTBE included in gasoline result.

Cumulative Table of Well Data and Analytical Results

Vertical Measurements are in feet. Analytical results are in parts per billion (ppb)

DATE	Well Head Elev.	Ground Water Elev.	Depth To Water	Notes	TPH-Gasoline	Benzene	Toluene	Ethyl-Benzene	Xylene	MTBE
MW-6										
04/30/91	840.51	817.46	23.05	--	--	ND	ND	ND	ND	--
08/20/92	840.51	819.14	21.37	--	ND	ND	ND	ND	ND	--
10/12/92	840.51	818.58	21.93	--	ND	1.3	3.2	2.2	5.7	--
01/05/93	840.51	818.51	22.00	--	ND	ND	ND	ND	ND	--
04/05/93	840.51	822.91	17.60	--	ND	ND	ND	ND	ND	--
09/09/93	840.51	821.94	18.57	--	ND	ND	ND	ND	ND	--
11/16/93	840.51	821.41	19.10	--	ND	ND	ND	ND	ND	--
02/23/94	840.51	821.42	19.09	--	ND	ND	ND	ND	ND	--
03/19/94	840.51	821.52	18.99	--	--	--	--	--	--	--
04/27/94	840.51	821.63	18.88	--	ND	ND	ND	ND	ND	--
10/24/96	840.51	--	--	Dry	--	--	--	--	--	--
02/03/97	840.51	--	--	Dry	--	--	--	--	--	--
04/15/97	840.51	--	--	--	--	--	--	--	--	--
07/02/97	840.51	--	--	Dry	--	--	--	--	--	--
10/03/97	840.51	--	--	Dry	--	--	--	--	--	--
01/13/98	840.51	--	--	Dry	--	--	--	--	--	--
04/10/98	840.51	--	--	--	--	--	--	--	--	--
07/10/98	840.51	--	--	Dry	--	--	--	--	--	--
10/15/98	840.51	823.89	16.62	--	<500	<0.3	<0.3	0.7	<0.6	<10
01/21/99	840.51	--	--	Inaccessible	--	--	--	--	--	--
04/13/99	840.51	823.65	16.86	--	<500	<0.3	<0.3	<0.3	<0.6	<10
07/22/99	840.51	823.51	17.00	--	<500	<0.3	<0.3	<0.3	<0.6	<10
10/14/99	840.51	822.44	18.07	--	<500	<0.3	<0.3	<0.3	<0.6	<10

Cumulative Table of Well Data and Analytical Results

Vertical Measurements are in feet. Analytical results are in parts per billion (ppb)

DATE	Well Head Elev.	Ground Water Elev.	Depth To Water	Notes	TPH-Gasoline	Benzene	Toluene	Ethyl-Benzene	Xylene	MTBE
T-1										
12/13/88	841.17	819.49	21.68	--	406	79.7	5.62	11.2	16	--
03/28/89	841.17	820.07	21.10	--	--	ND	ND	ND	--	--
04/11/89	841.17	820.07	21.10	--	--	--	--	--	--	--
04/30/91	841.17	817.75	23.42	--	--	1.2	ND	ND	ND	--
08/20/92	841.17	819.47	21.70	--	1100	140	12	130	280	--
10/12/92	841.17	818.91	22.26	--	ND	73	9.3	35	15	--
01/05/93	841.17	818.82	22.35	--	ND	6.6	ND	13	16	--
03/11/93	841.17	817.18	23.99	--	ND	12	4.4	3.5	20	--
04/05/93	841.17	823.05	18.12	--	590	61	1.7	58	58	--
09/09/93	841.17	822.35	18.82	--	860	110	ND	150	110	--
11/16/93	841.17	821.85	19.32	--	740	72	0.6	98	28	--
02/23/94	841.17	821.82	19.35	--	630	50	ND	68	58	--
03/19/94	841.17	822.00	19.17	--	--	--	--	--	--	--
04/27/94	841.17	822.08	19.09	--	830	43	ND	65	30	--
08/17/94	841.17	821.37	19.80	--	920	59	ND	48	63	--
11/14/94	841.17	820.73	20.44	--	860	45	ND	25	39	--
03/02/95	841.17	823.07	18.10	--	770	48	0.83	48	92	--
05/18/95	841.17	823.87	17.30	--	1900	86	1.0	120	220	--
08/22/95	841.17	823.27	17.90	--	ND	20	ND	15	10	--
11/13/95	841.17	822.47	18.70	--	1600	30	3.0	50	30	--
02/13/96	841.17	822.27	18.90	--	ND	1.4	0.6	0.7	ND	--
05/02/96	841.17	823.12	18.05	--	ND	37	3.0	18	12	--
07/16/96	841.17	822.32	18.85	--	430	70	2.2	6.2	8.5	--
10/24/96	841.17	820.41	20.76	--	ND	2.6	ND	ND	ND	--
02/03/97	841.17	822.76	18.41	--	80	4.9	0.8	6.8	11	--
04/15/97	841.17	822.85	18.32	--	150	6.0	0.6	9.0	11	4.6
07/02/97	841 17	822.27	18.90	--	160	8.1	0.9	9.0	9.0	8.2
10/03/97	841.17	821.07	20.10	--	190	9.4	0.5	2.8	3.8	42
01/13/98	841.17	821.46	19.71	--	110	1.7	0.3	0.8	1.9	3.2
04/10/98	841.17	825.38	15.79	--	1300	27	0.6	94	110	3.3
07/10/98	841.17	825.33	15.84	--	1100	28	0.9	86	83	8.5
10/15/98	841.17	824.13	17.04	--	<500	36	2.0	46	36	63
01/21/99	841.17	823.70	17.47	--	<500	1.8	0.9	2.1	3.5	<10
04/13/99	841.17	823.73	17.44	--	<500	<0.3	<0.3	<0.3	<0.6	<10
07/22/99	841.17	823.12	18.05	--	<500	<0.3	<0.3	<0.3	<0.6	<10
10/14/99	841.17	822.60	18.57	--	42*	<0.3	<0.3	<0.3	<0.6	42

* MTBE included in gasoline result.

Cumulative Table of Well Data and Analytical Results

Vertical Measurements are in feet. Analytical results are in parts per billion (ppb)

DATE	Well Head Elev.	Ground Water Elev.	Depth To Water	Notes	TPH-Gasoline	Benzene	Toluene	Ethyl-Benzene	Xylene	MTBE
T-2										
12/13/88	841.28	819.49	21.79	--	ND	ND	ND	ND	ND	--
03/28/89	841.28	820.06	21.22	--	--	1.0	3.0	ND	0.6	--
04/11/89	841.28	820.06	21.22	--	--	--	--	--	--	--
03/11/91	841.28	817.20	24.08	--	ND	ND	0.5	5.3	ND	--
04/30/91	841.28	815.75	25.53	--	--	ND	ND	ND	ND	--
08/20/92	841.28	819.48	21.80	--	ND	ND	ND	ND	1.3	--
10/12/92	841.28	818.86	22.42	--	ND	2.7	4.4	3.9	7.5	--
01/05/93	841.28	818.78	22.5	--	ND	ND	ND	ND	ND	--
04/05/93	841.28	823.08	18.20	--	ND	0.3	0.8	0.9	ND	--
09/09/93	841.28	822.31	18.97	--	ND	ND	ND	ND	ND	--
11/16/93	841.28	821.81	19.47	--	ND	ND	ND	ND	ND	--
02/23/94	841.28	821.75	19.53	--	ND	ND	ND	ND	ND	--
03/19/94	841.28	821.89	19.39	--	--	--	--	--	--	--
04/27/94	841.28	822.06	19.22	--	ND	ND	ND	ND	ND	--
08/17/94	841.28	821.36	19.92	--	ND	ND	ND	ND	ND	--
11/14/94	841.28	820.71	20.57	--	ND	ND	ND	ND	ND	--
03/02/95	841.28	823.03	18.25	--	ND	ND	ND	ND	ND	--
05/18/95	841.28	823.91	17.37	--	ND	ND	ND	ND	ND	--
08/22/95	841.28	823.26	18.02	--	ND	ND	ND	ND	ND	--
11/13/95	841.28	822.48	18.80	--	ND	ND	ND	ND	ND	--
02/13/96	841.28	822.20	19.08	--	ND	ND	ND	ND	ND	--
05/02/96	841.28	823.15	18.13	--	ND	1.0	1.5	0.5	3.0	--
07/16/96	841.28	822.28	19.00	--	ND	ND	ND	ND	ND	--
10/24/96	841.28	821.42	19.86	--	ND	ND	ND	ND	ND	--
02/03/97	841.28	822.74	18.54	--	ND	ND	0.4	ND	ND	--
04/15/97	841.28	822.80	18.48	--	ND	ND	ND	ND	ND	5.8
07/02/97	841.28	822.23	19.05	--	ND	ND	ND	ND	ND	ND
10/03/97	841.28	821.08	20.20	--	ND	ND	ND	ND	ND	ND
01/13/98	841.28	821.42	19.86	--	ND	ND	ND	ND	ND	ND
04/10/98	841.28	825.28	16.00	--	<50	<0.3	<0.3	<0.6	<0.6	ND
07/10/98	841.28	825.31	15.97	--	<50	<0.3	<0.3	<0.6	<0.6	1.4
10/15/98	841.28	824.08	17.20	--	<500	<0.3	<0.3	0.5	2.0	<10
01/21/99	841.28	823.63	17.65	--	<1000	<0.6	0.8	18	4.8	<20
04/13/99	841.28	823.66	17.62	--	<500	<0.3	<0.3	<0.3	<0.6	<10
07/22/99	841.28	823.31	17.97	--	<500	<0.3	<0.3	<0.3	<0.6	<10
10/14/99	841.28	822.54	18.74	--	<500	<0.3	<0.3	<0.3	<0.6	<10

Cumulative Table of Well Data and Analytical Results

Vertical Measurements are in feet. Analytical results are in parts per billion (ppb)

DATE	Well Head Elev.	Ground Water Elev.	Depth To Water	Notes	TPH-Gasoline	Benzene	Toluene	Ethyl-Benzene	Xylene	MTBE
T-3										
12/13/88	841.72	819.36	22.36	--	1080	206	231	46.3	123	--
03/28/89	841.72	820.00	21.72	--	--	57	17	ND	78	--
04/11/89	841.72	819.93	21.79	--	--	--	--	--	--	--
03/11/91	841.72	817.01	24.71	--	--	--	--	--	--	--
04/30/91	841.72	817.62	24.10	--	--	21	35	8.4	4.0	--
11/16/93	841.72	821.71	20.01	--	2800	800	6.8	230	390	--
03/19/94	841.72	821.78	19.94	--	1800	810	5.5	220	480	--
04/27/94	841.72	821.88	19.84	--	600	190	6.1	43	18	--
08/17/94	841.72	821.22	20.50	--	830	140	16	42	54	--
11/14/94	841.72	820.57	21.15	--	1400	200	35	69	120	--
03/02/95	841.72	822.84	18.88	--	3000	800	280	260	560	--
05/18/95	841.72	823.70	18.02	--	1700	330	140	170	150	--
08/22/95	841.72	823.05	18.67	--	760	150	70	50	60	--
11/13/95	841.72	822.32	19.40	--	3800	700	50	80	500	--
02/13/96	841.72	821.99	19.73	--	4790	2060	21	120	880	--
05/02/96	841.72	823.18	18.54	--	3600	1760	12	ND	20	--
07/16/96	841.72	822.11	19.61	--	1000	370	45	45	100	--
07/16/96	841.72	--	--	--	950	350	44	40	100	--
10/24/96	841.72	821.28	20.44	--	ND	1.3	ND	ND	ND	--
10/24/96	841.72	--	--	--	ND	2.0	ND	ND	ND	--
02/03/97	841.72	822.66	19.06	--	560	190	6.2	18	64	--
04/15/97	841.72	823.65	18.07	--	530	89	5.1	15	31	26
04/15/97	841.72	--	--	--	570	95	5.6	20	35	26
07/02/97	841.72	821.82	19.90	--	1000	190	13	43	67	8.2
07/02/97	841.72	--	--	--	1000	190	13	43	66	7.9
10/03/97	841.72	--	--	--	--	--	--	--	--	14
10/03/97	841.72	821.02	20.70	--	3600	980	16	49	47	53
01/13/98	841.72	--	--	--	--	--	--	--	--	ND
01/13/98	841.72	821.24	20.48	--	560	190	2.4	27	34	19
04/10/98	841.72	--	--	--	--	--	--	--	--	8.1
04/10/98	841.72	825.19	16.53	--	690	110	20	34	50	9.4
04/10/98	841.72	--	--	--	700	110	20	34	50	9.4
07/10/98	841.72	--	--	--	--	--	--	--	--	6.0
07/10/98	841.72	825.19	16.53	--	1300	150	76	55	110	13
07/10/98	841.72	--	--	--	1300	150	79	57	110	13

CONTINUED ON NEXT PAGE

Cumulative Table of Well Data and Analytical Results

Vertical Measurements are in feet. Analytical results are in parts per billion (ppb)

DATE	Well Head Elev.	Ground Water Elev.	Depth To Water	Notes	TPH-Gasoline	Benzene	Toluene	Ethyl-Benzene	Xylene	MTBE
T-3 (CONT' D)										
10/15/98	841.72	823.96	17.76	--	1200	241	5.0	65	60	24
10/15/98	841.72	823.96	17.76	Confirmation run	--	--	--	--	--	24
01/21/99	841.72	823.53	18.19	--	4430*	370	19	82	166	11
01/21/99	841.72	823.53	18.19	Confirmation run	--	--	--	--	--	20
04/13/99	841.72	823.52	18.20	--	<500	<0.3	<0.3	<0.3	5.6	16
04/13/99	841.72	823.52	18.20	Confirmation run	--	--	--	--	--	20
07/22/99	841.72	822.99	18.73	--	4780	535	24	55	105	<250
10/14/99	841.72	822.41	19.31	--	<500	<0.3	<0.3	<0.3	2.0	14
10/14/99	841.72	822.41	19.31	Confirmation run	--	--	--	--	--	10

* MTBE included in gasoline result.

Cumulative Table of Well Data and Analytical Results

Vertical Measurements are in feet. Analytical results are in parts per billion (ppb)

DATE	Well Head Elev.	Ground Water Elev.	Depth To Water	Notes	TPH-Gasoline	Benzene	Toluene	Ethyl-Benzene	Xylene	MTBE
TRIP BLANK										
07/16/96	--	--	--	--	--	ND	ND	ND	ND	--
10/24/96	--	--	--	--	--	ND	ND	ND	ND	--
02/03/97	--	--	--	--	ND	ND	0.5	ND	ND	--
04/15/97	--	--	--	--	ND	ND	ND	ND	ND	--
07/02/97	--	--	--	--	ND	0.4	ND	ND	ND	--
10/03/97	--	--	--	--	ND	ND	ND	ND	ND	--
01/13/98	--	--	--	--	ND	ND	ND	ND	ND	--
07/10/98	--	--	--	--	<50	<0.3	<0.3	<0.6	<0.6	--
10/15/98	--	--	--	--	<500	<0.3	<0.3	<0.3	<0.6	<10
01/21/99	--	--	--	--	<500	<0.3	<0.3	<0.3	<0.6	<10
04/13/99	--	--	--	--	<500	<0.3	<0.3	<0.3	<0.6	<10
07/22/99	--	--	--	--	<500	<0.3	<0.3	<0.3	<0.6	<10
10/14/99	--	--	--	--	<500	<0.3	<0.3	<0.3	<0.6	<10

Note: Blaine Tech Services, Inc. began routine monitoring of the groundwater wells at this site on October 15, 1998. Earlier field data and analytical results are drawn from the July 10, 1998 Holguin, Fahan & Associates, Inc. report.

ABBREVIATIONS:
TPH = Total Petroleum Hydrocarbons
ND = Not detected at or above the minimum quantitation limit. See laboratory reports for minimum quantitation limits.
MTBE = Methyl-tert-butyl ether

GeoResearch

FIELD LOG OF BORING

SITE TYPE | SITE ID: T-1

SHEET 1 OF 3

PROJECT NAME AND LOCATION: Chevron – Canoga Park	PROJECT NUMBER: 88065	ELEVATION AND DATUM:	
DRILLING COMPANY: Interstate Soils Sampling	DRILLER: Randy	DATE AND TIME STARTED: 5/4/88 0830	DATE AND TIME COMPLETED: 5/4/88 0945
DRILLING EQUIPMENT: METHOD: Acker AD-2		COMPLETION DEPTH: 40'	TOTAL NO. OF SAMPLES: 5
SIZE AND TYPE OF BIT: 8" Hollow Stem Auger		NO. OF SAMPLES: BULK / SS: 5	DRIVE / PITCHER
DRILLING FLUID: None		WATER LEVEL: FIRST 30'	AFTER _____ HOURS
SAMPLER HAMMER: TYPE 2" Split Spoon DRIVING WT. 140" DROP 30"		HYDROGEOLOGIST/DATE: T.J. Hollis 5/4/88	CHECKED BY/DATE

DEPTH-FEET	SAMPLES: TYPE AND NUMBER	INTERVAL	RECOVERY	BLOW COUNT	DESCRIPTION	USCS SYMBOL	ESTIMATED PERCENT OF: GR	SA	FI		MOISTURE	CONSISTENCY	COLOR	COMMENTS
0					8" asphalt									
1														
2														
3														
4		////		10	CLAYEY SANDY SILT r. br, v. fine	ML		20	80		SM			Slight HC odor
	0830	////	12"	10	slightly moist									
5	T1-5	XXX		10										
6														
7														
8														
	0838	////		8										
	T1-10	XXX	12	10	Same as above									Slight HC odor
		////		16										

FIELD LOG OF BORING | BORE T-1 | SHEET 2 OF 3

PROJECT NO.

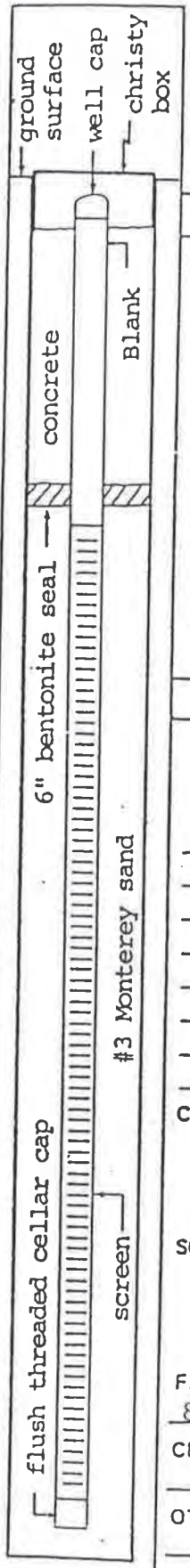
DEPTH-FEET	SAMPLES: TYPE AND NUMBER	SAMPLES: INTERVAL	SAMPLES: RECOVERY	SAMPLES: BLOW COUNT	DESCRIPTION	USCS SYMBOL	ESTIMATED PERCENT OF: GR	SA	FI		MOISTURE	CONSISTENCY	COLOR	COMMENTS
15														
16														
17														
18														
19														
20	0858 T1-20	/// XXX ///	14	22 50	CLAYEY SILT - br, hard, moist	ML			100		M	H	Br	Slight HC odor
21														
22														
23														
24														
25														
26														
27														
28														
29	0912	///		20	SILTY CLAY - r. br., v.stiff,	CL			100		W	VS		No HC odor.
30	T1-30	XXX		27	homogenous, wet									free water
		///		23										
31														
32														
33														
34														
35														

FIELD LOG OF BORING | BORE T-1 | SHEET 3 OF 3

PROJECT NO.

DEPTH-FEET	SAMPLES: TYPE AND NUMBER	SAMPLES: INTERVAL	SAMPLES: RECOVERY	SAMPLES: BLOW COUNT	DESCRIPTION	USCS SYMBOL	ESTIMATED PERCENT OF: GR	SA	FI		MOISTURE	CONSISTENCY	COLOR	COMMENTS
35														
36														
37														
38														
39					CLAYEY SANDY SILT – r. br	ML		10	90		W			
	0940		////		fine grained, wet									
	T1-40	14"	///	30										
40			XXX	50	SILTY SAND – r. br., fine to	SM		75	15		W			
41					medium grained trace clay, wet									
42														
43														
44														
45														
46														
47														
48														
49														
50														
51														
52														
53														
54														
55														

GeoResearc



WELL NO. 1 WELL CONSTRUCTION SUMMARY

PROJECT CHEVRON – Canoga Park

PERSONNEL T. J. Hollis

LOCATION OR COORDS _____ ELEVATION: GROUND LEVEL _____

TOP OF CASING _____

DRILLING SUMMARY

TOTAL DEPTH 40'

BOREHOLE DIAMETER 8"

DRILLER Interstate Soil Sampling
Randy

RIG Acker AD-2

BIT(S) 8" hollow stem auger

DRILLING FLUID None

SURFACE CASING _____

WELL DESIGN

BASIS: GEOLOGIC LOG
GEOPHYSICAL LOG

CASING STRING (S): C = CASING S = SCREEN

0	20	C			
20	35	S			

CASING C1 _____
C2 _____
C3 _____
C4 _____

SCREEN S1 _____
S2 _____
S3 _____
S4 _____

FILTER MATERIAL clean #3 monterey sand from 8' to 35', bentonite 6' to 8'.

CEMENT Redimix between 6' and the ground surface.

OTHER _____

CONSTRUCTION TIME LOG

TASK	START DATE	START TIME	FINISH DATE	FINISH TIME
DRILLING:	5/4/88	0830	5/4/88	0945
GEOPHYS:				
LOGGING:				
CASING:	5/4/88	0950	5/4/88	1130
FILTER PLACEMENT:				
CEMENTING:				
DEVELOPMENT:				
OTHER:				

WELL DEVELOPMENT

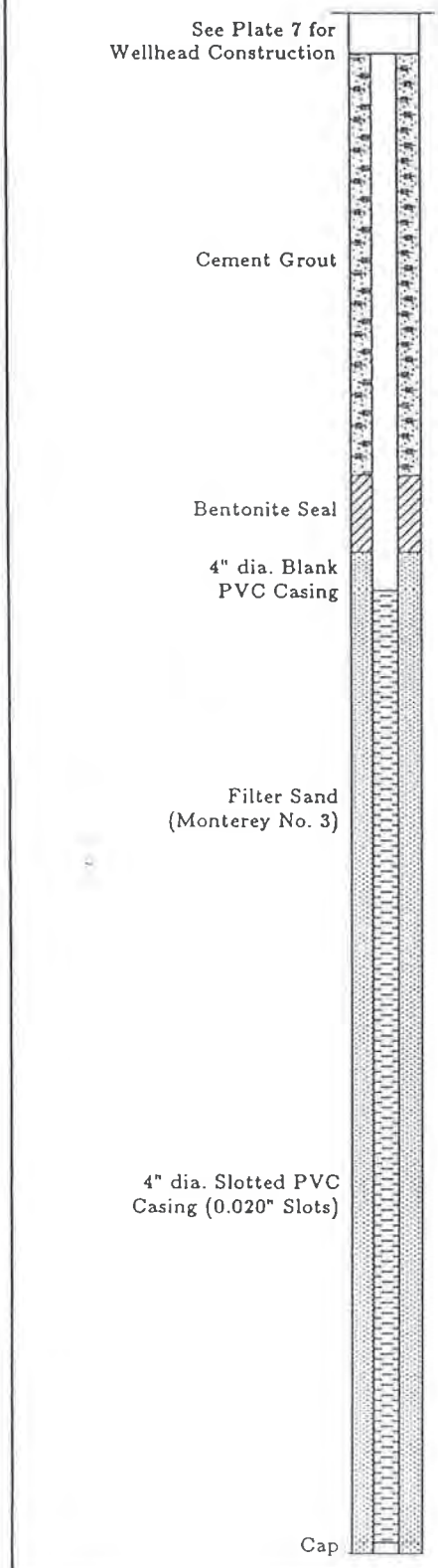
COMMENTS

Bottom 5 feet of boring cayed when PVC pulled up during well construction, therefore, the total well depth is 35' BGS.

Top of Casing 841.44 ft

Equipment 8" HSA DRILLMASTER

Elevation 842.0 ft Date 3/23/89



Depth ft Sample	Blows/ft	HC Odor	PID	
0		Lo	0	5" ASPHALTIC CONCRETE AND BASE BLACK SANDY SILT (ML) [FILL] stiff, moist, hydrocarbon stained
	4	No	3	color change to brown, with voids
5	3	No	4	BROWN SILTY SAND (SM) loose, moist, very fine grained, voids and rootlets
	3	No	3	with silty-clayey zones
10	4	No	3	BROWN SANDY SILT (ML) soft, moist, some voids, very fine sand
	4	No	3	
	4	No	4	color change to gray, higher sand content, with clay
15	22	No	0	GRAY SILTSTONE low hardness, weak, deeply weathered, moist, caliche veins, very fine mica, trace of sand
	24	Md	160	color change to brown, some fractures appear to be saturated
20	21	Md	200	water level on 4-11-89
	18	Lo	100	some gray discoloration, few black organics
25	20	No	20	color change to yellow-brown, very few caliche
30	27			
35				saturated, higher sand content
40		No		Boring terminated at 40.0 feet. Groundwater encountered at about 25 feet during drilling. Boring converted to monitoring well (MW-3) on 3-23-89.

Harding Lawson Associates
Engineers and Geoscientists

Log of Boring MW- 3 (sheet 1 of 1)

Chevron Service Station 3113
Canoga Park, California

PLATE 6

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED	DATE
	9611,374.16		7/89		

Appendix E

Site Photographs

Site Photographs



Photograph 1 - Looking northwest along alleyway behind building. Residential homes on other side of wall.



Photograph 2 - Looking southwest across Saticoy St. from the southwest portion of the Site at back entrance to Chaminade College Preparatory High School



Photograph 3 - Looking southwest along Saticoy St. from the corner of Saticoy St. and Woodlake Ave. Residential homes on the other side of the street.



Photograph 4 - Looking north from Saticoy St. at Complete Auto Service.



Photograph 5 - Looking northeast along Woodlake Ave. from the intersection of Saticoy St. and Woodlake Ave. Residential homes visible on the other side of the street.



Photograph 6 - Businesses on the Woodlake Ave. side of the Site. Tenants include Melito's Barber Shop, Delcourt Insurance, Happy Dogs Grooming & Supplies and Woodlake Liquors



Photograph 7 - Looking west across site from Woodlake Ave. Woodlake Liquors (yellow sign) and Fields Market (black awning) visible



Photograph 8 - Entrance to Fields Market



Photograph 9 - Businesses to the west of Fields Market, include The Gourmet Soup Kitchen, Function First Fitness and 3 unoccupied commercial units.



Photograph 10 - Businesses to the west of the unoccupied commercial units include West Hills Cleaners and West Hills Massage Therapy.



Photograph 11 - Goldern Performing Arts located to the west of West Hills Massage Therapy.



Photograph 12 - Disability Rehabilitation Center, State Farm Insurance Agent Steven Hill and Little Italy Italian Restaurant located to the west of Golden Performing Arts.



Photograph 13 - Little Italy Italian Restaurant and West Hills Veterinary Clinic located on the west side of the shopping center.



Photograph 14 - Cutting Edge Karate located on the north side of the shopping center in western portion of the back alley.



Photograph 15 - Depressed concrete loading dock located in the north back alley of the shopping center.



Photograph 16 - Dumpsters in waste enclosure located in the western part of back alley of the shopping center, near the West Hills Veterinary Clinic.



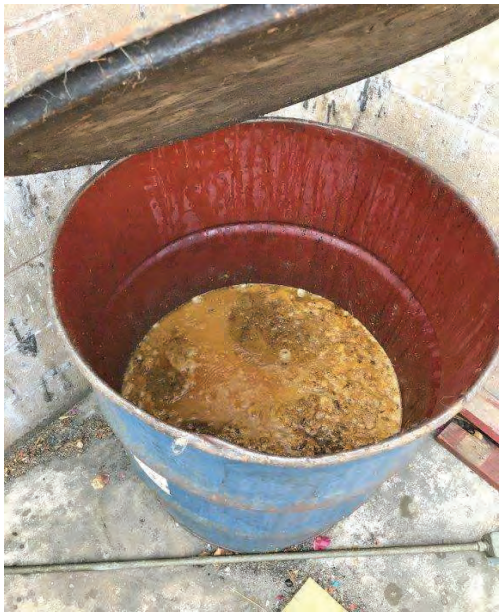
Photograph 17 - Drum of soil samples from a previous geotechnical investigation. Located outside of a solid waste enclosure from Photograph 16.



Photograph 18 - Two dumpsters and 3 pole-mounted transformers located adjacent to the loading dock from Photograph 15. Drum and bucket behind dumpsters shown in detail in Photograph 21.



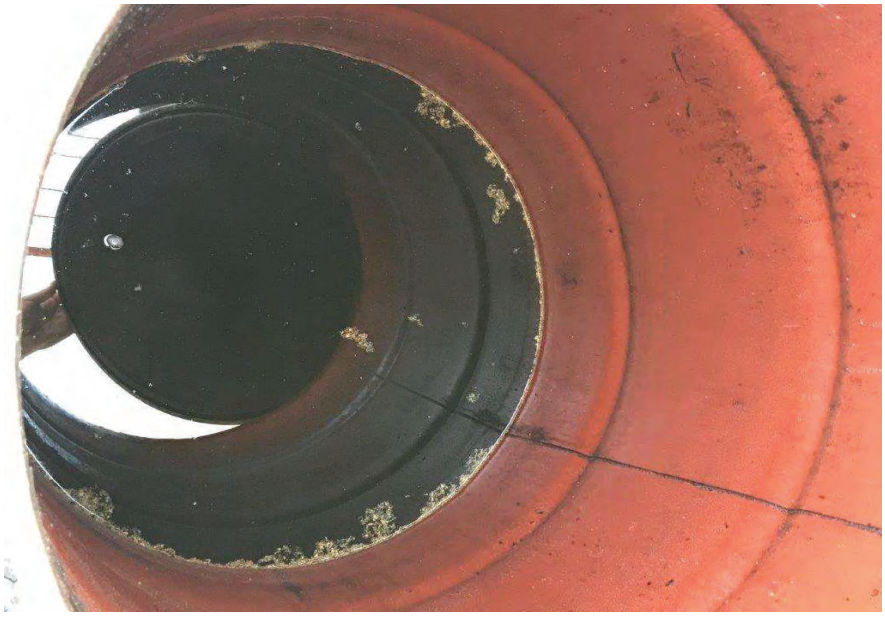
Photograph 19 - 5-gallon bucket of Dry Cleaning Solution (sodium hypochlorite) located in back of Function First Fitness.



Photograph 20 - Unlabeled blue drum located in solid waste storage enclosure from Photograph 16. Contents appear to be greases and fats.



Photograph 21 - Black drum, plastic container and 5-gallon bucket located behind dumpsters from Photograph 18. Plastic container labeled as Canola Oil. Contents of drum and bucket described in the following photos.



Photograph 22 - Contents of black drum from Photograph 21, appears to be vegetable-based oil.



Photograph 23 - Contents of bucket from Photograph 21. Contents unknown but very odorous and appear to have decomposed.



Photograph 24 - White rat traps regularly placed along north side of shopping center building.

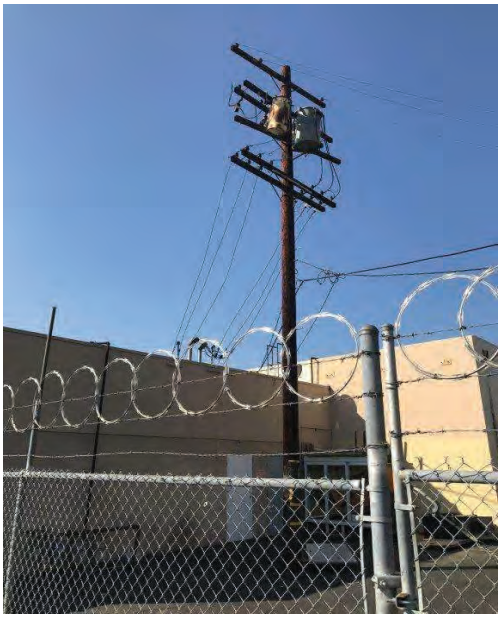
	Photograph 25 - Drums of unknown contents located in fenced area at adjacent Complete Auto Service. Yellow lines in bottom right of photo appear to indicate property boundaries between the garage and the shopping center.
	Photograph 26 - Pole-mounted transformer located along Saticoy St. sidewalk to the southwest of the Site.



Photograph 27 - Pole-mounted transformer located at the intersection of Saticoy St. and Woodlake Ave.



Photograph 28 - Two pole-mounted transformers located adjacent to the back entrance to The Gourmet Soup Kitchen behind the shopping center.



Photograph 29 - Two pole-mounted transformers located behind Melito's Barber Shop on the northeast corner of the shopping center building.

Appendix F

Aerial Photographs

West Hills Shopping Center
23233 Saticoy Street
Canoga Park, CA 91304

Inquiry Number: 4867315.9
March 02, 2017

The EDR Aerial Photo Decade Package

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

EDR Aerial Photo Decade Package

03/02/17

Site Name:

West Hills Shopping Center
23233 Saticoy Street
Canoga Park, CA 91304
EDR Inquiry # 4867315.9

Client Name:

Dudek & Associates
605 Third Street
Encinitas, CA 92024
Contact: Susie Smith

Environmental Data Resources, Inc. (EDR) Aerial Photo Decade Package is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDR's professional researchers provide digitally reproduced historical aerial photographs, and when available, provide one photo per decade.

Search Results:

Year	Scale	Details	Source
2012	1"=500'	Flight Year: 2012	USDA/NAIP
2010	1"=500'	Flight Year: 2010	USDA/NAIP
2009	1"=500'	Flight Year: 2009	USDA/NAIP
2005	1"=500'	Flight Year: 2005	USDA/NAIP
2002	1"=500'	Flight Date: June 11, 2002	USDA
1994	1"=500'	Acquisition Date: June 01, 1994	USGS/DOQQ
1989	1"=500'	Flight Date: July 18, 1989	USDA
1981	1"=500'	Flight Date: February 21, 1981	EDR Proprietary Brewster Pacific
1978	1"=500'	Flight Date: September 21, 1978	USDA
1972	1"=500'	Flight Date: November 09, 1972	EDR Proprietary Brewster Pacific
1967	1"=500'	Flight Date: August 13, 1967	USGS
1959	1"=500'	Flight Date: August 21, 1959	USDA
1952	1"=500'	Flight Date: February 13, 1952	USGS
1947	1"=500'	Flight Date: August 15, 1947	USGS
1938	1"=500'	Flight Date: July 24, 1938	USDA
1928	1"=500'	Flight Date: January 01, 1928	USGS

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= 500'
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EDR


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YEAR: 2010
= 500'
N
EDR


INQUIRY #: 4867315.9
YEAR: 2009
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EDR


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YEAR: 2005
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EDR


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YEAR: 2002
= 500'
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EDR


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YEAR: 1994
= 500'
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EDR


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EDR


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EDR


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YEAR: 1978
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EDR

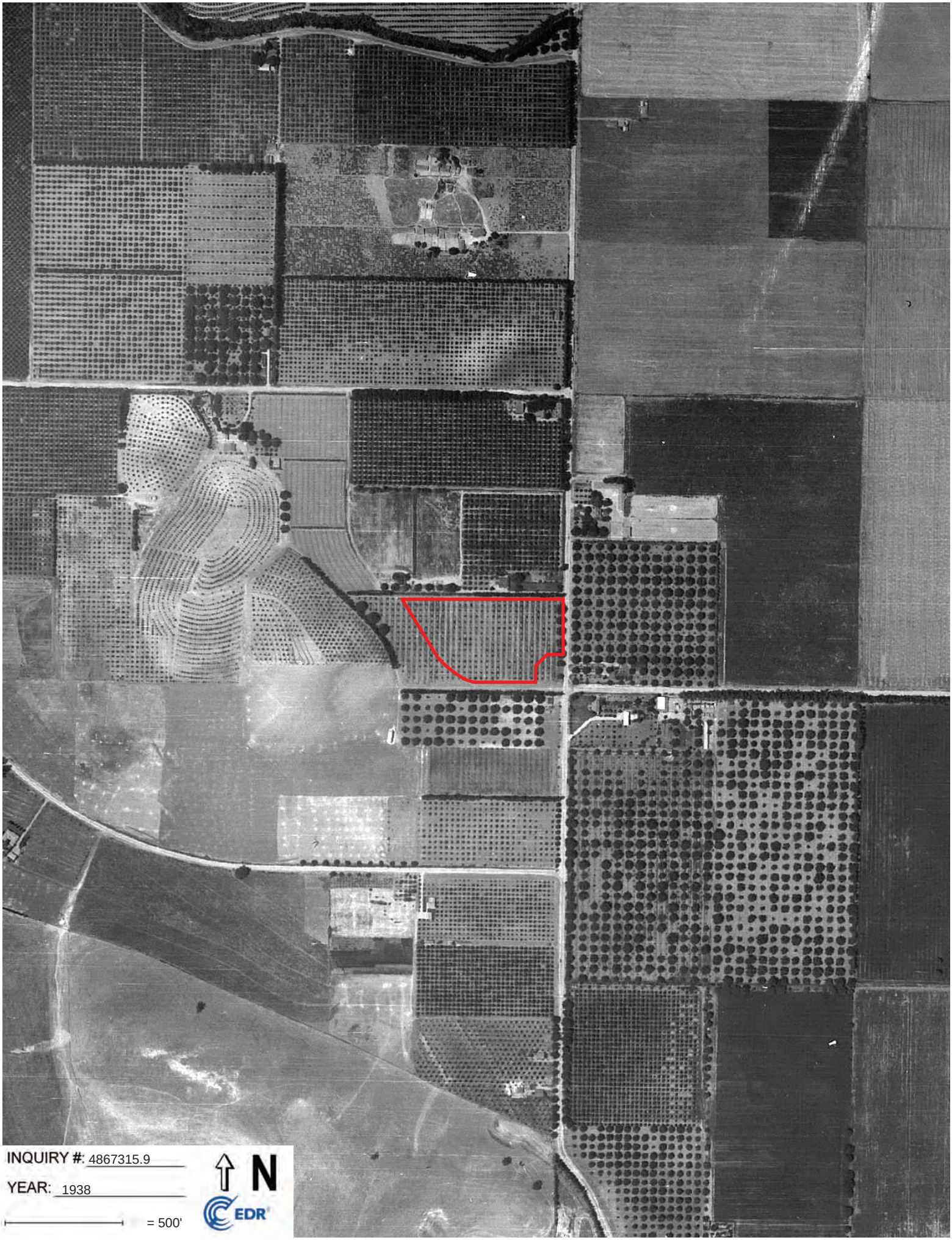

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YEAR: 1959
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YEAR: 1952
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EDR


INQUIRY #: 4867315.9
YEAR: 1947
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INQUIRY #: 4867315.9
YEAR: 1938
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EDR


INQUIRY #: 4867315.9
YEAR: 1928
= 500'
N
EDR

Appendix G

Topographic Maps

West Hills Shopping Center
23233 Saticoy Street
Canoga Park, CA 91304

Inquiry Number: 4867315.4
March 01, 2017

EDR Historical Topo Map Report

with QuadMatch™

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

EDR Historical Topo Map Report

03/01/17

Site Name:

West Hills Shopping Center
23233 Saticoy Street
Canoga Park, CA 91304
EDR Inquiry # 4867315.4

Client Name:

Dudek & Associates
605 Third Street
Encinitas, CA 92024
Contact: Susie Smith

EDR Topographic Map Library has been searched by EDR and maps covering the target property location as provided by Dudek & Associates were identified for the years listed below. EDR's Historical Topo Map Report is designed to assist professionals in evaluating potential liability on a target property resulting from past activities. EDRs Historical Topo Map Report includes a search of a collection of public and private color historical topographic maps, dating back to the late 1800s.

Search Results:

P.O.# 10138

Project: West Hills Shopping Center

Coordinates:

Latitude:	34.208914 34° 12' 32" North
Longitude:	-118.633953 -118° 38' 2" West
UTM Zone:	Zone 11 North
UTM X Meters:	349470.81
UTM Y Meters:	3786527.26
Elevation:	845.92' above sea level

Maps Provided:

2012
1967
1952
1947
1944
1940
1932, 1933
1929
1927, 1928
1925
1903

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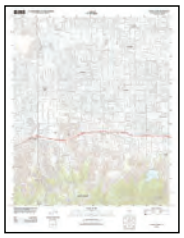
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Topo Sheet Key

This EDR Topo Map Report is based upon the following USGS topographic map sheets.

2012 Source Sheets



Canoga Park

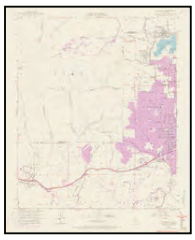
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Calabasas

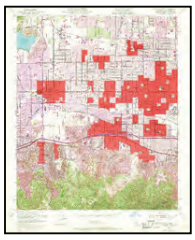
7.5-minute, 24000

1967 Source Sheets



Calabasas

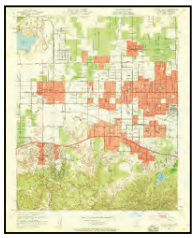
7.5-minute, 24000
Aerial Photo Revised 1967



Canoga Park

7.5-minute, 24000
Aerial Photo Revised 1967

1952 Source Sheets



Canoga Park

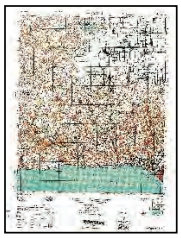
7.5-minute, 24000
Aerial Photo Revised 1947



Calabasas

7.5-minute, 24000
Aerial Photo Revised 1947

1947 Source Sheets



CALABASAS

15-minute, 50000

Topo Sheet Key

This EDR Topo Map Report is based upon the following USGS topographic map sheets.

1944 Source Sheets



Calabasas

15-minute, 62500
Aerial Photo Revised 1938

1940 Source Sheets



Chatsworth

7.5-minute, 24000

1932, 1933 Source Sheets



Dry Canyon

7.5-minute, 24000



Chatsworth

7.5-minute, 24000

1929 Source Sheets



Dry Canyon

7.5-minute, 24000



Chatsworth

7.5-minute, 24000

Topo Sheet Key

This EDR Topo Map Report is based upon the following USGS topographic map sheets.

1927, 1928 Source Sheets



Chatsworth

7.5-minute, 24000



Dry Canyon

7.5-minute, 24000

1925 Source Sheets



Dry Canyon

7.5-minute, 24000



Chatsworth

7.5-minute, 24000

1903 Source Sheets

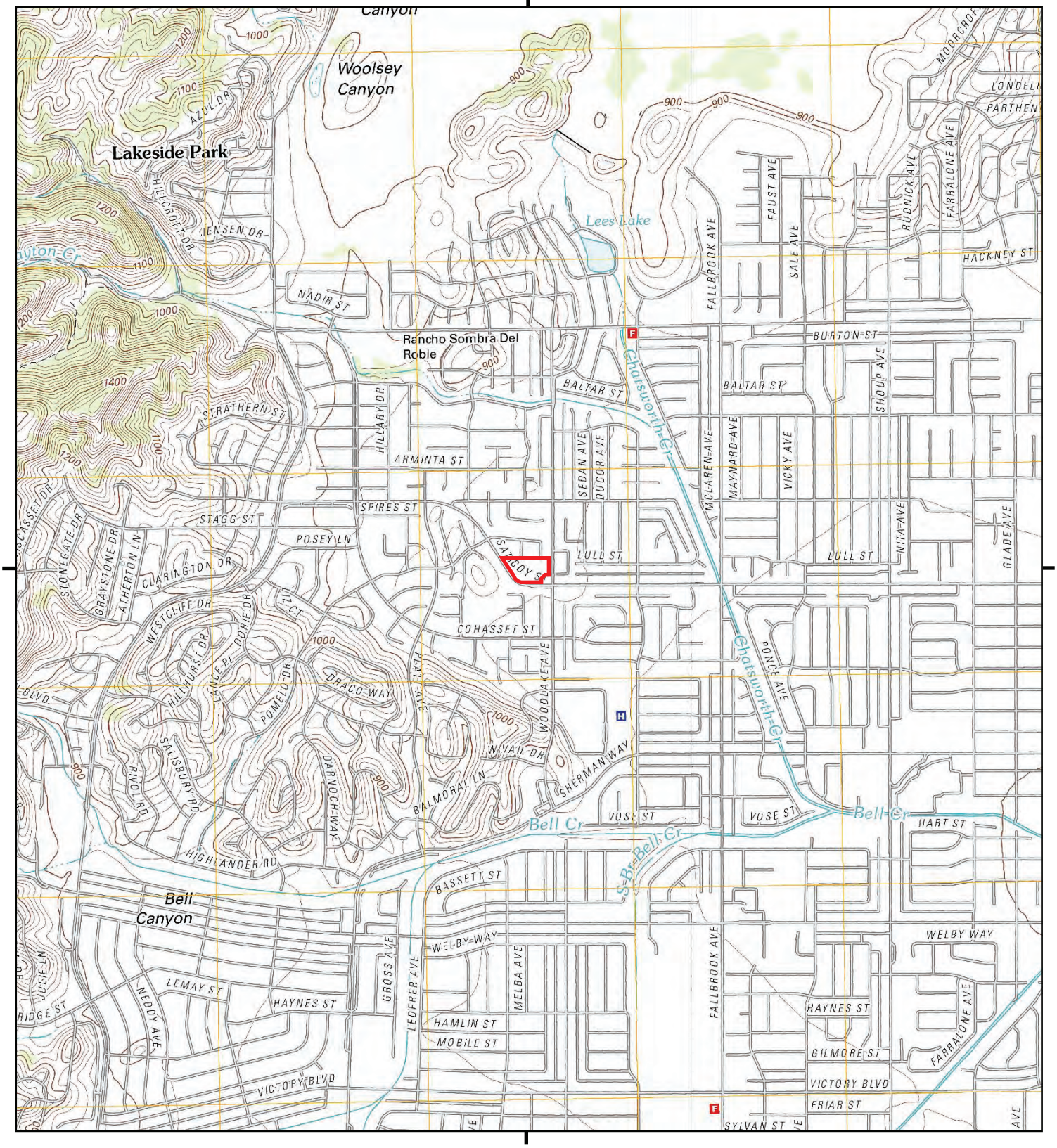


Calabasas

15-minute, 62500

Historical Topo Map

2012



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SW S SE

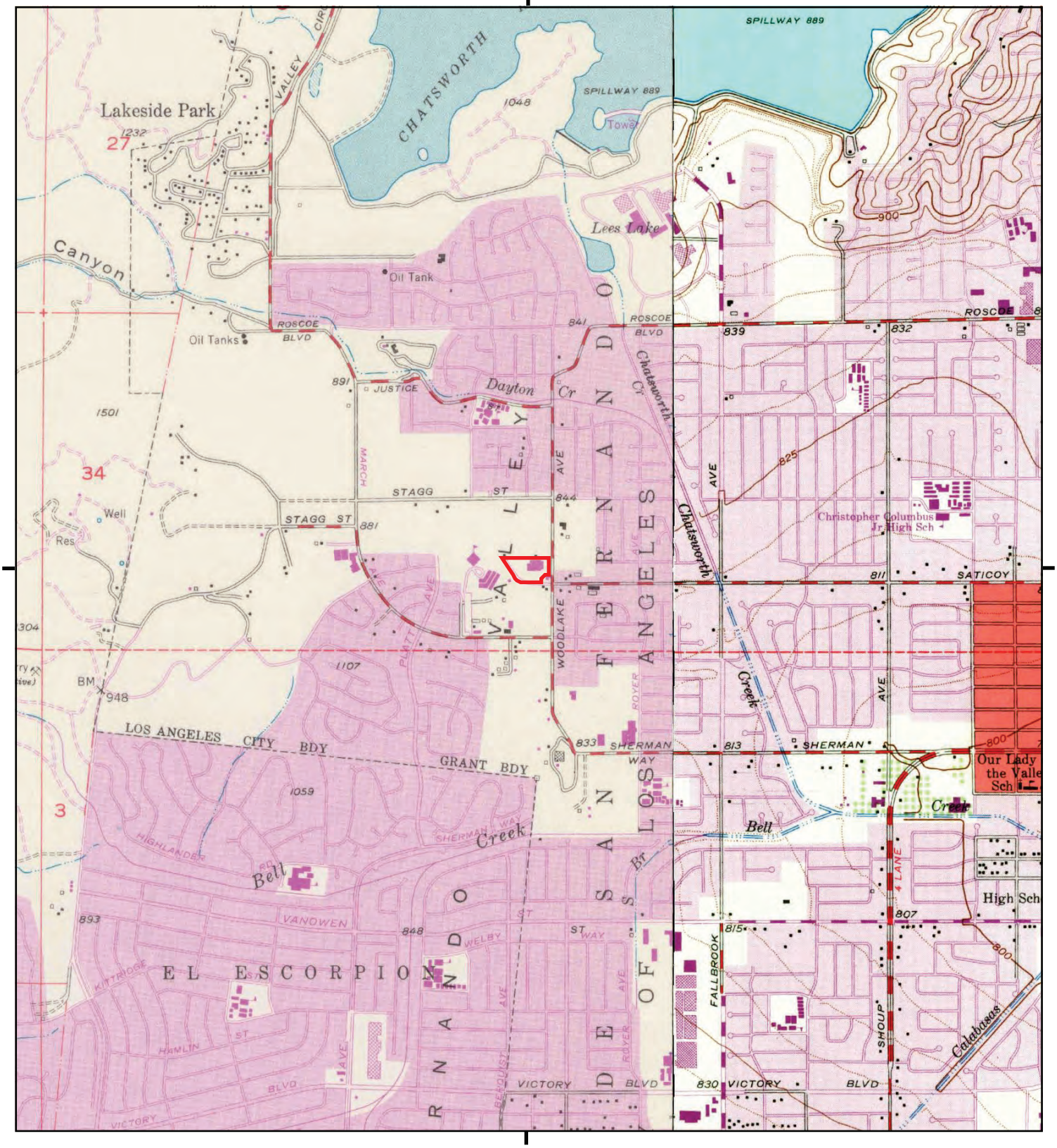
TP, Calabasas, 2012, 7.5-minute
E, Canoga Park, 2012, 7.5-minute

SITE NAME: West Hills Shopping Center
ADDRESS: 23233 Saticoy Street
Canoga Park, CA 91304
CLIENT: Dudek & Associates

N

Historical Topo Map

1967



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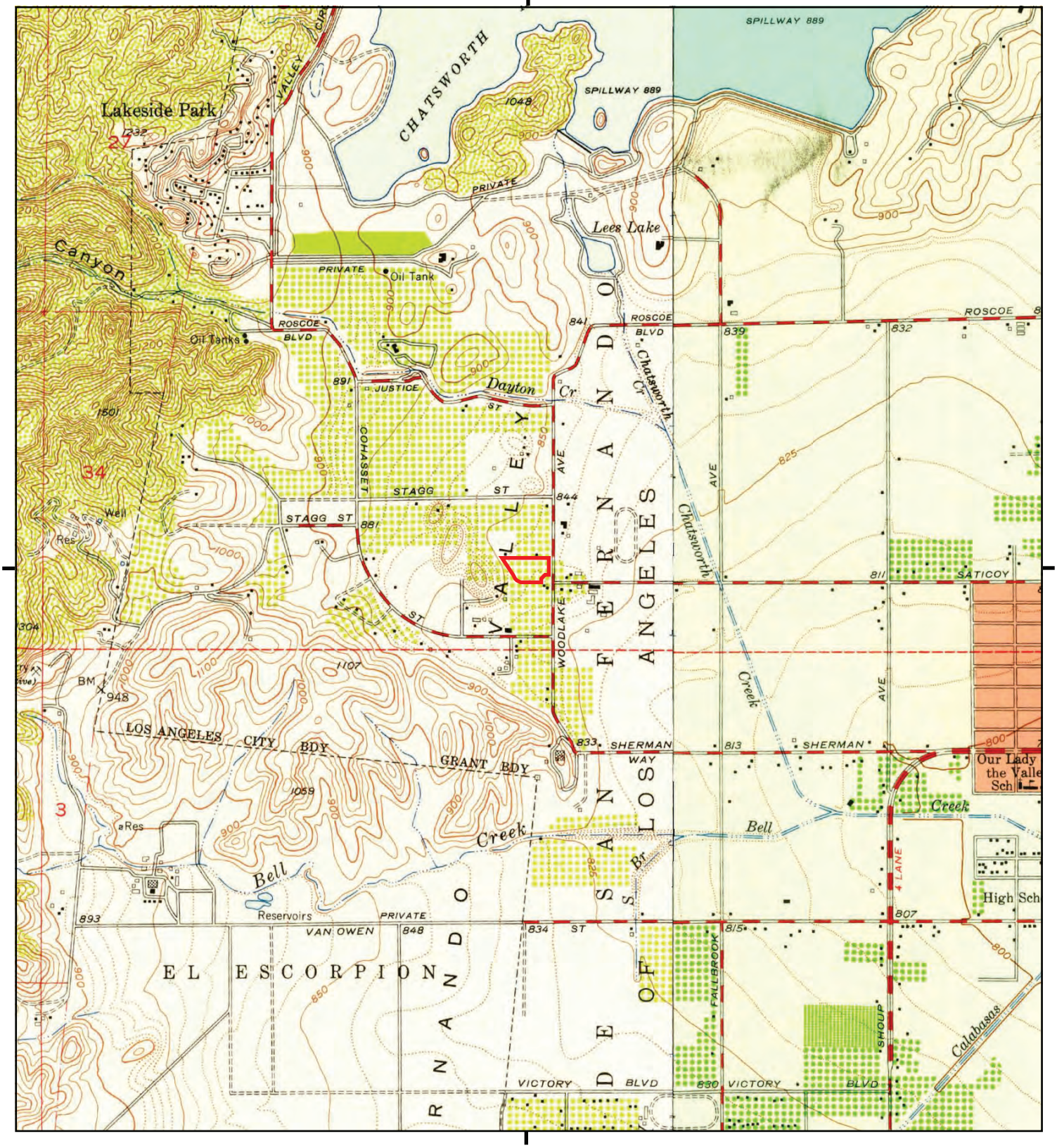
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W E
SW S SE

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E, Canoga Park, 1967, 7.5-minute

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ADDRESS: 23233 Saticoy Street
Canoga Park, CA 91304
CLIENT: Dudek & Associates

N



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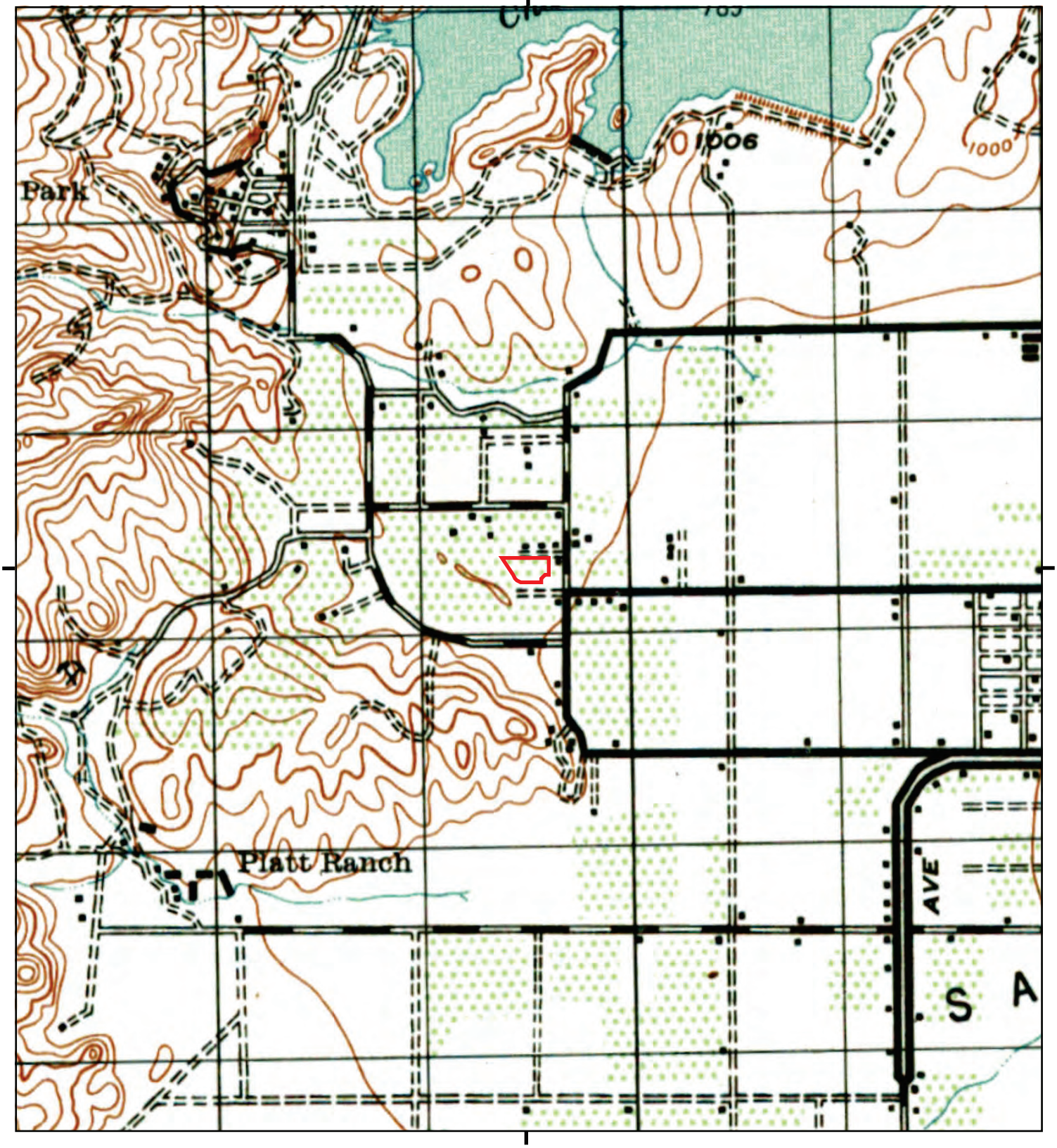
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NW N NE
W E
SW S SE

TP, Calabasas, 1952, 7.5-minute
E, Canoga Park, 1952, 7.5-minute

SITE NAME: West Hills Shopping Center
ADDRESS: 23233 Saticoy Street
Canoga Park, CA 91304
CLIENT: Dudek & Associates

N



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

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W E
SW S SE

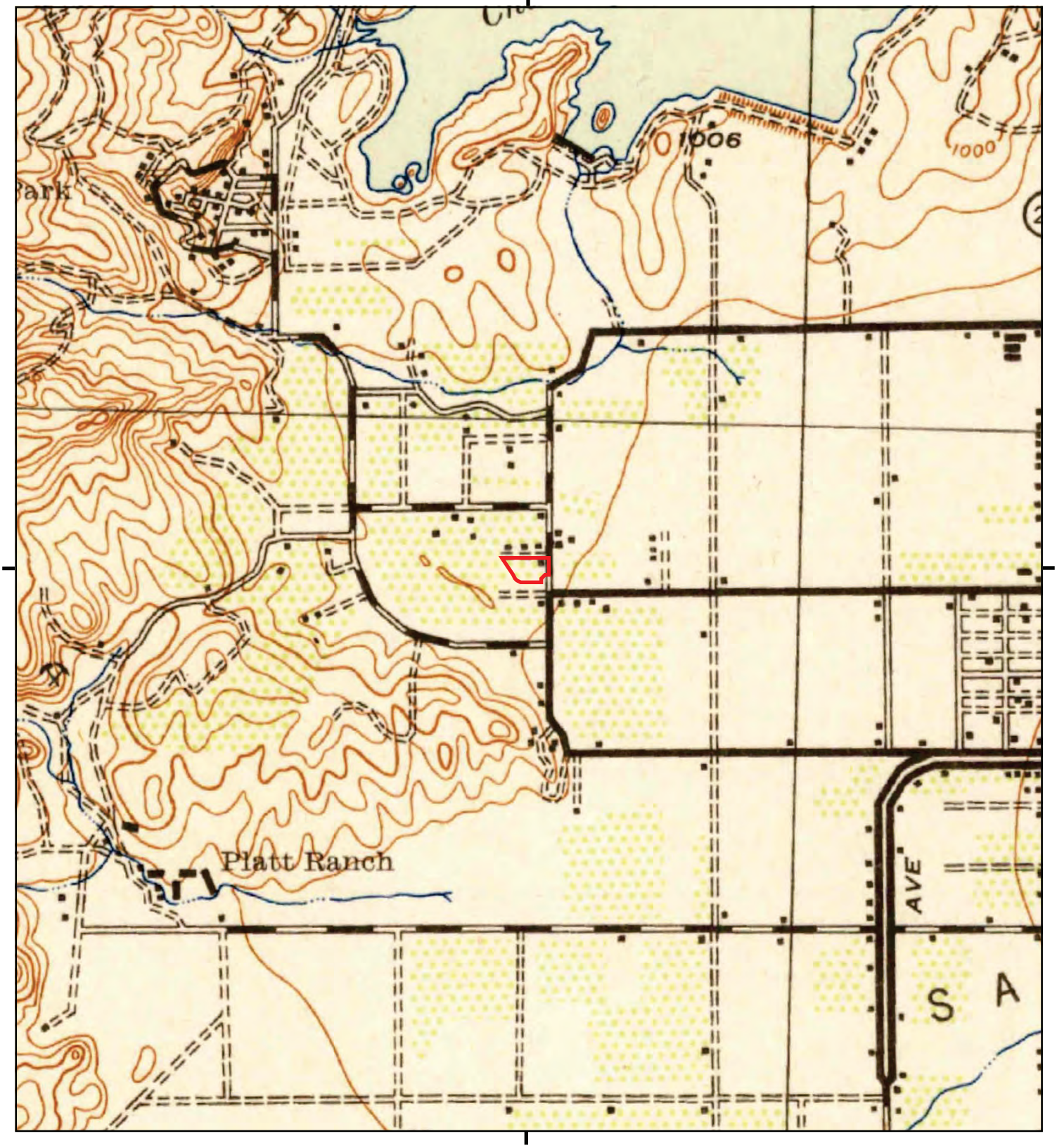
TP, CALABASAS, 1947, 15-minute

SITE NAME: West Hills Shopping Center
ADDRESS: 23233 Saticoy Street
Canoga Park, CA 91304
CLIENT: Dudek & Associates

N

Historical Topo Map

1944



This report includes information from the following map sheet(s).

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W E
SW S SE

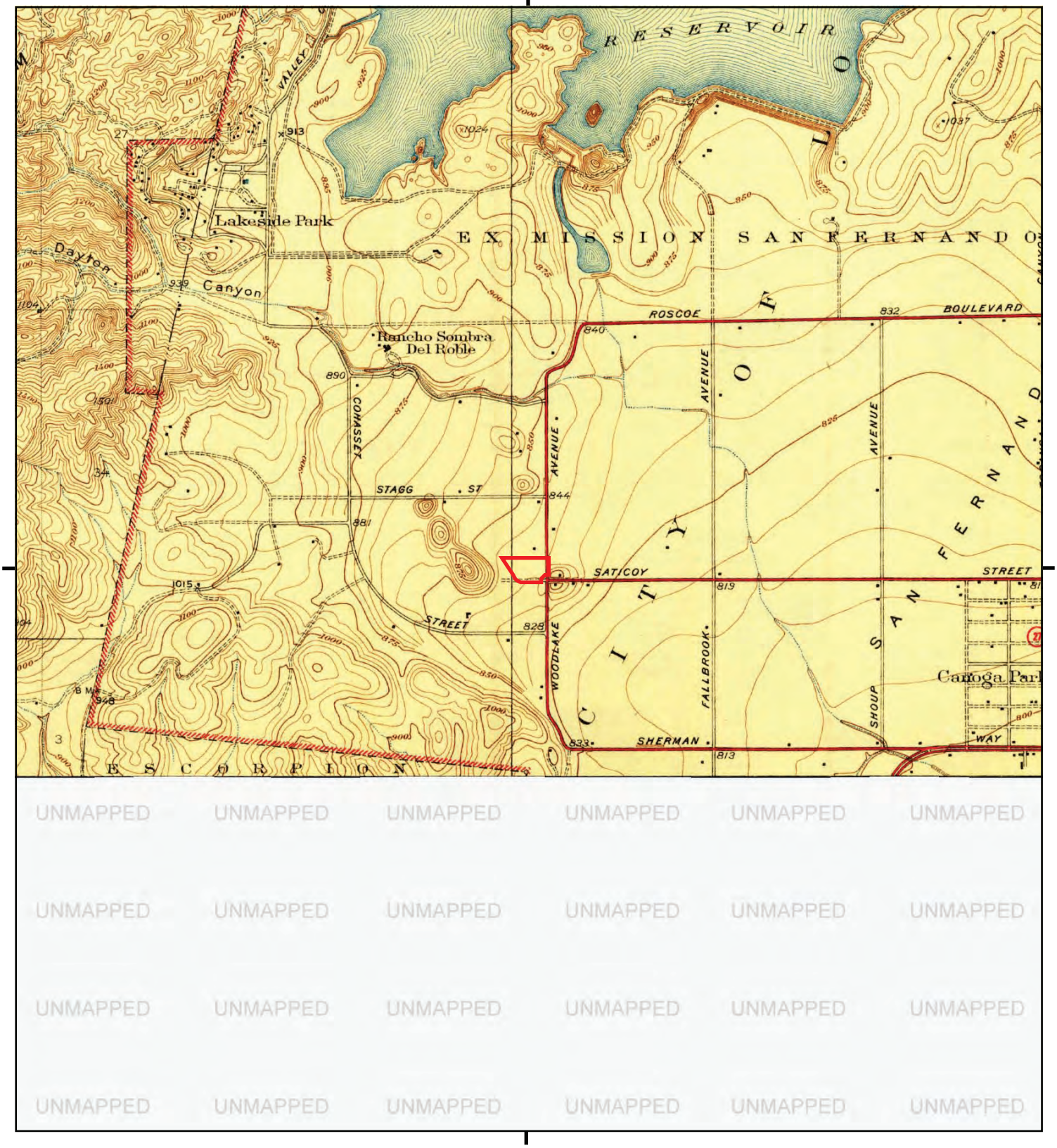
TP, Calabasas, 1944, 15-minute

SITE NAME: West Hills Shopping Center
ADDRESS: 23233 Saticoy Street
Canoga Park, CA 91304
CLIENT: Dudek & Associates

N

Historical Topo Map

1940



This report includes information from the following map sheet(s).

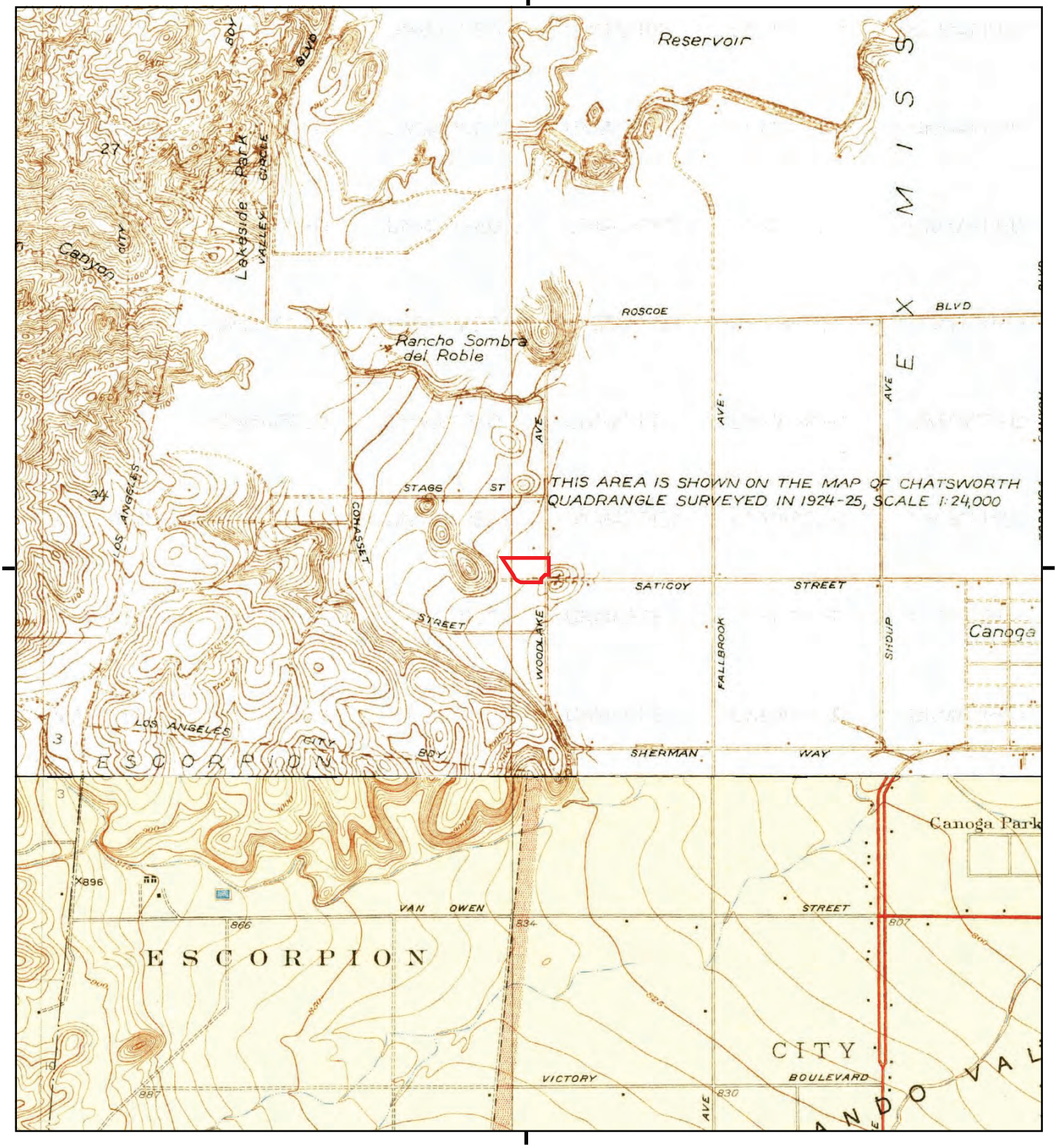
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NW N NE
W E
SW S SE

TP, Chatsworth, 1940, 7.5-minute

SITE NAME: West Hills Shopping Center
ADDRESS: 23233 Saticoy Street
Canoga Park, CA 91304
CLIENT: Dudek & Associates

N



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Chatsworth, 1933, 7.5-minute
S, Dry Canyon, 1932, 7.5-minute

SITE NAME: West Hills Shopping Center
ADDRESS: 23233 Saticoy Street
Canoga Park, CA 91304
CLIENT: Dudek & Associates

N



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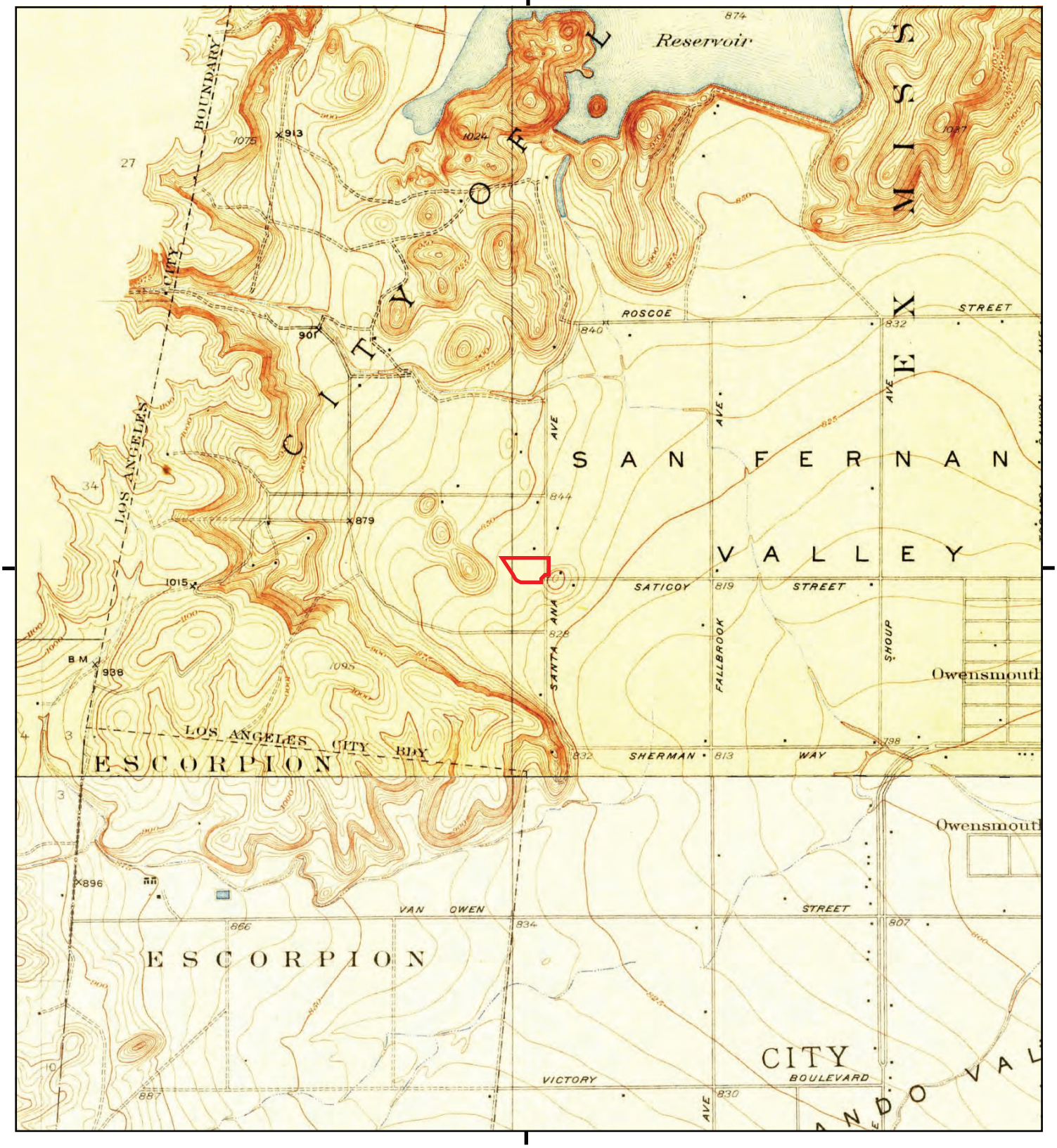
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W E
SW S SE

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S, Dry Canyon, 1929, 7.5-minute

SITE NAME: West Hills Shopping Center
ADDRESS: 23233 Saticoy Street
Canoga Park, CA 91304
CLIENT: Dudek & Associates

N



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Chatsworth, 1927, 7.5-minute
S, Dry Canyon, 1928, 7.5-minute

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ADDRESS: 23233 Saticoy Street
Canoga Park, CA 91304
CLIENT: Dudek & Associates

N



This report includes information from the following map sheet(s).

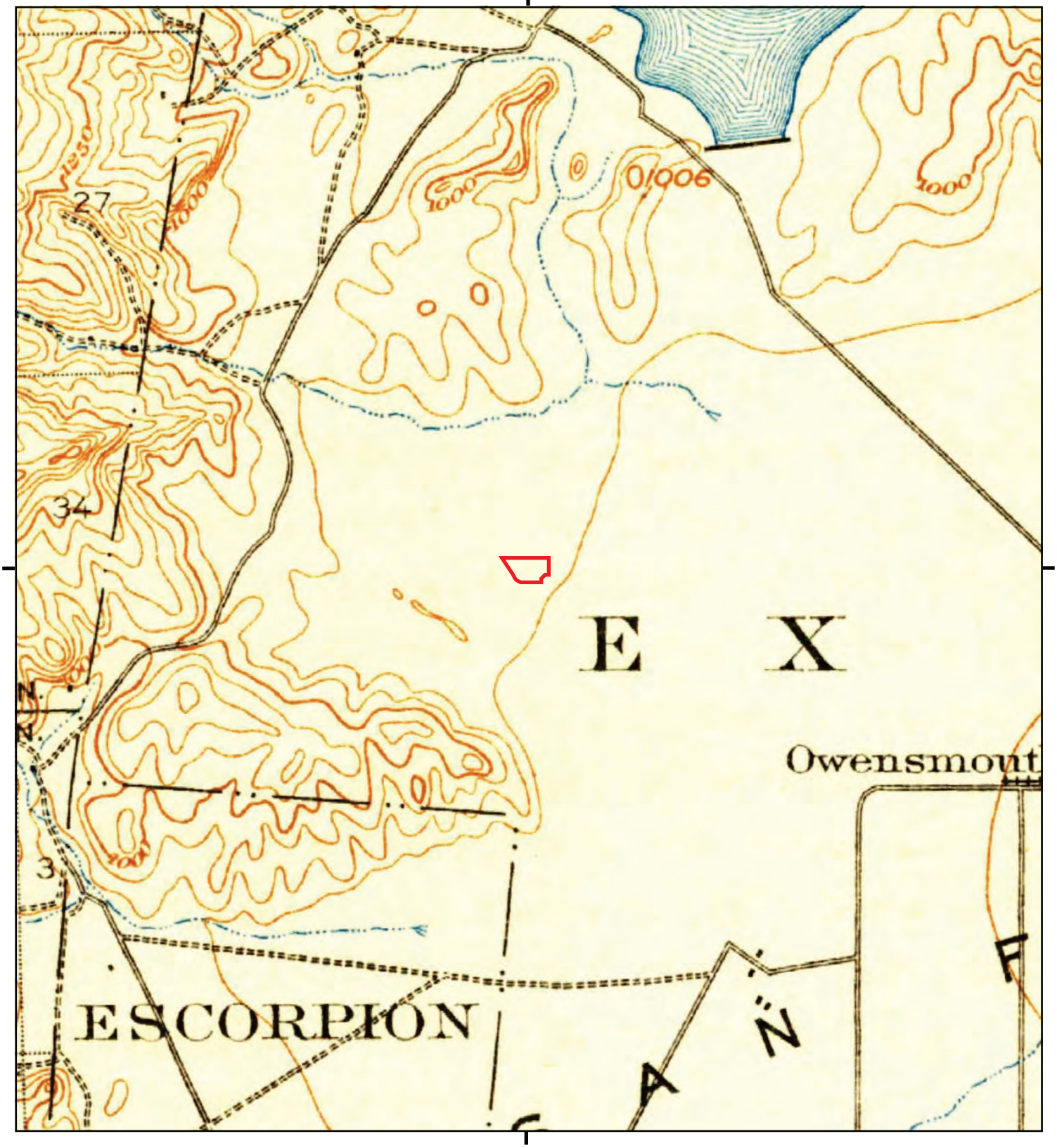
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NW N NE
W E
SW S SE

TP, Chatsworth, 1925, 7.5-minute
S, Dry Canyon, 1925, 7.5-minute

SITE NAME: West Hills Shopping Center
ADDRESS: 23233 Saticoy Street
Canoga Park, CA 91304
CLIENT: Dudek & Associates

N



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Calabasas, 1903, 15-minute

SITE NAME: West Hills Shopping Center
ADDRESS: 23233 Saticoy Street
Canoga Park, CA 91304
CLIENT: Dudek & Associates

N

Appendix H

Sanborn Maps and City Directory

West Hills Shopping Center
23233 Saticoy Street
Canoga Park, CA 91304

Inquiry Number: 4867315.3
March 01, 2017

Certified Sanborn® Map Report

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

Certified Sanborn® Map Report

03/01/17

Site Name:

West Hills Shopping Center
23233 Saticoy Street
Canoga Park, CA 91304
EDR Inquiry # 4867315.3

Client Name:

Dudek & Associates
605 Third Street
Encinitas, CA 92024
Contact: Susie Smith

The Sanborn Library has been searched by EDR and maps covering the target property location as provided by Dudek & Associates were identified for the years listed below. The Sanborn Library is the largest, most complete collection of fire insurance maps. The collection includes maps from Sanborn, Bromley, Perris & Browne, Hopkins, Barlow, and others. Only Environmental Data Resources Inc. (EDR) is authorized to grant rights for commercial reproduction of maps by the Sanborn Library LLC, the copyright holder for the collection. Results can be authenticated by visiting www.edrnet.com/sanborn.

The Sanborn Library is continually enhanced with newly identified map archives. This report accesses all maps in the collection as of the day this report was generated.

Certified Sanborn Results:

Certification # 31F9-4560-AD42

PO # 10138

Project West Hills Shopping Center

UNMAPPED PROPERTY

This report certifies that the complete holdings of the Sanborn Library, LLC collection have been searched based on client supplied target property information, and fire insurance maps covering the target property were not found.

Sanborn® Library search results

Certification #: 31F9-4560-AD42

The Sanborn Library includes more than 1.2 million fire insurance maps from Sanborn, Bromley, Perris & Browne, Hopkins, Barlow and others which track historical property usage in approximately 12,000 American cities and towns. Collections searched:

- ☑ Library of Congress
- ☑ University Publications of America
- ☑ EDR Private Collection

The Sanborn Library LLC Since 1866™

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West Hills Shopping Center
23233 Saticoy Street
Canoga Park, CA 91304

Inquiry Number: 4867315.5
March 02, 2017

The EDR-City Directory Abstract

Environmental Data Resources Inc

6 Armstrong Road
Shelton, CT 06484
800.352.0050
www.edrnet.com

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Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

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EXECUTIVE SUMMARY

DESCRIPTION

Environmental Data Resources, Inc.'s (EDR) City Directory Abstract is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDR's City Directory Abstract includes a search and abstract of available city directory data. For each address, the directory lists the name of the corresponding occupant at five year intervals.

Business directories including city, cross reference and telephone directories were reviewed, if available, at approximately five year intervals for the years spanning 1920 through 2013. This report compiles information gathered in this review by geocoding the latitude and longitude of properties identified and gathering information about properties within 660 feet of the target property.

A summary of the information obtained is provided in the text of this report.

RESEARCH SUMMARY

The following research sources were consulted in the preparation of this report. An "X" indicates where information was identified in the source and provided in this report.

Year	*Source*	*TP*	*Adjoining*	*Text Abstract*	*Source Image*
2013	Cole Information Services	X	X	X	-
2008	Cole Information Services	X	X	X	-
2006	Haines Company	-	-	-	-
2004	Haines Company	X	X	X	-
2003	Haines & Company	-	-	-	-
2001	Haines Company, Inc.	-	-	-	-
2000	Haines	-	-	-	-
1999	Haines Company	-	-	-	-
1996	GTE	-	-	-	-
1995	Pacific Bell	X	X	X	-
1992	PACIFIC BELL WHITE PAGES	-	-	-	-
1991	Pacific Bell	X	X	X	-
1990	PACIFIC BELL WHITE PAGES	-	-	-	-
1986	Pacific Bell	-	-	-	-
1985	Pacific Bell	X	X	X	-
1981	Pacific Telephone	-	-	-	-
1980	Pacific Telephone	-	X	X	-
	Pacific Telephone	X	X	X	-
1976	R.L. Polk & Co Publishers	-	-	-	-
1975	Pacific Telephone	X	X	X	-
1972	R. L. Polk & Co.	-	-	-	-
1971	R. L. Polk & Co.	-	-	-	-
1970	Pacific Telephone	-	X	X	-
	Pacific Telephone	X	X	X	-
1969	Pacific Telephone	-	-	-	-

EXECUTIVE SUMMARY

Year	Source	TP	Adjoining	Text Abstract	Source Image
1967	R. L. Polk & Co.	-	-	-	-
1966	Pacific Telephone	-	-	-	-
1965	Pacific Telephone	X	X	X	-
1964	Pacific Telephone	-	-	-	-
1963	Pacific Telephone	-	-	-	-
1962	Pacific Telephone	-	X	X	-
1961	R. L. Polk & Co.	-	-	-	-
1960	Pacific Telephone	-	-	-	-
1958	Pacific Telephone	-	-	-	-
1957	Pacific Telephone	-	-	-	-
1956	Pacific Telephone	-	X	X	-
	Pacific Telephone	X	X	X	-
1955	R. L. Polk & Co.	-	-	-	-
1954	R. L. Polk & Co.	-	-	-	-
1952	Los Angeles Directory Co.	-	-	-	-
1951	Los Angeles Directory Co.	-	-	-	-
1950	Pacific Telephone	-	X	X	-
1949	Los Angeles Directory Co.	-	-	-	-
1948	Associated Telephone Company, Ltd.	-	-	-	-
1947	Pacific Directory Co.	-	-	-	-
1946	Southern California Telephone Co	-	-	-	-
1945	R. L. Polk & Co.	-	-	-	-
1944	R. L. Polk & Co.	-	-	-	-
1942	Los Angeles Directory Co.	-	-	-	-
1940	Los Angeles Directory Co.	-	-	-	-
1939	Los Angeles Directory Co.	-	-	-	-
1938	Los Angeles Directory Company Publishers	-	-	-	-
1937	Los Angeles Directory Co.	-	-	-	-
1936	Los Angeles Directory Co.	-	-	-	-
1935	Los Angeles Directory Co.	-	X	X	-
1934	Los Angeles Directory Co.	-	-	-	-
1933	Los Angeles Directory Co.	-	-	-	-
1932	Los Angeles Directory Co.	-	-	-	-
1931	TRIBUNE-NEWS PUBLISHING CO.	-	-	-	-
1930	Los Angeles Directory Co.	-	-	-	-
1929	Los Angeles Directory Co.	-	-	-	-
1928	Los Angeles Directory Co.	-	-	-	-
1927	Los Angeles Directory Co.	-	-	-	-
1926	Los Angeles Directory Co.	-	-	-	-
1925	Los Angeles Directory Co.	-	-	-	-
1924	Los Angeles Directory Co.	-	-	-	-
1923	Los Angeles Directory Co.	-	-	-	-

EXECUTIVE SUMMARY

Year	Source	TP	Adjoining	Text Abstract	Source Image
1921	Los Angeles Directory Co.	-	-	-	-
1920	Los Angeles Directory Co.	-	-	-	-

EXECUTIVE SUMMARY

SELECTED ADDRESSES

The following addresses were selected by the client, for EDR to research. An "X" indicates where information was identified.

Address	*Type*	*Findings*
23221 Saticoy Street	Client Entered	X
7629 Woodlake Avenue	Client Entered	X

FINDINGS

TARGET PROPERTY INFORMATION

ADDRESS

23233 Saticoy Street
Canoga Park, CA 91304

FINDINGS DETAIL

Target Property research detail.

SATICOY ST

23221 SATICOY ST

Year	*Uses*	*Source*
2013	DABAN ENTERPRISES	Cole Information Services
	FIELDS MARKET	Cole Information Services
2008	WEST HILLS MARKET	Cole Information Services
2004	WEST HILLS MARKETS	Haines Company
1965	LALPH HETA ACHE MKTS	Pacific Telephone

23233 SATICOY ST

Year	*Uses*	*Source*
2013	CUTTING EDGE KARATE	Cole Information Services
	DISABILITY REHAB CENTER	Cole Information Services
	ELITE FULL SERVICE SALON & BOUTIQUE	Cole Information Services
	GOLDEN PERFORMING ARTS CENTER	Cole Information Services
	PET MEDICAL CENTER CHATOAK	Cole Information Services
	RAZS LITTLE ITALY	Cole Information Services
	STAR MAKERS DANCE ACADEMY	Cole Information Services
	STEVEN HILL STATE FARM INSURANCE A	Cole Information Services
	SUPERIOR COLLECTION BUREAU	Cole Information Services
	WEST HILLS MASSAGE THERAPY	Cole Information Services
	WEST HILLS POOL SUPPLY	Cole Information Services
2008	AMERICAN TSUUHAN	Cole Information Services
	CUTTING EDGE KARATE INC	Cole Information Services
	DISABILITY REHAB CENTER	Cole Information Services
	ELITE FULL SERVICE BEAUTY SALON	Cole Information Services
	GOLDEN PAC	Cole Information Services
	GOLDEN PERFORMING ARTS CENTER	Cole Information Services
	SUPERIOR COLLECTION INC	Cole Information Services
	TOUCHSTONE ESTATES	Cole Information Services

FINDINGS

Year	Uses	Source
2008	WEST HILLS CLEANERS	Cole Information Services
	WEST HILLS POOL SUPPLY	Cole Information Services
	WEST HILLS VETERINARY CLINIC	Cole Information Services
2004	AMERTSUUHAN	Haines Company
	ARTS CENTER	Haines Company
	BEAUTYSLN	Haines Company
	BUFFUMROBERTM	Haines Company
	COLLECTION	Haines Company
	ELUTEFULLSERVICE	Haines Company
	GOLDENPERFORMING	Haines Company
	ILPARADISO	Haines Company
	SEA & SHORETRAVEL	Haines Company
	SUPERIOR	Haines Company
	VETERINARY CLINIC	Haines Company
	WEST HILLS	Haines Company
	WEST HLS CLEANERS	Haines Company
1995	Buffum Robert M	Pacific Bell
	Fax Telephone No	Pacific Bell
	Half Hour Photo	Pacific Bell
	Leimert Walter HJr	Pacific Bell
	Paradise & Beyond Travel	Pacific Bell
	Sues Coffee Corner	Pacific Bell
	West Hills Cleaners	Pacific Bell
	West Hills Postal Center	Pacific Bell
	West Hills Veterinary Clinic	Pacific Bell
1991	Ad Lib Stylist	Pacific Bell
	Ad Magic Specialties	Pacific Bell
	Fax Telephone No	Pacific Bell
	Haleaf Hour Photo	Pacific Bell
	Leimert Walter H Jr	Pacific Bell
	West Hi URpsjstal Center	Pacific Bell
	West Hills Cleaners	Pacific Bell
	West Hills Property Owners Assn	Pacific Bell
	West Hills Psychiatric Medical Group	Pacific Bell
	West Hills Veterinary Clinic	Pacific Bell
	West Isabelle S	Pacific Bell
	West J	Pacific Bell
	West J Tuj	Pacific Bell

FINDINGS

Year	Uses	Source
1985	Ad Lib Stylist	Pacific Bell
	Ad Lib Stylists	Pacific Bell
	AD MART sec hnd dlrs	Pacific Bell
1975	Canoga Park	Pacific Telephone
1965	BT11C5100E HAIR FASHIONS	Pacific Telephone
	TEC0NIOUL HAIR FASHIONS	Pacific Telephone

Saticoy Street

23221 Saticoy Street

Year	Uses	Source
2004	WEST HILLS MARKETS	Haines Company
1965	LALPH HETA ACHE MKTS	Pacific Telephone

WOODLAKE AVE

7629 WOODLAKE AVE

Year	Uses	Source
2013	MELITOS BARBER SHOP	Cole Information Services
2008	HOLTONS BARBER SHOP	Cole Information Services
1995	Holtons Barber Shop	Pacific Bell
1991	Holtons Barber Shop	Pacific Bell
1985	Holtons Barber Shop	Pacific Bell
1980	HOLTON S BARBER SHOP	Pacific Telephone
1970	J H BARBER SHOP	Pacific Telephone
1956	SCHREIBER BERT	Pacific Telephone

Woodlake Avenue

7629 Woodlake Avenue

Year	Uses	Source
1995	Holtons Barber Shop	Pacific Bell
1991	Holtons Barber Shop	Pacific Bell
1985	Holtons Barber Shop	Pacific Bell
1980	HOLTON S BARBER SHOP	Pacific Telephone
1970	J H BARBER SHOP	Pacific Telephone
1956	SCHREIBER BERT	Pacific Telephone

FINDINGS

ADJOINING PROPERTY DETAIL

The following Adjoining Property addresses were researched for this report. Detailed findings are provided for each address.

BOBBYBOYAR AVE

7520 BOBBYBOYAR AVE

Year	Uses	Source
2004	EICHER James	Haines Company
	EICHER William F	Haines Company
1995	Eicher James	Pacific Bell
	Eicher William F	Pacific Bell
1991	Eicher James	Pacific Bell
	Eicher William F	Pacific Bell
	Eichers E Sakura	Pacific Bell
1985	Eicher Wm F	Pacific Bell
1980	EICHER WM F	Pacific Telephone

7525 BOBBYBOYAR AVE

Year	Uses	Source
2004	OHILBORNThos D	Haines Company
1995	Hilborn Thos D	Pacific Bell
1991	Hilborn Thos D	Pacific Bell

7526 BOBBYBOYAR AVE

Year	Uses	Source
2004	OCOMPANYClaudio	Haines Company
1991	Sherlck Richard & Patricia	Pacific Bell
1985	Sherlock Richard & Patricia	Pacific Bell
1980	SHERLOCK RICHARD & PATRICIA	Pacific Telephone

7532 BOBBYBOYAR AVE

Year	Uses	Source
1985	Silverman Martin M	Pacific Bell
	Silverman Max	Pacific Bell
	Silverman Max	Pacific Bell
1980	SILVERMAN MARTIN M CANOGA PARK	Pacific Telephone

FINDINGS

7533 BOBBYBOYAR AVE

Year	Uses	Source
2004	CAMARILLO Oscar	Haines Company
1985	Martasin Neil & Vivien	Pacific Bell
1980	YUNGER FRANK J	Pacific Telephone

7538 BOBBYBOYAR AVE

Year	Uses	Source
2004	AYOUBWalid	Haines Company

7539 BOBBYBOYAR AVE

Year	Uses	Source
2004	OHOLCOMBPaul	Haines Company

7544 BOBBYBOYAR AVE

Year	Uses	Source
2004	TABRIZI Georges S	Haines Company
1995	Tabrizi Jeff	Pacific Bell
	S Tabrizi Ltza	Pacific Bell
1991	Tabrizi Georges S	Pacific Bell
1985	Tabrizi Javad	Pacific Bell
	Tobrizi Georges S	Pacific Bell
	Tabrizi Morad	Pacific Bell
1980	TABRIZI GEORGES S	Pacific Telephone

7545 BOBBYBOYAR AVE

Year	Uses	Source
2008	FREDRICK SCHULTE CONSTRUCTION	Cole Information Services
2004	OSCHULTE Diane	Haines Company
	OSCHULTE Diane	Haines Company
	SCHULTE Fredrick	Haines Company
	SCHULTEFredrick	Haines Company
	SCHULTEFredrick	Haines Company
1991	Kavulich John	Pacific Bell

7550 BOBBYBOYAR AVE

Year	Uses	Source
2004	VACARamiro A	Haines Company
1995	Vaca Hilario	Pacific Bell
	I Vaca Ramiro A	Pacific Bell
1991	Vaca Ramiro A	Pacific Bell

FINDINGS

Year	Uses	Source
1985	Vaca Ramiro A	Pacific Bell
1980	VACA RAMIRO A	Pacific Telephone

7551 BOBBYBOYAR AVE

Year	Uses	Source
2004	ORASMUSSENJohn	Haines Company

7556 BOBBYBOYAR AVE

Year	Uses	Source
2004	0 VACARemiro	Haines Company

7557 BOBBYBOYAR AVE

Year	Uses	Source
2004	HERTZBERGJacki	Haines Company

7562 BOBBYBOYAR AVE

Year	Uses	Source
2004	KHOSROABADI Badri	Haines Company

7563 BOBBYBOYAR AVE

Year	Uses	Source
2004	OSALUDARESCadito	Haines Company
1980	HOSTERMAN FRED O SR	Pacific Telephone

7566 BOBBYBOYAR AVE

Year	Uses	Source
2004	DREIMAN David	Haines Company
1980	HAWTHORNE ROD CONSTRUCTION	Pacific Telephone

7567 BOBBYBOYAR AVE

Year	Uses	Source
2004	BERTRANDMel	Haines Company
1980	BUSTER RALPH E	Pacific Telephone

7570 BOBBYBOYAR AVE

Year	Uses	Source
2004	NIMAKOH Charles	Haines Company

7638 BOBBYBOYAR AVE

Year	Uses	Source
2004	YU Albert	Haines Company

FINDINGS

7639 BOBBYBOYAR AVE

Year	Uses	Source
2004	CAIRNS Susan	Haines Company

7644 BOBBYBOYAR AVE

Year	Uses	Source
2004	NAVARRO Rodolfo	Haines Company

7651 BOBBYBOYAR AVE

Year	Uses	Source
2004	LINGong	Haines Company

7652 BOBBYBOYAR AVE

Year	Uses	Source
2004	WALIGURAJudy	Haines Company
1991	Perlas Gomez Herminia M Dr	Pacific Bell

7657 BOBBYBOYAR AVE

Year	Uses	Source
2004	ODARLINGTON Lee D	Haines Company
1995	Darlington Lee D	Pacific Bell
1991	Darlington Lee D	Pacific Bell

7658 BOBBYBOYAR AVE

Year	Uses	Source
2004	SKATONABradley	Haines Company

COVELLO ST

23241 COVELLO ST

Year	Uses	Source
2004	APPLEBY Edward	Haines Company
1985	Tamaki Kevin M	Pacific Bell
	Tamaki Kaz	Pacific Bell
	Tamaki Roger A	Pacific Bell
1980	TAMAKI KAZ CANOGA PARK	Pacific Telephone

23246 COVELLO ST

Year	Uses	Source
2004	SDANTONIO Chris	Haines Company
1991	Schneider Neil & Karen	Pacific Bell
1985	Schneider Neil & Karen	Pacific Bell

Year	Uses	Source
1980	KANE A	Pacific Telephone

23247 COVELLO ST

Year	Uses	Source
2004	SANCHEZ Letbia	Haines Company
1985	Sugar David I	Pacific Bell
1980	SUGAR DAVID I	Pacific Telephone

23255 COVELLO ST

Year	Uses	Source
2004	CHIANGYu	Haines Company
1980	TAYLOR DEAN M E	Pacific Telephone

23264 COVELLO ST

Year	Uses	Source
2004	IPPOLITO Louis	Haines Company

KESWICK ST

23200 KESWICK ST

Year	Uses	Source
1985	Glenview Estates	Pacific Bell

MELBA AVE

7516 MELBA AVE

Year	Uses	Source
2013	PRIMARY ALARM CO	Cole Information Services
2008	PRIMARY ALARM CO	Cole Information Services
2004	PETERSON Calvin	Haines Company
1985	Krich Jay	Pacific Bell
	Diamant Mike	Pacific Bell
	Bosiacki M	Pacific Bell
1980	MAGNO SUSAN	Pacific Telephone

7519 MELBA AVE

Year	Uses	Source
2004	FRANKLIN Stephen	Haines Company
1995	Engler Paul	Pacific Bell
	Engler Paul	Pacific Bell
1991	Engler Paul	Pacific Bell

Year	Uses	Source
1985	Engler Richard	Pacific Bell
	Engler Paul	Pacific Bell
1980	ENGLER PAUL	Pacific Telephone

7524 MELBA AVE

Year	Uses	Source
2004	OBUDIMAN Edwin	Haines Company
1980	BASTIN DAVID J	Pacific Telephone

7525 MELBA AVE

Year	Uses	Source
2004	LAMRandall	Haines Company
	KANG Young Soon	Haines Company
1985	Lam Renea M	Pacific Bell
	Lam Randall J	Pacific Bell
1980	LAM RANDALL J	Pacific Telephone

7532 MELBA AVE

Year	Uses	Source
1980	CALDWELL STEPHEN P	Pacific Telephone
	MATLEN H ROY	Pacific Telephone

7533 MELBA AVE

Year	Uses	Source
2008	HAAGEN DAZS 896	Cole Information Services
2004	ODESILVAChanaka	Haines Company

7540 MELBA AVE

Year	Uses	Source
2004	VASILENKOAndrei	Haines Company
1980	ROBINSON WM D	Pacific Telephone

7548 MELBA AVE

Year	Uses	Source
1980	KAHN LESTER	Pacific Telephone

7551 MELBA AVE

Year	Uses	Source
2004	ANDERSON Walter E	Haines Company
1995	Anderson Walter E	Pacific Bell
1985	Anderson Walter E	Pacific Bell

FINDINGS

Year	Uses	Source
1980	ANDERSON WALTER	Pacific Telephone

7556 MELBA AVE

Year	Uses	Source
2004	VANDER Hook Dennis	Haines Company
	VANDERHOOK Michael	Haines Company
1985	Vander Hook Dennis	Pacific Bell
1980	HARRISON H	Pacific Telephone
	HARRISON LEO J	Pacific Telephone

7557 MELBA AVE

Year	Uses	Source
2004	no info	Haines Company
1985	Flowers Terry L	Pacific Bell
	Flowers V L	Pacific Bell
1980	FLOWERS TERRY L	Pacific Telephone

7562 MELBA AVE

Year	Uses	Source
2004	PAVLO Richard	Haines Company

7638 MELBA AVE

Year	Uses	Source
2004	LOUIS Adel	Haines Company
	ADEL Louis	Haines Company

7639 MELBA AVE

Year	Uses	Source
2013	ANGEL BUNZ DOT COM	Cole Information Services
2004	BASILEValerie	Haines Company
1995	Neelan Jas V	Pacific Bell
1991	Neeley Dexter	Pacific Bell
	Neeley Barney	Pacific Bell
	Neeland Christopher	Pacific Bell
	Neelan Jas V	Pacific Bell

7644 MELBA AVE

Year	Uses	Source
2004	SMITHMatthew	Haines Company

FINDINGS

7645 MELBA AVE

Year	Uses	Source
2004	FINKELSTEIN William	Haines Company

7651 MELBA AVE

Year	Uses	Source
2004	0 CHINWilford	Haines Company

7652 MELBA AVE

Year	Uses	Source
2004	FLEMING Palms	Haines Company

7658 MELBA AVE

Year	Uses	Source
2004	ATLASMAN Ralsa	Haines Company
1991	Lady Paul	Pacific Bell

7659 MELBA AVE

Year	Uses	Source
1991	Valnshtein Igor	Pacific Bell

7685 MELBA AVE

Year	Uses	Source
2004	OFINKELSTEIN William	Haines Company

SATICOY ST

23217 SATICOY ST

Year	Uses	Source
2013	WOODLAKE LIQUORS	Cole Information Services
2004	WOODLAKE LIQUORS	Haines Company
1995	Woodlake Liquors	Pacific Bell
1991	Woodlake Liquors	Pacific Bell
	Woodlake Office Plaza	Pacific Bell
1975	Woodlake Liquors	Pacific Telephone
1965	AHAKVEY5 LODIORS	Pacific Telephone

23229 SATICOY ST

Year	Uses	Source
2013	DOMINOS PIZZA	Cole Information Services
2008	DOMINOS PIZZA	Cole Information Services
2004	DOMINO S PIZZA	Haines Company

Year	Uses	Source
1995	Dominos Pizza	Pacific Bell
1991	Dominos Pizza	Pacific Bell
1985	Dominos Pizza	Pacific Bell
1975	Golden West TV	Pacific Telephone

23231 SATICOY ST

Year	Uses	Source
2013	FUNCTION FIRST FITNESS	Cole Information Services
	SILVER LOCKSMITH	Cole Information Services
1995	Canoga Park Movie Mart	Pacific Bell
	Movie Mart	Pacific Bell
1991	Canoga Park Movie Mart	Pacific Bell
	Canoga Park National Little League Louise Av Enc	Pacific Bell
	Canoga Park National Little League Louise Av & Oxnard Enc	Pacific Bell
	Movie Mart	Pacific Bell
1985	Canoga Park Movie Mart	Pacific Bell
	Movie Mart	Pacific Bell
1975	Canoga Park	Pacific Telephone

23260 SATICOY ST

Year	Uses	Source
1995	Sandoval Simon	Pacific Bell
	Sandoval J&M	Pacific Bell
1991	Gonzalez Rogelio	Pacific Bell
1985	Schreiber Jules	Pacific Bell
1975	Cedarwood Ranch	Pacific Telephone
	Schreiber Jules	Pacific Telephone
1965	SLMR-IBER BFHT	Pacific Telephone
	SCHHEI 8-8 J	Pacific Telephone

23309 SATICOY ST

Year	Uses	Source
2004	KING Charles	Haines Company

WINDOM ST

23246 WINDOM ST

Year	Uses	Source
2004	VIDAURRESara	Haines Company

FINDINGS

23247 WINDOM ST

Year	Uses	Source
2004	GENESTTerese	Haines Company
1995	Yates Chas E	Pacific Bell
1991	Yates has E	Pacific Bell
1985	Yates Chas E	Pacific Bell

23254 WINDOM ST

Year	Uses	Source
2004	OBORMANNOvene	Haines Company
1985	Sanchez Michael	Pacific Bell

23255 WINDOM ST

Year	Uses	Source
2004	00 RTIZ Daniel	Haines Company

WOODLAKE AVE

7521 WOODLAKE AVE

Year	Uses	Source
1956	BARTON R J	Pacific Telephone
1950	BARTON R J R	Pacific Telephone
	BARTON R J R	Pacific Telephone

7522 WOODLAKE AVE

Year	Uses	Source
2004	OBAKER Robt C	Haines Company
	BAKER Cindy	Haines Company
1995	Baker Robt C	Pacific Bell
1991	Baker Robt C	Pacific Bell
1985	Baker Robt C	Pacific Bell
1980	BAKER ROBT C	Pacific Telephone
1970	HOAK LLOYD W	Pacific Telephone
	HOAK LLOYD W	Pacific Telephone
1965	IHOAK LLOYD	Pacific Telephone

7528 WOODLAKE AVE

Year	Uses	Source
2004	OVILLALOBOSDick	Haines Company
1970	DYKES HENRY E	Pacific Telephone
	DYKES HENRY E	Pacific Telephone

FINDINGS

Year	Uses	Source
1965	DYKES HENRY	Pacific Telephone
1962	DYKES HENRY E	Pacific Telephone

7536 WOODLAKE AVE

Year	Uses	Source
2004	LIMONJesus	Haines Company
1995	Limon Jesus	Pacific Bell
1970	WATSON DONEINE MRS	Pacific Telephone
	WATSON DONEINE MRS	Pacific Telephone
1965	KATSON OONE IN	Pacific Telephone
1962	WATSON DONEINE MRS	Pacific Telephone

7539 WOODLAKE AVE

Year	Uses	Source
1956	HOEFER ARTHUR	Pacific Telephone
1950	HOEFER ARTHUR R	Pacific Telephone
	HOEFER ARTHUR R	Pacific Telephone

7542 WOODLAKE AVE

Year	Uses	Source
2008	WISE INCOME TAX SERVICE	Cole Information Services
2004	MORALESKara S	Haines Company
1980	STEED R A	Pacific Telephone
1970	STEED C N	Pacific Telephone
	STEED C N	Pacific Telephone
1965	STEEDO	Pacific Telephone
1962	STEED C N	Pacific Telephone

7566 WOODLAKE AVE

Year	Uses	Source
2008	ROSS PROPERTIES	Cole Information Services
2004	C HIATTGlenn	Haines Company
	ELEY Margaret S	Haines Company
1995	Ross Wmi G	Pacific Bell
	Ross Ron	Pacific Bell
1991	Ross Wmi G	Pacific Bell
1985	Clark J M	Pacific Bell
	Ross Wm G	Pacific Bell
1980	ROSS JILL	Pacific Telephone
	ROSS WM C	Pacific Telephone

FINDINGS

Year	Uses	Source
1980	CLARK J M	Pacific Telephone
1975	Clark J M	Pacific Telephone
1970	SEBRING J L	Pacific Telephone
	SEBRING J L	Pacific Telephone
1962	SEBRING J L	Pacific Telephone
1956	SEBRING J L	Pacific Telephone
1950	CIRCLE S RANCH	Pacific Telephone
	CIRCLE S RANCH	Pacific Telephone
1935	CHAMBERS MARY C R	Los Angeles Directory Co.
	CHAMBERS GEO D R	Los Angeles Directory Co.
	BARTON ROBERT J R	Los Angeles Directory Co.
	BARTON ROBERT J R	Los Angeles Directory Co.

7575 WOODLAKE AVE

Year	Uses	Source
1962	HAIRE CHAS	Pacific Telephone
	HAIRE JEAN	Pacific Telephone
1956	STARR WALTER B	Pacific Telephone
1950	STARR WALTER B R	Pacific Telephone
	STARR WALTER B R	Pacific Telephone

7602 WOODLAKE AVE

Year	Uses	Source
2004	no info	Haines Company
1985	Maldonado Jesus	Pacific Bell
	Maldonado Jorge	Pacific Bell
1970	SMYTH SYDNE	Pacific Telephone
	SMYTH SYDNE	Pacific Telephone
1965	SCHULTZ GERALD	Pacific Telephone
1962	STROMAN HOWARD C	Pacific Telephone
1950	BLOCK J W R	Pacific Telephone
	BLOCK J W R	Pacific Telephone

7607 WOODLAKE AVE

Year	Uses	Source
2013	AZ AUTO TECHNICIANS	Cole Information Services
2008	WOODLAKE CHEVRON	Cole Information Services
	A Z AUTO TECHNICIANS	Cole Information Services
2004	WOODLAKE CHEVRON	Haines Company

FINDINGS

Year	Uses	Source
2004	TECHNICIANS	Haines Company
	A ZAUTO	Haines Company
1995	I Mac Paul Chevron	Pacific Bell
	Smog Check Stations	Pacific Bell
	Paul Mac Chevron	Pacific Bell
	Mac Paul Chevron	Pacific Bell
1991	Mac Paul Chevron	Pacific Bell
	Paul Marie	Pacific Bell
	Paul Mac Chevron	Pacific Bell
	Mac Paul Chevron	Pacific Bell
1985	Mac Paul Chevron	Pacific Bell
1980	REINTS LARRY LARRY S CHEVRON SERVICE STATION	Pacific Telephone
	LARRY S CHEVRON SERVICE STATION	Pacific Telephone
	CHEVRON LARRY S SERVICE STATION	Pacific Telephone
1975	LARRYS CHEVRON SERVICE STATION	Pacific Telephone
	Saticoy And Woodlake	Pacific Telephone
	Chevron Larrys Service Station	Pacific Telephone
1970	REINTS LARRY LARRY S CHEVRON	Pacific Telephone
	LARRY S CHEVRON	Pacific Telephone
	CHEVRON SERVICE STATIONS CANOGA PARK	Pacific Telephone
	REINTS LARRY LARRY S CHEVRON	Pacific Telephone
	LARRY S CHEVRON	Pacific Telephone
	CHEVRON SERVICE STATIONS CANOGA PARK	Pacific Telephone

7619 WOODLAKE AVE

Year	Uses	Source
1995	West Hills	Pacific Bell
	Agoura	Pacific Bell
1991	West ills	Pacific Bell
1980	DONS CLEANERS	Pacific Telephone

7621 WOODLAKE AVE

Year	Uses	Source
2008	HERBALIFE	Cole Information Services
	SURVIVAL KITS ONLINE	Cole Information Services
	VALLEY STOP SMOKING CENTER	Cole Information Services
2004	ADVANCED MAGNETIC	Haines Company

FINDINGS

Year	Uses	Source
2004	CMPNNTS LTD	Haines Company
	COMPONENTS	Haines Company
	ADVANCEDMAGNETIC	Haines Company
1991	W ILLIAMS E ARL D & AS S OCIATE S IN C	Pacific Bell
1985	Woodlake Cleaners	Pacific Bell
1970	CONTINENTAL MEAT SAUSAGE & DELICATESSEN	Pacific Telephone
	CONTINENTAL MEAT SAUSAGE & DELICATESSEN	Pacific Telephone

7625 WOODLAKE AVE

Year	Uses	Source
2004	MAILINGSETC	Haines Company
1995	Joes West Hills Shoe Repair	Pacific Bell
1991	Joes World Inc	Pacific Bell
	Joes West Hills Shoe Repair	Pacific Bell
1985	Joes Shoe Repair	Pacific Bell
1980	RAY INS AGCY	Pacific Telephone
1965	SUTTON T V SALES / SERVI	Pacific Telephone

7628 WOODLAKE AVE

Year	Uses	Source
2004	HOLTON S BARBER	Haines Company

FINDINGS

TARGET PROPERTY: ADDRESS NOT IDENTIFIED IN RESEARCH SOURCE

The following Target Property addresses were researched for this report, and the addresses were not identified in the research source.

Address Researched	Address Not Identified in Research Source
23233 Saticoy Street	2006, 2003, 2001, 2000, 1999, 1996, 1992, 1990, 1986, 1981, 1976, 1972, 1971, 1969, 1967, 1966, 1964, 1963, 1962, 1961, 1960, 1958, 1957, 1955, 1954, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920

ADJOINING PROPERTY: ADDRESSES NOT IDENTIFIED IN RESEARCH SOURCE

The following Adjoining Property addresses were researched for this report, and the addresses were not identified in research source.

Address Researched	Address Not Identified in Research Source
23200 KESWICK ST	2013, 2008, 2006, 2004, 2003, 2001, 2000, 1999, 1996, 1995, 1992, 1991, 1990, 1986, 1981, 1980, 1976, 1975, 1972, 1971, 1970, 1969, 1967, 1966, 1965, 1964, 1963, 1962, 1961, 1960, 1958, 1957, 1956, 1955, 1954, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920
23217 SATICOY ST	2013, 2008, 2006, 2003, 2001, 2000, 1999, 1996, 1992, 1990, 1986, 1985, 1981, 1980, 1976, 1972, 1971, 1970, 1969, 1967, 1966, 1964, 1963, 1962, 1961, 1960, 1958, 1957, 1956, 1955, 1954, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920
23217 SATICOY ST	2008, 2006, 2004, 2003, 2001, 2000, 1999, 1996, 1995, 1992, 1991, 1990, 1986, 1985, 1981, 1980, 1976, 1975, 1972, 1971, 1970, 1969, 1967, 1966, 1965, 1964, 1963, 1962, 1961, 1960, 1958, 1957, 1956, 1955, 1954, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920
23229 SATICOY ST	2006, 2004, 2003, 2001, 2000, 1999, 1996, 1995, 1992, 1991, 1990, 1986, 1985, 1981, 1980, 1976, 1975, 1972, 1971, 1970, 1969, 1967, 1966, 1965, 1964, 1963, 1962, 1961, 1960, 1958, 1957, 1956, 1955, 1954, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920
23229 SATICOY ST	2013, 2008, 2006, 2003, 2001, 2000, 1999, 1996, 1992, 1990, 1986, 1981, 1980, 1976, 1972, 1971, 1970, 1969, 1967, 1966, 1965, 1964, 1963, 1962, 1961, 1960, 1958, 1957, 1956, 1955, 1954, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920
23231 SATICOY ST	2013, 2008, 2006, 2004, 2003, 2001, 2000, 1999, 1996, 1992, 1990, 1986, 1981, 1980, 1976, 1972, 1971, 1970, 1969, 1967, 1966, 1965, 1964, 1963, 1962, 1961, 1960, 1958, 1957, 1956, 1955, 1954, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920
23231 SATICOY ST	2008, 2006, 2004, 2003, 2001, 2000, 1999, 1996, 1995, 1992, 1991, 1990, 1986, 1985, 1981, 1980, 1976, 1975, 1972, 1971, 1970, 1969, 1967, 1966, 1965, 1964, 1963, 1962, 1961, 1960, 1958, 1957, 1956, 1955, 1954, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920

FINDINGS

Address Researched	Address Not Identified in Research Source
23241 COVELLO ST	2013, 2008, 2006, 2003, 2001, 2000, 1999, 1996, 1995, 1992, 1991, 1990, 1986, 1981, 1976, 1975, 1972, 1971, 1970, 1969, 1967, 1966, 1965, 1964, 1963, 1962, 1961, 1960, 1958, 1957, 1956, 1955, 1954, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920
23246 COVELLO ST	2013, 2008, 2006, 2003, 2001, 2000, 1999, 1996, 1995, 1992, 1990, 1986, 1981, 1976, 1975, 1972, 1971, 1970, 1969, 1967, 1966, 1965, 1964, 1963, 1962, 1961, 1960, 1958, 1957, 1956, 1955, 1954, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920
23246 WINDOM ST	2013, 2008, 2006, 2003, 2001, 2000, 1999, 1996, 1995, 1992, 1991, 1990, 1986, 1985, 1981, 1980, 1976, 1975, 1972, 1971, 1970, 1969, 1967, 1966, 1965, 1964, 1963, 1962, 1961, 1960, 1958, 1957, 1956, 1955, 1954, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920
23247 COVELLO ST	2013, 2008, 2006, 2003, 2001, 2000, 1999, 1996, 1995, 1992, 1991, 1990, 1986, 1981, 1976, 1975, 1972, 1971, 1970, 1969, 1967, 1966, 1965, 1964, 1963, 1962, 1961, 1960, 1958, 1957, 1956, 1955, 1954, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920
23247 WINDOM ST	2013, 2008, 2006, 2003, 2001, 2000, 1999, 1996, 1992, 1990, 1986, 1981, 1980, 1976, 1975, 1972, 1971, 1970, 1969, 1967, 1966, 1965, 1964, 1963, 1962, 1961, 1960, 1958, 1957, 1956, 1955, 1954, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920
23254 WINDOM ST	2013, 2008, 2006, 2003, 2001, 2000, 1999, 1996, 1995, 1992, 1991, 1990, 1986, 1981, 1980, 1976, 1975, 1972, 1971, 1970, 1969, 1967, 1966, 1965, 1964, 1963, 1962, 1961, 1960, 1958, 1957, 1956, 1955, 1954, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920
23255 COVELLO ST	2013, 2008, 2006, 2003, 2001, 2000, 1999, 1996, 1995, 1992, 1991, 1990, 1986, 1985, 1981, 1976, 1975, 1972, 1971, 1970, 1969, 1967, 1966, 1965, 1964, 1963, 1962, 1961, 1960, 1958, 1957, 1956, 1955, 1954, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920
23255 WINDOM ST	2013, 2008, 2006, 2003, 2001, 2000, 1999, 1996, 1995, 1992, 1991, 1990, 1986, 1985, 1981, 1980, 1976, 1975, 1972, 1971, 1970, 1969, 1967, 1966, 1965, 1964, 1963, 1962, 1961, 1960, 1958, 1957, 1956, 1955, 1954, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920
23260 SATICOY ST	2013, 2008, 2006, 2004, 2003, 2001, 2000, 1999, 1996, 1992, 1990, 1986, 1981, 1980, 1976, 1972, 1971, 1970, 1969, 1967, 1966, 1964, 1963, 1962, 1961, 1960, 1958, 1957, 1956, 1955, 1954, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920
23264 COVELLO ST	2013, 2008, 2006, 2003, 2001, 2000, 1999, 1996, 1995, 1992, 1991, 1990, 1986, 1985, 1981, 1980, 1976, 1975, 1972, 1971, 1970, 1969, 1967, 1966, 1965, 1964, 1963, 1962, 1961, 1960, 1958, 1957, 1956, 1955, 1954, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920
23309 SATICOY ST	2013, 2008, 2006, 2003, 2001, 2000, 1999, 1996, 1995, 1992, 1991, 1990, 1986, 1985, 1981, 1980, 1976, 1975, 1972, 1971, 1970, 1969, 1967, 1966, 1965, 1964, 1963, 1962, 1961, 1960, 1958, 1957, 1956, 1955, 1954, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920

FINDINGS

Address Researched	Address Not Identified in Research Source
7516 MELBA AVE	2013, 2008, 2006, 2003, 2001, 2000, 1999, 1996, 1995, 1992, 1991, 1990, 1986, 1981, 1976, 1975, 1972, 1971, 1970, 1969, 1967, 1966, 1965, 1964, 1963, 1962, 1961, 1960, 1958, 1957, 1956, 1955, 1954, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920
7516 MELBA AVE	2006, 2004, 2003, 2001, 2000, 1999, 1996, 1995, 1992, 1991, 1990, 1986, 1985, 1981, 1980, 1976, 1975, 1972, 1971, 1970, 1969, 1967, 1966, 1965, 1964, 1963, 1962, 1961, 1960, 1958, 1957, 1956, 1955, 1954, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920
7519 MELBA AVE	2013, 2008, 2006, 2003, 2001, 2000, 1999, 1996, 1992, 1990, 1986, 1981, 1976, 1975, 1972, 1971, 1970, 1969, 1967, 1966, 1965, 1964, 1963, 1962, 1961, 1960, 1958, 1957, 1956, 1955, 1954, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920
7520 BOBBYBOYAR AVE	2013, 2008, 2006, 2003, 2001, 2000, 1999, 1996, 1992, 1990, 1986, 1981, 1976, 1975, 1972, 1971, 1970, 1969, 1967, 1966, 1965, 1964, 1963, 1962, 1961, 1960, 1958, 1957, 1956, 1955, 1954, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920
7521 WOODLAKE AVE	2013, 2008, 2006, 2004, 2003, 2001, 2000, 1999, 1996, 1995, 1992, 1991, 1990, 1986, 1985, 1981, 1980, 1976, 1975, 1972, 1971, 1970, 1969, 1967, 1966, 1965, 1964, 1963, 1962, 1961, 1960, 1958, 1957, 1955, 1954, 1952, 1951, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920
7522 WOODLAKE AVE	2013, 2008, 2006, 2003, 2001, 2000, 1999, 1996, 1992, 1990, 1986, 1981, 1976, 1975, 1972, 1971, 1969, 1967, 1966, 1964, 1963, 1962, 1961, 1960, 1958, 1957, 1956, 1955, 1954, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920
7524 MELBA AVE	2013, 2008, 2006, 2003, 2001, 2000, 1999, 1996, 1995, 1992, 1991, 1990, 1986, 1985, 1981, 1976, 1975, 1972, 1971, 1970, 1969, 1967, 1966, 1965, 1964, 1963, 1962, 1961, 1960, 1958, 1957, 1956, 1955, 1954, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920
7525 BOBBYBOYAR AVE	2013, 2008, 2006, 2003, 2001, 2000, 1999, 1996, 1992, 1990, 1986, 1985, 1981, 1980, 1976, 1975, 1972, 1971, 1970, 1969, 1967, 1966, 1965, 1964, 1963, 1962, 1961, 1960, 1958, 1957, 1956, 1955, 1954, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920
7525 MELBA AVE	2013, 2008, 2006, 2003, 2001, 2000, 1999, 1996, 1995, 1992, 1991, 1990, 1986, 1981, 1976, 1975, 1972, 1971, 1970, 1969, 1967, 1966, 1965, 1964, 1963, 1962, 1961, 1960, 1958, 1957, 1956, 1955, 1954, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920
7526 BOBBYBOYAR AVE	2013, 2008, 2006, 2003, 2001, 2000, 1999, 1996, 1995, 1992, 1990, 1986, 1981, 1976, 1975, 1972, 1971, 1970, 1969, 1967, 1966, 1965, 1964, 1963, 1962, 1961, 1960, 1958, 1957, 1956, 1955, 1954, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920
7528 WOODLAKE AVE	2013, 2008, 2006, 2003, 2001, 2000, 1999, 1996, 1995, 1992, 1991, 1990, 1986, 1985, 1981, 1980, 1976, 1975, 1972, 1971, 1969, 1967, 1966, 1964, 1963, 1961, 1960, 1958, 1957, 1956, 1955, 1954, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920

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Address Researched	Address Not Identified in Research Source
7532 BOBBYBOYAR AVE	2013, 2008, 2006, 2004, 2003, 2001, 2000, 1999, 1996, 1995, 1992, 1991, 1990, 1986, 1981, 1976, 1975, 1972, 1971, 1970, 1969, 1967, 1966, 1965, 1964, 1963, 1962, 1961, 1960, 1958, 1957, 1956, 1955, 1954, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920
7532 MELBA AVE	2013, 2008, 2006, 2004, 2003, 2001, 2000, 1999, 1996, 1995, 1992, 1991, 1990, 1986, 1985, 1981, 1976, 1975, 1972, 1971, 1970, 1969, 1967, 1966, 1965, 1964, 1963, 1962, 1961, 1960, 1958, 1957, 1956, 1955, 1954, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920
7533 BOBBYBOYAR AVE	2013, 2008, 2006, 2003, 2001, 2000, 1999, 1996, 1995, 1992, 1991, 1990, 1986, 1981, 1976, 1975, 1972, 1971, 1970, 1969, 1967, 1966, 1965, 1964, 1963, 1962, 1961, 1960, 1958, 1957, 1956, 1955, 1954, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920
7533 MELBA AVE	2013, 2008, 2006, 2003, 2001, 2000, 1999, 1996, 1995, 1992, 1991, 1990, 1986, 1985, 1981, 1980, 1976, 1975, 1972, 1971, 1970, 1969, 1967, 1966, 1965, 1964, 1963, 1962, 1961, 1960, 1958, 1957, 1956, 1955, 1954, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920
7533 MELBA AVE	2013, 2006, 2004, 2003, 2001, 2000, 1999, 1996, 1995, 1992, 1991, 1990, 1986, 1985, 1981, 1980, 1976, 1975, 1972, 1971, 1970, 1969, 1967, 1966, 1965, 1964, 1963, 1962, 1961, 1960, 1958, 1957, 1956, 1955, 1954, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920
7536 WOODLAKE AVE	2013, 2008, 2006, 2003, 2001, 2000, 1999, 1996, 1992, 1991, 1990, 1986, 1985, 1981, 1980, 1976, 1975, 1972, 1971, 1969, 1967, 1966, 1964, 1963, 1961, 1960, 1958, 1957, 1956, 1955, 1954, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920
7538 BOBBYBOYAR AVE	2013, 2008, 2006, 2003, 2001, 2000, 1999, 1996, 1995, 1992, 1991, 1990, 1986, 1985, 1981, 1980, 1976, 1975, 1972, 1971, 1970, 1969, 1967, 1966, 1965, 1964, 1963, 1962, 1961, 1960, 1958, 1957, 1956, 1955, 1954, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920
7539 BOBBYBOYAR AVE	2013, 2008, 2006, 2003, 2001, 2000, 1999, 1996, 1995, 1992, 1991, 1990, 1986, 1985, 1981, 1980, 1976, 1975, 1972, 1971, 1970, 1969, 1967, 1966, 1965, 1964, 1963, 1962, 1961, 1960, 1958, 1957, 1956, 1955, 1954, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920
7539 WOODLAKE AVE	2013, 2008, 2006, 2004, 2003, 2001, 2000, 1999, 1996, 1995, 1992, 1991, 1990, 1986, 1985, 1981, 1980, 1976, 1975, 1972, 1971, 1970, 1969, 1967, 1966, 1965, 1964, 1963, 1962, 1961, 1960, 1958, 1957, 1955, 1954, 1952, 1951, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920
7540 MELBA AVE	2013, 2008, 2006, 2003, 2001, 2000, 1999, 1996, 1995, 1992, 1991, 1990, 1986, 1985, 1981, 1976, 1975, 1972, 1971, 1970, 1969, 1967, 1966, 1965, 1964, 1963, 1962, 1961, 1960, 1958, 1957, 1956, 1955, 1954, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920
7542 WOODLAKE AVE	2013, 2008, 2006, 2003, 2001, 2000, 1999, 1996, 1995, 1992, 1991, 1990, 1986, 1985, 1981, 1976, 1975, 1972, 1971, 1969, 1967, 1966, 1964, 1963, 1961, 1960, 1958, 1957, 1956, 1955, 1954, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920

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Address Researched	Address Not Identified in Research Source
7542 WOODLAKE AVE	2013, 2006, 2004, 2003, 2001, 2000, 1999, 1996, 1995, 1992, 1991, 1990, 1986, 1985, 1981, 1980, 1976, 1975, 1972, 1971, 1970, 1969, 1967, 1966, 1965, 1964, 1963, 1962, 1961, 1960, 1958, 1957, 1956, 1955, 1954, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920
7544 BOBBYBOYAR AVE	2013, 2008, 2006, 2003, 2001, 2000, 1999, 1996, 1992, 1990, 1986, 1981, 1976, 1975, 1972, 1971, 1970, 1969, 1967, 1966, 1965, 1964, 1963, 1962, 1961, 1960, 1958, 1957, 1956, 1955, 1954, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920
7545 BOBBYBOYAR AVE	2013, 2008, 2006, 2003, 2001, 2000, 1999, 1996, 1995, 1992, 1990, 1986, 1985, 1981, 1980, 1976, 1975, 1972, 1971, 1970, 1969, 1967, 1966, 1965, 1964, 1963, 1962, 1961, 1960, 1958, 1957, 1956, 1955, 1954, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920
7545 BOBBYBOYAR AVE	2013, 2006, 2004, 2003, 2001, 2000, 1999, 1996, 1995, 1992, 1991, 1990, 1986, 1985, 1981, 1980, 1976, 1975, 1972, 1971, 1970, 1969, 1967, 1966, 1965, 1964, 1963, 1962, 1961, 1960, 1958, 1957, 1956, 1955, 1954, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920
7548 MELBA AVE	2013, 2008, 2006, 2004, 2003, 2001, 2000, 1999, 1996, 1995, 1992, 1991, 1990, 1986, 1985, 1981, 1976, 1975, 1972, 1971, 1970, 1969, 1967, 1966, 1965, 1964, 1963, 1962, 1961, 1960, 1958, 1957, 1956, 1955, 1954, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920
7550 BOBBYBOYAR AVE	2013, 2008, 2006, 2003, 2001, 2000, 1999, 1996, 1992, 1990, 1986, 1981, 1976, 1975, 1972, 1971, 1970, 1969, 1967, 1966, 1965, 1964, 1963, 1962, 1961, 1960, 1958, 1957, 1956, 1955, 1954, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920
7551 BOBBYBOYAR AVE	2013, 2008, 2006, 2003, 2001, 2000, 1999, 1996, 1995, 1992, 1991, 1990, 1986, 1985, 1981, 1980, 1976, 1975, 1972, 1971, 1970, 1969, 1967, 1966, 1965, 1964, 1963, 1962, 1961, 1960, 1958, 1957, 1956, 1955, 1954, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920
7551 MELBA AVE	2013, 2008, 2006, 2003, 2001, 2000, 1999, 1996, 1992, 1991, 1990, 1986, 1981, 1976, 1975, 1972, 1971, 1970, 1969, 1967, 1966, 1965, 1964, 1963, 1962, 1961, 1960, 1958, 1957, 1956, 1955, 1954, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920
7556 BOBBYBOYAR AVE	2013, 2008, 2006, 2003, 2001, 2000, 1999, 1996, 1995, 1992, 1991, 1990, 1986, 1985, 1981, 1980, 1976, 1975, 1972, 1971, 1970, 1969, 1967, 1966, 1965, 1964, 1963, 1962, 1961, 1960, 1958, 1957, 1956, 1955, 1954, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920
7556 MELBA AVE	2013, 2008, 2006, 2003, 2001, 2000, 1999, 1996, 1995, 1992, 1991, 1990, 1986, 1981, 1976, 1975, 1972, 1971, 1970, 1969, 1967, 1966, 1965, 1964, 1963, 1962, 1961, 1960, 1958, 1957, 1956, 1955, 1954, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920
7557 BOBBYBOYAR AVE	2013, 2008, 2006, 2003, 2001, 2000, 1999, 1996, 1995, 1992, 1991, 1990, 1986, 1985, 1981, 1980, 1976, 1975, 1972, 1971, 1970, 1969, 1967, 1966, 1965, 1964, 1963, 1962, 1961, 1960, 1958, 1957, 1956, 1955, 1954, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920

FINDINGS

Address Researched	Address Not Identified in Research Source
7557 MELBA AVE	2013, 2008, 2006, 2003, 2001, 2000, 1999, 1996, 1995, 1992, 1991, 1990, 1986, 1981, 1976, 1975, 1972, 1971, 1970, 1969, 1967, 1966, 1965, 1964, 1963, 1962, 1961, 1960, 1958, 1957, 1956, 1955, 1954, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920
7562 BOBBYBOYAR AVE	2013, 2008, 2006, 2003, 2001, 2000, 1999, 1996, 1995, 1992, 1991, 1990, 1986, 1985, 1981, 1980, 1976, 1975, 1972, 1971, 1970, 1969, 1967, 1966, 1965, 1964, 1963, 1962, 1961, 1960, 1958, 1957, 1956, 1955, 1954, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920
7562 MELBA AVE	2013, 2008, 2006, 2003, 2001, 2000, 1999, 1996, 1995, 1992, 1991, 1990, 1986, 1985, 1981, 1980, 1976, 1975, 1972, 1971, 1970, 1969, 1967, 1966, 1965, 1964, 1963, 1962, 1961, 1960, 1958, 1957, 1956, 1955, 1954, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920
7563 BOBBYBOYAR AVE	2013, 2008, 2006, 2003, 2001, 2000, 1999, 1996, 1995, 1992, 1991, 1990, 1986, 1985, 1981, 1976, 1975, 1972, 1971, 1970, 1969, 1967, 1966, 1965, 1964, 1963, 1962, 1961, 1960, 1958, 1957, 1956, 1955, 1954, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920
7566 BOBBYBOYAR AVE	2013, 2008, 2006, 2003, 2001, 2000, 1999, 1996, 1995, 1992, 1991, 1990, 1986, 1985, 1981, 1976, 1975, 1972, 1971, 1970, 1969, 1967, 1966, 1965, 1964, 1963, 1962, 1961, 1960, 1958, 1957, 1956, 1955, 1954, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920
7566 WOODLAKE AVE	2013, 2008, 2006, 2003, 2001, 2000, 1999, 1996, 1992, 1990, 1986, 1981, 1976, 1972, 1971, 1969, 1967, 1966, 1965, 1964, 1963, 1961, 1960, 1958, 1957, 1955, 1954, 1952, 1951, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920
7566 WOODLAKE AVE	2013, 2006, 2004, 2003, 2001, 2000, 1999, 1996, 1995, 1992, 1991, 1990, 1986, 1985, 1981, 1980, 1976, 1975, 1972, 1971, 1970, 1969, 1967, 1966, 1965, 1964, 1963, 1962, 1961, 1960, 1958, 1957, 1956, 1955, 1954, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920
7567 BOBBYBOYAR AVE	2013, 2008, 2006, 2003, 2001, 2000, 1999, 1996, 1995, 1992, 1991, 1990, 1986, 1985, 1981, 1976, 1975, 1972, 1971, 1970, 1969, 1967, 1966, 1965, 1964, 1963, 1962, 1961, 1960, 1958, 1957, 1956, 1955, 1954, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920
7570 BOBBYBOYAR AVE	2013, 2008, 2006, 2003, 2001, 2000, 1999, 1996, 1995, 1992, 1991, 1990, 1986, 1985, 1981, 1980, 1976, 1975, 1972, 1971, 1970, 1969, 1967, 1966, 1965, 1964, 1963, 1962, 1961, 1960, 1958, 1957, 1956, 1955, 1954, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920
7575 WOODLAKE AVE	2013, 2008, 2006, 2004, 2003, 2001, 2000, 1999, 1996, 1995, 1992, 1991, 1990, 1986, 1985, 1981, 1980, 1976, 1975, 1972, 1971, 1970, 1969, 1967, 1966, 1965, 1964, 1963, 1961, 1960, 1958, 1957, 1955, 1954, 1952, 1951, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920
7602 WOODLAKE AVE	2013, 2008, 2006, 2003, 2001, 2000, 1999, 1996, 1995, 1992, 1991, 1990, 1986, 1981, 1980, 1976, 1975, 1972, 1971, 1969, 1967, 1966, 1964, 1963, 1961, 1960, 1958, 1957, 1956, 1955, 1954, 1952, 1951, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920

FINDINGS

Address Researched	Address Not Identified in Research Source
7607 WOODLAKE AVE	2013, 2008, 2006, 2003, 2001, 2000, 1999, 1996, 1992, 1990, 1986, 1981, 1976, 1972, 1971, 1969, 1967, 1966, 1965, 1964, 1963, 1962, 1961, 1960, 1958, 1957, 1956, 1955, 1954, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920
7607 WOODLAKE AVE	2006, 2004, 2003, 2001, 2000, 1999, 1996, 1995, 1992, 1991, 1990, 1986, 1985, 1981, 1980, 1976, 1975, 1972, 1971, 1970, 1969, 1967, 1966, 1965, 1964, 1963, 1962, 1961, 1960, 1958, 1957, 1956, 1955, 1954, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920
7619 WOODLAKE AVE	2013, 2008, 2006, 2004, 2003, 2001, 2000, 1999, 1996, 1992, 1990, 1986, 1985, 1981, 1976, 1975, 1972, 1971, 1970, 1969, 1967, 1966, 1965, 1964, 1963, 1962, 1961, 1960, 1958, 1957, 1956, 1955, 1954, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920
7621 WOODLAKE AVE	2013, 2008, 2006, 2003, 2001, 2000, 1999, 1996, 1995, 1992, 1990, 1986, 1981, 1980, 1976, 1975, 1972, 1971, 1969, 1967, 1966, 1965, 1964, 1963, 1962, 1961, 1960, 1958, 1957, 1956, 1955, 1954, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920
7621 WOODLAKE AVE	2013, 2006, 2004, 2003, 2001, 2000, 1999, 1996, 1995, 1992, 1991, 1990, 1986, 1985, 1981, 1980, 1976, 1975, 1972, 1971, 1970, 1969, 1967, 1966, 1965, 1964, 1963, 1962, 1961, 1960, 1958, 1957, 1956, 1955, 1954, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920
7625 WOODLAKE AVE	2013, 2008, 2006, 2003, 2001, 2000, 1999, 1996, 1992, 1990, 1986, 1981, 1976, 1975, 1972, 1971, 1970, 1969, 1967, 1966, 1964, 1963, 1962, 1961, 1960, 1958, 1957, 1956, 1955, 1954, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920
7628 WOODLAKE AVE	2013, 2008, 2006, 2003, 2001, 2000, 1999, 1996, 1995, 1992, 1991, 1990, 1986, 1985, 1981, 1980, 1976, 1975, 1972, 1971, 1970, 1969, 1967, 1966, 1965, 1964, 1963, 1962, 1961, 1960, 1958, 1957, 1956, 1955, 1954, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920
7638 BOBBYBOYAR AVE	2013, 2008, 2006, 2003, 2001, 2000, 1999, 1996, 1995, 1992, 1991, 1990, 1986, 1985, 1981, 1980, 1976, 1975, 1972, 1971, 1970, 1969, 1967, 1966, 1965, 1964, 1963, 1962, 1961, 1960, 1958, 1957, 1956, 1955, 1954, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920
7638 MELBA AVE	2013, 2008, 2006, 2003, 2001, 2000, 1999, 1996, 1995, 1992, 1991, 1990, 1986, 1985, 1981, 1980, 1976, 1975, 1972, 1971, 1970, 1969, 1967, 1966, 1965, 1964, 1963, 1962, 1961, 1960, 1958, 1957, 1956, 1955, 1954, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920
7639 BOBBYBOYAR AVE	2013, 2008, 2006, 2003, 2001, 2000, 1999, 1996, 1995, 1992, 1991, 1990, 1986, 1985, 1981, 1980, 1976, 1975, 1972, 1971, 1970, 1969, 1967, 1966, 1965, 1964, 1963, 1962, 1961, 1960, 1958, 1957, 1956, 1955, 1954, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920
7639 MELBA AVE	2013, 2008, 2006, 2003, 2001, 2000, 1999, 1996, 1992, 1990, 1986, 1985, 1981, 1980, 1976, 1975, 1972, 1971, 1970, 1969, 1967, 1966, 1965, 1964, 1963, 1962, 1961, 1960, 1958, 1957, 1956, 1955, 1954, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920

FINDINGS

Address Researched	Address Not Identified in Research Source
7639 MELBA AVE	2008, 2006, 2004, 2003, 2001, 2000, 1999, 1996, 1995, 1992, 1991, 1990, 1986, 1985, 1981, 1980, 1976, 1975, 1972, 1971, 1970, 1969, 1967, 1966, 1965, 1964, 1963, 1962, 1961, 1960, 1958, 1957, 1956, 1955, 1954, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920
7644 BOBBYBOYAR AVE	2013, 2008, 2006, 2003, 2001, 2000, 1999, 1996, 1995, 1992, 1991, 1990, 1986, 1985, 1981, 1980, 1976, 1975, 1972, 1971, 1970, 1969, 1967, 1966, 1965, 1964, 1963, 1962, 1961, 1960, 1958, 1957, 1956, 1955, 1954, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920
7644 MELBA AVE	2013, 2008, 2006, 2003, 2001, 2000, 1999, 1996, 1995, 1992, 1991, 1990, 1986, 1985, 1981, 1980, 1976, 1975, 1972, 1971, 1970, 1969, 1967, 1966, 1965, 1964, 1963, 1962, 1961, 1960, 1958, 1957, 1956, 1955, 1954, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920
7645 MELBA AVE	2013, 2008, 2006, 2003, 2001, 2000, 1999, 1996, 1995, 1992, 1991, 1990, 1986, 1985, 1981, 1980, 1976, 1975, 1972, 1971, 1970, 1969, 1967, 1966, 1965, 1964, 1963, 1962, 1961, 1960, 1958, 1957, 1956, 1955, 1954, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920
7651 BOBBYBOYAR AVE	2013, 2008, 2006, 2003, 2001, 2000, 1999, 1996, 1995, 1992, 1991, 1990, 1986, 1985, 1981, 1980, 1976, 1975, 1972, 1971, 1970, 1969, 1967, 1966, 1965, 1964, 1963, 1962, 1961, 1960, 1958, 1957, 1956, 1955, 1954, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920
7651 MELBA AVE	2013, 2008, 2006, 2003, 2001, 2000, 1999, 1996, 1995, 1992, 1991, 1990, 1986, 1985, 1981, 1980, 1976, 1975, 1972, 1971, 1970, 1969, 1967, 1966, 1965, 1964, 1963, 1962, 1961, 1960, 1958, 1957, 1956, 1955, 1954, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920
7652 BOBBYBOYAR AVE	2013, 2008, 2006, 2003, 2001, 2000, 1999, 1996, 1995, 1992, 1990, 1986, 1985, 1981, 1980, 1976, 1975, 1972, 1971, 1970, 1969, 1967, 1966, 1965, 1964, 1963, 1962, 1961, 1960, 1958, 1957, 1956, 1955, 1954, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920
7652 MELBA AVE	2013, 2008, 2006, 2003, 2001, 2000, 1999, 1996, 1995, 1992, 1991, 1990, 1986, 1985, 1981, 1980, 1976, 1975, 1972, 1971, 1970, 1969, 1967, 1966, 1965, 1964, 1963, 1962, 1961, 1960, 1958, 1957, 1956, 1955, 1954, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920
7657 BOBBYBOYAR AVE	2013, 2008, 2006, 2003, 2001, 2000, 1999, 1996, 1992, 1990, 1986, 1985, 1981, 1980, 1976, 1975, 1972, 1971, 1970, 1969, 1967, 1966, 1965, 1964, 1963, 1962, 1961, 1960, 1958, 1957, 1956, 1955, 1954, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920
7658 BOBBYBOYAR AVE	2013, 2008, 2006, 2003, 2001, 2000, 1999, 1996, 1995, 1992, 1991, 1990, 1986, 1985, 1981, 1980, 1976, 1975, 1972, 1971, 1970, 1969, 1967, 1966, 1965, 1964, 1963, 1962, 1961, 1960, 1958, 1957, 1956, 1955, 1954, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920
7658 MELBA AVE	2013, 2008, 2006, 2003, 2001, 2000, 1999, 1996, 1995, 1992, 1990, 1986, 1985, 1981, 1980, 1976, 1975, 1972, 1971, 1970, 1969, 1967, 1966, 1965, 1964, 1963, 1962, 1961, 1960, 1958, 1957, 1956, 1955, 1954, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920

FINDINGS

Address Researched	Address Not Identified in Research Source
7659 MELBA AVE	2013, 2008, 2006, 2004, 2003, 2001, 2000, 1999, 1996, 1995, 1992, 1990, 1986, 1985, 1981, 1980, 1976, 1975, 1972, 1971, 1970, 1969, 1967, 1966, 1965, 1964, 1963, 1962, 1961, 1960, 1958, 1957, 1956, 1955, 1954, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920
7685 MELBA AVE	2013, 2008, 2006, 2003, 2001, 2000, 1999, 1996, 1995, 1992, 1991, 1990, 1986, 1985, 1981, 1980, 1976, 1975, 1972, 1971, 1970, 1969, 1967, 1966, 1965, 1964, 1963, 1962, 1961, 1960, 1958, 1957, 1956, 1955, 1954, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1942, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1921, 1920

Appendix I

Environmental Lien Report

The NETR Environmental Lien and AUL Search Report

WEST HILLS SHOPPING CENTER
23221 - 23233 SATICOY STREET AND
7629 WOODLAKE AVENUE
WEST HILLS, CALIFORNIA

Friday, March 3, 2017

Project Number: L17-00363

2055 East Rio Salado Parkway
Tempe, Arizona 85281

Telephone: 480-967-6752
Fax: 480-966-9422

ENVIRONMENTAL LIEN AND AUL REPORT

The NETR Environmental LienSearch Report provides results from a search of available current land title records for environmental cleanup liens and other activity and use limitations, such as engineering controls and institutional controls.

A network of professional, trained researchers, following established procedures, uses client supplied property information to:

- search for parcel information and/or legal description;
- search for ownership information;
- research official land title documents recorded at jurisdictional agencies such as recorders' office, registries of deed, county clerks' offices, etc.;
- access a copy of the deed;
- search for environmental encumbering instrument(s) associated with the deed;
- provide a copy of any environmental encumbrance(s) based upon a review of key words in the instrument(s) (title, parties involved and description); and
- provide a copy of the deed or cite documents reviewed;

Thank you for your business
Please contact NETR at 480-967-6752
with any questions or comments

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ENVIRONMENTAL LIEN AND AUL REPORT

The NETR Environmental Lien Search Report is intended to assist in the search for environmental liens filed in land title records.

TARGET PROPERTY INFORMATION

ADDRESS

West Hills Shopping Center
23221 - 23233 Saticoy Street and 7629 Woodlake Avenue
West Hills, California

RESEARCH SOURCE

Source: Los Angeles County Assessor
Los Angeles County Recorder

DEED INFORMATION

Type of Instrument: Corporation Grant Deed

Grantor: Leimert Realty Company, a California corporation, as to an undivided 0.5% interest

Grantee: Leimert/Saticoy, LP, a California limited partnership

Deed Dated: 09/21/1988
Deed Recorded: 09/28/1988
Instrument: 88-1563408

Type of Instrument: Individual Grant Deed

Grantor: Walter H. Leimert, Jr., a married man as his separate property, as to an undivided 99.5% interest

Grantee: Leimert/Saticoy, LP, a California limited partnership

Deed Dated: 09/21/1988
Deed Recorded: 09/29/1988
Instrument: 88-1569514

LEGAL DESCRIPTION

That part of Lot 1, in Tract 25773, according to the map or plat thereof, as filed of record in Book 668, Page 50, Los Angeles County, State of California

Assessor's Parcel Number(s): 2027-005-005

ENVIRONMENTAL LIEN

Environmental Lien: Found ☐ Not Found ☒

ENVIRONMENTAL LIEN AND AUL REPORT

OTHER ACTIVITY AND USE LIMITATIONS (AULs)

Other AULs: Found ☐ Not Found ☒

ENVIRONMENTAL LIEN AND AUL REPORT

TARGET PROPERTY INFORMATION

ADDRESS

West Hills Shopping Center
23221 - 23233 Saticoy Street and 7629 Woodlake Avenue
West Hills, California

RESEARCH SOURCE

Source: Los Angeles County Assessor
Los Angeles County Recorder

DEED INFORMATION

Type of Instrument: Grant Deed

Grantor: Walter H. Leimert, III, Trustee of the Tim Leimert Non-Exempt Family Trust FBO Walter H. Leimert, II; Walter H. Leimert, II, Administrative Trustee of the Tim Leimert Non-Exempt Family Trust FBO Norman T. Leimert; Walter H. Leimert, II, Trustee of the Walter H. Leimert Trust; and Walter H. Leimert, II, Trustee of the Norman Timothy Leimert 2003 Irrevocable Trust

Grantee: West Hills Market, LLC, a California limited liability company

Deed Dated: 09/26/2011
Deed Recorded: 09/30/2011
Instrument: 20111328002

LEGAL DESCRIPTION

That part of Lot 1, in Tract 25773, according to the map or plat thereof, as filed of record in Book 668, Page 50, Los Angeles County, State of California

Assessor's Parcel Number(s): 2027-005-006

ENVIRONMENTAL LIEN

Environmental Lien: Found ☐ Not Found ☒

OTHER ACTIVITY AND USE LIMITATIONS (AULs)

Other AULs: Found ☐ Not Found ☒

ENVIRONMENTAL LIEN AND AUL REPORT

TARGET PROPERTY INFORMATION

ADDRESS

West Hills Shopping Center
23221 - 23233 Saticoy Street and 7629 Woodlake Avenue
West Hills, California

RESEARCH SOURCE

Source: Los Angeles County Assessor
Los Angeles County Recorder

DEED INFORMATION

Type of Instrument: Corporation Grant Deed

Grantor: Leimert Realty Company, a California corporation, as to an undivided 0.5% interest

Grantee: Leimert/Saticoy, LP, a California limited partnership

Deed Dated: 09/21/1988
Deed Recorded: 09/28/1988
Instrument: 88-1563408

Type of Instrument: Individual Grant Deed

Grantor: Walter H. Leimert, Jr., a married man as his separate property, as to an undivided 99.5% interest

Grantee: Leimert/Saticoy, LP, a California limited partnership

Deed Dated: 09/21/1988
Deed Recorded: 09/29/1988
Instrument: 88-1569514

LEGAL DESCRIPTION

That part of Lot 1, in Tract 25773, according to the map or plat thereof, as filed of record in Book 668, Page 50, Los Angeles County, State of California

Assessor's Parcel Number(s): 2027-005-007

ENVIRONMENTAL LIEN

Environmental Lien: Found ☐ Not Found ☒

OTHER ACTIVITY AND USE LIMITATIONS (AULs)

Other AULs: Found ☐ Not Found ☒

RECORDING REQUESTED BY

88 1563408

AND WHEN RECORDED MAIL TO

Denton Hall Burgin & Warrens
22nd Floor
2121 Avenue of the Stars
Los Angeles, CA 90067
Attn: Schuyler Moore, Esq.

MAIL TAX STATEMENTS TO

Walter H. Leimert, Jr.
606 N. Larchmont Blvd.
Suite 300
Los Angeles, CA 90004

RECORDED IN OFFICIAL RECORDS
RECORDER'S OFFICE
LOS ANGELES COUNTY
CALIFORNIA
31 MIN. PAST. 1 P.M. SEP 28 1988

FEE $7 D
2

SPACE ABOVE THIS LINE FOR RECORDER'S USE

Corporation Grant Deed

CAT. NO. NN00576
TO 1921 CA (2-83)

THIS FORM FURNISHED BY TICOR TITLE INSURERS

ALL | PTN.

The undersigned grantor(s) declare(s): The Grantor and Grantee in this Conveyance are comprised of the same parties who continue to hold the same proportionate interests in the property. R&T 11923
Documentary transfer tax is $ -0-
( ) computed on full value of property conveyed, or
( ) computed on full value less value of liens and encumbrances remaining at time of sale.
( ) Unincorporated area: ( ) City of _____, and

FOR A VALUABLE CONSIDERATION, receipt of which is hereby acknowledged,

LEIMERT REALTY COMPANY

a corporation organized under the laws of the State of California hereby GRANTS to

LEIMERT/SATICOY, L.P., a California limited partnership

the following described real property in the County of Los Angeles, State of California:

Its undivided .5% interest in and to the property more completely described on the attached Exhibit A (Legal Description of Property).

SUBJECT TO: Covenants, conditions, restrictions and easement of record, if any.

In Witness Whereof, said corporation has caused its corporate name and seal to be affixed hereto and this instrument to be executed by its _____ President and _____ Secretary thereunto duly authorized.

Dated September 21, 1988

Leimert Realty Co.

By Walter H. Leimert
Walter H. Leimert, Jr. President

By _____
Secretary

STATE OF CALIFORNIA
COUNTY OF Los Angeles } ss.

On September 21, 1988, before me, the undersigned, a Notary Public in and for said State, personally appeared Walter H. Leimert, Jr. personally known to me or proved to me on the basis of satisfactory evidence to be the person who executed the within instrument as the _____ President, and _____ personally known to me or proved to me on the basis of satisfactory evidence to be the person who executed the within instrument as the _____ Secretary of the Corporation that executed the within instrument and acknowledged to me that such corporation executed the within instrument pursuant to its by-laws or a resolution of its board of directors.

WITNESS my hand and official seal.

Signature _____

OFFICIAL SEAL
DEBORAH WARREN
Notary Public-California
LOS ANGELES COUNTY
My Comm. Exp. Oct. 27, 1989

(This area for official notarial seal)

Title Order No. _____ Escrow or Loan No. _____

MAIL TAX STATEMENTS AS DIRECTED ABOVE

EXHIBIT A

LEGAL DESCRIPTION OF PROPERTY

That certain area in the State of California, County of Los Angeles, City of Los Angeles, being Lot 1 of Tract No. 25773, as recorded in Book 668, Page 50 of Maps, Records of Los Angeles County.

EXCEPTING THEREFROM that certain area beginning at the Northeasterly corner of said Lot 1, thence South 19.42 feet; thence South 19.42 feet; thence South 1° 54' 33" West 150.08 feet; thence South 73.58 feet to the true point of beginning for this exception; thence West 70.00 feet; thence South 45° 00' West 77.78 feet; thence South 71.44 feet to the Northerly line of Saticoy Street, 73 feet wide; thence East along said Northerly line of Saticoy Street and North along the Westerly line of Woodlake Avenue, 73 feet wide to the true point of beginning.

ALSO EXCEPTING THEREFROM that certain area beginning at the Northeast corner of said lot in said Tract; thence along the Northerly boundary of said lot and tract, West 544.00 feet; thence South 60.00 feet; thence East 172.00 feet; thence South 50.00 feet; thence East 40.00 feet; thence South 99.00 feet; thence South 7° 41' 49" West 166.98 feet to a point in the Northerly line of Saticoy Street; thence along said Northerly street line North 88° 04' 57" East 150.08 feet; thence continuing along said Northerly street line North 89° 59' 30" East 74.37 feet; thence North 71.44 feet; thence North 45° 00' 00" East 77.78 feet; thence East 70.00 feet to a point in the Westerly line of Woodlake Avenue; thence along said Westerly street line, North 50.00 feet; thence West 167.00 feet; thence North 140.00 feet; thence East 170.88 feet to a point in said Westerly line of Woodlake Avenue; thence along said Westerly street line North 1° 54' 33" East 33.60 feet; thence North 19.42 feet to the true point of beginning.

88-1563408

88 1569514

RECORDING REQUESTED BY

AND WHEN RECORDED MAIL TO

Name / Street Address / City & State:
Denton Hall Burgin & Warrens
2121 Avenue of the Stars
22nd Floor
Los Angeles, CA 90067
Attn: Schuyler Moore, Esq.

RECORDED IN OFFICIAL RECORDS
RECORDER'S OFFICE
LOS ANGELES COUNTY
CALIFORNIA
1 MIN. PAST. 9 A.M. SEP 29 1988

MAIL TAX STATEMENTS TO

Name / Street Address / City & State:
Walter H. Leimert, Jr.
606 N. Larchmont Blvd.
Suite 300
Los Angeles, CA 90004

FEE $7 D
2

SPACE ABOVE THIS LINE FOR RECORDER'S USE

CAT. NO. NN00682
TO 1923 CA (2-83)

Individual Grant Deed

THIS FORM FURNISHED BY TICOR TITLE INSURERS

ALL PTN

The undersigned grantor(s) declare(s):
Documentary transfer tax is $ -0-
( ) computed on full value of property conveyed, or
( ) computed on full value less value of liens and encumbrances remaining at time of sale.
( ) Unincorporated area: ( ) City of _____, and

The Grantor and Grantee in this Conveyance are comprised of the same parties who continue to hold the same proportionate interests the property. R&T 11923

FOR A VALUABLE CONSIDERATION, receipt of which is hereby acknowledged,

WALTER H. LEIMERT, JR., a married man as his separate property,

hereby GRANT(S) to

LEIMERT/SATICOY, L.P., a California limited partnership

the following described real property in the County of Los Angeles, State of California:

His undivided 99.5% interest in and to the property more completely described on the attached Exhibit A (Legal Description of Property).

SUBJECT TO: Covenants, conditons, restrictions and easement of record, if any.

Dated: September 21, 1988

Walter H. Leimert, Jr.

X Walter H. Leimert, Jr.

STATE OF CALIFORNIA
COUNTY OF Los Angeles } ss.

On September 21, 1988 before me, the undersigned, a Notary Public in and for said State, personally appeared Walter H. Leimert, Jr.

personally known to me or proved to me on the basis of satisfactory evidence to be the person whose name is subscribed to the within instrument and acknowledged that he executed the same.
WITNESS my hand and official seal.

Signature Deborah Warren

OFFICIAL SEAL
DEBORAH WARREN
Notary Public-California
LOS ANGELES COUNTY
My Comm. Exp. Oct. 27, 1989

(This area for official notarial seal)

Title Order No. _____ Escrow or Loan No. _____

MAIL TAX STATEMENTS AS DIRECTED ABOVE

EXHIBIT A

LEGAL DESCRIPTION OF PROPERTY

That certain area in the State of California, County of Los Angeles, City of Los Angeles, being Lot 1 of Tract No. 25773, as recorded in Book 668, Page 50 of Maps, Records of Los Angeles County.

EXCEPTING THEREFROM that certain area beginning at the Northeasterly corner of said Lot 1, thence South 19.42 feet; thence South 19.42 feet; thence South 1° 54' 33" West 150.08 feet; thence South 73.58 feet to the true point of beginning for this exception; thence West 70.00 feet; thence South 45° 00' West 77.78 feet; thence South 71.44 feet to the Northerly line of Saticoy Street, 73 feet wide; thence East along said Northerly line of Saticoy Street and North along the Westerly line of Woodlake Avenue, 73 feet wide to the true point of beginning.

ALSO EXCEPTING THEREFROM that certain area beginning at the Northeast corner of said lot in said Tract; thence along the Northerly boundary of said lot and tract, West 544.00 feet; thence South 60.00 feet; thence East 172.00 feet; thence South 50.00 feet; thence East 40.00 feet; thence South 99.00 feet; thence South 7° 41' 49" West 166.98 feet to a point in the Northerly line of Saticoy Street; thence along said Northerly street line North 88° 04' 57" East 150.08 feet; thence continuing along said Northerly street line North 89° 59' 30" East 74.37 feet; thence North 71.44 feet; thence North 45° 00' 00" East 77.78 feet; thence East 70.00 feet to a point in the Westerly line of Woodlake Avenue; thence along said Westerly street line, North 50.00 feet; thence West 167.00 feet; thence North 140.00 feet; thence East 170.88 feet to a point in said Westerly line of Woodlake Avenue; thence along said Westerly street line North 1° 54' 33" East 33.60 feet; thence North 19.42 feet to the true point of beginning.

This page is part of your document - DO NOT DISCARD

20111328002

Recorded/Filed in Official Records
Recorder's Office, Los Angeles County,
California

09/30/11 AT 09:40AM

Pages:
0005

FEES:	28 00
TAXES:	0.00
OTHER:	0.00
PAID:	28.00

LEADSHEET

201109300030037

00004743984

003537041

SEQ:
02

DAR - Mail (Hard Copy)

THIS FORM IS NOT TO BE DUPLICATED

E534541

09/30/2011

20111328002

2

RECORDING REQUESTED BY, AND WHEN RECORDED MAIL TO:
Greenberg Glusker et al. LLP
1900 Avenue of the Stars, # 2100
Los Angeles, CA 90067
ATTN: Ryan M T Iwasaka, Esq.

MAIL TAX STATEMENTS TO:
West Hills Market, LLC
606 N. Larchmont Blvd., Suite 300
Los Angeles, CA 90004

CORRECTION GRANT DEED

THE UNDERSIGNED GRANTORS declare: Documentary transfer tax is NONE. See Note #1 below.

FOR NO MONETARY CONSIDERATION, WALTER H. LEIMERT, III, Trustee of The Tim Leimert Non-Exempt Family Trust FBO Walter H. Leimert, III; WALTER H. LEIMERT, III, Administrative Trustee of The Tim Leimert Non-Exempt Family Trust FBO Norman T. Leimert; WALTER H. LEIMERT, III, Trustee of The Walter H. Leimert Trust; and WALTER H. LEIMERT, III, Trustee of The Norman Timothy Leimert 2003 Irrevocable Trust,

HEREBY GRANT TO: WEST HILLS MARKET, LLC, a California limited liability company, their entire interest in the following described real property in the **County of Los Angeles, State of California:**

See Legal Description attached hereto as Exhibit "A" and incorporated herein by this reference.

(Commonly known as 23221 Saticoy Street, Canoga Park, CA 91304)

APN: 2027-005-006

NOTE #1: The grantor and grantee in this conveyance are comprised of the same parties who continue to hold the same proportionate interest in the property, R&T 11925(d).

NOTE #2: This conveyance results in a change in the method of holding title to the real property transferred without changing the proportional interests of the co-owners in the real property, R&T 62(a)(1) and 64.

NOTE #3: This Grant Deed is being recorded to correct a scrivnor's error in the situs address in that certain Grant Deed recorded on January 6, 2010 as Instrument No. 20100015769 in the Los Angeles County Official Records and in all prior deeds of record.

SIGNATURES ON NEXT PAGE

Dated: 9/26, 2011

Walter H. Leimert, III, Trustee of The Tim Leimert Non-Exempt Family Trust FBO Walter H. Leimert, III

Walter H. Leimert, III, Administrative Trustee of The Tim Leimert Non-Exempt Family Trust FBO Norman T. Leimert

Walter H. Leimert, III, Trustee of The Walter H. Leimert Trust

Walter H. Leimert, III, Trustee of The Norman Timothy Leimert 2003 Irrevocable Trust

NOTARIAL ACKNOWLEDGMENT

STATE OF CALIFORNIA)
)
COUNTY OF LOS ANGELES)

On Sept 26, 2011, before me, D. PEARSON, Notary Public,
(here insert name and title of the officer)

personally appeared **WALTER H. LEIMERT, III**
who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature D Pearson (Seal)

D. PEARSON
COMM. # 1805328
NOTARY PUBLIC - CALIFORNIA
LOS ANGELES COUNTY
My Commission Expires July 1, 2012

EXHIBIT "A"

LEGAL DESCRIPTION

THAT PORTION OF LOT 1, TRACT 25773, IN THE CITY OF LOS ANGELES, COUNTY OF LOS ANGELES, STATE OF CALIFORNIA, AS PER MAP RECORDED IN BOOK 668, PAGE 50 OF MAPS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY, DESCRIBED AS FOLLOWS:

BEGINNING AT THE NORTHEAST CORNER OF SAID LOT 1; THENCE ALONG THE NORTHERLY LINE OF SAID LOT 1, WEST 544.00 FEET; THENCE SOUTH 60.00 FEET; THENCE EAST 172 00 FEET; THENCE SOUTH 50.00 FEET; THENCE EAST 40.00 FEET; THENCE SOUTH 99.00 FEET; THENCE SOUTH 7 DEGREES 41 MINUTES 49 SECONDS WEST 166.98 FEET TO THE WESTERLY TERMINUS OF THAT CERTAIN COURSE IN THE SOUTHERLY BOUNDARY OF SAID LOT, SHOWN ON SAID MAP AS HAVING A LENGTH OF 150 08 FEET; THENCE ALONG SAID SOUTHERLY BOUNDARY, NORTH 88 DEGREES 04 MINUTES 57 SECONDS EAST 150.08 FEET TO AN ANGLE POINT IN SAID BOUNDARY; THENCE CONTINUING ALONG SAID BOUNDARY NORTH 89 DEGREES 59 MINUTES 30 SECONDS EAST 74.37 FEET; THENCE NORTH 71.44 FEET; THENCE NORTH 45 DEGREES 00 MINUTES 00 SECONDS EAST 77.78 FEET; THENCE EAST 70.00 FEET TO THE EASTERLY BOUNDARY OF SAID LOT 1; THENCE ALONG SAID EASTERLY BOUNDARY NORTH 50.00 FEET; THENCE WEST 167.00 FEET; THENCE NORTH 140.00 FEET; THENCE EAST 170.88 FEET TO THE EASTERLY BOUNDARY OF SAID LOT 1; THENCE ALONG SAID EASTERLY BOUNDARY NORTH 1 DEGREE 54 MINUTES 33 SECONDS EAST 33.60 FEET TO AN ANGLE POINT IN THE SAID BOUNDARY; THENCE CONTINUING ALONG SAID EASTERLY BOUNDARY NORTH 19.42 FEET TO THE POINT OF BEGINNING.

Commonly known as 23221 Saticoy Street, Canoga Park, CA 91304
APN: 2027-005-006



NOISE MEASUREMENT LOCATION MAP

Chaminade College Preparatory High School Project

Imagery via Google

1. Intersection of Keswick St. and Woodhall Ave.

Noise Report

Summary

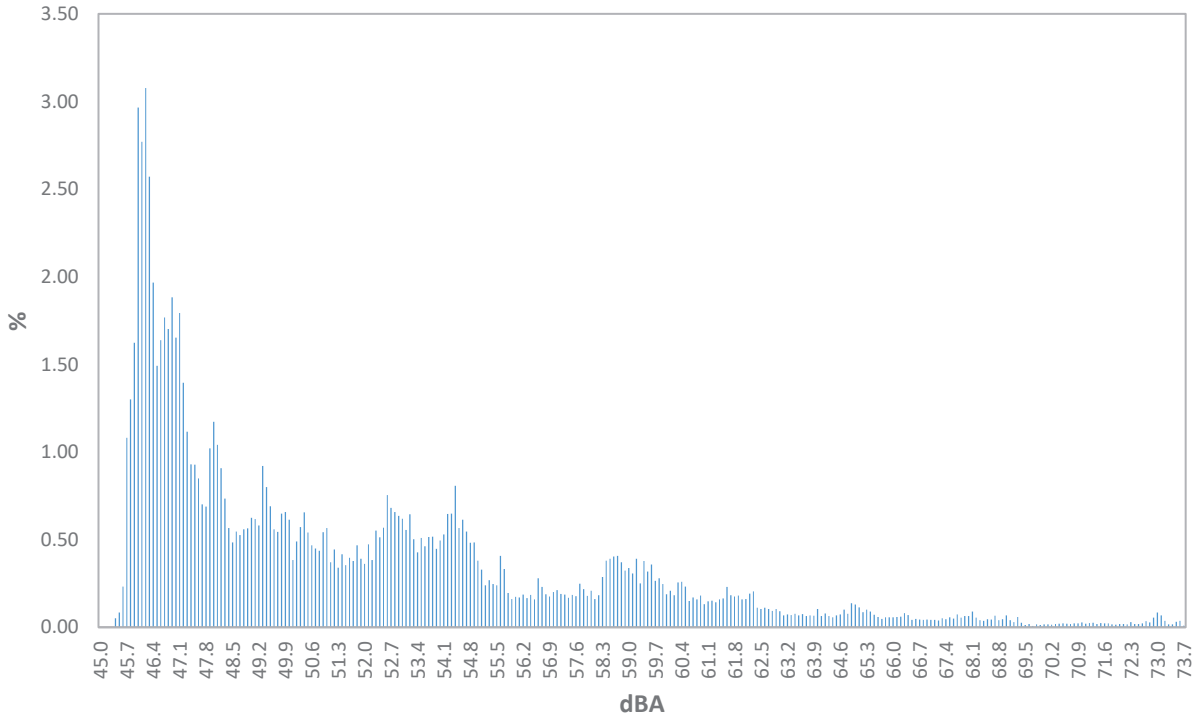
Date	Thursday, August 18, 2022
Start Time	1:58pm
End Time	2:08pm
File Name	831_Data.073
Device Model	Larson Davis Model 831
Weighting	A
Response	Slow

Results

Description	Value	Description	Value
L_{eq}	57.5dB	L_{10}	60.0dB
L_{max}	73.7dB	L_{50}	49.8dB
L_{min}	45.4dB	L_{90}	46.1dB

LAS > 65.0 dBA (Exceedance Count/Duration): 7, 27.8s
LAS > 85.0 dBA (Exceedance Count/Duration): 0, 0.0s

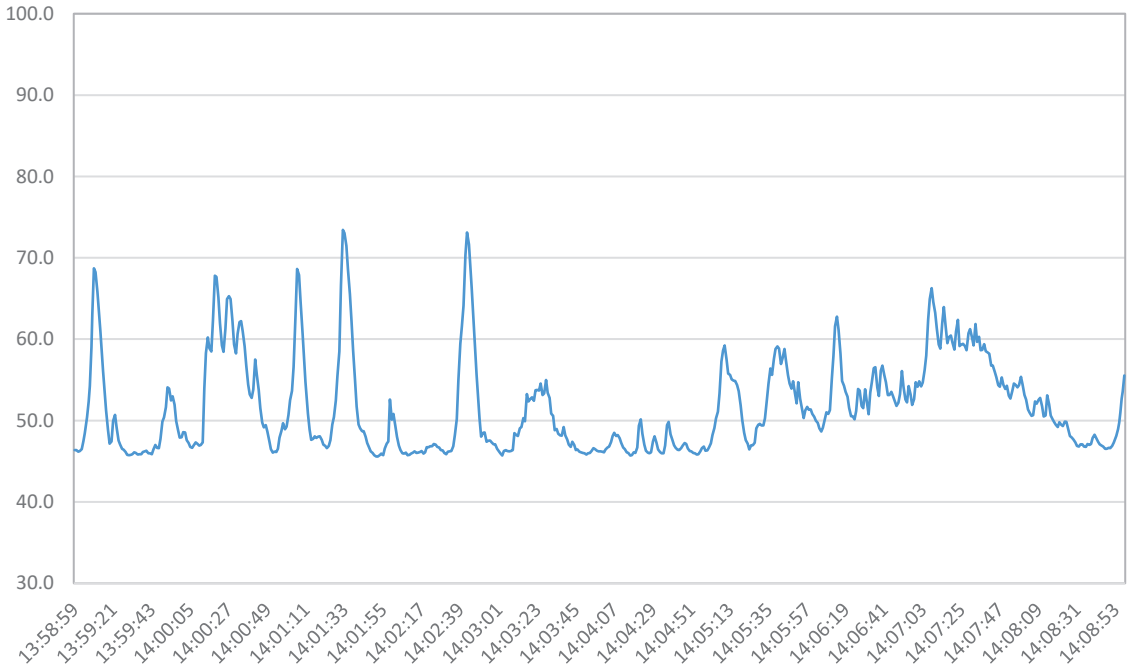
Statistics Chart



Statistics Table

dB	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	%
45.0	0.00	0.00	0.00	0.00	0.05	0.09	0.23	1.08	1.30	1.62	4.4
46.0	2.97	2.77	3.08	2.57	1.97	1.49	1.64	1.77	1.70	1.88	21.8
47.0	1.65	1.79	1.40	1.12	0.93	0.93	0.85	0.70	0.69	1.02	11.07
48.0	1.17	1.04	0.91	0.74	0.57	0.48	0.55	0.53	0.56	0.57	7.10
49.0	0.63	0.62	0.58	0.92	0.80	0.69	0.56	0.54	0.65	0.66	6.64
50.0	0.61	0.38	0.49	0.57	0.66	0.54	0.47	0.45	0.44	0.54	5.15
51.0	0.57	0.37	0.44	0.34	0.42	0.36	0.40	0.38	0.47	0.39	4.13
52.0	0.36	0.47	0.38	0.55	0.51	0.57	0.76	0.68	0.66	0.64	5.58
53.0	0.62	0.56	0.65	0.50	0.43	0.51	0.46	0.52	0.52	0.45	5.20
54.0	0.50	0.53	0.65	0.65	0.81	0.57	0.61	0.55	0.48	0.48	5.82
55.0	0.38	0.33	0.24	0.27	0.25	0.24	0.41	0.33	0.20	0.16	2.80
56.0	0.17	0.17	0.19	0.17	0.19	0.16	0.28	0.23	0.19	0.18	1.91
57.0	0.20	0.21	0.19	0.19	0.17	0.19	0.18	0.25	0.22	0.18	1.96
58.0	0.21	0.16	0.18	0.29	0.38	0.39	0.40	0.41	0.37	0.32	3.12
59.0	0.34	0.31	0.39	0.25	0.38	0.32	0.36	0.27	0.28	0.25	3.13
60.0	0.19	0.21	0.18	0.26	0.26	0.23	0.15	0.17	0.16	0.18	1.99
61.0	0.13	0.15	0.15	0.14	0.16	0.17	0.23	0.18	0.18	0.18	1.67
62.0	0.16	0.16	0.19	0.21	0.11	0.11	0.11	0.11	0.09	0.11	1.35
63.0	0.09	0.07	0.07	0.07	0.08	0.07	0.08	0.06	0.07	0.07	0.72
64.0	0.10	0.06	0.08	0.06	0.06	0.07	0.07	0.10	0.08	0.14	0.82
65.0	0.13	0.11	0.09	0.10	0.09	0.07	0.06	0.05	0.06	0.06	0.81
66.0	0.06	0.06	0.06	0.08	0.07	0.04	0.05	0.04	0.04	0.04	0.54
67.0	0.04	0.04	0.04	0.05	0.05	0.06	0.05	0.07	0.06	0.06	0.52
68.0	0.06	0.09	0.06	0.04	0.04	0.05	0.04	0.07	0.04	0.05	0.52
69.0	0.07	0.04	0.03	0.06	0.03	0.01	0.02	0.01	0.02	0.01	0.29
70.0	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.19
71.0	0.03	0.02	0.02	0.03	0.02	0.02	0.02	0.02	0.02	0.02	0.21
72.0	0.02	0.02	0.02	0.03	0.02	0.02	0.02	0.04	0.03	0.06	0.26
73.0	0.08	0.07	0.04	0.02	0.02	0.03	0.04	0.01	0.00	0.00	0.30

Logged Data Chart



2. Intersection of Saticoy St. and Keswick St.

Noise Report

Summary

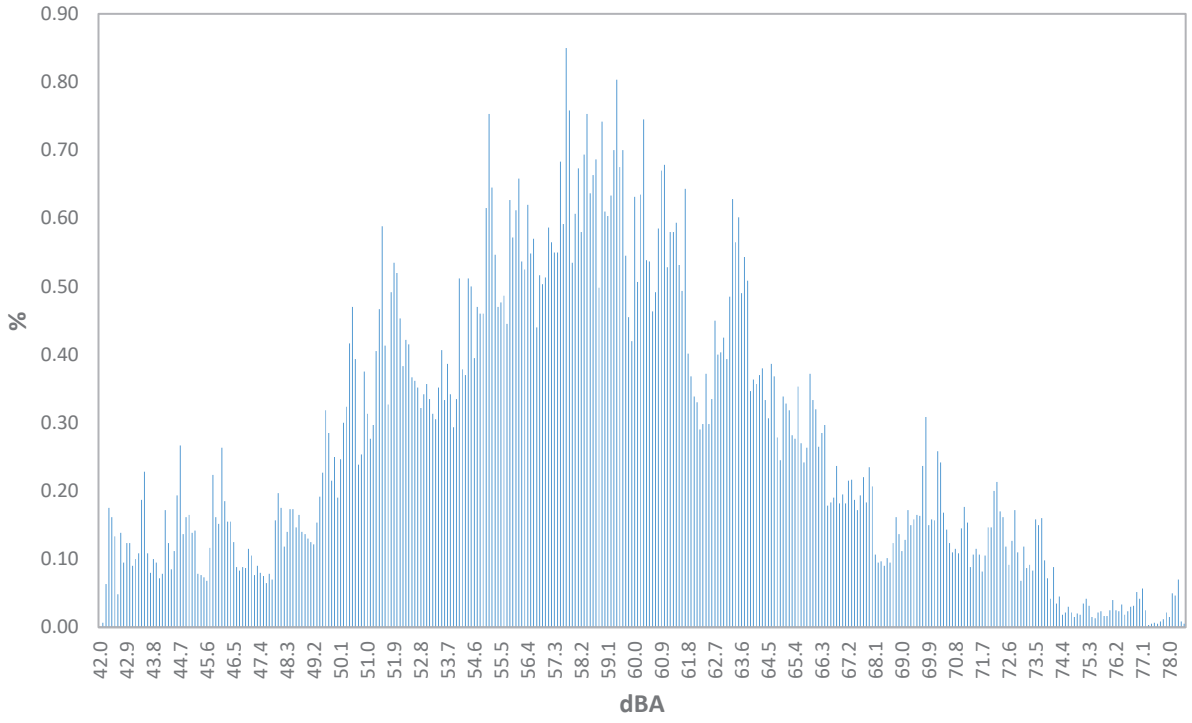
Date	Thursday, August 18, 2022
Start Time	2:10pm
End Time	2:20pm
File Name	831_Data.074
Device Model	Larson Davis Model 831
Weighting	A
Response	Slow

Results

Description	Value	Description	Value
L_{eq}	64.1dB	L_{10}	67.8dB
L_{max}	78.5dB	L_{50}	58.4dB
L_{min}	42.1dB	L_{90}	49.7dB

LAS > 65.0 dBA (Exceedance Count/Duration): 15, 125.1
LAS > 85.0 dBA (Exceedance Count/Duration): 0, 0.0s

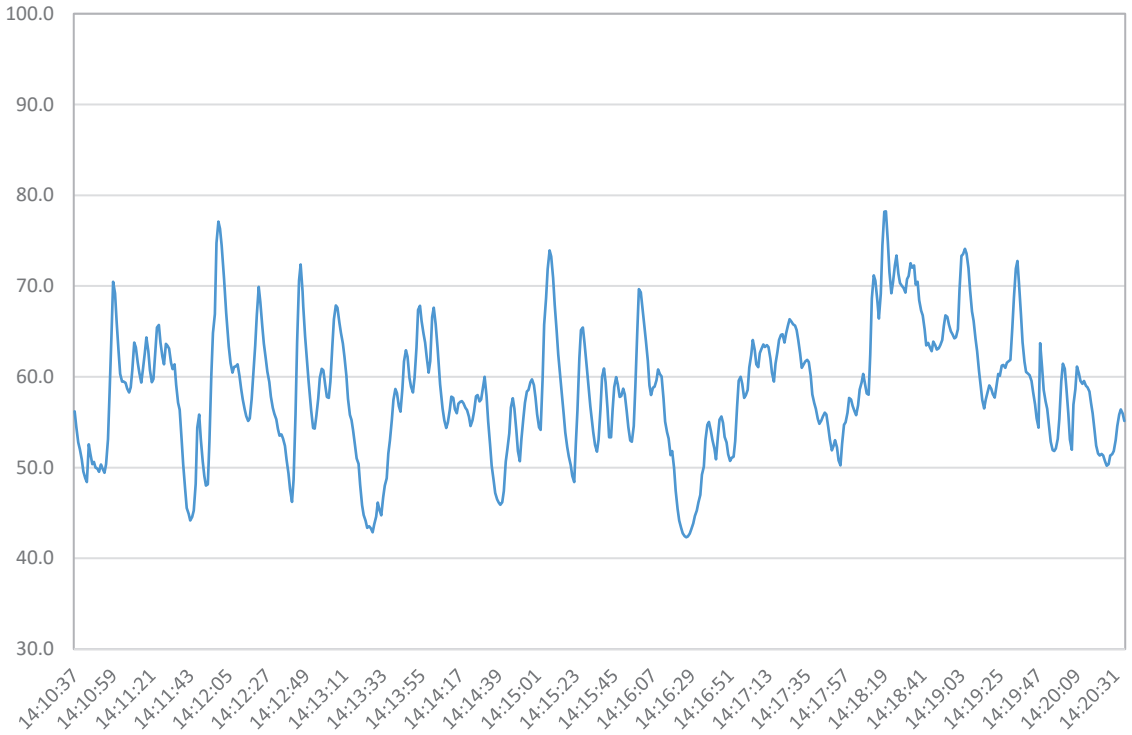
Statistics Chart



Statistics Table

dB	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	%
42.0	0.00	0.01	0.06	0.18	0.16	0.13	0.05	0.14	0.10	0.12	0.9
43.0	0.12	0.09	0.10	0.11	0.19	0.23	0.11	0.08	0.10	0.10	1.2
44.0	0.07	0.08	0.17	0.12	0.09	0.11	0.19	0.27	0.14	0.16	1.40
45.0	0.17	0.14	0.14	0.08	0.08	0.07	0.07	0.12	0.22	0.16	1.24
46.0	0.15	0.26	0.19	0.16	0.16	0.13	0.09	0.08	0.09	0.09	1.38
47.0	0.12	0.11	0.08	0.09	0.08	0.08	0.07	0.08	0.07	0.16	0.91
48.0	0.20	0.18	0.12	0.14	0.17	0.17	0.15	0.17	0.14	0.14	1.57
49.0	0.13	0.13	0.12	0.15	0.19	0.23	0.32	0.29	0.22	0.25	2.02
50.0	0.19	0.25	0.30	0.32	0.42	0.47	0.39	0.24	0.25	0.38	3.21
51.0	0.31	0.28	0.30	0.41	0.47	0.59	0.41	0.33	0.49	0.54	4.11
52.0	0.52	0.45	0.38	0.42	0.42	0.37	0.36	0.35	0.32	0.34	3.94
53.0	0.36	0.34	0.31	0.31	0.35	0.41	0.33	0.39	0.34	0.29	3.42
54.0	0.34	0.51	0.38	0.37	0.51	0.50	0.40	0.47	0.46	0.46	4.39
55.0	0.62	0.75	0.65	0.55	0.47	0.48	0.49	0.45	0.63	0.57	5.64
56.0	0.61	0.66	0.54	0.53	0.62	0.55	0.57	0.44	0.52	0.50	5.53
57.0	0.51	0.59	0.57	0.55	0.55	0.68	0.59	0.85	0.76	0.54	6.18
58.0	0.61	0.67	0.58	0.69	0.75	0.64	0.66	0.69	0.50	0.74	6.53
59.0	0.61	0.60	0.63	0.70	0.80	0.68	0.70	0.55	0.46	0.42	6.15
60.0	0.63	0.51	0.64	0.75	0.54	0.54	0.46	0.49	0.59	0.67	5.80
61.0	0.68	0.53	0.58	0.58	0.59	0.53	0.49	0.64	0.40	0.37	5.40
62.0	0.34	0.33	0.29	0.30	0.37	0.30	0.34	0.45	0.40	0.40	3.51
63.0	0.43	0.39	0.49	0.63	0.57	0.60	0.49	0.54	0.51	0.35	4.99
64.0	0.36	0.36	0.37	0.38	0.33	0.31	0.39	0.37	0.28	0.25	3.39
65.0	0.34	0.33	0.32	0.28	0.28	0.35	0.27	0.24	0.26	0.37	3.04
66.0	0.33	0.32	0.27	0.29	0.30	0.18	0.18	0.19	0.24	0.18	2.47
67.0	0.20	0.18	0.22	0.22	0.19	0.17	0.19	0.22	0.18	0.24	2.00
68.0	0.21	0.11	0.10	0.10	0.09	0.10	0.10	0.12	0.16	0.14	1.21
69.0	0.11	0.13	0.17	0.15	0.16	0.17	0.16	0.24	0.31	0.15	1.74
70.0	0.16	0.16	0.26	0.24	0.17	0.14	0.12	0.11	0.12	0.11	1.58
71.0	0.15	0.18	0.15	0.09	0.11	0.12	0.11	0.08	0.11	0.15	1.23
72.0	0.15	0.20	0.21	0.17	0.16	0.12	0.09	0.13	0.17	0.11	1.51
73.0	0.07	0.12	0.09	0.09	0.08	0.16	0.15	0.16	0.10	0.07	1.09
74.0	0.04	0.09	0.04	0.05	0.02	0.02	0.03	0.02	0.02	0.02	0.34
75.0	0.02	0.04	0.04	0.03	0.02	0.01	0.02	0.02	0.02	0.02	0.23
76.0	0.03	0.04	0.03	0.02	0.03	0.02	0.02	0.03	0.03	0.05	0.30
77.0	0.04	0.06	0.03	0.00	0.01	0.01	0.01	0.01	0.01	0.02	0.19
78.0	0.02	0.05	0.05	0.07	0.01	0.01	0.00	0.00	0.00	0.00	0.20

Logged Data Chart



3. Melba Street Cul-De-Sac

Noise Report

Summary

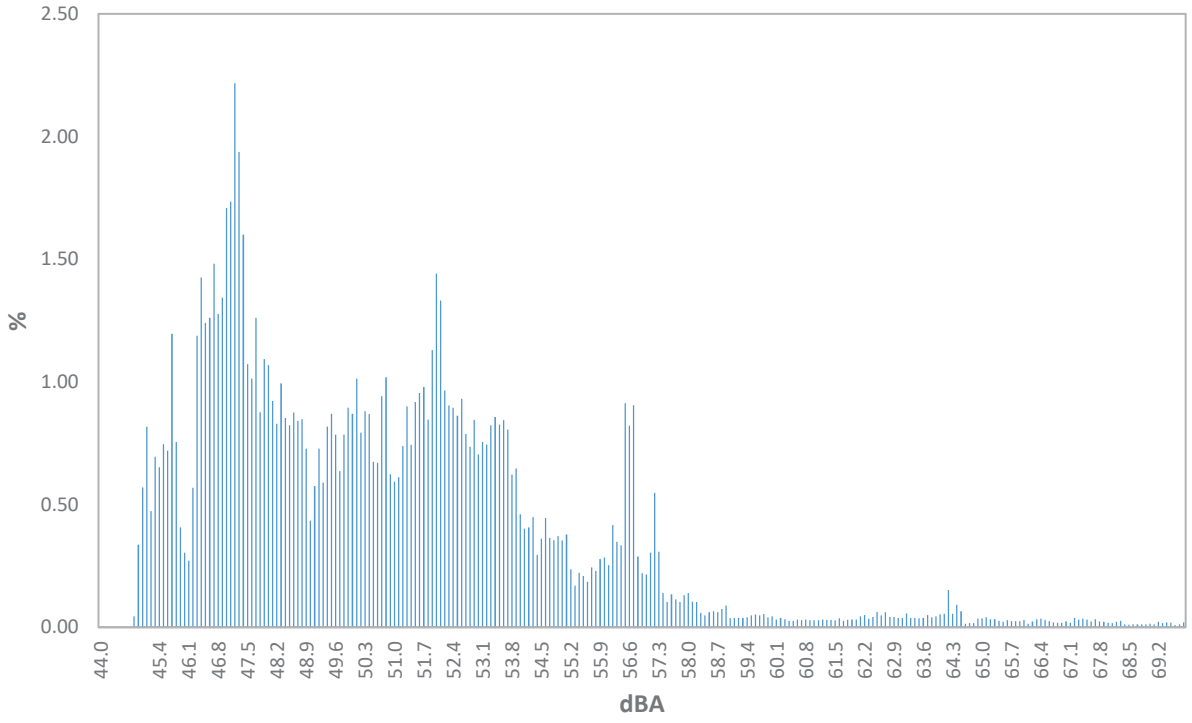
Date	Thursday, August 18, 2022
Start Time	2:24pm
End Time	2:34pm
File Name	831_Data.075
Device Model	Larson Davis Model 831
Weighting	A
Response	Slow

Results

Description	Value	Description	Value
L_{eq}	53.9dB	L_{10}	56.3dB
L_{max}	69.8dB	L_{50}	50.1dB
L_{min}	44.8dB	L_{90}	46.4dB

LAS > 65.0 dBA (Exceedance Count/Duration): 2, 8.3
LAS > 85.0 dBA (Exceedance Count/Duration): 0, 0.0s

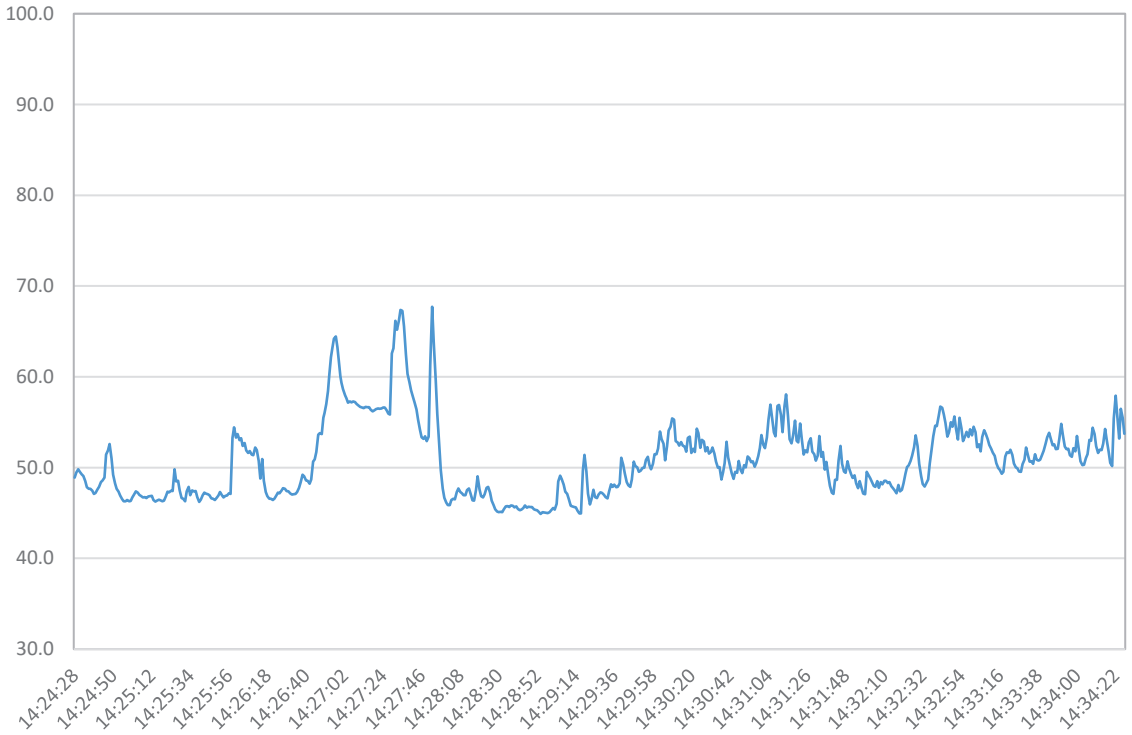
Statistics Chart



Statistics Table

dB	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	%
44.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.34	0.4
45.0	0.57	0.82	0.47	0.70	0.65	0.75	0.72	1.20	0.76	0.41	7.0
46.0	0.30	0.27	0.57	1.19	1.43	1.24	1.26	1.48	1.28	1.34	10.36
47.0	1.71	1.74	2.22	1.94	1.60	1.07	1.01	1.26	0.88	1.09	14.51
48.0	1.07	0.92	0.83	0.99	0.85	0.82	0.88	0.84	0.85	0.73	8.78
49.0	0.44	0.58	0.73	0.59	0.82	0.87	0.79	0.64	0.79	0.90	7.12
50.0	0.87	1.01	0.79	0.88	0.87	0.68	0.67	0.94	1.02	0.62	8.35
51.0	0.59	0.61	0.74	0.90	0.74	0.92	0.96	0.98	0.85	1.13	8.42
52.0	1.44	1.33	0.97	0.90	0.90	0.86	0.93	0.79	0.74	0.85	9.70
53.0	0.71	0.76	0.75	0.82	0.86	0.83	0.84	0.81	0.62	0.65	7.63
54.0	0.46	0.40	0.41	0.45	0.30	0.36	0.45	0.36	0.36	0.37	3.91
55.0	0.35	0.38	0.24	0.17	0.22	0.21	0.19	0.24	0.23	0.28	2.50
56.0	0.29	0.25	0.42	0.35	0.33	0.91	0.82	0.91	0.29	0.22	4.79
57.0	0.22	0.30	0.55	0.31	0.14	0.10	0.14	0.11	0.10	0.13	2.10
58.0	0.14	0.11	0.10	0.06	0.05	0.06	0.07	0.06	0.08	0.09	
59.0	0.04	0.04	0.04	0.04	0.04	0.05	0.05	0.05	0.05	0.04	0.43
60.0	0.05	0.03	0.04	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.32
61.0	0.03	0.03	0.03	0.03	0.03	0.03	0.04	0.03	0.03	0.03	0.30
62.0	0.03	0.05	0.05	0.04	0.04	0.06	0.05	0.06	0.04	0.04	0.46
63.0	0.04	0.04	0.06	0.04	0.04	0.04	0.04	0.05	0.04	0.05	0.42
64.0	0.05	0.06	0.15	0.06	0.09	0.07	0.02	0.02	0.02	0.04	0.55
65.0	0.04	0.04	0.03	0.03	0.03	0.02	0.03	0.03	0.03	0.03	0.30
66.0	0.03	0.02	0.02	0.03	0.04	0.03	0.03	0.02	0.02	0.02	0.25
67.0	0.02	0.02	0.04	0.03	0.04	0.03	0.02	0.03	0.02	0.02	0.28
68.0	0.02	0.02	0.02	0.03	0.01	0.01	0.01	0.01	0.01	0.01	0.15
69.0	0.02	0.01	0.02	0.02	0.02	0.02	0.01	0.01	0.02	0.00	0.14

Logged Data Chart



4. Near 23309 Saticoy Street

Noise Report

Summary

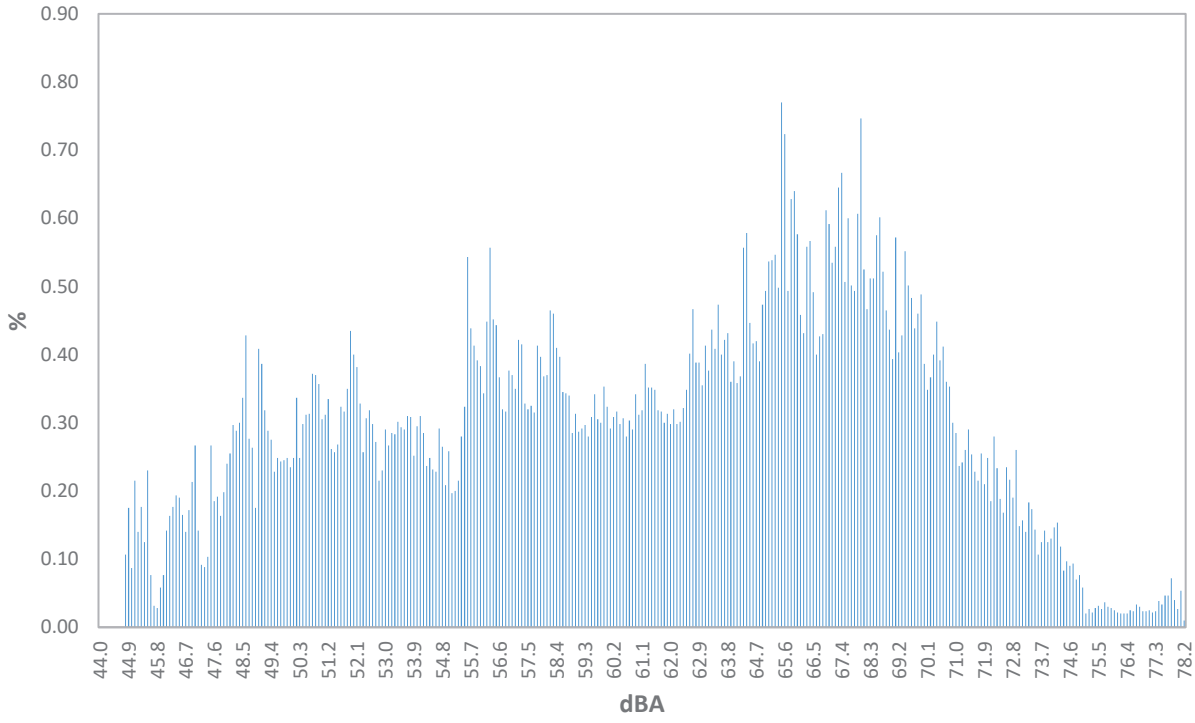
Date	Thursday, August 18, 2022
Start Time	2:41pm
End Time	2:51pm
File Name	831_Data.076
Device Model	Larson Davis Model 831
Weighting	A
Response	Slow

Results

Description	Value	Description	Value
L_{eq}	66.3dB	L_{10}	70.5dB
L_{max}	78.2dB	L_{50}	62.1dB
L_{min}	44.8dB	L_{90}	49.7dB

LAS > 65.0 dBA (Exceedance Count/Duration): 31, 267.8
LAS > 85.0 dBA (Exceedance Count/Duration): 0, 0.0s

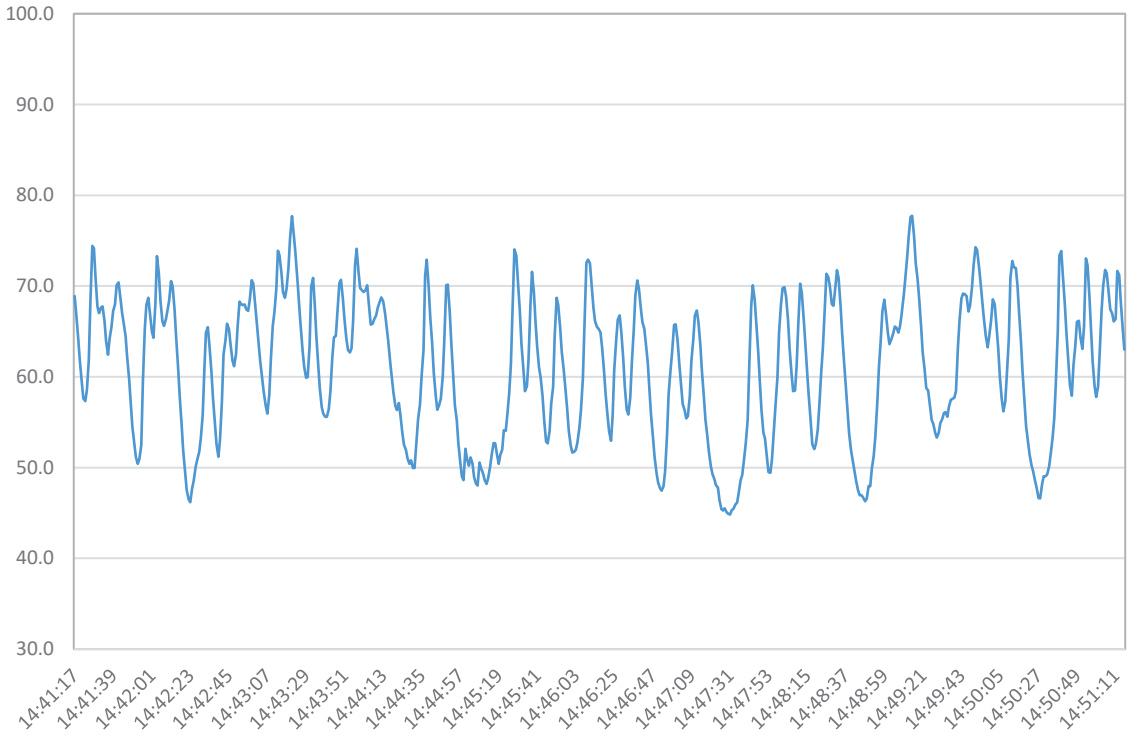
Statistics Chart



Statistics Table

dB	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	%
44.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.18	0.3
45.0	0.09	0.22	0.14	0.18	0.13	0.23	0.08	0.03	0.03	0.06	1.2
46.0	0.08	0.14	0.16	0.18	0.19	0.19	0.17	0.14	0.17	0.21	1.63
47.0	0.27	0.14	0.09	0.09	0.10	0.27	0.19	0.19	0.16	0.20	1.70
48.0	0.24	0.26	0.30	0.29	0.30	0.34	0.43	0.28	0.26	0.18	2.86
49.0	0.41	0.39	0.32	0.29	0.28	0.23	0.25	0.24	0.25	0.25	2.89
50.0	0.24	0.25	0.34	0.25	0.30	0.31	0.31	0.37	0.37	0.36	3.09
51.0	0.31	0.31	0.34	0.26	0.26	0.27	0.32	0.32	0.35	0.44	3.16
52.0	0.40	0.38	0.33	0.26	0.31	0.32	0.30	0.27	0.22	0.23	3.01
53.0	0.29	0.27	0.29	0.28	0.30	0.29	0.29	0.31	0.31	0.25	2.88
54.0	0.30	0.31	0.29	0.24	0.25	0.23	0.23	0.29	0.27	0.21	2.60
55.0	0.26	0.20	0.20	0.22	0.28	0.32	0.54	0.44	0.41	0.39	3.26
56.0	0.38	0.34	0.45	0.56	0.45	0.44	0.37	0.32	0.32	0.38	4.01
57.0	0.37	0.35	0.42	0.42	0.33	0.32	0.33	0.32	0.41	0.40	3.66
58.0	0.37	0.37	0.47	0.46	0.41	0.40	0.35	0.34	0.34	0.29	3.78
59.0	0.31	0.29	0.29	0.30	0.28	0.31	0.34	0.31	0.30	0.35	3.08
60.0	0.32	0.29	0.31	0.32	0.30	0.31	0.28	0.30	0.29	0.34	3.06
61.0	0.31	0.32	0.39	0.35	0.35	0.35	0.32	0.32	0.30	0.31	3.32
62.0	0.30	0.32	0.30	0.30	0.32	0.35	0.40	0.47	0.39	0.39	3.53
63.0	0.36	0.41	0.38	0.44	0.41	0.47	0.40	0.42	0.43	0.36	4.08
64.0	0.39	0.36	0.37	0.56	0.58	0.45	0.42	0.42	0.39	0.47	4.40
65.0	0.49	0.54	0.54	0.55	0.50	0.77	0.72	0.49	0.63	0.64	5.87
66.0	0.58	0.46	0.43	0.56	0.57	0.49	0.40	0.43	0.43	0.61	4.95
67.0	0.59	0.54	0.56	0.65	0.67	0.51	0.60	0.50	0.49	0.61	5.71
68.0	0.75	0.53	0.47	0.51	0.51	0.58	0.60	0.52	0.47	0.44	5.36
69.0	0.39	0.57	0.40	0.43	0.55	0.50	0.48	0.44	0.46	0.49	4.72
70.0	0.39	0.35	0.37	0.40	0.45	0.39	0.41	0.36	0.35	0.30	3.77
71.0	0.29	0.24	0.24	0.26	0.29	0.25	0.23	0.22	0.26	0.21	2.48
72.0	0.25	0.19	0.28	0.23	0.19	0.17	0.24	0.22	0.19	0.26	2.20
73.0	0.15	0.16	0.14	0.18	0.17	0.14	0.11	0.13	0.14	0.13	1.44
74.0	0.13	0.15	0.15	0.12	0.08	0.10	0.09	0.09	0.07	0.08	1.06
75.0	0.06	0.02	0.03	0.02	0.03	0.03	0.03	0.04	0.03	0.03	0.31
76.0	0.03	0.02	0.02	0.02	0.02	0.03	0.02	0.03	0.03	0.02	0.24
77.0	0.02	0.03	0.02	0.02	0.04	0.03	0.05	0.05	0.07	0.04	0.37
78.0	0.03	0.05	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09

Logged Data Chart



5. Woodlake Ave. – South of Kens Way

Noise Report

Summary

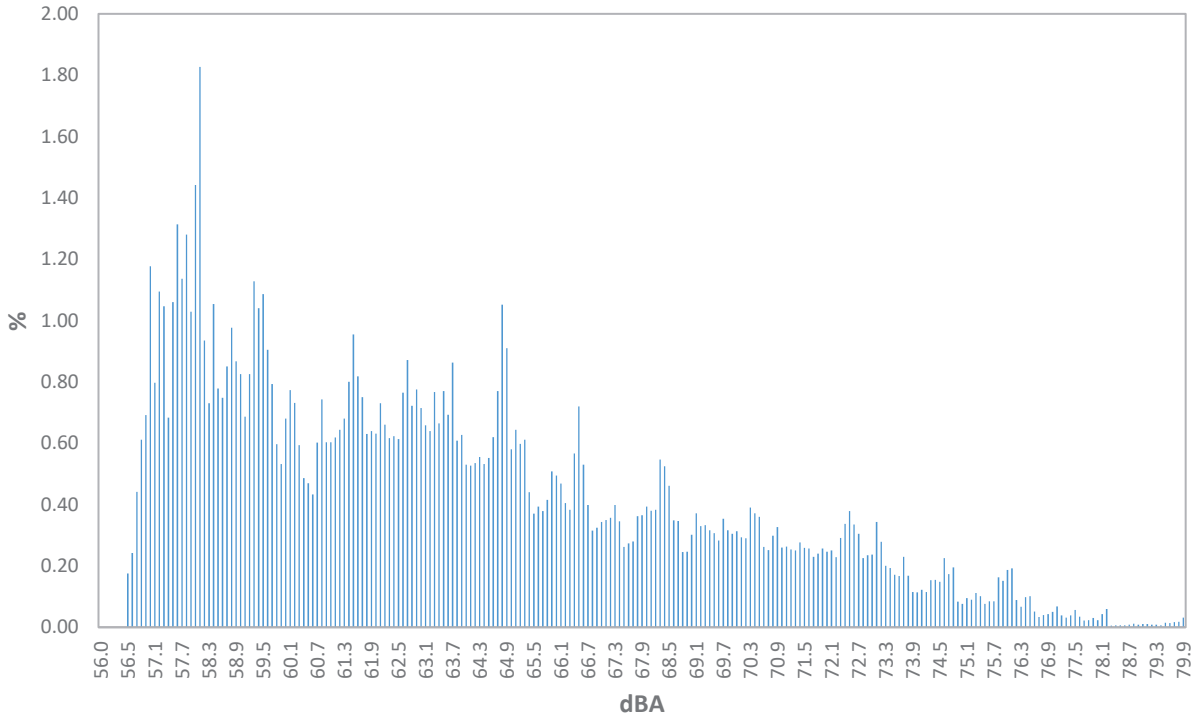
Date	Thursday, August 18, 2022
Start Time	2:56pm
End Time	3:06pm
File Name	831_Data.077
Device Model	Larson Davis Model 831
Weighting	A
Response	Slow

Results

Description	Value	Description	Value
L_{eq}	67.2dB	L_{10}	71.6dB
L_{max}	79.9dB	L_{50}	62.7dB
L_{min}	56.5dB	L_{90}	57.7dB

LAS > 65.0 dBA (Exceedance Count/Duration): 30, 251.3
LAS > 85.0 dBA (Exceedance Count/Duration): 0, 0.0s

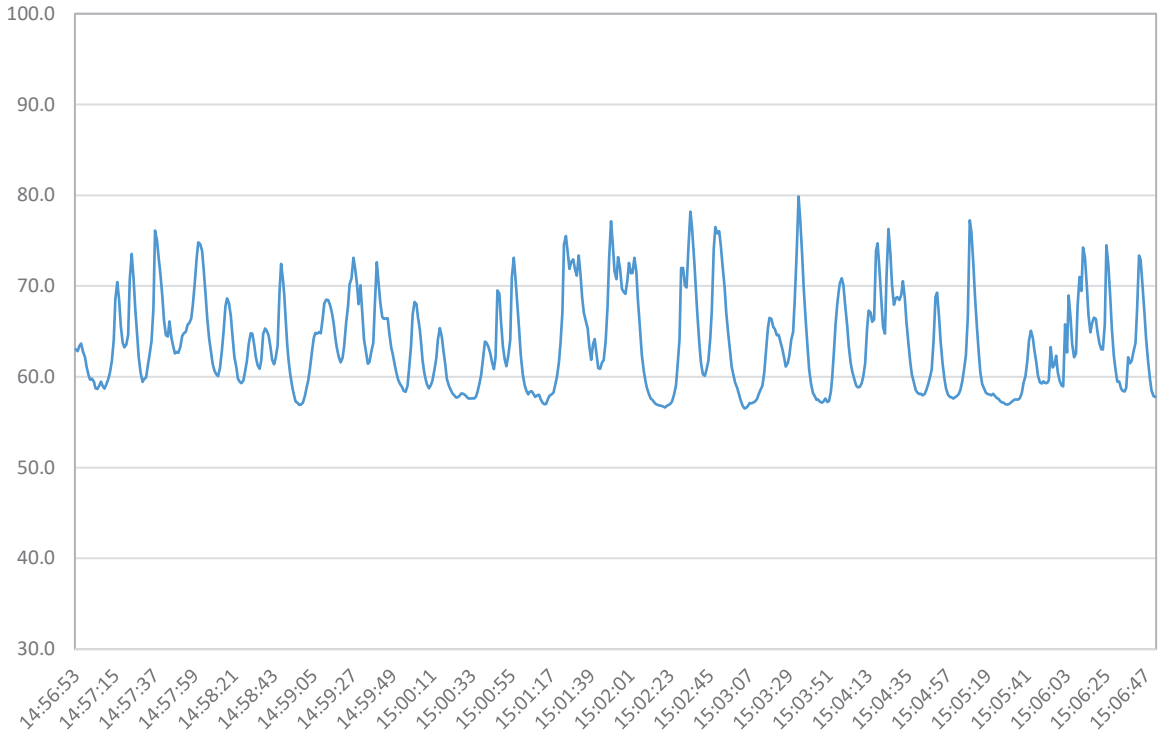
Statistics Chart



Statistics Table

dB	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	%
56.0	0.00	0.00	0.00	0.00	0.00	0.00	0.18	0.24	0.44	0.61	1.5
56.9	0.69	1.18	0.80	1.10	1.05	0.68	1.06	1.31	1.14	1.28	10.3
57.9	1.03	1.44	1.83	0.94	0.73	1.05	0.78	0.75	0.85	0.98	10.37
58.9	0.87	0.83	0.69	0.83	1.13	1.04	1.09	0.91	0.79	0.60	8.75
59.9	0.53	0.68	0.77	0.73	0.59	0.49	0.47	0.43	0.60	0.74	6.04
60.9	0.60	0.60	0.62	0.64	0.68	0.80	0.96	0.82	0.75	0.63	7.10
61.9	0.64	0.63	0.73	0.66	0.62	0.62	0.61	0.77	0.87	0.72	6.87
62.9	0.78	0.72	0.66	0.64	0.77	0.67	0.77	0.69	0.86	0.61	7.16
63.9	0.63	0.53	0.53	0.54	0.56	0.53	0.55	0.62	0.77	1.05	6.30
64.9	0.91	0.58	0.64	0.60	0.61	0.44	0.37	0.39	0.38	0.42	5.34
65.9	0.51	0.50	0.47	0.41	0.38	0.57	0.72	0.53	0.40	0.32	4.79
66.9	0.33	0.34	0.35	0.36	0.40	0.35	0.26	0.27	0.28	0.36	3.30
67.9	0.37	0.39	0.38	0.38	0.55	0.53	0.46	0.35	0.35	0.25	3.99
68.9	0.25	0.30	0.37	0.33	0.33	0.32	0.31	0.28	0.35	0.32	3.16
69.9	0.31	0.31	0.29	0.29	0.39	0.37	0.36	0.26	0.25	0.30	3.14
70.9	0.33	0.26	0.26	0.25	0.25	0.28	0.26	0.26	0.23	0.24	2.62
71.9	0.26	0.25	0.25	0.23	0.29	0.34	0.38	0.34	0.31	0.23	2.85
72.9	0.24	0.24	0.34	0.28	0.20	0.19	0.17	0.17	0.23	0.17	2.22
73.9	0.12	0.11	0.12	0.12	0.15	0.16	0.15	0.23	0.17	0.20	1.51
74.9	0.08	0.08	0.10	0.09	0.11	0.10	0.08	0.09	0.09	0.16	0.97
75.9	0.15	0.19	0.19	0.09	0.07	0.10	0.10	0.05	0.03	0.04	1.01
76.9	0.04	0.05	0.07	0.04	0.03	0.04	0.06	0.04	0.02	0.02	0.41
77.9	0.03	0.02	0.04	0.06	0.01	0.01	0.01	0.01	0.01	0.01	0.20
78.9	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.01	0.02	0.02	0.11
79.9	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03

Logged Data Chart



6. Intersection of Saticoy St. and Woodlake Ave.

Noise Report

Summary

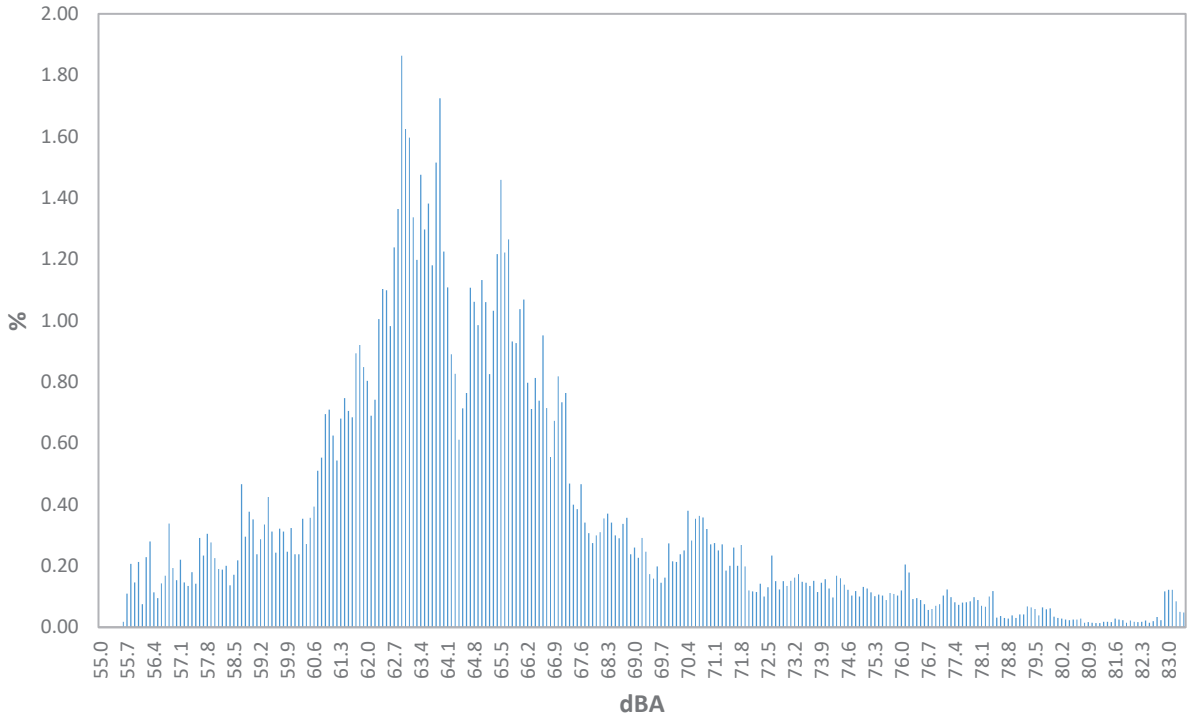
Date	Thursday, August 18, 2022
Start Time	3:08pm
End Time	3:18pm
File Name	831_Data.078
Device Model	Larson Davis Model 831
Weighting	A
Response	Slow

Results

Description	Value	Description	Value
L_{eq}	69.1dB	L_{10}	71.7dB
L_{max}	83.4dB	L_{50}	64.3dB
L_{min}	55.6dB	L_{90}	60.0dB

LAS > 65.0 dBA (Exceedance Count/Duration): 17, 328.0s
LAS > 85.0 dBA (Exceedance Count/Duration): 0, 0.0s

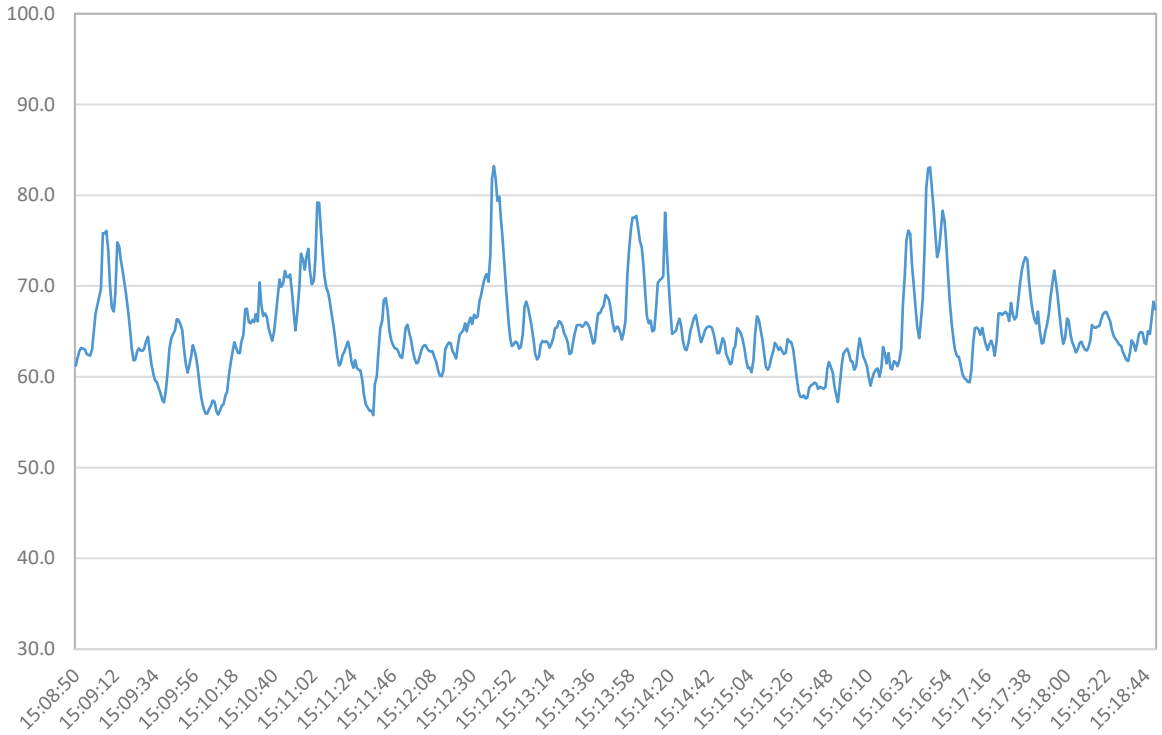
Statistics Chart



Statistics Table

dB	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	%
55.0	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.11	0.21	0.15	0.5
56.0	0.21	0.08	0.23	0.28	0.11	0.10	0.14	0.17	0.34	0.19	1.8
57.0	0.15	0.22	0.15	0.14	0.18	0.14	0.29	0.23	0.31	0.28	2.08
58.0	0.23	0.19	0.19	0.20	0.14	0.17	0.22	0.47	0.30	0.38	2.47
59.0	0.35	0.24	0.29	0.34	0.43	0.31	0.24	0.32	0.31	0.25	3.07
60.0	0.32	0.24	0.24	0.35	0.27	0.36	0.39	0.51	0.55	0.70	3.93
61.0	0.71	0.63	0.54	0.68	0.75	0.71	0.69	0.89	0.92	0.85	7.36
62.0	0.80	0.69	0.74	1.01	1.10	1.10	0.98	1.24	1.36	1.86	10.89
63.0	1.63	1.60	1.34	1.20	1.48	1.30	1.38	1.18	1.52	1.73	14.33
64.0	1.23	1.11	0.89	0.83	0.61	0.71	0.76	1.11	1.06	0.99	9.29
65.0	1.13	1.06	0.83	1.03	1.22	1.46	1.22	1.27	0.93	0.93	11.07
66.0	1.04	1.07	0.80	0.71	0.81	0.74	0.95	0.72	0.56	0.67	8.06
67.0	0.82	0.73	0.76	0.47	0.40	0.39	0.47	0.34	0.31	0.28	4.96
68.0	0.30	0.31	0.36	0.37	0.34	0.30	0.29	0.34	0.36	0.24	3.20
69.0	0.26	0.23	0.29	0.25	0.17	0.16	0.20	0.15	0.16	0.27	2.14
70.0	0.22	0.21	0.24	0.25	0.38	0.28	0.35	0.36	0.36	0.32	2.97
71.0	0.27	0.28	0.25	0.27	0.19	0.20	0.26	0.20	0.27	0.20	2.38
72.0	0.12	0.12	0.12	0.14	0.10	0.13	0.23	0.15	0.12	0.15	1.38
73.0	0.14	0.15	0.16	0.17	0.15	0.15	0.14	0.15	0.12	0.15	1.46
74.0	0.16	0.13	0.10	0.17	0.16	0.14	0.12	0.10	0.12	0.10	1.29
75.0	0.13	0.13	0.11	0.10	0.11	0.10	0.09	0.11	0.11	0.10	1.10
76.0	0.12	0.21	0.18	0.09	0.10	0.09	0.08	0.06	0.06	0.07	1.04
77.0	0.08	0.10	0.12	0.10	0.08	0.07	0.08	0.08	0.09	0.10	0.90
78.0	0.09	0.07	0.07	0.10	0.12	0.03	0.04	0.03	0.03	0.04	0.61
79.0	0.03	0.04	0.04	0.07	0.07	0.06	0.04	0.07	0.06	0.06	0.53
80.0	0.04	0.03	0.03	0.03	0.02	0.03	0.03	0.03	0.02	0.02	0.25
81.0	0.02	0.01	0.01	0.02	0.02	0.02	0.03	0.03	0.02	0.02	0.19
82.0	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.03	0.02	0.12	0.31
83.0	0.12	0.12	0.09	0.05	0.05	0.00	0.00	0.00	0.00	0.00	0.43

Logged Data Chart



7. Saticoy St. – Near Main Campus Driveway

Noise Report

Summary

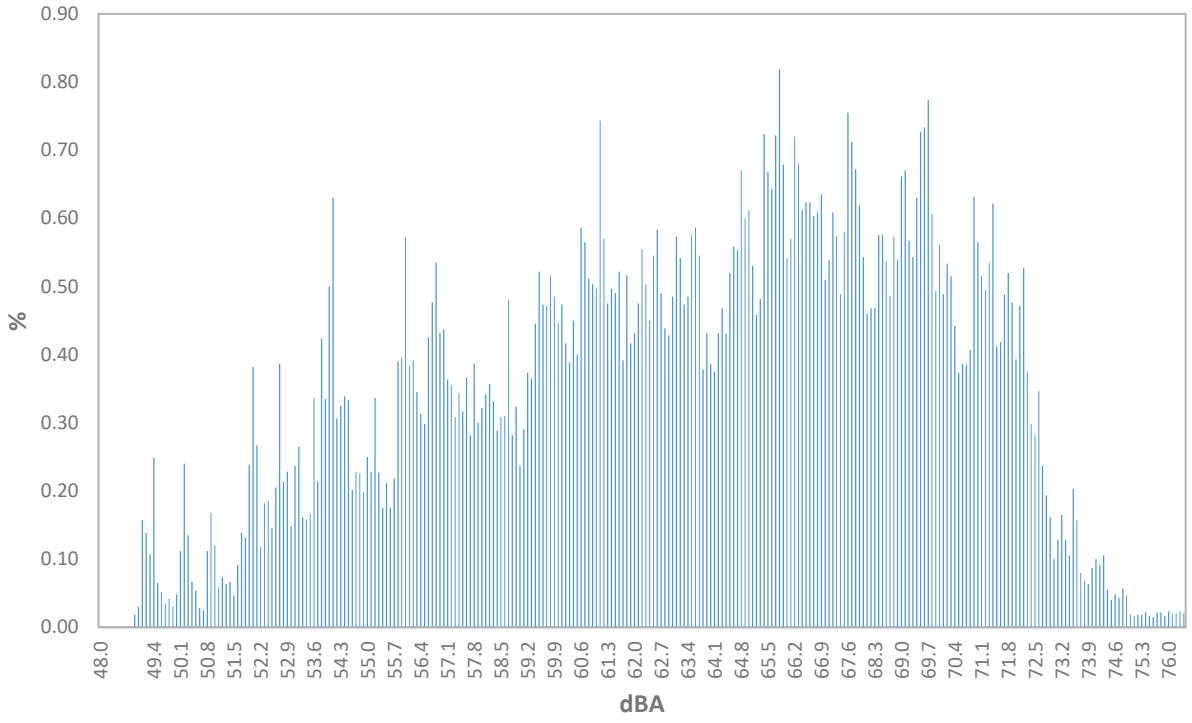
Date	Thursday, August 18, 2022
Start Time	3:21pm
End Time	3:31pm
File Name	831_Data.079
Device Model	Larson Davis Model 831
Weighting	A
Response	Slow

Results

Description	Value	Description	Value
L_{eq}	68.6dB	L_{10}	71.2dB
L_{max}	89.4dB	L_{50}	64.3dB
L_{min}	48.9dB	L_{90}	54.5dB

LAS > 65.0 dBA (Exceedance Count/Duration): 26, 313.2s
LAS > 85.0 dBA (Exceedance Count/Duration): 1, 2.4s

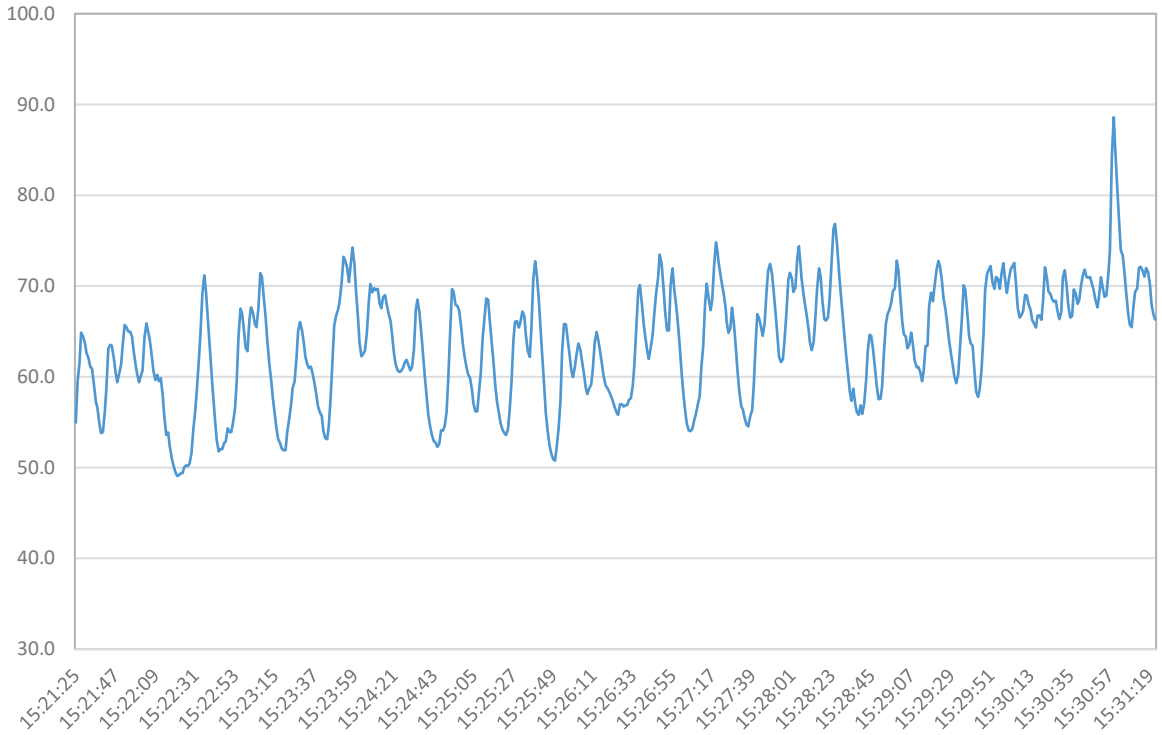
Statistics Chart



Statistics Table

dB	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	%
48.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.0
49.0	0.03	0.16	0.14	0.11	0.25	0.07	0.05	0.04	0.04	0.03	0.9
50.0	0.05	0.11	0.24	0.14	0.07	0.05	0.03	0.03	0.11	0.17	0.99
51.0	0.12	0.06	0.07	0.06	0.07	0.05	0.09	0.14	0.13	0.24	1.03
52.0	0.38	0.27	0.12	0.18	0.19	0.15	0.21	0.39	0.21	0.23	2.31
53.0	0.15	0.24	0.27	0.16	0.16	0.17	0.34	0.21	0.42	0.34	2.45
54.0	0.50	0.63	0.31	0.33	0.34	0.33	0.20	0.23	0.23	0.20	3.29
55.0	0.25	0.23	0.34	0.23	0.18	0.21	0.18	0.22	0.39	0.40	2.61
56.0	0.57	0.38	0.39	0.35	0.31	0.30	0.43	0.48	0.54	0.43	4.17
57.0	0.44	0.36	0.36	0.31	0.34	0.32	0.37	0.28	0.39	0.30	3.46
58.0	0.32	0.34	0.36	0.33	0.29	0.31	0.31	0.48	0.28	0.32	3.34
59.0	0.24	0.29	0.37	0.37	0.45	0.52	0.47	0.47	0.52	0.49	4.18
60.0	0.45	0.47	0.42	0.39	0.45	0.40	0.59	0.57	0.51	0.50	4.74
61.0	0.50	0.74	0.57	0.48	0.50	0.49	0.52	0.39	0.52	0.42	5.12
62.0	0.43	0.48	0.56	0.50	0.45	0.55	0.58	0.49	0.44	0.43	4.90
63.0	0.49	0.57	0.54	0.47	0.49	0.58	0.59	0.55	0.38	0.43	5.08
64.0	0.39	0.38	0.43	0.47	0.43	0.52	0.56	0.55	0.67	0.60	4.99
65.0	0.61	0.53	0.46	0.48	0.72	0.67	0.64	0.72	0.82	0.68	6.34
66.0	0.54	0.57	0.72	0.68	0.61	0.62	0.62	0.60	0.61	0.64	6.22
67.0	0.51	0.54	0.61	0.57	0.49	0.58	0.76	0.71	0.67	0.62	6.05
68.0	0.54	0.46	0.47	0.47	0.58	0.58	0.54	0.49	0.57	0.54	5.22
69.0	0.66	0.67	0.57	0.54	0.63	0.73	0.73	0.77	0.61	0.49	6.40
70.0	0.56	0.49	0.53	0.52	0.44	0.37	0.39	0.39	0.41	0.63	4.72
71.0	0.57	0.52	0.50	0.54	0.62	0.41	0.42	0.49	0.52	0.48	5.05
72.0	0.39	0.47	0.53	0.38	0.30	0.28	0.35	0.24	0.19	0.16	3.29
73.0	0.10	0.13	0.17	0.13	0.11	0.20	0.16	0.08	0.07	0.06	1.20
74.0	0.09	0.10	0.09	0.11	0.06	0.04	0.05	0.04	0.06	0.05	0.67
75.0	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.19
76.0	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.03	0.04	0.25
77.0	0.04	0.07	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.01	0.15
78.0	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.06
79.0	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.05
80.0	0.01	0.00	0.01	0.00	0.01	0.00	0.01	0.01	0.00	0.01	0.05
81.0	0.00	0.01	0.01	0.01	0.00	0.01	0.01	0.01	0.01	0.01	0.05
82.0	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.05
83.0	0.01	0.01	0.00	0.01	0.01	0.01	0.01	0.00	0.01	0.01	0.05
84.0	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.06
85.0	0.01	0.01	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.06
86.0	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.06
87.0	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.07
88.0	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.08
89.0	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.01	0.05

Logged Data Chart



8. Covello St. Cul-De-Sac

Noise Report

Summary

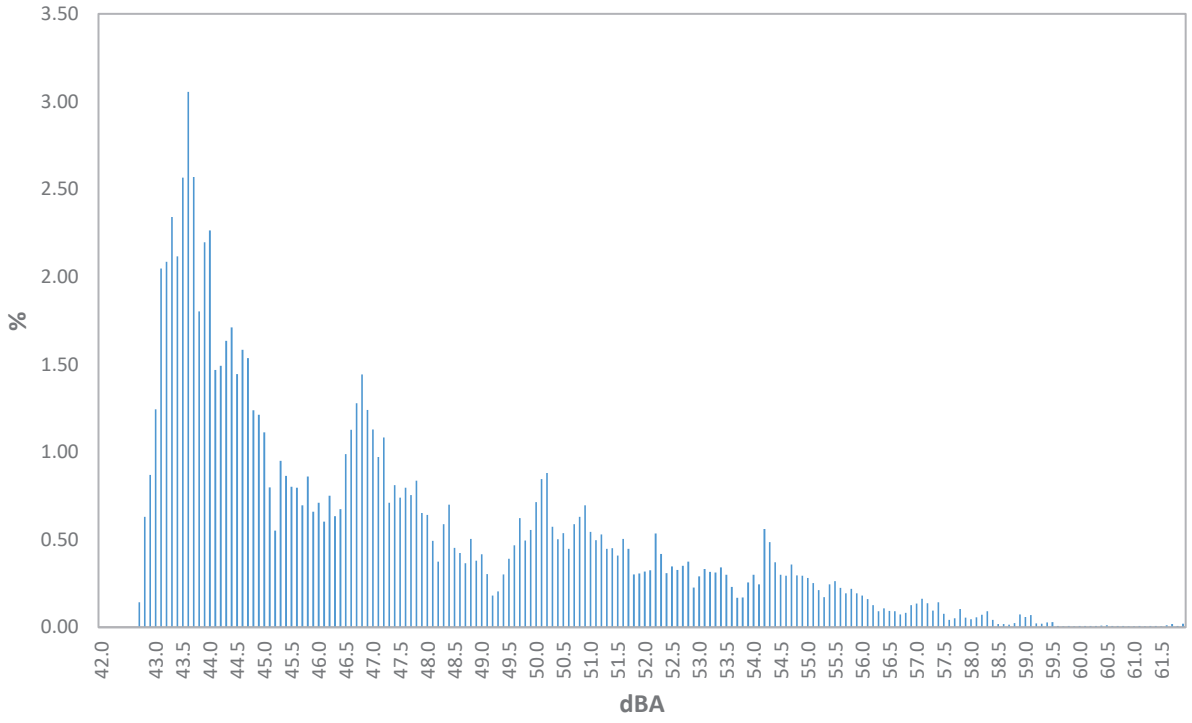
Date	Thursday, August 18, 2022
Start Time	4:28pm
End Time	4:38pm
File Name	831_Data.080
Device Model	Larson Davis Model 831
Weighting	A
Response	Slow

Results

Description	Value	Description	Value
L_{eq}	49.5dB	L_{10}	53.4dB
L_{max}	61.9dB	L_{50}	46.3dB
L_{min}	42.6dB	L_{90}	43.4dB

LAS > 65.0 dBA (Exceedance Count/Duration): 0, 0s
LAS > 85.0 dBA (Exceedance Count/Duration): 0, 0s

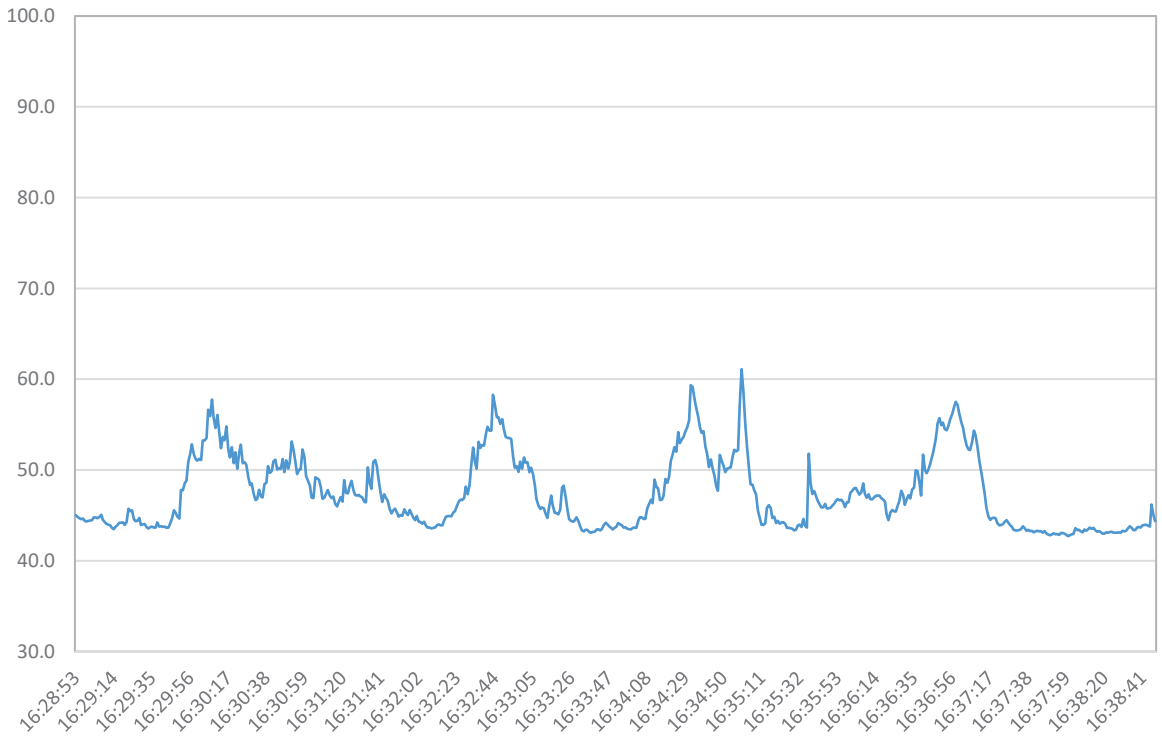
Statistics Chart



Statistics Table

dB	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	%
42.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.63	0.87	1.6
43.0	1.24	2.05	2.09	2.34	2.12	2.57	3.06	2.57	1.80	2.20	22.0
44.0	2.27	1.47	1.49	1.64	1.71	1.45	1.58	1.54	1.24	1.21	15.59
45.0	1.11	0.80	0.55	0.95	0.86	0.80	0.80	0.70	0.86	0.66	8.09
46.0	0.71	0.60	0.75	0.63	0.67	0.99	1.13	1.28	1.44	1.24	9.45
47.0	1.13	0.97	1.08	0.71	0.81	0.74	0.80	0.76	0.84	0.65	8.48
48.0	0.64	0.49	0.38	0.59	0.70	0.45	0.42	0.37	0.50	0.38	4.92
49.0	0.42	0.30	0.18	0.21	0.30	0.39	0.47	0.62	0.50	0.56	3.94
50.0	0.71	0.85	0.88	0.57	0.50	0.54	0.45	0.59	0.63	0.70	6.41
51.0	0.54	0.50	0.53	0.45	0.45	0.41	0.50	0.45	0.30	0.31	4.44
52.0	0.32	0.33	0.54	0.42	0.31	0.35	0.33	0.35	0.38	0.23	3.53
53.0	0.29	0.33	0.32	0.31	0.34	0.30	0.23	0.17	0.17	0.26	2.72
54.0	0.30	0.25	0.56	0.49	0.37	0.30	0.30	0.36	0.30	0.29	3.51
55.0	0.28	0.25	0.21	0.17	0.25	0.26	0.23	0.19	0.22	0.19	2.26
56.0	0.18	0.16	0.13	0.09	0.11	0.09	0.09	0.07	0.08	0.13	1.14
57.0	0.14	0.16	0.14	0.10	0.14	0.08	0.04	0.05	0.10	0.06	1.00
58.0	0.05	0.06	0.07	0.09	0.04	0.02	0.02	0.02	0.02	0.07	0.45
59.0	0.06	0.07	0.02	0.02	0.03	0.03	0.01	0.01	0.01	0.01	0.25
60.0	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.08
61.0	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.01	0.02	0.09

Logged Data Chart



9. Cohasset St. – Near Baseball Field

Noise Report

Summary

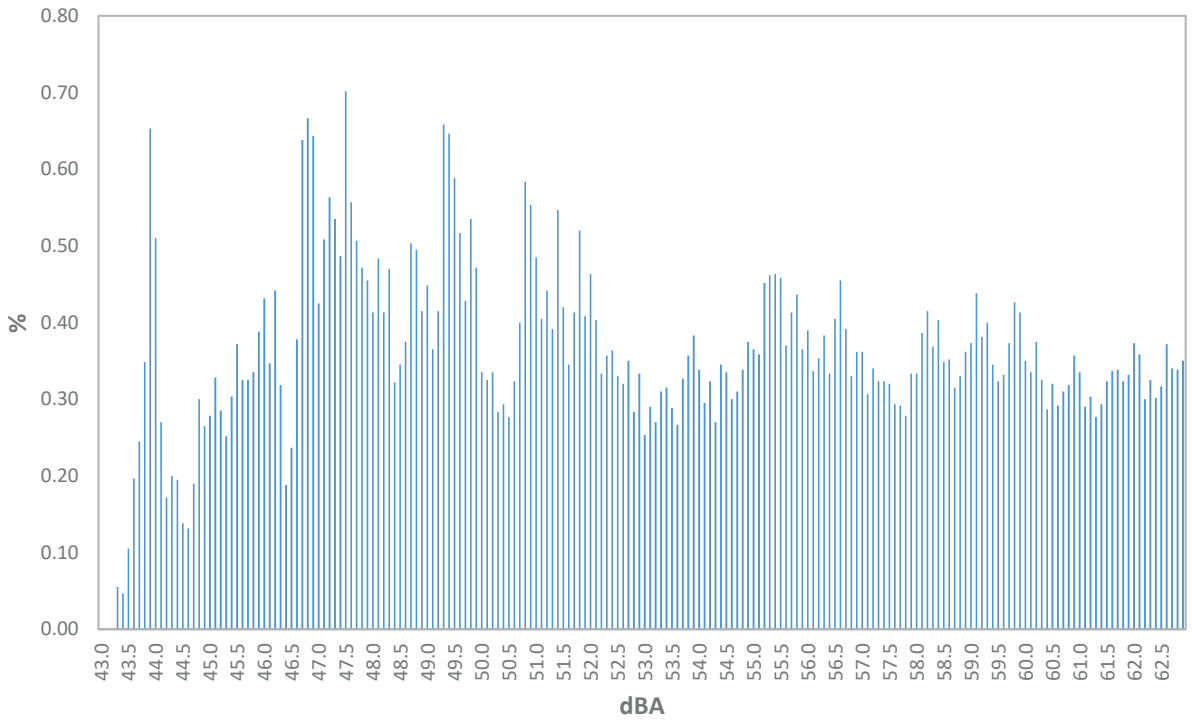
Date	Thursday, August 18, 2022
Start Time	4:44pm
End Time	4:54pm
File Name	831_Data.081
Device Model	Larson Davis Model 831
Weighting	A
Response	Slow

Results

Description	Value	Description	Value
L_{eq}	62.4dB	L_{10}	67.5dB
L_{max}	72.6dB	L_{50}	56.5dB
L_{min}	43.3dB	L_{90}	46.7dB

LAS > 65.0 dBA (Exceedance Count/Duration): 29, 146.8s
LAS > 85.0 dBA (Exceedance Count/Duration): 0, 0s

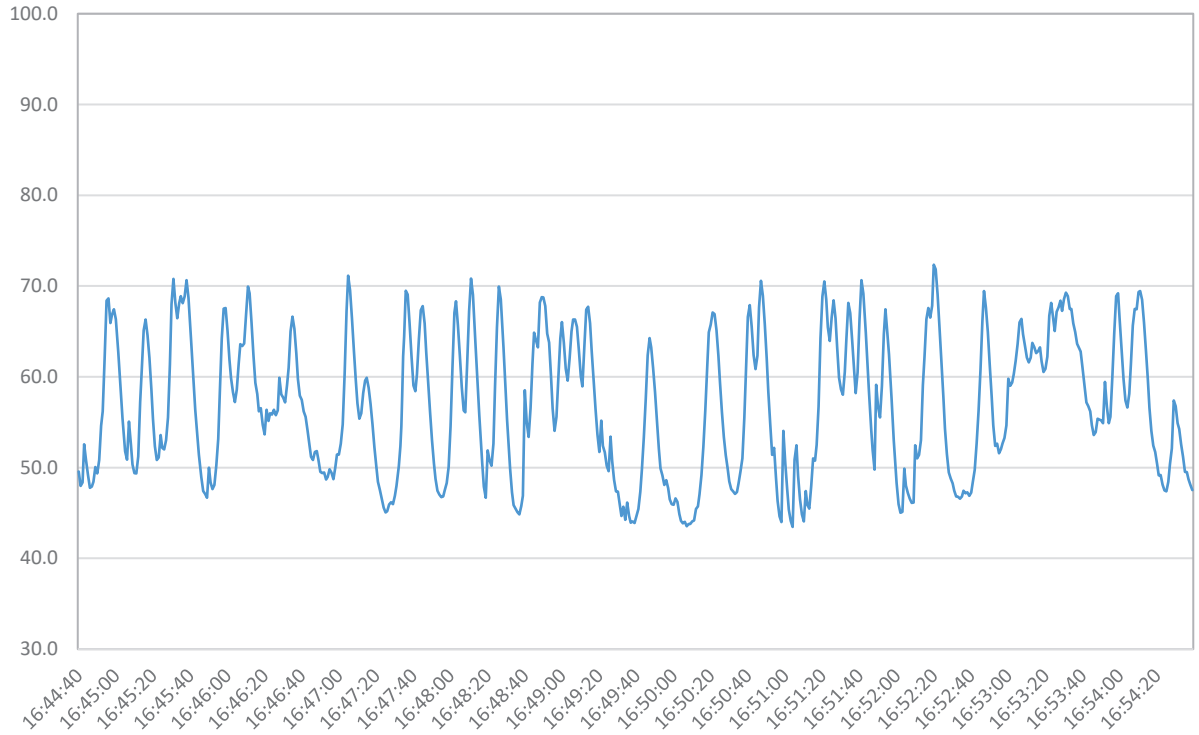
Statistics Chart



Statistics Table

dB	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	%
43.0	0.00	0.00	0.00	0.06	0.05	0.11	0.20	0.25	0.35	0.65	1.7
44.0	0.51	0.27	0.17	0.20	0.20	0.14	0.13	0.19	0.30	0.27	2.4
45.0	0.28	0.33	0.29	0.25	0.30	0.37	0.33	0.33	0.34	0.39	3.19
46.0	0.43	0.35	0.44	0.32	0.19	0.24	0.38	0.64	0.67	0.64	4.29
47.0	0.43	0.51	0.56	0.54	0.49	0.70	0.56	0.51	0.47	0.46	5.21
48.0	0.41	0.48	0.41	0.47	0.32	0.35	0.38	0.50	0.50	0.42	4.24
49.0	0.45	0.37	0.42	0.66	0.65	0.59	0.52	0.43	0.54	0.47	5.07
50.0	0.34	0.33	0.34	0.28	0.29	0.28	0.32	0.40	0.58	0.55	3.71
51.0	0.49	0.41	0.44	0.39	0.55	0.42	0.35	0.41	0.52	0.41	4.38
52.0	0.46	0.40	0.33	0.36	0.36	0.33	0.32	0.35	0.28	0.33	3.54
53.0	0.25	0.29	0.27	0.31	0.32	0.29	0.27	0.33	0.36	0.38	3.06
54.0	0.34	0.30	0.32	0.27	0.35	0.34	0.30	0.31	0.34	0.38	3.23
55.0	0.37	0.36	0.45	0.46	0.46	0.46	0.37	0.41	0.44	0.37	4.14
56.0	0.39	0.34	0.35	0.38	0.33	0.41	0.46	0.39	0.33	0.36	3.74
57.0	0.36	0.31	0.34	0.32	0.32	0.32	0.29	0.29	0.28	0.33	3.17
58.0	0.33	0.39	0.42	0.37	0.40	0.35	0.35	0.32	0.33	0.36	3.61
59.0	0.37	0.44	0.38	0.40	0.35	0.32	0.33	0.37	0.43	0.41	3.81
60.0	0.35	0.34	0.38	0.33	0.29	0.32	0.29	0.31	0.32	0.36	3.27
61.0	0.34	0.29	0.30	0.28	0.29	0.32	0.34	0.34	0.32	0.33	3.15
62.0	0.37	0.36	0.30	0.33	0.30	0.32	0.37	0.34	0.34	0.35	3.38
63.0	0.42	0.41	0.48	0.40	0.40	0.42	0.47	0.43	0.36	0.40	4.17
64.0	0.36	0.36	0.32	0.37	0.33	0.28	0.30	0.35	0.38	0.36	3.39
65.0	0.31	0.31	0.30	0.33	0.38	0.35	0.37	0.37	0.38	0.40	3.51
66.0	0.41	0.38	0.38	0.51	0.42	0.47	0.48	0.45	0.33	0.34	4.16
67.0	0.36	0.41	0.38	0.54	0.54	0.61	0.54	0.60	0.47	0.44	4.88
68.0	0.42	0.35	0.42	0.27	0.32	0.26	0.33	0.42	0.39	0.28	3.44
69.0	0.24	0.20	0.23	0.29	0.26	0.23	0.22	0.26	0.19	0.22	2.33
70.0	0.23	0.17	0.17	0.11	0.13	0.19	0.20	0.13	0.13	0.08	1.55
71.0	0.04	0.05	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.17
72.0	0.01	0.02	0.01	0.04	0.05	0.05	0.01	0.00	0.00	0.00	0.19

Logged Data Chart



10. Chaminade Avenue – Near Cul-De-Sac

Noise Report

Summary

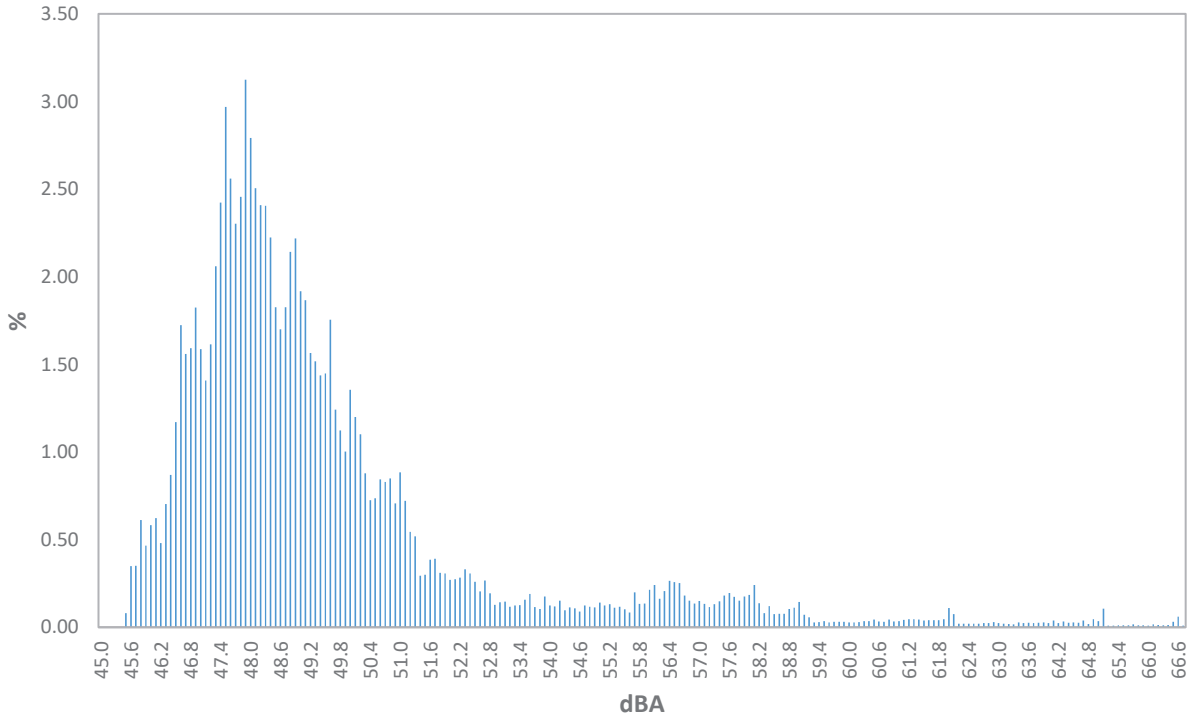
Date	Thursday, August 18, 2022
Start Time	4:58pm
End Time	5:08pm
File Name	831_Data.082
Device Model	Larson Davis Model 831
Weighting	A
Response	Slow

Results

Description	Value	Description	Value
L_{eq}	51.9dB	L_{10}	53.8dB
L_{max}	66.7dB	L_{50}	48.6dB
L_{min}	45.5dB	L_{90}	46.8dB

LAS > 65.0 dBA (Exceedance Count/Duration): 2, 4.8s
LAS > 85.0 dBA (Exceedance Count/Duration): 0, 0s

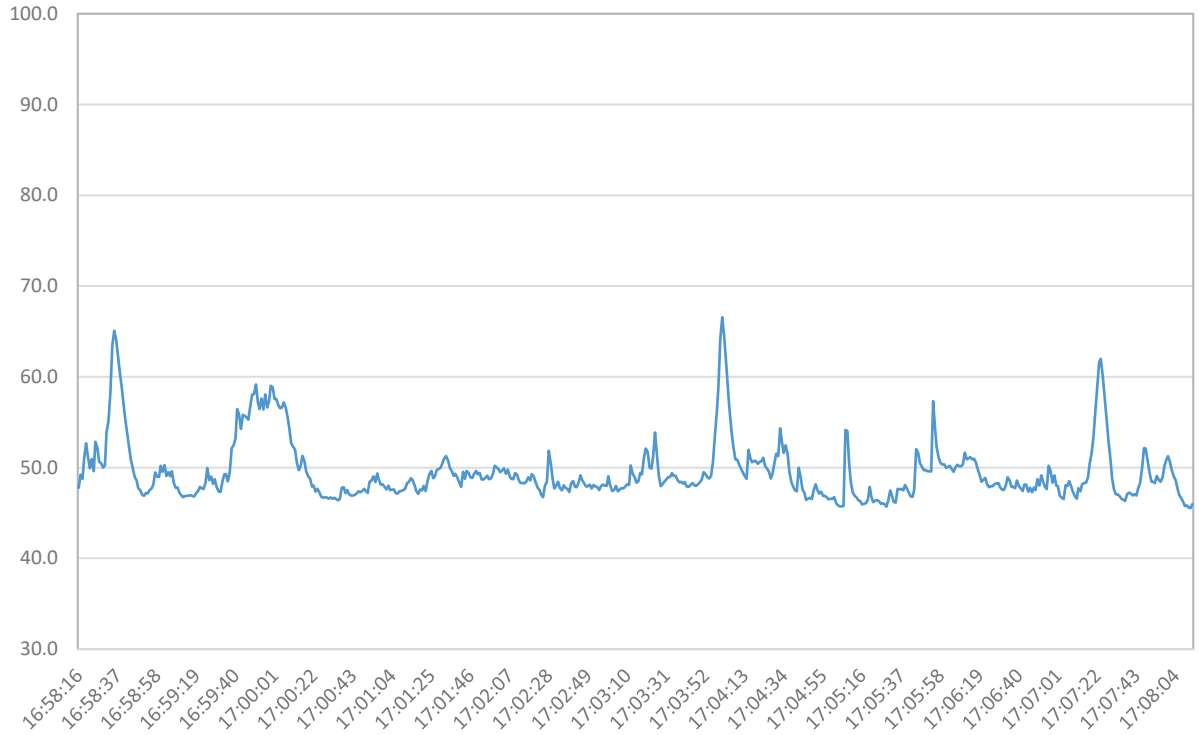
Statistics Chart



Statistics Table

dB	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	%
45.0	0.00	0.00	0.00	0.00	0.00	0.08	0.35	0.35	0.61	0.47	1.9
46.0	0.58	0.62	0.48	0.70	0.87	1.17	1.72	1.56	1.59	1.82	11.1
47.0	1.59	1.41	1.61	2.06	2.42	2.97	2.56	2.30	2.46	3.13	22.50
48.0	2.79	2.51	2.41	2.41	2.22	1.83	1.70	1.83	2.14	2.22	22.05
49.0	1.92	1.87	1.57	1.52	1.44	1.45	1.76	1.24	1.12	1.00	14.87
50.0	1.36	1.20	1.10	0.88	0.73	0.74	0.84	0.83	0.85	0.71	9.23
51.0	0.88	0.72	0.55	0.52	0.30	0.30	0.39	0.39	0.31	0.31	4.66
52.0	0.27	0.27	0.28	0.33	0.31	0.26	0.21	0.27	0.19	0.13	2.52
53.0	0.14	0.15	0.12	0.13	0.13	0.16	0.19	0.12	0.10	0.18	1.40
54.0	0.13	0.12	0.15	0.10	0.11	0.11	0.09	0.13	0.12	0.11	1.16
55.0	0.14	0.13	0.13	0.11	0.12	0.10	0.08	0.20	0.13	0.14	1.28
56.0	0.21	0.24	0.16	0.21	0.27	0.26	0.25	0.18	0.15	0.14	2.07
57.0	0.15	0.13	0.12	0.13	0.15	0.18	0.20	0.17	0.15	0.18	1.56
58.0	0.19	0.24	0.14	0.08	0.12	0.08	0.08	0.08	0.11	0.11	1.21
59.0	0.15	0.07	0.06	0.03	0.03	0.04	0.03	0.03	0.03	0.03	0.49
60.0	0.03	0.03	0.03	0.04	0.04	0.04	0.03	0.03	0.04	0.03	0.34
61.0	0.04	0.04	0.05	0.05	0.04	0.04	0.04	0.04	0.04	0.05	0.41
62.0	0.11	0.08	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.03	0.36
63.0	0.02	0.02	0.02	0.02	0.03	0.02	0.03	0.02	0.03	0.03	0.23
64.0	0.02	0.04	0.02	0.03	0.03	0.03	0.03	0.04	0.02	0.05	0.30
65.0	0.04	0.11	0.01	0.01	0.01	0.01	0.01	0.02	0.01	0.01	0.24
66.0	0.01	0.02	0.01	0.01	0.01	0.03	0.06	0.01	0.00	0.00	0.17

Logged Data Chart



11. Atron Ave. Cul-De-Sac

Noise Report

Summary

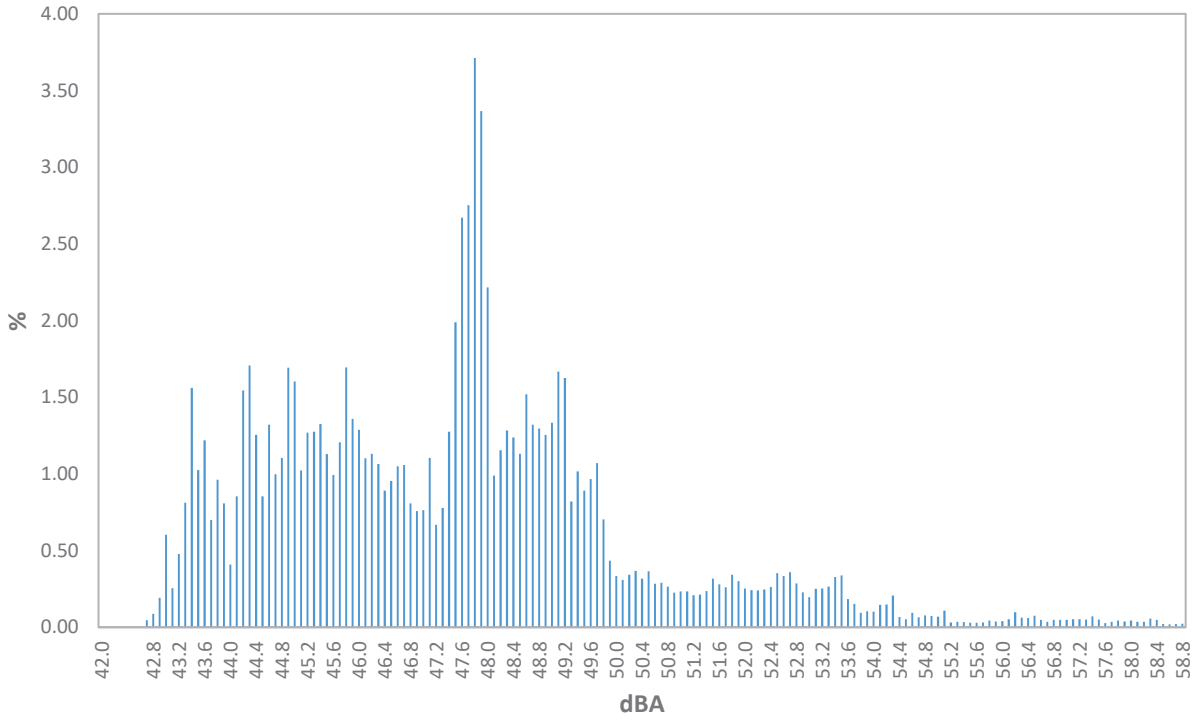
Date	Thursday, August 18, 2022
Start Time	5:13pm
End Time	5:23pm
File Name	831_Data.083
Device Model	Larson Davis Model 831
Weighting	A
Response	Slow

Results

Description	Value	Description	Value
L_{eq}	48.6dB	L_{10}	51.1dB
L_{max}	58.8dB	L_{50}	47.5dB
L_{min}	42.7dB	L_{90}	44.1dB

LAS > 65.0 dBA (Exceedance Count/Duration): 0, 0s
LAS > 85.0 dBA (Exceedance Count/Duration): 0, 0s

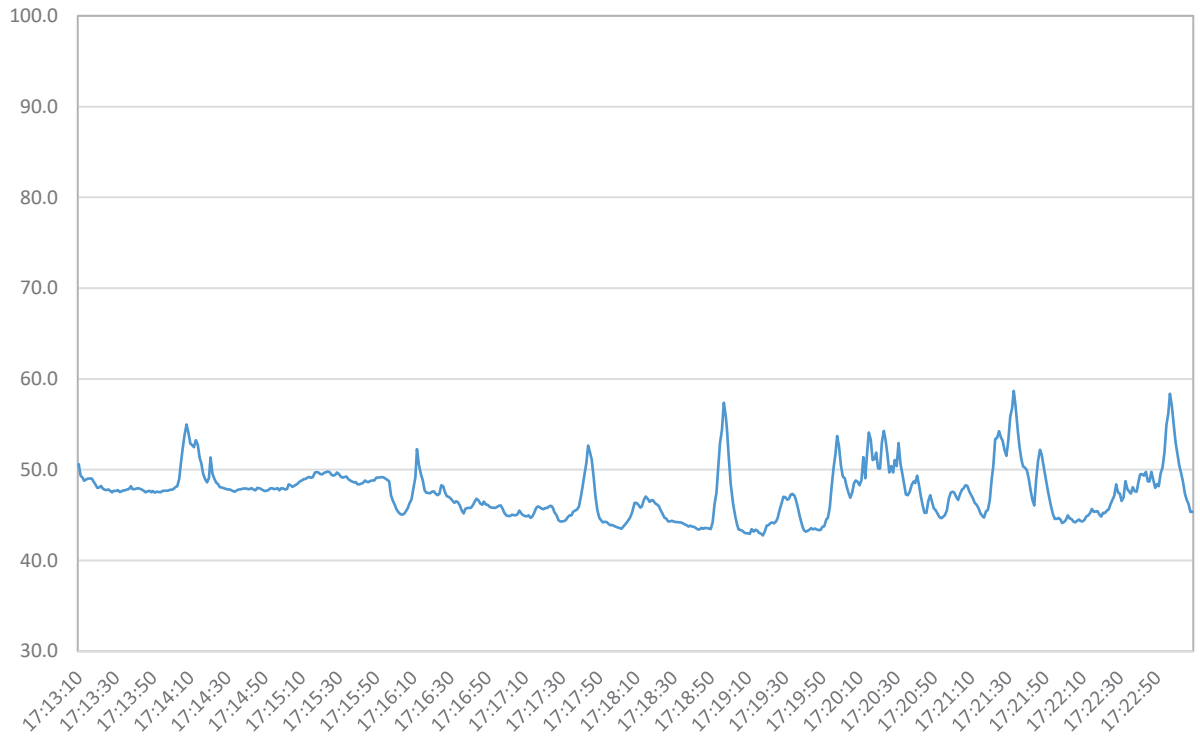
Statistics Chart



Statistics Table

dB	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	%
42.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.09	0.19	0.3
43.0	0.60	0.26	0.48	0.81	1.56	1.03	1.22	0.70	0.96	0.81	8.4
44.0	0.41	0.85	1.54	1.71	1.25	0.85	1.32	1.00	1.10	1.69	11.74
45.0	1.60	1.02	1.27	1.28	1.33	1.13	0.99	1.21	1.70	1.36	12.88
46.0	1.29	1.10	1.13	1.06	0.89	0.95	1.05	1.06	0.81	0.76	10.10
47.0	0.76	1.11	0.67	0.78	1.28	1.99	2.67	2.75	3.71	3.37	19.08
48.0	2.22	0.99	1.16	1.28	1.24	1.13	1.52	1.32	1.30	1.26	13.40
49.0	1.33	1.67	1.63	0.82	1.02	0.89	0.97	1.07	0.70	0.43	10.53
50.0	0.33	0.31	0.34	0.37	0.32	0.37	0.28	0.29	0.27	0.23	3.10
51.0	0.23	0.23	0.21	0.21	0.24	0.32	0.28	0.26	0.34	0.30	2.62
52.0	0.25	0.24	0.24	0.25	0.26	0.35	0.33	0.36	0.29	0.23	2.81
53.0	0.20	0.25	0.25	0.27	0.33	0.34	0.18	0.15	0.09	0.11	2.16
54.0	0.10	0.15	0.15	0.21	0.07	0.05	0.10	0.07	0.08	0.07	1.04
55.0	0.07	0.11	0.03	0.04	0.03	0.03	0.03	0.03	0.05	0.04	0.45
56.0	0.04	0.05	0.10	0.06	0.06	0.08	0.05	0.04	0.05	0.05	0.57
57.0	0.05	0.05	0.05	0.05	0.07	0.05	0.03	0.04	0.05	0.04	0.47
58.0	0.04	0.04	0.04	0.06	0.05	0.02	0.02	0.02	0.02	0.00	0.30

Logged Data Chart



Construction Noise Impact Analysis

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23309 Saticoy Street Residence - North Campus Demolition

Ambient Noise Level:	66.3 dBA Leq

Unmitigated

Equipment Noise Levels

Equipment	Noise Level - dBA Leq	Usage %	Workday Noise Level - dBA Leq
Excavator	66.2	0.4	62.2
Excavator	66.2	0.4	62.2
-	0	1	0.0
-	0	1	0.0
-	0	1	0.0
		Combined dBA Leq:	65.2

Unmitigated Construction Noise Impact

Combined Equipment Noise Level	65.2 dBA Leq
Shielding	0 dBA
Ground Factor	0

Unmitigated Construction Noise Level	65.2 dBA Leq
Ambient Noise Level	66.3 dBA
New Noise Level	68.8 dBA Leq
Unmitigated Noise Increase	**2.5 dBA**

Construction Noise Impact Analysis

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Melba Street Cul de Sac Residences - North Campus Demolition

Ambient Noise Level:	53.9 dBA Leq

Unmitigated

Equipment Noise Levels

Equipment	Noise Level - dBA Leq	Usage %	Workday Noise Level - dBA Leq
Excavator	70.1	0.4	66.1
Excavator	70.1	0.4	66.1
-	0	1	0.0
-	0	1	0.0
-	0	1	0.0
		Combined dBA Leq:	69.1

Unmitigated Construction Noise Impact

Combined Equipment Noise Level	69.1 dBA Leq
Existing Shielding	0 dBA
Ground Factor	0

Unmitigated Construction Noise Level	69.1 dBA Leq
Ambient Noise Level	53.9 dBA
New Noise Level	69.3 dBA Leq
Unmitigated Noise Increase	**15.4 dBA**

Mitigated

Equipment Noise Levels

Equipment	Noise Level - dBA Leq	Usage %	Total Shielding in dBA (Sound Barrier)	Workday Noise Level - dBA Leq
Excavator	70.1	0.4	-15.0	51.1
Excavator	70.1	0.4	-15.0	51.1
-	0	1	0.0	0.0
-	0	1	0.0	0.0
-	0	1	0.0	0.0
			Combined dBA Leq:	54.1

Mitigated Construction Noise Impact

Combined Equipment Noise Level	54.1 dBA Leq
Ground Factor	0

Mitigated Construction Noise Level	54.1 dBA Leq
Ambient Noise Level	53.9 dBA
New Noise Level	57.0 dBA Leq
Mitigated Noise Increase	**3.1 dBA**

Construction Noise Impact Analysis

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Bobbyboyar Avenue Cul de Sac Residences - North Campus Demolition

Ambient Noise Level:	53.9 dBA Leq

Unmitigated

Equipment Noise Levels

Equipment	Noise Level - dBA Leq	Usage %	Workday Noise Level - dBA Leq
Excavator	70.1	0.4	66.1
Excavator	70.1	0.4	66.1
-	0	1	0.0
-	0	1	0.0
-	0	1	0.0
		Combined dBA Leq:	69.1

Unmitigated Construction Noise Impact

Combined Equipment Noise Level	69.1 dBA Leq
Existing Shielding	0 dBA
Ground Factor	0

Unmitigated Construction Noise Level	69.1 dBA Leq
Ambient Noise Level	53.9 dBA
New Noise Level	69.3 dBA Leq
Unmitigated Noise Increase	**15.4 dBA**

Mitigated

Equipment Noise Levels

Equipment	Noise Level - dBA Leq	Usage %	Total Shielding in dBA (Sound Barrier)	Workday Noise Level - dBA Leq
Excavator	70.1	0.4	-15.0	51.1
Excavator	70.1	0.4	-15.0	51.1
-	0	1	0.0	0.0
-	0	1	0.0	0.0
-	0	1	0.0	0.0
			Combined dBA Leq:	54.1

Mitigated Construction Noise Impact

Combined Equipment Noise Level	54.1 dBA Leq
Ground Factor	0

Mitigated Construction Noise Level	54.1 dBA Leq
Ambient Noise Level	53.9 dBA
New Noise Level	57.0 dBA Leq
Mitigated Noise Increase	**3.1 dBA**

Construction Noise Impact Analysis

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Woodlake Avenue Residences - North Campus Demolition

Ambient Noise Level:	67.2 dBA Leq

Unmitigated

Equipment Noise Levels

Equipment	Noise Level - dBA Leq	Usage %	Workday Noise Level - dBA Leq
Excavator	60.9	0.4	56.9
Excavator	60.9	0.4	56.9
-	0	1	0.0
-	0	1	0.0
-	0	1	0.0
		Combined dBA Leq:	59.9

Unmitigated Construction Noise Impact

Combined Equipment Noise Level	59.9 dBA Leq
Existing Shielding	0 dBA
Ground Factor	0

Unmitigated Construction Noise Level	59.9 dBA Leq
Ambient Noise Level	67.2 dBA
New Noise Level	67.9 dBA Leq
Unmitigated Noise Increase	**0.7 dBA**

Construction Noise Impact Analysis

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Saticoy Street Residences - North Campus Demolition

Ambient Noise Level:	68.6 dBA Leq

Unmitigated

Equipment Noise Levels

Equipment	Noise Level - dBA Leq	Usage %	Workday Noise Level - dBA Leq
Excavator	59.8	0.4	55.8
Excavator	59.8	0.4	55.8
-	0	1	0.0
-	0	1	0.0
-	0	1	0.0
		Combined dBA Leq:	58.8

Unmitigated Construction Noise Impact

Combined Equipment Noise Level	58.8 dBA Leq
Existing Shielding	0 dBA
Ground Factor	0

Unmitigated Construction Noise Level	58.8 dBA Leq
Ambient Noise Level	68.6 dBA
New Noise Level	69.0 dBA Leq
Unmitigated Noise Increase	**0.4 dBA**

Construction Noise Impact Analysis

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23309 Saticoy Street Residence - North Lot Grading

Ambient Noise Level:	66.3 dBA Leq

Unmitigated

Equipment Noise Levels

Equipment	Noise Level - dBA Leq	Usage %	Workday Noise Level - dBA Leq
Grader	76.2	0.2	69.2
-	0	1	0.0
-	0	1	0.0
-	0	1	0.0
-	0	1	0.0
		Combined dBA Leq:	69.2

Unmitigated Construction Noise Impact

Combined Equipment Noise Level	69.2 dBA Leq
Existing Shielding	0 dBA
Ground Factor	0

Unmitigated Construction Noise Level	69.2 dBA Leq
Ambient Noise Level	66.3 dBA
New Noise Level	71.0 dBA Leq
Unmitigated Noise Increase	**4.7 dBA**

Construction Noise Impact Analysis

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Melba Street Cul de Sac Residences - North Lot Grading

Ambient Noise Level:	53.9 dBA Leq

Unmitigated

Equipment Noise Levels

Equipment	Noise Level - dBA Leq	Usage %	Workday Noise Level - dBA Leq
Grader	76.2	0.2	69.2
-	0	1	0.0
-	0	1	0.0
-	0	1	0.0
-	0	1	0.0
		Combined dBA Leq:	69.2

Unmitigated Construction Noise Impact

Combined Equipment Noise Level	69.2 dBA Leq
Existing Shielding	0 dBA
Ground Factor	0

Unmitigated Construction Noise Level	69.2 dBA Leq
Ambient Noise Level	53.9 dBA
New Noise Level	69.3 dBA Leq
Unmitigated Noise Increase	**15.4 dBA**

Mitigated

Equipment Noise Levels

Equipment	Noise Level - dBA Leq	Usage %	Total Shielding in dBA (Sound Barrier)	Workday Noise Level - dBA Leq
Grader	76.2	0.2	-15.0	54.2
-	0.0	1	0.0	0.0
-	0	1	0.0	0.0
-	0	1	0.0	0.0
-	0	1	0.0	0.0
			Combined dBA Leq:	54.2

Mitigated Construction Noise Impact

Combined Equipment Noise Level	54.2 dBA Leq
Ground Factor	0

Mitigated Construction Noise Level	54.2 dBA Leq
Ambient Noise Level	53.9 dBA
New Noise Level	57.1 dBA Leq
Mitigated Noise Increase	**3.2 dBA**

Construction Noise Impact Analysis

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Bobbyboyar Avenue Cul de Sac Residences - North Lot Grading

Ambient Noise Level:	53.9 dBA Leq

Unmitigated

Equipment Noise Levels

Equipment	Noise Level - dBA Leq	Usage %	Workday Noise Level - dBA Leq
Grader	76.2	0.2	69.2
-	0	1	0.0
-	0	1	0.0
-	0	1	0.0
-	0	1	0.0
		Combined dBA Leq:	69.2

Unmitigated Construction Noise Impact

Combined Equipment Noise Level	69.2 dBA Leq
Existing Shielding	0 dBA
Ground Factor	0

Unmitigated Construction Noise Level	69.2 dBA Leq
Ambient Noise Level	53.9 dBA
New Noise Level	69.3 dBA Leq
Unmitigated Noise Increase	**15.4 dBA**

Mitigated

Equipment Noise Levels

Equipment	Noise Level - dBA Leq	Usage %	Total Shielding in dBA (Sound Barrier)	Workday Noise Level - dBA Leq
Grader	76.2	0.2	-15.0	54.2
-	0.0	1	0.0	0.0
-	0	1	0.0	0.0
-	0	1	0.0	0.0
-	0	1	0.0	0.0
			Combined dBA Leq:	54.2

Mitigated Construction Noise Impact

Combined Equipment Noise Level	54.2 dBA Leq
Ground Factor	0

Mitigated Construction Noise Level	54.2 dBA Leq
Ambient Noise Level	53.9 dBA
New Noise Level	57.1 dBA Leq
Mitigated Noise Increase	**3.2 dBA**

Construction Noise Impact Analysis

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Woodlake Avenue Residences - North Lot Grading

Ambient Noise Level:	67.2 dBA Leq

Unmitigated

Equipment Noise Levels

Equipment	Noise Level - dBA Leq	Usage %	Workday Noise Level - dBA Leq
Grader	67.6	0.2	60.6
-	0	1	0.0
-	0	1	0.0
-	0	1	0.0
-	0	1	0.0
		Combined dBA Leq:	60.6

Unmitigated Construction Noise Impact

Combined Equipment Noise Level	60.6 dBA Leq
Existing Shielding	0 dBA
Ground Factor	0

Unmitigated Construction Noise Level	60.6 dBA Leq
Ambient Noise Level	67.2 dBA
New Noise Level	68.1 dBA Leq
Unmitigated Noise Increase	**0.9 dBA**

Construction Noise Impact Analysis

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Saticoy Street Residences - North Lot Grading

Ambient Noise Level:	68.6 dBA Leq

Unmitigated

Equipment Noise Levels

Equipment	Noise Level - dBA Leq	Usage %	Workday Noise Level - dBA Leq
Grader	67.6	0.2	60.6
-	0	1	0.0
-	0	1	0.0
-	0	1	0.0
-	0	1	0.0
		Combined dBA Leq:	60.6

Unmitigated Construction Noise Impact

Combined Equipment Noise Level	60.6 dBA Leq
Existing Shielding	0 dBA
Ground Factor	0

Unmitigated Construction Noise Level	60.6 dBA Leq
Ambient Noise Level	68.6 dBA
New Noise Level	69.2 dBA Leq
Unmitigated Noise Increase	**0.6 dBA**

Construction Noise Impact Analysis

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23309 Saticoy Street Residences - North Campus Pedestrian Bridge Foundation

Ambient Noise Level:	66.3 dBA Leq

Unmitigated

Equipment Noise Levels

Equipment	Noise Level - dBA Leq	Usage %	Workday Noise Level - dBA Leq
Bore/Drill Rig at 75ft	84.0	0.1	74.0
-	0	1	0.0
-	0	1	0.0
-	0	1	0.0
-	0	1	0.0
		Combined dBA Leq:	74.0

Unmitigated Construction Noise Impact

Combined Equipment Noise Level	74.0 dBA Leq
Existing Shielding	0 dBA
Ground Factor	0

Unmitigated Construction Noise Level	74.0 dBA Leq
Ambient Noise Level	66.3 dBA
New Noise Level	74.7 dBA Leq
Unmitigated Noise Increase	**8.4 dBA**

Mitigated

Equipment Noise Levels

Equipment	Noise Level - dBA Leq	Usage %	Total Shielding in dBA (Sound Barrier)	Workday Noise Level - dBA Leq
Bore/Drill Rig at 75ft	84.0	0.1	-15.0	59.0
-	0.0	1	0.0	0.0
-	0	1	0.0	0.0
-	0	1	0.0	0.0
-	0	1	0.0	0.0
			Combined dBA Leq:	59.0

Mitigated Construction Noise Impact

Combined Equipment Noise Level	59.0 dBA Leq
Ground Factor	0

Mitigated Construction Noise Level	59.0 dBA Leq
Ambient Noise Level	66.3 dBA
New Noise Level	67.0 dBA Leq
Mitigated Noise Increase	**0.7 dBA**

Construction Noise Impact Analysis

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Melba Street Cul de Sac Residences - North Campus Pedestrian Bridge Foundation

Ambient Noise Level:	53.9 dBA Leq

Unmitigated

Equipment Noise Levels

Equipment	Noise Level - dBA Leq	Usage %	Workday Noise Level - dBA Leq
Bore/Drill Rig at 95ft	81.9	0.1	71.9
-	0	1	0.0
-	0	1	0.0
-	0	1	0.0
-	0	1	0.0
		Combined dBA Leq:	71.9

Unmitigated Construction Noise Impact

Combined Equipment Noise Level	71.9 dBA Leq
Existing Shielding	0 dBA
Ground Factor	0

Unmitigated Construction Noise Level	71.9 dBA Leq
Ambient Noise Level	53.9 dBA
New Noise Level	72.0 dBA Leq
Unmitigated Noise Increase	**18.1 dBA**

Mitigated

Equipment Noise Levels

Equipment	Noise Level - dBA Leq	Usage %	Total Shielding in dBA (Sound Barrier)	Workday Noise Level - dBA Leq
Bore/Drill Rig at 75ft	81.9	0.1	-15.0	56.9
-	0.0	1	0.0	0.0
-	0	1	0.0	0.0
-	0	1	0.0	0.0
-	0	1	0.0	0.0
			Combined dBA Leq:	56.9

Mitigated Construction Noise Impact

Combined Equipment Noise Level	56.9 dBA Leq
Ground Factor	0

Mitigated Construction Noise Level	56.9 dBA Leq
Ambient Noise Level	53.9 dBA
New Noise Level	58.7 dBA Leq
Mitigated Noise Increase	**4.8 dBA**

Construction Noise Impact Analysis

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Bobbyboyar Cul de Sac Residences - North Campus Pedestrian Bridge Foundation

Ambient Noise Level:	53.9 dBA Leq

Unmitigated

Equipment Noise Levels

Equipment	Noise Level - dBA Leq	Usage %	Workday Noise Level - dBA Leq
Bore/Drill Rig at 375ft	70.0	0.1	60.0
-	0	1	0.0
-	0	1	0.0
-	0	1	0.0
-	0	1	0.0
		Combined dBA Leq:	60.0

Unmitigated Construction Noise Impact

Combined Equipment Noise Level	60.0 dBA Leq
Existing Shielding	0 dBA
Ground Factor	0

Unmitigated Construction Noise Level	60.0 dBA Leq
Ambient Noise Level	53.9 dBA
New Noise Level	61.0 dBA Leq
Unmitigated Noise Increase	**7.1 dBA**

Mitigated

Equipment Noise Levels

Equipment	Noise Level - dBA Leq	Usage %	Total Shielding in dBA (Sound Barrier)	Workday Noise Level - dBA Leq
Bore/Drill Rig at 95ft	70.0	0.1	-15.0	45.0
-	0.0	1	0.0	0.0
-	0	1	0.0	0.0
-	0	1	0.0	0.0
-	0	1	0.0	0.0
			Combined dBA Leq:	45.0

Mitigated Construction Noise Impact

Combined Equipment Noise Level	45.0 dBA Leq
Ground Factor	0

Mitigated Construction Noise Level	45.0 dBA Leq
Ambient Noise Level	53.9 dBA
New Noise Level	54.4 dBA Leq
Mitigated Noise Increase	**0.5 dBA**

Construction Noise Impact Analysis

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Woodlake Avenue Residences - North Campus Pedestrian Bridge Foundation

Ambient Noise Level:	67.2 dBA Leq

Unmitigated

Equipment Noise Levels

Equipment	Noise Level - dBA Leq	Usage %	Workday Noise Level - dBA Leq
Bore/Drill Rig at 750ft	64.0	0.1	54.0
-	0	1	0.0
-	0	1	0.0
-	0	1	0.0
-	0	1	0.0
		Combined dBA Leq:	54.0

Unmitigated Construction Noise Impact

Combined Equipment Noise Level	54.0 dBA Leq
Existing Shielding	0 dBA
Ground Factor	0

Unmitigated Construction Noise Level	54.0 dBA Leq
Ambient Noise Level	67.2 dBA
New Noise Level	67.4 dBA Leq
Unmitigated Noise Increase	**0.2 dBA**

Construction Noise Impact Analysis

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Saticoy Street Residences - North Campus Pedestrian Bridge Foundation

Ambient Noise Level:	68.6 dBA Leq

Unmitigated

Equipment Noise Levels

Equipment	Noise Level - dBA Leq	Usage %	Workday Noise Level - dBA Leq
Bore/Drill Rig at 300ft	71.9	0.1	61.9
-	0	1	0.0
-	0	1	0.0
-	0	1	0.0
-	0	1	0.0
		Combined dBA Leq:	61.9

Unmitigated Construction Noise Impact

Combined Equipment Noise Level	61.9 dBA Leq
Existing Shielding	0 dBA
Ground Factor	0

Unmitigated Construction Noise Level	61.9 dBA Leq
Ambient Noise Level	68.6 dBA
New Noise Level	69.4 dBA Leq
Unmitigated Noise Increase	**0.8 dBA**

Construction Noise Impact Analysis

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Atron Avenue Cul-de-Sac Residences - Upper Level Parking Lot Demolition

Ambient Noise Level:	48.6 dBA Leq

Unmitigated

Equipment Noise Levels

Equipment	Noise Level - dBA Leq	Usage %	Workday Noise Level - dBA Leq
Loader	61.6	0.4	57.6
Loader	61.6	0.4	57.6
-	0	1	0.0
-	0	1	0.0
-	0	1	0.0
		Combined dBA Leq:	60.6

Unmitigated Construction Noise Impact

Combined Equipment Noise Level	60.6 dBA Leq
Existing Shielding	0 dBA
Ground Factor	0

Unmitigated Construction Noise Level	60.6 dBA Leq
Ambient Noise Level	48.6 dBA
New Noise Level	60.9 dBA Leq
Unmitigated Noise Increase	**12.3 dBA**

Mitigated

Equipment Noise Levels

Equipment	Noise Level - dBA Leq	Usage %	Total Shielding in dBA (Sound Barrier)	Workday Noise Level - dBA Leq
Loader	61.6	0.4	-15.0	42.6
Loader	61.6	0.4	-15.0	42.6
-	0	1	0.0	0.0
-	0	1	0.0	0.0
-	0	1	0.0	0.0
			Combined dBA Leq:	45.6

Mitigated Construction Noise Impact

Combined Equipment Noise Level	45.6	dBA Leq
Ground Factor	0	
Mitigated Construction Noise Level	45.6	dBA Leq
Ambient Noise Level	48.6	dBA
New Noise Level	50.4	dBA Leq
Mitigated Noise Increase	**1.8**	**dBA**

Covello Street Cul de Sac Residences - Upper Level Parking Lot Demolition

Ambient Noise Level:	49.5 dBA Leq

Unmitigated

Equipment Noise Levels

Equipment	Noise Level - dBA Leq	Usage %	Workday Noise Level - dBA Leq
Loader	52.9	0.4	48.9
Loader	52.9	0.4	48.9
-	0	1	0.0
-	0	1	0.0
-	0	1	0.0
		Combined dBA Leq:	51.9

Unmitigated Construction Noise Impact

Combined Equipment Noise Level	51.9 dBA Leq
Existing Shielding	0 dBA
Ground Factor	0

Unmitigated Construction Noise Level	51.9 dBA Leq
Ambient Noise Level	49.5 dBA
New Noise Level	53.9 dBA Leq
Unmitigated Noise Increase	**4.4 dBA**

Construction Noise Impact Analysis

noah tanski environmental consulting

Atron Avenue Cul-de-Sac Residences - Classroom Demolition

Ambient Noise Level:	48.6 dBA Leq

Unmitigated

Equipment Noise Levels

Equipment	Noise Level - dBA Leq	Usage %	Workday Noise Level - dBA Leq
Excavator	61.3	0.4	57.3
Excavator	61.3	0.4	57.3
-	0	1	0.0
-	0	1	0.0
-	0	1	0.0
		Combined dBA Leq:	60.3

Unmitigated Construction Noise Impact

Combined Equipment Noise Level	60.3 dBA Leq
Existing Shielding	0 dBA
Ground Factor	0

Unmitigated Construction Noise Level	60.3 dBA Leq
Ambient Noise Level	48.6 dBA
New Noise Level	60.6 dBA Leq
Unmitigated Noise Increase	**12.0 dBA**

Mitigated

Equipment Noise Levels

Equipment	Noise Level - dBA Leq	Usage %	Total Shielding in dBA (Sound Barrier)	Workday Noise Level - dBA Leq
Excavator	61.3	0.4	-15.0	42.3
Excavator	61.3	0.4	-15.0	42.3
-	0	1	0.0	0.0
-	0	1	0.0	0.0
-	0	1	0.0	0.0
			Combined dBA Leq:	45.3

Mitigated Construction Noise Impact

Combined Equipment Noise Level	45.3	dBA Leq
Ground Factor	0	
Mitigated Construction Noise Level	45.3	dBA Leq
Ambient Noise Level	48.6	dBA
New Noise Level	50.3	dBA Leq
Mitigated Noise Increase	**1.7**	**dBA**

Construction Noise Impact Analysis

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Covello Street Cul de Sac Residences - Classroom Demolition

Ambient Noise Level:	49.5 dBA Leq

Unmitigated

Equipment Noise Levels

Equipment	Noise Level - dBA Leq	Usage %	Workday Noise Level - dBA Leq
Excavator	62.8	0.4	58.8
Excavator	62.8	0.4	58.8
-	0	1	0.0
-	0	1	0.0
-	0	1	0.0
		Combined dBA Leq:	61.8

Unmitigated Construction Noise Impact

Combined Equipment Noise Level	61.8 dBA Leq
Existing Shielding	0 dBA
Ground Factor	0

Unmitigated Construction Noise Level	61.8 dBA Leq
Ambient Noise Level	49.5 dBA
New Noise Level	62.1 dBA Leq
Unmitigated Noise Increase	**12.6 dBA**

Mitigated

Equipment Noise Levels

Equipment	Noise Level - dBA Leq	Usage %	Total Shielding in dBA (Sound Barrier)	Workday Noise Level - dBA Leq
Excavator	62.8	0.4	-15.0	43.8
Excavator	62.8	0.4	-15.0	43.8
-	0	1	0.0	0.0
-	0	1	0.0	0.0
-	0	1	0.0	0.0
			Combined dBA Leq:	46.8

Mitigated Construction Noise Impact

Combined Equipment Noise Level	46.8	dBA Leq
Ground Factor	0	
Mitigated Construction Noise Level	46.8	dBA Leq
Ambient Noise Level	49.5	dBA
New Noise Level	51.4	dBA Leq
Mitigated Noise Increase	**1.9**	**dBA**

Construction Noise Impact Analysis

noah tanski environmental consulting

Chaminade Avenue Residences - Classroom Demolition

Ambient Noise Level:	51.9 dBA Leq

Unmitigated

Equipment Noise Levels

Equipment	Noise Level - dBA Leq	Usage %	Workday Noise Level - dBA Leq
Excavator	58.5	0.4	54.5
Excavator	58.5	0.4	54.5
-	0	1	0.0
-	0	1	0.0
-	0	1	0.0
		Combined dBA Leq:	57.5

Unmitigated Construction Noise Impact

Combined Equipment Noise Level	57.5 dBA Leq
Existing Shielding	0 dBA
Ground Factor	0

Unmitigated Construction Noise Level	57.5 dBA Leq
Ambient Noise Level	51.9 dBA
New Noise Level	58.6 dBA Leq
Unmitigated Noise Increase	**6.7 dBA**

Mitigated

Equipment Noise Levels

Equipment	Noise Level - dBA Leq	Usage %	Total Shielding in dBA (Sound Barrier)	Workday Noise Level - dBA Leq
Excavator	58.5	0.4	-15.0	39.5
Excavator	58.5	0.4	-15.0	39.5
-	0	1	0.0	0.0
-	0	1	0.0	0.0
-	0	1	0.0	0.0
			Combined dBA Leq:	42.5

Mitigated Construction Noise Impact

Combined Equipment Noise Level	42.5	dBA Leq
Ground Factor	0	
Mitigated Construction Noise Level	42.5	dBA Leq
Ambient Noise Level	51.9	dBA
New Noise Level	52.4	dBA Leq
Mitigated Noise Increase	**0.5**	**dBA**

NTEC
Noah Tanski

22 August 2023
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: Chaminade College Prep
RUN: CCP: 12 one-way haul trips per hour
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h		Increase over existing		Type Impact	With Barrier			
				Calculated	Crit'n	Calculated	Crit'n Sub'l Inc		Calculated LAeq1h	Noise Reduction Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
50ft from centerline	1	1	0.0	57.8	66	57.8	10	----	57.8	0.0	8	-8.0

Dwelling Units	# DUs	Noise Reduction		
		Min	Avg	Max
		dB	dB	dB
All Selected	1	0.0	0.0	0.0
All Impacted	0	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

Chaminade College Prep Project: Construction Vibration - PPV (in/sec)

Unmitigated

Earthmoving Equipment		
Equipment:	"Large Bulldozer" (or vibrational equivalent)	
Equipment PPV (in/sec):	0.089	
Reference Distance (ft):	25	
"n" value	1.1	
Receptor	Distance (ft)	Vibration Level (in/sec PPV)
Residences North of North Campus	10	0.244
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-

Drill/Bore Rig		
Equipment:	Auger Drill	
Equipment PPV (in/sec):	0.089	
Reference Distance (ft):	25	
"n" value	1.1	
Receptor	Distance (ft)	Vibration Level (in/sec PPV)
Residences North of North Campus, along Saticoy	70	0.029
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-

Earthmoving Equipment		
Equipment:	"Large Bulldozer" (or vibrational equivalent)	
Equipment PPV (in/sec):	0.089	
Reference Distance (ft):	25	
"n" value	1.1	
Receptor	Distance (ft)	Vibration Level (in/sec PPV)
100ft Example	100	0.019
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-

**Air Quality,
Greenhouse Gases,
Noise Analysis**

noah tanski environmental consulting

email: noah@ntenvironmental.net
call/text: 310-722-6346

To: Stacie Henderson
CAJA Environmental Services, LLC

From: Noah Tanski
NTEC

Date: April 25, 2024

RE: Chaminade High School North Campus Athletic Facilities – Technical Memorandum

Dear Stacie,

As you know, Noah Tanski Environmental Consulting (NTEC) performed the operational noise analysis for the Chaminade College Preparatory High School Initial Study/Mitigated Negative Declaration (IS/MND). The analysis evaluated noise impacts from sources such as mechanical equipment, parking lots, and athletic facilities that are proposed by the Project. Noise sources from these facilities are potentially wide-ranging (e.g., crowd noise, athletics noise, amplified sounds, etc.), and there is limited formal scholarship establishing reference noise levels for use in predictive analysis. That said, the noise sources are well understood, and many studies, including CEQA-related studies, have documented noise levels associated with high school athletics. To characterize and predict noise impacts that would result from the Project's proposed athletic facilities, the analysis performed for the IS/MND drew upon a synthesis of noise levels that were documented as part of studies for similar athletic facilities projects. A simplified discussion of the analysis and its reference noise levels is included in the IS/MND; a more-detailed discussion is included here in this technical memorandum.

North Campus Athletic Fields and Aquatics Complex – Overview

As explained in the IS/MND, the North Campus would include new athletic fields for soccer and baseball, as well as an aquatic facility featuring an outdoor pool. The hours of operation for the North Campus would be more restrictive than the usage hours allowed by the school's current Conditional Use Permit for the Main Campus. The North Campus hours of operations would be:

- Athletic Fields: Monday – Friday, 7:00 A.M. – 9:00 P.M. (with exception for overtime/extra inning play); Saturday, 8:00 A.M. – 9:00 P.M.; Sunday, 9:00 A.M. – 8:00 P.M. (no more than 15 Sundays per year).
- Aquatic Complex/Pool: Monday – Friday, 8:00 A.M. – 8:00 P.M.; Saturday, 10:00 A.M. – 7:00 P.M.; no operations on Sundays.
- Batting Cage: Monday – Saturday, 9:00 A.M. – 7:00 P.M.; no operations on Sundays.

Rental or lease of the North Campus athletic facilities would be subject to more restrictive day and hour limitations:

- Athletic Fields: Use by community-based athletic organizations shall be limited to 36 days annually, Monday through Saturday, 8:00 A.M. – 6:00 P.M. Use is not permitted on Sundays and national holidays. The rental or lease of the batting cages is not permitted at any time.
- Aquatic Complex/Pool: Use by community-based organizations, which shall travel to and from the North Campus by bus, shall be limited to daylight hours and end no later than 7:00 P.M. Monday through Friday, and no later than 5:00 P.M. on Saturdays. For community member swim activities, use hours shall be limited to Monday-Saturday, 8:00 A.M. – 6:00 P.M. Use is not permitted on Sundays and national holidays.

CEQA Noise Thresholds of Significance – Overview

The City's threshold of significance for operational noise impacts is whether a project's operations would: (1) cause ambient noise levels to increase by 3 dBA CNEL or more to or within a sensitive receptor's "normally unacceptable" or "clearly unacceptable" noise and land use compatibility category, as defined by the City's General Plan Noise Element; or (2) result in any 5 dBA $L_{eq\ (1\text{-}hour)}$ or CNEL noise increase to a sensitive receptor. CNEL is a 24-hour weighted average noise level that penalizes noise levels between 7:00 P.M. and 7:00 A.M. to account for people's increased noise sensitivity during these hours. L_{eq} represents the energy average noise level for a given time period, which for purposes of the impact analysis is a minimum of one hour. The Project's sensitive receptors for noise impact assessment are all single-family residential land uses. According to the City's General Plan Noise Element, noise levels between 70 and 75 dBA CNEL are considered "normally unacceptable" for these uses, and noise levels 75 dBA CNEL and above are considered "clearly unacceptable." Another way of understanding this threshold is that if the Project does not cause or contribute to noise levels of 70 dBA CNEL or greater at a sensitive receptor, then a 5 dBA CNEL increase is the appropriate threshold. If the Project may cause or contribute to noise levels of 70 dBA CNEL or greater at a sensitive receptor, then a 3 dBA CNEL increase is the appropriate threshold. Notwithstanding, any 5 dBA L_{eq} increase over an averaging period of one hour or more would also be considered significant. Therefore, the following analysis discusses impacts in terms of a 3 dBA CNEL increase threshold, a 5 dBA CNEL increase threshold, and a 5 dBA L_{eq} increase threshold, as appropriate.

Aquatic Complex/Pool

Discussion

Studies consistently show that the highest noise levels from high school aquatic facilities are associated with amplified sound systems (e.g., music, announcements, etc.) during swim meets. Noise from regular pool activities (e.g., swimming, practice, coaching, etc.) are relatively modest and were measured to be approximately 66.6 dBA L_{eq} at 15 feet. However, noise during swim meets is closely correlated with the noise levels of amplified sound systems and was measured to be approximately 71.8 dBA L_{eq} at 30 feet.

Analysis

The nearest sensitive receptors to the proposed aquatic complex/pool are Melba Street Cul-de-Sac Residences, Bobbyboyar Avenue Cul-de-Sac Residences, and Woodlake Avenue Residences. Worst-case hourly noise levels for these receptors were estimated based on the 71.8 dBA L_{eq} at 30 feet noise level

associated with swim meets and distances to each receptor. For Bobbyboyar Avenue Cul-de-Sac Residences, existing walls and the massing of the proposed aquatics facility design would provide additional noise reduction, which is accounted for by the analysis. As shown in Table 1, worst-case hourly noise level increases at Melba Street Cul-de-Sac Residences, Bobbyboyar Avenue Cul-de-Sac Residences, and Woodlake Avenue Residences would be below 3 dBA and therefore below the 5 dBA L_{eq} threshold of significance.

Table 1
Aquatic Complex/Pool Noise Levels – Swim Meet (L_{eq} 1-hr)

Receptor	Distance (feet)	Operations Noise Level (dBA L_{eq})	Existing Ambient Noise Level (dBA L_{eq})	New Noise Level (dBA L_{eq})	Threshold (dBA L_{eq})	Increase (dBA L_{eq})[A]
Melba Street Cul-de-Sac Residences	250	53.4	53.9	56.7	5.0	2.8
Bobbyboyar Avenue Cul-de-Sac Residences	150	52.8	53.9	56.4	5.0	2.5
Woodlake Avenue Residences	100	61.3	67.2	68.2	5.0	1.0
Note A: Potential significant impacts are shown in **bold**.						

Source

- Woodrow Wilson High School Aquatic Center IS/MND, March 2021.

Batting Cage

Discussion

Studies report that batting cage noise levels (i.e., noise from batting practice using a pitching machine) are only as high as 56.6 dBA L_{eq} at 40 feet. Noise levels from the contact of bat and ball can be as high as 70.5 dBA L_{max} when adjusted to the same 40-foot distance, but these events are instantaneous and do not create sustained high noise levels.

Analysis

The batting cage would be located approximately 75 feet south of the Project's northern property line. However, hitters would be positioned in the southern portion of the batting cage, approximately 75 feet farther from the property line. Therefore, noise from hitting would occur approximately 150 feet south of the northern property line. The nearest sensitive receptors to the batting cage are 23309 Saticoy Street Residence, Melba Street Cul-de-Sac Residences, and Bobbyboyar Avenue Cul-de-Sac Residences. Worst-case hourly noise levels for these receptors were estimated based on the 56.6 dBA L_{eq} at 40 feet noise level associated with batting cage practice and distances to each receptor. Conservatively, no other non-distance related attenuation was assumed (i.e., shielding from existing walls, baffling/shielding inside the batting cage, etc.). As shown in Table 2, worst-case hourly noise increases at 23309 Saticoy Street Residence, Melba Street Cul-de-Sac Residences, and Bobbyboyar Avenue Cul-de-Sac Residences would be below 1 dBA and therefore below the 5 dBA L_{eq} threshold of significance.

Table 2
Batting Cage Practice Noise Levels (L_{eq} 1-hr)

Receptor	Distance (feet)	Operations Noise Level (dBA L_{eq})	Existing Ambient Noise Level (dBA L_{eq})	New Noise Level (dBA L_{eq})	Threshold (dBA L_{eq})	Increase (dBA L_{eq})[A]
23309 Saticoy Street Residence	200	42.6	66.3	66.3	5.0	<0.1
Melba Street Cul-de-Sac Residences	150	45.1	53.9	54.4	5.0	0.5
Bobbyboyar Avenue Cul-de-Sac Residences	230	41.4	53.9	54.1	5.0	0.2
Note A: Potential significant impacts are shown in **bold**.						

Sources:

- California State University, Northridge, Baseball Facilities IS/MND, April 2019.
- Capuchino High School Athletics Complex IS/MND, March 2020.

Athletic Fields (Soccer Field, Baseball Diamond and Bleachers)

Discussion

Similar to aquatic facilities, studies show that the highest noise levels from baseball diamonds and soccer fields are associated with amplified sound systems operated during games and not the individual sports activities/practices themselves. Sports activities typically generate noise levels below 60 dBA L_{eq}, as measured at the sidelines and fringes of activity areas. However, noise from amplified sound systems during baseball games may be as high as 80 dBA L_{eq} surrounding bleachers where speakers are located. Farther out, noise levels can vary considerably depending on the distance and orientation from speakers, which are usually mounted on the press box facing the bleacher sections. Noise levels drop off to 65 dBA L_{eq} within approximately 110 feet, 60 dBA L_{eq} within approximately 220 feet, and 55 dBA L_{eq} within approximately 350 feet, assuming that there are no intervening structures.

Analysis

The nearest sensitive receptors that would be affected by noise from the proposed athletic fields are 23309 Saticoy Street Residence, Saticoy Street Residences – South of North Campus, Melba Street Cul-de-Sac Residences, and Bobbyboyar Avenue Cul-de-Sac Residences. Worst-case hourly noise levels for these receptors were calculated based on an 80 dBA L_{eq} at 20 feet reference noise level, which aligns well with the noise contours described above. Conservatively, no non-distance related attenuation was assumed. As shown in Table 3, worst-case hourly noise increases at 23309 Saticoy Street Residence, Saticoy Street Residences – South of North Campus, Melba Street Cul-de-Sac Residences, and Bobbyboyar Avenue Cul-de-Sac Residences would not exceed 4 dBA, below the 5 dBA L_{eq} threshold of significance.

Table 3
Baseball Game Noise Levels (L_{eq} 1-hr)

Receptor	Distance (feet)	Operations Noise Level (dBA L_{eq})	Existing Ambient Noise Level (dBA L_{eq})	New Noise Level (dBA L_{eq})	Threshold (dBA L_{eq})	Increase (dBA L_{eq})[A]
23309 Saticoy Street Residence	365	54.8	66.3	66.6	5.0	0.3
Saticoy Street Residences – South of North Campus	110	65.2	68.6	70.2	5.0	1.6
Melba Street Cul-de-Sac Residences	330	55.7	53.9	57.9	5.0	4.0
Bobbyboyar Avenue Cul-de-Sac Residences	365	54.8	53.9	57.4	5.0	3.5
Note A: Potential significant impacts are shown in **bold**.						

Sources

- Capuchino High School Athletics Complex IS/MND, March 2020
- Mills High School Athletic Complex IS/MND, March 2020
- California State University, Northridge, Baseball Facilities IS/MND, April 2019.
- Valley Christian Center Supplemental MND, June 2018.

Composite Noise Analysis (All Sources)

As shown in the previous sections, noise generated by the aquatic complex/pool, batting cage, and athletic fields would, individually, be incapable of exceeding existing daytime noise levels at surrounding noise-sensitive receptors by greater than 5 dBA L_{eq}, which is the hourly threshold of significance for the Project's operational impacts. However, each of these uses may be operational on a given school day, so composite impacts from concurrent operations must also be evaluated against the 5 dBA L_{eq} threshold. To address this scenario, composite noise levels associated with a baseball game and a swim meet were estimated for surrounding receptors. The batting cage would not be used while a baseball game is being played, so its usage does not figure into the analysis. The composite noise levels shown in Table 4 are estimated based on the swim meet noise levels shown in Table 1 and the baseball game noise levels shown in Table 3. Table 5 compares the composite noise levels estimated in Table 4 with existing daytime noise levels at surrounding noise-sensitive receptors to determine the composite noise impact. As shown in Table 5, Melba Street Cul-de-Sac Residences could experience noise increases greater than 5 dBA L_{eq} during instances when a baseball game and swim meet occur simultaneously.

Table 4
Composite Noise Levels – Swim Meet and Baseball Game (L_{eq} 1-hour)

Receptor	Swim Meet Noise Level (dBA L_{eq})	Baseball Game Noise Level (dBA L_{eq})	Composite Noise Level (dBA L_{eq})
23309 Saticoy Street Residence	<50.0	54.8	56.0
Saticoy Street Residences – South of North Campus	<50.0	65.2	65.3
Melba Street Cul-de-Sac Residences	53.4	55.7	57.7
Bobbyboyar Avenue Cul-de-Sac Residences	52.8	54.8	56.9
Woodlake Avenue Residences	61.3	<50.0	61.6

Table 5
Composite Noise Level Impact at Receptors (L_{eq} 1-hour)

Receptor	Composite Noise Level From Table 4 (dBA L_{eq})	Existing Ambient Noise Level (dBA L_{eq})	New Noise Level (dBA L_{eq})	Threshold (dBA L_{eq})	Increase (dBA L_{eq})[A]
23309 Saticoy Street Residence	56.0	66.3	66.7	5.0	0.4
Saticoy Street Residences – South of North Campus	65.3	68.6	70.3	5.0	1.7
Melba Street Cul-de-Sac Residences	57.7	53.9	59.2	5.0	**5.3**
Bobbyboyar Avenue Cul-de-Sac Residences	56.9	53.9	58.7	5.0	4.8
Woodlake Avenue Residences	61.6	67.2	68.3	5.0	1.1
Note A: Potential significant impacts are shown in **bold**.					

The composite noise levels and maximum hourly impacts shown in Table 4 and Table 5 are also insightful regarding the Project's potential effects on 24-hour CNELs at surrounding noise-sensitive receptors. As discussed earlier, the applicable CNEL-related thresholds are whether the Project would: (1) cause ambient noise levels at sensitive receptor locations to increase by 3 dBA CNEL or more to or above 70 dBA CNEL, which the City's General Plan Noise Element considers to be a "normally unacceptable" exterior noise level for residential land uses; or (2), barring the above, any 5 dBA CNEL increase.

Given that existing daytime ambient noise conditions at Melba Street Cul-de-Sac Residences and Bobbyboyar Avenue Cul-de-Sac Residences are below 55 dBA L_{eq}, it is clear that their 24-hour noise levels are below at least 65 dBA CNEL, meaning that the 5 dBA CNEL increase threshold would apply at these

receptors.[1] The following analysis evaluates the potential that 5 dBA CNEL increases could occur at Melba Street Cul-de-Sac Residences and Bobbyboyar Avenue Cul-de-Sac Residences. As explained previously, the composite noise levels shown in Table 4 and Table 5 are representative of a worst-case scenario in which there is a simultaneous swim meet and baseball game. These events last no more than a few hours each. However, if one assumes a conservative scenario in which the worst-case composite noise levels would be generated from 3:00 P.M. – 9:00 P.M.[2], then the corresponding CNEL at Melba Street Cul-de-Sac Residences and Bobbyboyar Avenue Cul-de-Sac Residences would be 53.5 dBA and 52.7 dBA, respectively, as shown in Table 6. Measured ambient noise conditions and factors such as the urbanized nature of the neighborhood show that 24-hour noise levels for Melba Street Cul-de-Sac Residences and Bobbyboyar Avenue Cul-de-Sac Residences are between 50-55 dBA CNEL. Assuming a low-end 50 dBA CNEL value, the composite CNEL figures estimated in Table 6 demonstrate that operational activities on the North Campus could result in a slight exceedance of the 5 dBA CNEL increase threshold at Melba Street Cul-de-Sac Residences, as shown in Table 7.

Table 6
24-Hour Noise Levels – Swim Meet and Baseball Game (dBA CNEL)

Receptor	Swim Meet Noise Level (dBA CNEL)	Baseball Game Noise Level (dBA CNEL)	Composite Noise Level (dBA CNEL)
Melba Street Cul-de-Sac Residences	48.1	52.0	53.5
Bobbyboyar Avenue Cul-de-Sac Residences	47.5	51.1	52.7

Table 7
24-Hour CNEL Noise Level Impact at Receptors

Receptor	Composite Noise Level From Table 6 (dBA CNEL)	Existing 24-Hour Noise Level (dBA CNEL)	New Noise Level (dBA CNEL)	Threshold (dBA CNEL)	Increase (dBA CNEL)[A]
Melba Street Cul-de-Sac Residences	53.5	50.0	55.1	5.0	**5.1**
Bobbyboyar Avenue Cul-de-Sac Residences	52.7	50.0	54.6	5.0	4.6
Note A: Potential significant impacts are shown in **bold**.					

With regard to the remaining receptors, 23309 Saticoy Street Residence, Saticoy Street Residences – South of North Campus, and Woodlake Avenue Residences: Table 5 shows that the worst-case hourly

[1] In other words, it would take more than a 5 dBA CNEL increase for their 24-hour noise levels to exceed the 70 dBA CNEL "normally unacceptable" standard.

[2] Specifically, the assumed time periods are 3:00 P.M. – 9:00 P.M. for baseball games and 3:00 P.M. – 8:00 P.M. for swim meets, consistent with their allowable usage hours.

composite noise impacts at these receptors would be below 2 dBA. As such, there is no potential that corresponding 24-hour CNEL impacts at these receptors would exceed the minimum 3 dBA increase threshold.

LAMC Section 112.01

Before discussing the potential mitigating design features and operational conditions that could reduce hourly (i.e., L_{eq}) and 24-hour (i.e., CNEL) noise impacts at Melba Street Cul-de-Sac Residences, it is important to address LAMC Section 112.01 and the effect it would have on amplified baseball game and swim meet noise levels that are at the root of the noise impacts affecting Melba Street Cul-de-Sac Residences and other receptors. LAMC Section 112.01(b) would prohibit any amplified noises from being audible at a distance greater than 150 feet from the North Campus property line, and compliance with this regulation would necessitate that the Project's amplified noise levels are much lower than the levels predicted in this memorandum's analyses. For example, Table 5 shows that composite swim meet and baseball game noise levels, which are mainly caused by amplified sounds at these events, would be as high as 56.9 dBA L_{eq} at Bobbyboyar Avenue Cul-de-Sac Residences. While this would result in a less than significant 4.8 dBA L_{eq} hourly noise increase at Bobbyboyar Avenue Cul-de-Sac Residences, the 56.9 dBA L_{eq} noise level indicates that amplified sounds generating this noise level would be clearly audible over the receptor's 53.9 dBA L_{eq} ambient noise conditions. Therefore, despite the noise increase being less than significant with respect to the City's 5 dBA L_{eq} CEQA threshold of significance, the amplified sounds emanating from swim meets and baseball games held simultaneously would still need to be reduced to achieve compliance with the LAMC Section 112.01(b) audibility standard.[3]

The Project's amplified sound systems can be designed in a way that achieves Project objectives (i.e., providing amplified sound for baseball games and swim meets) while complying with LAMC Section 112.01(b). For example, large outdoor music venues are often acoustically engineered to comply with similar noise standards, despite featuring much louder sound systems than the Project would utilize. Acoustical design considerations commonly include techniques such as utilizing directional speakers rather than broadcast systems, mounting speakers low and oriented away from residential areas, and instituting maximum sound level limits. The facilities themselves may also be designed to aid noise control efforts. For example, bleachers may be located so that crowd-facing speakers are directed away from sensitive residential areas, and structures may be located to buffer sensitive residential areas from noise sources. In fact, the Project's site plan already features some of these considerations. For example: the baseball field is oriented so that bleachers are located along Saticoy Street, not near the quieter residential neighborhood to the north; the batting cage is oriented so that batters would also be distanced from this neighborhood; and the aquatic complex is oriented so that the parking lot and athletic field/pool house provide a buffer between the pool and this neighborhood.

Mitigation Recommendations

As shown above in Table 5, maximum hourly noise impacts at Melba Street Cul-de-Sac Residences could be as high as a 5.3 dBA L_{eq} increase over existing daytime noise conditions, which would exceed the 5 dBA L_{eq} increase threshold of significance. As shown in Table 7, 24-hour noise impacts at this same receptor could be as high as a 5.1 dBA CNEL increase, which would exceed the 5 dBA CNEL increase threshold of

[3] In turn, this would reduce the noise increase experienced by Bobbyboyar Avenue Cul-de-Sac Residences.

significance for this receptor, as well. Further, all noise impacts would need to comply with the audibility standard established by LAMC Section 112.01(b). Noise reductions necessary to achieve compliance with LAMC Section 112.01(b) would also achieve the noise reductions necessary to reduce noise impacts at Melba Street Cul-de-Sac Residences to less than significant levels. The following mitigation measures are recommended:

MM-1: Amplified sound systems for the Project's baseball field/bleachers and outdoor aquatics facility/bleachers shall be acoustically engineered with the following design and performance standards:

- Amplified sound levels, as measured at the northern property line of the North Campus, shall not exceed 50 dBA.
- Amplified sound systems shall not be operated outside the operational hours established for the North Campus facilities.
- Speakers shall be directional and oriented away from the northern property line of the North Campus.
- Non-Chaminade users of the facilities shall not be permitted to utilize the facilities' amplified sound systems.

Please do not hesitate to contact me if you have any questions or require additional information.

Sincerely,



Noah Tanski, Principal

Armen Hovanessian
Transportation Consulting
AHTC Inc.

CHAMINADE COLLEGE PREPATORY HIGH SCHOOL TRANSPORTATION ASSESSMENT REPORT MAY 4, 2023



Armen D. Hovanessian

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INTRODUCTION

This transportation assessment study is consistent with the City of Los Angeles (City) Department of Transportation (LADOT), Transportation Assessment Guidelines (TAG), dated August 2022. This study evaluates the potential project-specific transportation effects of the proposed project. The analysis focuses on traditional mobility considerations as well as safety, sustainability, smart growth, and the reduction of greenhouse gas emissions.

The TAG conforms to the requirements of Senate Bill 743 (SB 743) and is consistent with the California Environmental Quality Act (CEQA), requiring the use of Vehicle Miles Traveled (VMT) as the primary metric for evaluating a project's transportation impacts. The TAG also requires the traffic analysis to examine whether the proposed project conflicts with the City's plans, programs, ordinances, and policies. In addition, Non-CEQA transportation analysis is also required to assess the project's potential transportation effects on pedestrian, bicycle and transit facilities, project access, safety and circulation, project construction, and the potential for residential street intrusion.

PROJECT DESCRIPTION

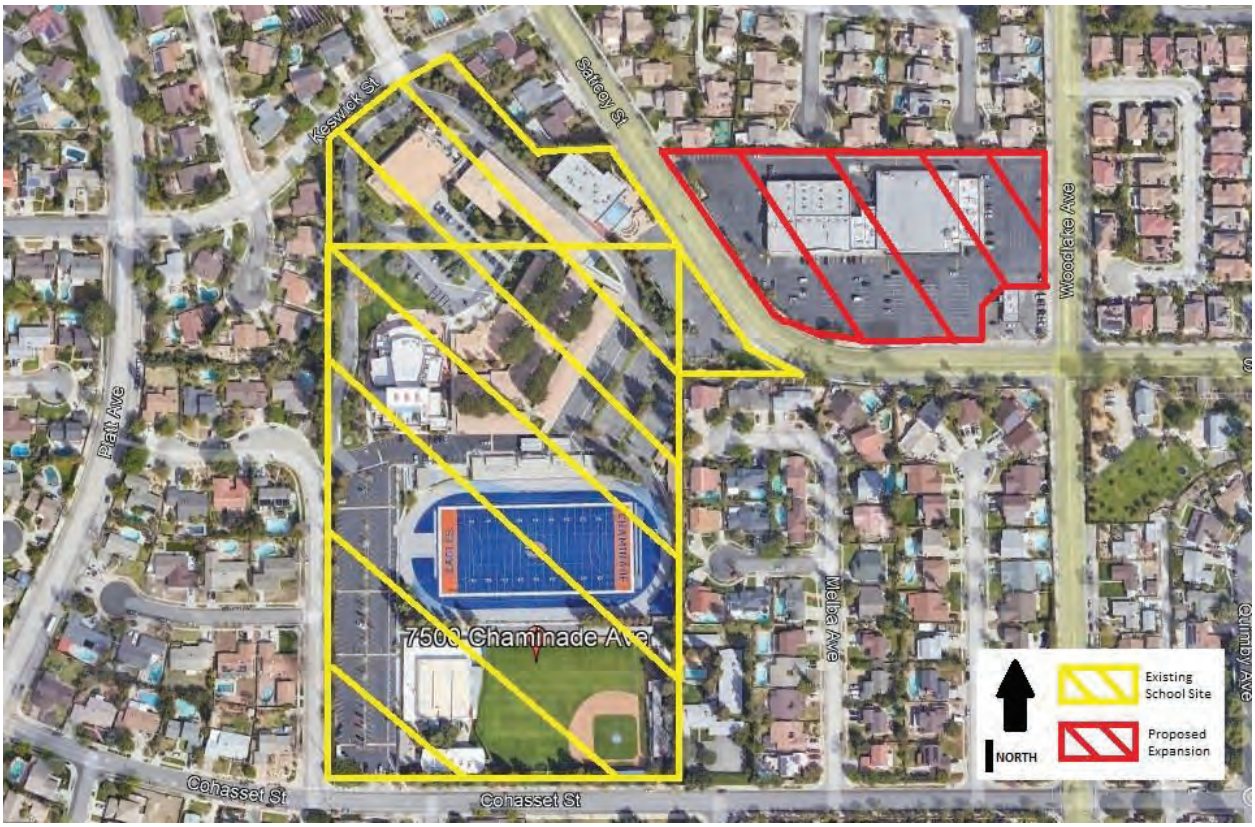
Project Characteristics

The Owner and Applicant, Chaminade College Preparatory (the "Applicant" or "Chaminade"), proposes to update and expand the existing Chaminade College Preparatory, High School campus (the "High School"), approved and currently operating under a Conditional Use Permit ("CUP"), under City Planning Case No. CPC-2009-1477-CU-ZV-ZAA-SPR, with a revised campus plan located at 7500 Chaminade Avenue, 23241 Cohasset Street, 23260 Saticoy Street, 23217-23255 Saticoy Street and 7619-7629 Woodlake Avenue in West Hills (the "Subject Property"). The revised campus plan (the "Project") will include a total lot area of approximately 25.86 acres, inclusive of: 1) a new three-story school building ("Multistory Building"), updated parking areas, remodeled athletic fields, new student quads, and renovated classrooms, student service centers and offices on the existing campus located on approximately 21.03 acres in the A1-1 and RS-1 Zones, at 7500 Chaminade Avenue, 23241 Cohasset Street and 23260 Saticoy Street ("Main Campus"), as noted in Figure 1 as "Existing School Site", 2) an expanded school campus area of approximately 4.83 acres located across Saticoy Street, at 23217-23255 Saticoy Street and 7619-7629 Woodlake Avenue, proposed for new athletic fields, an aquatic center/outdoor swimming pool, and accessory facilities/structures and associated surface parking facilities, in the proposed C2-1 Zone (the new "North Campus"), as noted in Figure 1 "Proposed Expansion", and 3) a new pedestrian bridge across Saticoy Street ("pedestrian bridge"). No increase in the maximum permitted student enrollment (1,360 students) is proposed. Upon Project completion, the revised campus plan for the High School will include a total of approximately 193,818 square feet of Floor Area and approximately 501 on-site surface parking spaces.

Project Area Map and Location

As illustrated in the project area map in Figure 1, the proposed North Campus is located across the main campus on Saticoy Street on the Northwest corner of Woodlake Avenue and Saticoy Street.

Figure 1 – Project Area Map



Project Site Plan

Figure 2 illustrates the project site plan showing driveway locations, distance of the project driveways from the adjacent intersection, and the on-street and off-street loading/unloading areas.

Project Site Vehicle Access

Currently, the existing shopping center on the northwest corner of Saticoy Street and Woodlake Avenue has four existing two-way driveways on Saticoy Street and two existing two-way driveways off Woodlake Avenue. The project proposes to reduce the number of driveways. As shown in Figure 2, there will be three proposed two-way driveways. Two driveways are proposed on Saticoy Street and one driveway is proposed on Woodlake Avenue.

Figure 2 – Project Site Plan - On-Site and Off-Site Passenger Loading/Unloading Areas



Project Passenger Loading/Unloading

The driveway on Chaminade Avenue, as shown in Figure 2, provides parent access to the on-site loading and unloading area for student drop off and pick up. The approximate length is about 400 feet from the driveway to the drop off and pick up point which provides queueing capacity for approximately 20 to 22 vehicles. Based on observations, during the drop off period, the queue length is minimal since the vehicles arrive at different times between 7:00 AM and 8:40 AM, with the peak being between 8:00 AM to 8:30 AM.

During the morning drop off time the maximum anticipated number of vehicles arriving at the school is approximately 6 vehicles per minute between 8:00 AM to 8:30 AM for a total of approximately 194 vehicles.

During the afternoon pick up period between 2:50 PM to 3:40 PM the majority of the pick-ups will occur on-site with vehicles entering the Chaminade Avenue gate to pick up students in the designated student loading (pick-up) area and exiting the campus through the Keswick Street exit driveway. In the afternoons queuing of vehicles has been observed on Chaminade Avenue north of Cohasset Street as the cars line up to enter the campus for student pick-up. The Cohasset Street and Saticoy Street gates will primarily serve as egress points for the students, faculty and

staff that were parked on campus for most of the day. It is estimated that about 10% of juniors and seniors are dropped off and picked up at the on-site student loading area. The maximum anticipated number of vehicles arriving at the school is approximately 194 vehicles.

PROJECT CONTEXT

A comprehensive analysis and an inventory of the existing transportation infrastructure and conditions within a ¼ mile radius of the project, as shown in the aerial map in Figure 3, was collected. The collected data was analyzed to determine the street designations, classifications, and modal priorities as identified in the City's Mobility Plan 2035.

Figure 3 – ¼ Mile Radius Area Map



The following describes the details of the transportation infrastructure in the vicinity of the project:

Non-Vehicular Transportation System

The following sections describe the non-vehicular transportation system for Pedestrian Facilities, Bicycle Facilities, and Transit Services:

Pedestrian Facilities

A review of the project area was conducted to evaluate the effects of the project on pedestrian activity within a ¼-mile radius of the project. As part of this review, we developed a map of the study area indicating potential pedestrian destinations within 1,320 feet of the edge of the project

site, as shown in Figure 3. According to the City of Los Angeles' Mobility Plan 2035, the project site is not adjacent to the Pedestrian Enhanced District network. However, Woodlake Avenue south of Saticoy Street is shown as a Pedestrian Segment on the map. Therefore, the project will comply with City's requirements for Pedestrian Enhanced Districts, if any. The Pedestrian Enhanced Districts map is included in Appendix 1.

Additionally, the school is proposing to construct a pedestrian bridge over Saticoy Street to connect the Main Campus to the North Campus. The bridge is intended to eliminate students crossing Saticoy Street thereby enhancing the student pedestrian activity. The following pedestrian facilities are provided:

Sidewalks

A sidewalk inventory within the ¼ mile vicinity of the project was taken. The collected data for existing pedestrian sidewalks is listed in Table 1 below:

Table 1 – Sidewalk Inventory

Street Name	From	To	Street Side	Sidewalk Width	Condition
Saticoy Street	Ingomar Street	Woodlake Avenue	NS /SS	~10 Feet	Good
Saticoy Street*	Woodlake Avenue	e/o Woodlake Avenue	SS	No Sidewalk	N/A
Saticoy Street*	Woodlake Avenue	e/o Woodlake Avenue	NS	~10 Feet	Good
Woodlake Avenue*	Ingomar Street	s/o Cohasset Street	WS/ES	~10 Feet	Good
Cohasset Street	e/o Woodlake Avenue	w/o Platt Avenue	NS/SS	~5 to 10 Feet	Good
Keswick Street	e/o Saticoy Street	w/o Platt Avenue	NS/SS	~ 5 Feet	Good

*Southeast corner of Woodlake Avenue and Saticoy Street is not developed

Crosswalks, Curb Ramps & Pedestrian Push Buttons

Within ¼ mile vicinity of the project site, pedestrian crosswalks, curb ramps and pedestrian push buttons are available at the following locations, shown in Table 2:

Table 2 – Crosswalk, Curb Ramp & Pedestrian Push Button Inventory

Intersection Name		Signal Phasing	Ped Push Button	Crosswalk Type	Curb Ramp	Cond.
Cohasset Street	Woodlake Avenue	2	Yes	North Leg Continental	Yes	Good
				South Leg Continental	Yes	Good
				East Leg Continental	Yes	Good

				West Leg Continental	Yes	Good
Saticoy Street	Woodlake Avenue	Stop Control	N/A	North Leg No Crosswalk	Northeast Yes	N/A
				South Leg No Crosswalk	Southwest Yes	N/A
				East Leg No Crosswalk	N/A	N/A
				West Leg No Crosswalk	Southwest Yes	N/A
Keswick Street	Saticoy Street	Stop Control	N/A	North Leg No Crosswalk	Northeast Yes	N/A
				South Leg No Crosswalk	Southeast Yes	N/A
				East Leg No Crosswalk	N/A	N/A
				West Leg No Crosswalk	N/A	N/A
Cohasset Street	Platt Avenue	Stop Control	N/A	North Leg Continental	N/A	Good
				South Leg Continental	Yes	Good
				East Leg Continental	Southeast Yes	Good
				West Leg Continental	Southwest Yes	Good
Keswick Street/Pomelo Drive	Platt Avenue	Stop Control	N/A	North Leg No Crosswalk	Northeast Yes	N/A
				South Leg No Crosswalk	Southeast Yes	N/A
				East Leg No Crosswalk	Yes	N/A
				West Leg No Crosswalk	N/A	N/A

Bicycle Facilities

According to the City of Los Angeles' Mobility Plan 2035, the project site and its vicinity is not a part of the Bicycle Enhanced Network. The City's Bicycle Enhanced Network and Bicycle Lane Network maps are shown in Appendix 2. Within a ¼-mile radius of the project site bicycle facilities are installed at the following locations, as shown in Table 3:

Table 3 – Bicycle Facilities Inventory

Street Name	Bicycle Facility	Condition
Platt Avenue	Tier 2	Good

Transit Services

According to the City of Los Angeles' Mobility Plan 2035, the project site and its vicinity is not a part of the Transit Enhance Network. Within ¼ mile radius of the project site transit services in

the project area are provided by Los Angeles County Metropolitan Transportation Authority (Metro). As shown on the Bus Service Area Map in Figure 4, Metro operates local bus routes 152, 162, 165, and 169 in the vicinity of the project site. Bus schedules including location of bus stops and frequency of service are provided in Appendix 3.

Figure 4 – Bus Service Area Map



Vehicular Transportation System

An assessment of the roadway system within a ¼ -mile radius of the project site was conducted. The assessment included the number of traffic lanes, direction of flow, and the presence of peak period tow-away lanes affecting roadway travel capacity, the presence of bicycle lanes, and any other significant street information.

Regional Freeway System

The project area is served by Ventura Freeway, US 101 and Ronald Reagan Freeway, State Route (SR) 118. The project site is more than ¼ mile from either freeway. The nearest intersection freeways are the I-5 to the north and the SR-134 to the south. The segment of the SR-118 freeway and the US 101 freeway near the project site generally consists of four mixed-flow travel lanes in each direction. SR-118 also provides one High Occupancy Vehicle (HOV) lane in each direction.

Area Roadway System

The project area is served by the following surrounding major roadways:

- Saticoy Street in the vicinity of the project site is an east-west roadway designated as "Avenue II" by City of Los Angeles General Plan. It has two travel lanes in each direction separated by a continuous two-way left-turn lane. Parking is allowed on both sides of the street.
- Woodlake Avenue in the vicinity of the project site is a north-south roadway designated as "Avenue II" by City of Los Angeles General Plan. It has two travel lanes in each direction separated by a continuous double-double-yellow and two-way left-turn lane. Parking is allowed on both sides of the street.
- Platt Avenue in the vicinity of the project site is a north-south roadway designated as "Avenue II" by City of Los Angeles General Plan. It has two travel lanes and a Tier 2 bicycle lane in each direction separated by a continuous two-way left-turn lane. Parking is restricted on both sides of the street.
- Cohasset Street in the vicinity of the project site is an east-west roadway functioning as "Collector" street. It has one travel lane in each direction. Parking is allowed on both sides of the street.

Please refer to Appendix 4 for City of Los Angeles Street Designation map.

CEQA ANALYSIS OF TRANSPORTATION IMPACTS

In compliance with CEQA and/or in accordance with City regulations, LADOT may require applicants to analyze and assess project-specific transportation impacts based on the following criteria:

- If the Development Project is estimated to generate a net increase of 250 or more daily vehicle trips and requires discretionary action, a transportation assessment for a Development Project is required.
- A transportation assessment is required by City ordinance or regulation.

According to the TAG, the preparation of a transportation impact assessment requires analysis and prediction of impacts or deficiencies to the circulation system generated by Development or Transportation Projects as well as the identification of feasible measures or corrective conditions to offset any impacts or deficiencies identified through a transportation assessment.

Project Daily Vehicle Trip Generation

LADOT's VMT calculator, Version 1.3, was used to determine if the project would exceed any of the Transportation Impact Assessment criteria which would require further transportation impact analysis. Based on the land use and size of the existing and proposed project the VMT calculator determined that the project would decrease Net Daily Vehicle Trips (NDVT) by -1,179. The reduction in the NDVT is the result of eliminating the shopping plaza which is a high trip generator use and replacing it with an athletic facility for the school use such as competitions and practices. As community service, the school will provide limited access to other schools and the local community to benefit from the use of the athletic facilities.

Refer to Appendix 5 for VMT Calculator sheets. Since the project's NDVT does not exceed the 250 NDVT threshold, as shown in the Table 4 below, further transportation impact assessment would not be required.

Table 4 – VMT Calculator Results

	Existing Land Use	Proposed Project	Net Decrease
Daily Vehicle Trips	3,981	2,803	-1,179
Daily VMT	33,085	22,681	-10,404

However, due to the nature of the project as a "school" and proximity to the adjacent residential area, LADOT determined that while CEQA analysis will not be required, the project would be required to conduct non-CEQA transportation analysis for access, safety, and circulation evaluation.

NON-CEQA TRANSPORTATION ANALYSIS

The City of Los Angeles' police powers provides the authority to regulate the use of land. In certain applications, the City is required to make specific findings to exercise its discretionary authority to approve a land use development project. The City's Site Plan Review approval process establishes discretionary authority in Section 16.05 of the Los Angeles Municipal Code (LAMC) to review and correct for transportation deficiencies that may result from a development project. Therefore, the City is requiring non-CEQA transportation analysis and potentially requiring improvements to address identified transportation related deficiencies.

Pedestrian, Bicycle, and Transit Access Assessment

The pedestrian, bicycle, and transit facilities in the vicinity of the project were assessed to determine the potential effects of the project on these facilities. According to the TAG, the deficiencies could be physical (through removal, modification, or degradation of facilities) or demand-based (by adding pedestrian or bicycle demand to inadequate facilities).

Screening Criteria

The TAG establishes three main screening criteria to determine whether further non-CEQA transportation analysis would be required to assess any potential project related effects and determine any possible adverse effect on existing pedestrian, bicycle, or transit facilities. The screening criteria is listed in Table 5 below:

Table 5 – Screening Criteria for Pedestrian, Bicycle and Transit Access

	Screening Criteria Questions	Answer	Action
1	Does the project require discretionary action?	Yes	If answer is yes to 1, 2 & 3 further analysis is required
2	Does the land use project include the construction, or addition of:	No	
	▪ 50 (or more) dwelling units or guest rooms or combination thereof, or		

	▪ 50,000 square feet (or more) of non-residential space?		
3	Would the project generate a net increase of 1,000 or more daily vehicle trips, or is the project's frontage along an Avenue, Boulevard, or Collector (as designated in the City's General Plan) 250 linear feet or more, or is the project's building frontage encompassing an entire block along an Avenue or Boulevard (as designated in the City's General Plan)?	Yes	

The project does not exceed the screening criteria. Therefore, further analysis of pedestrian, bicycle and transit access is not required.

Project Access, Safety, and Circulation Evaluation

The TAG requires an evaluation of the project's access and circulation constraints. The evaluation may include operational, or capacity constraints. Constraints can be related to vehicular/vehicular, vehicular/bicycle, or vehicular/pedestrian constraints as well as to operational delays. A detailed review of the project access, safety and circulation was conducted to determine any project related adverse effects. The review analyzed the operation of vehicular traffic volumes as well as pedestrian and bicycle traffic.

Screening Criteria

The TAG establishes two main screening criteria to determine whether further non-CEQA transportation analysis would be required to assess any potential project related effects and determine any possible adverse effect on access, safety, and circulation. The screening criteria is listed in Table 6 below:

Table 6 – Screening Criteria for Access, Safety, and Circulation

	Screening Criteria Questions	Answer	Action
1	Does the project require discretionary action?	Yes	If answer is yes to 1 & 2 further analysis is required
2	Would the land use project generate a net increase of 500 or more daily vehicle trips?	No	

The project does not exceed the screening criteria. However, due to the nature of the project as a "school" and proximity to the adjacent residential area the project would be required to conduct access, safety, and circulation evaluation.

Evaluation Criteria

The TAG requires operational, safety and passenger loading evaluations of the project's effects on access, safety, and circulation. Project access is considered constrained if the project's traffic would contribute to unacceptable queuing on an Avenue or Boulevard (as designated in the Mobility Plan 2035) at project driveway(s) or would cause or substantially extend queuing at nearby signalized intersections. Unacceptable or extended queuing may be defined as; spill over

from turn pockets into through lanes, block cross streets, or alleys, and contribute to “gridlock” congestion.

Operational Evaluation

An operational evaluation of the project area was conducted to determine any project impact on access, safety, and circulation on the roadway network in the vicinity of the project.

Study Intersections

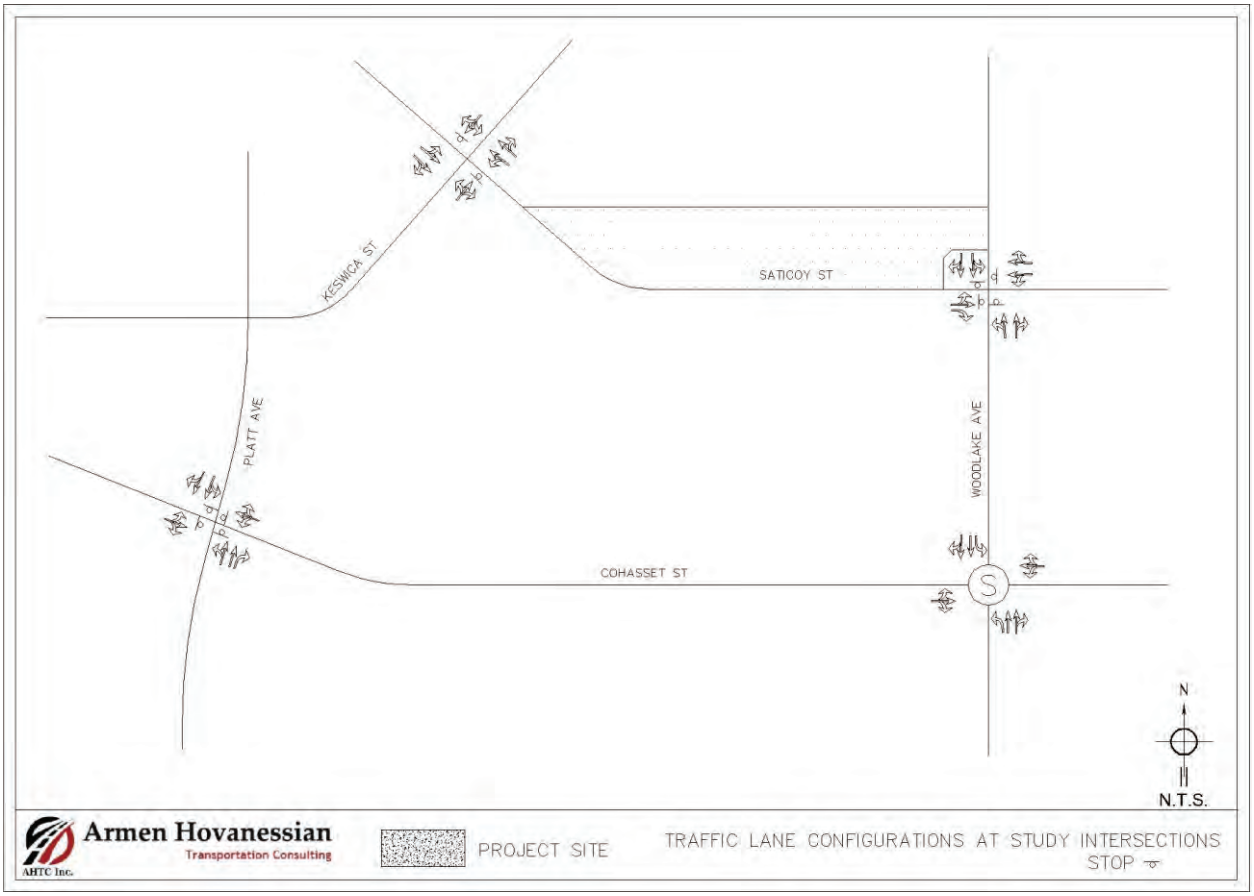
After a consultation with LADOT, it was determined that the following intersections would be analyzed and evaluated for operational assessment, as shown in Table 7 below:

Table 7 – Study Intersections

Intersection(s)	Configuration	Control
Keswick Street & Saticoy Street	4-legged	Stop Sign Control
Cohasset Street & Platt Avenue	4-legged	Stop Sign Control
Cohasset Street & Woodlake Avenue	4-legged	Traffic Signal
Saticoy Street & Woodlake Avenue	4-legged	Stop Sign Control

Refer to Figure 5 below for a depiction of the configurations of traffic lanes at the approaches to the study intersections.

Figure 5 – Study Intersections Lane Configurations



Traffic Volume Counts

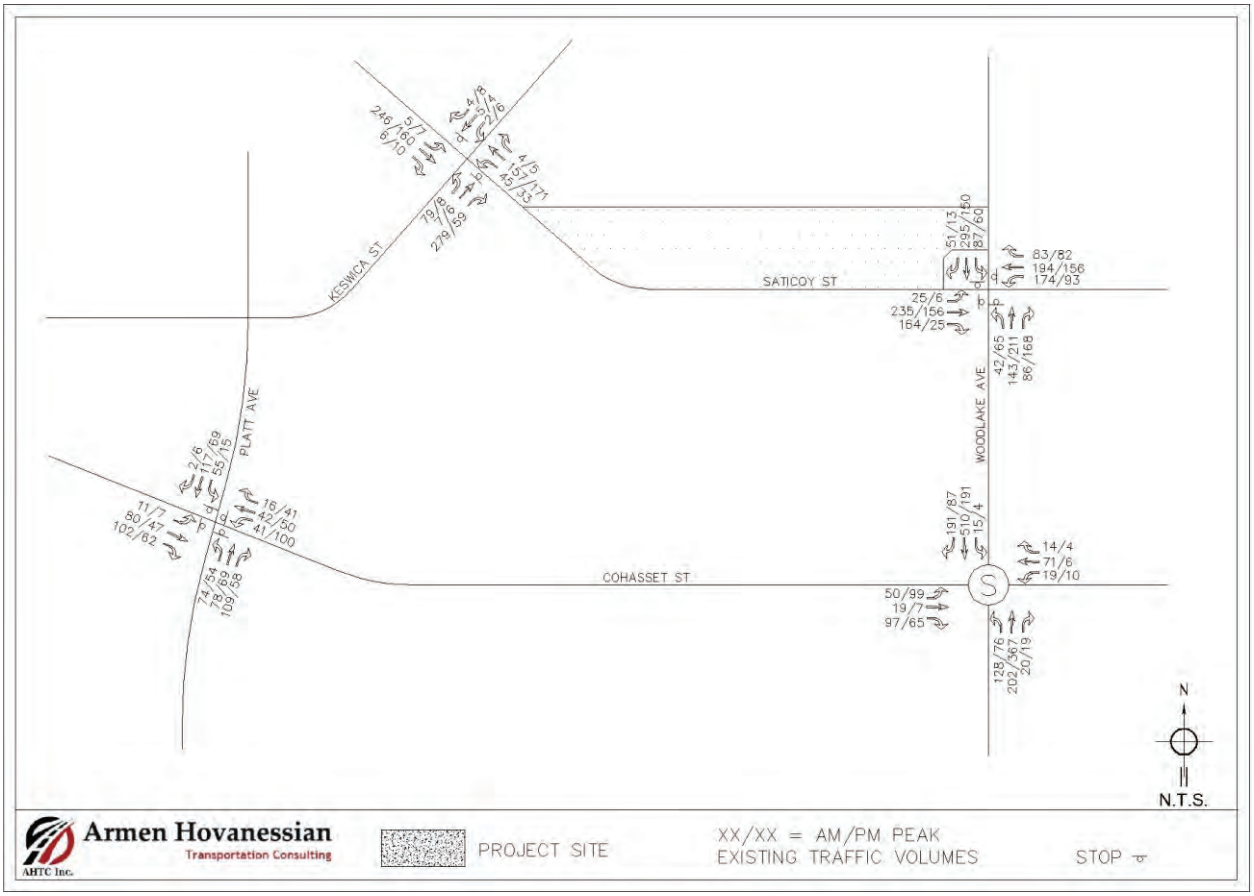
Traffic volume counts were obtained for vehicular turning movements at the following four (4) study intersections:

- Keswick Street and Saticoy Street
- Cohasset Street and Platt Avenue
- Cohasset Street and Woodlake Avenue
- Saticoy Street and Woodlake Avenue

Vehicular turning movement counts were conducted on Wednesday, January 18, 2023, during the typical commuter hours of 6:00 AM to 9:00 AM and 3:00 PM to 6:00 PM, to obtain existing traffic volumes for the AM and PM peak hours.

Please refer to Appendix 6 for the manual traffic counts, and Figure 6 below for Existing (AM/PM Peak) Traffic Volumes for an illustration of the AM and PM peak-hour turning movement counts used for the study intersections.

Figure 6 – Existing Traffic Volumes at Study Intersections



Project Trip Generation

Trip rates from the Institute of Transportation Engineers (ITE) *Trip Generation Manual 11th Edition* were used to determine the school traffic trip generation. The number of activities and

the attendees were used to estimate the number of trips generated by the athletic center. Please refer to Appendix 6 for the trip generation tables for the athletic center.

While ITE provides trip generation for the shopping centers with supermarket (40K-150K SF) (Code 821), for the purpose of this analysis traffic count surveys were conducted at the shopping center driveways to determine the trip generation by the shopping center. The reason for conducting the surveys at the shopping center driveways instead of using the ITE trip rates was due to the shopping center not being fully occupied. Please refer to Appendix 6 for the related surveys sheets. The survey results were compared to the ITE trip generation. The comparison indicated that the trip generation from the survey was below the ITE trip generation. Therefore, the analysis took a more conservative approach and used the lower trip generation from the survey to take existing use trip credit for the analysis. The trip generation calculations are consistent with the TAG and have been approved by the City staff.

The project does not propose to add any new students to their existing student capacity. As shown in the project trip generation Table 8 below, the project is forecast to result in 0 net new AM peak trips and 292 net new PM peak hour trips. The total daily net new trips will be reduced by -1,355. The net new PM peak hour trips will be generated by six proposed activities such as:

1- 10 high school swim competitions per year
2- 10 middle school swim competitions per year
3- Other schools swim practice (limited to February through April)
4- Swim lessons and water exercise classes daily
5- Local community swimming (if there are no other activities at the athletic center)
6- Local non-school athletic groups (limited to May through December)

Table 8 – Project Trip Generation

	Land Use (ITE Code)	Size	Unit	AM Peak Hour Trips				PM Peak Hour Trips				Daily Trips	
				Rate	Total	In	Out	Rate	Total	In	Out	Rate	Total
Proposed	Private High School (534)	1,360	Students	0.66	*Split*	*62%*	*38%*	0.4	*Split*	*39%*	*61%*	2.17	2951
					898	557	341		544	212	332		
	Athletic Center*				*Split*	*50%*	*50%*		*Split*	*50%*	*50%*		952
					134	67	67		532	266	266		
					Split	*50%*	*50%*		*Split*	*50%*	*50%*		0
					0	0	0		0	0	0		
					Split				*Split*				0
					0	0	0		0	0	0		
	Total New Trips				1032	624	408		1076	478	598		3903
Existing	Shopping Plaza with Supermarket**	53.93	SF		*Split*				*Split*				2307
					134	65	69		240	112	128		
	Private High School (534)	1,360	Students	0.66	*Split*	*62%*	*38%*	0.4	*Split*	*39%*	*61%*	2.17	2951
					898	557	341		544	212	332		
					Split				*Split*				0
					0	0	0		0	0	0		
					Split				*Split*				0
					0	0	0		0	0	0		
					Split				*Split*				0
					0	0	0		0	0	0		
	Total Existing Trips				1032	622	410		784	324	460		5258
NET INCREASE/DECREASE TRIPS					0	2	-2		292	154	138		-1355

Source: ITE Trip Generation Manual, 11th Edition
*Trip generation rates were produced based on the number of projected participants and activities
** Peak hour trip generation was produced using actual traffic count survey at the site & daily trips were generated using the 6-hour traffic volume counts

Project Trip Distribution and Assignment

Trip distribution assumptions are used to determine the origin and destination of new vehicle trips associated with the Project. The geographic distribution of project trips is based on the functional classification of streets in the vicinity, the magnitude of traffic volumes, as well as local knowledge of the roadway network. Based on the project trip generation, shown in Table 8, and the regional trip distribution assumptions, a proposed study area for the traffic analysis was derived. The location and the number of the intersections to be analyzed was reviewed and approved by the City staff.

Refer to Figures 7 and 8 below for illustrations showing the Project's Trip Distributions and Assignments at the study intersections.

Figure 7 – Project Trip Distribution

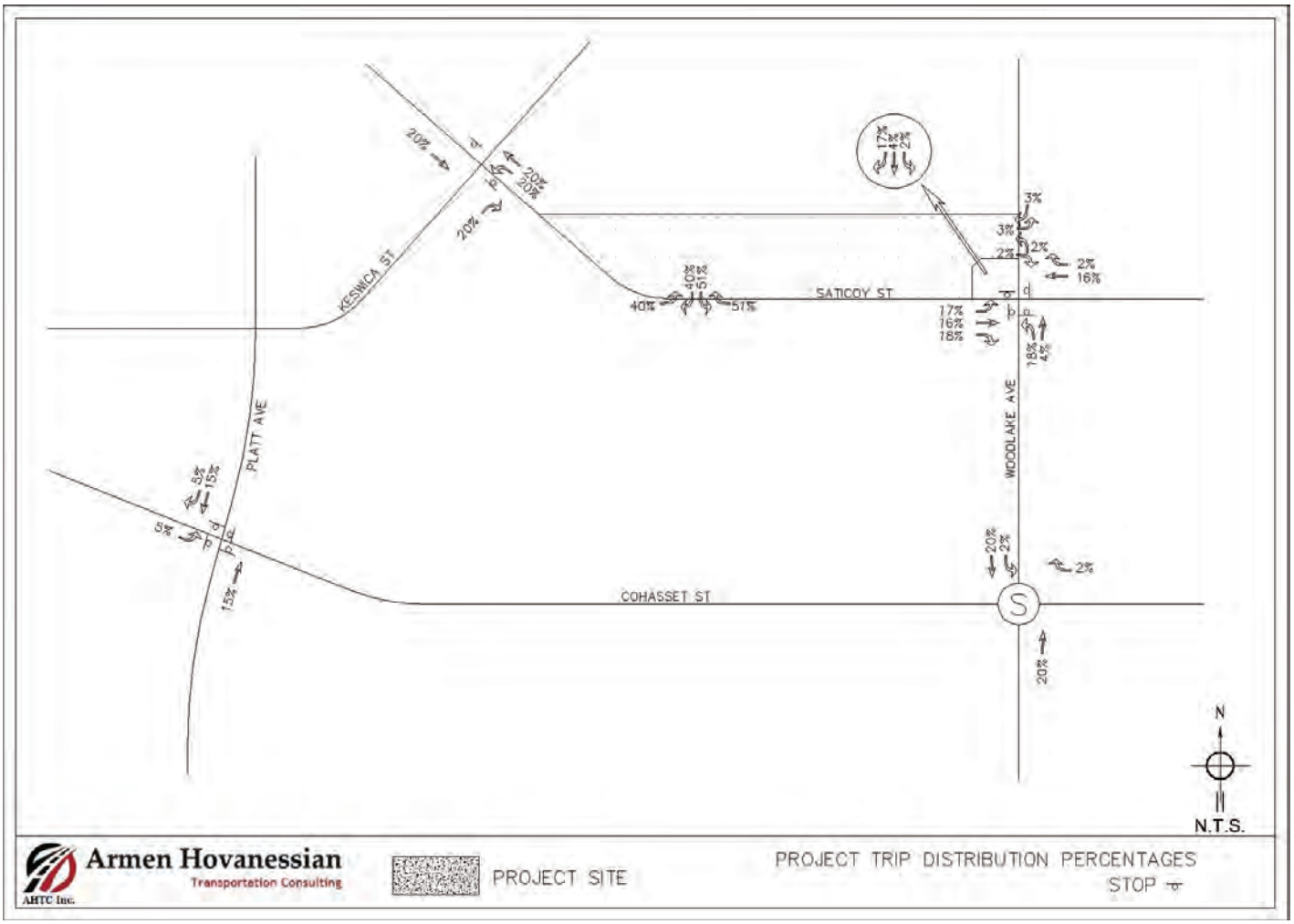
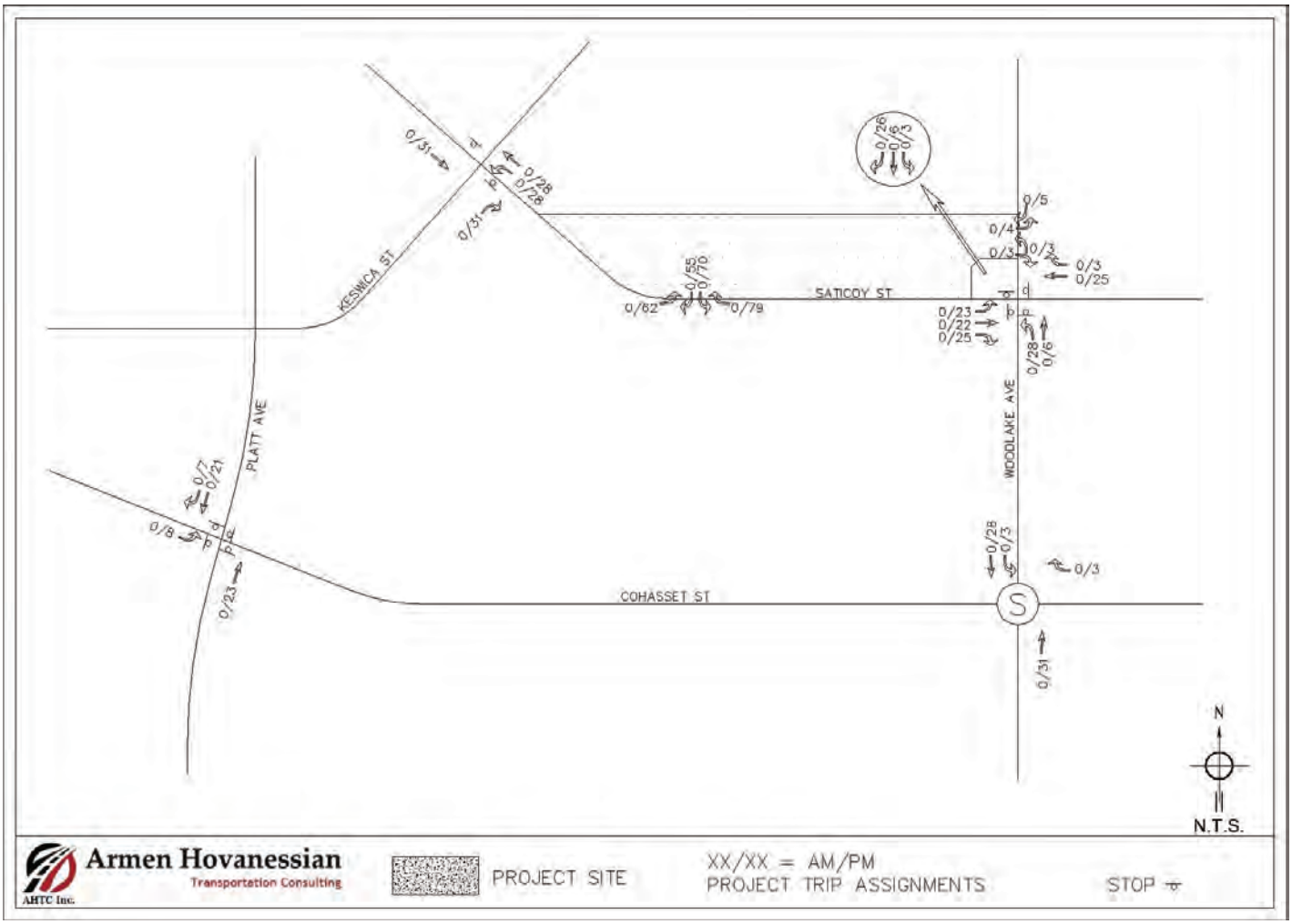


Figure 8 – Project Trip Assignments



Traffic Forecasts

In general, future peak hour traffic projections for the study intersections are estimated to include future growth due to (1) related projects within ½ mile of the project site and (2) ambient traffic growth.

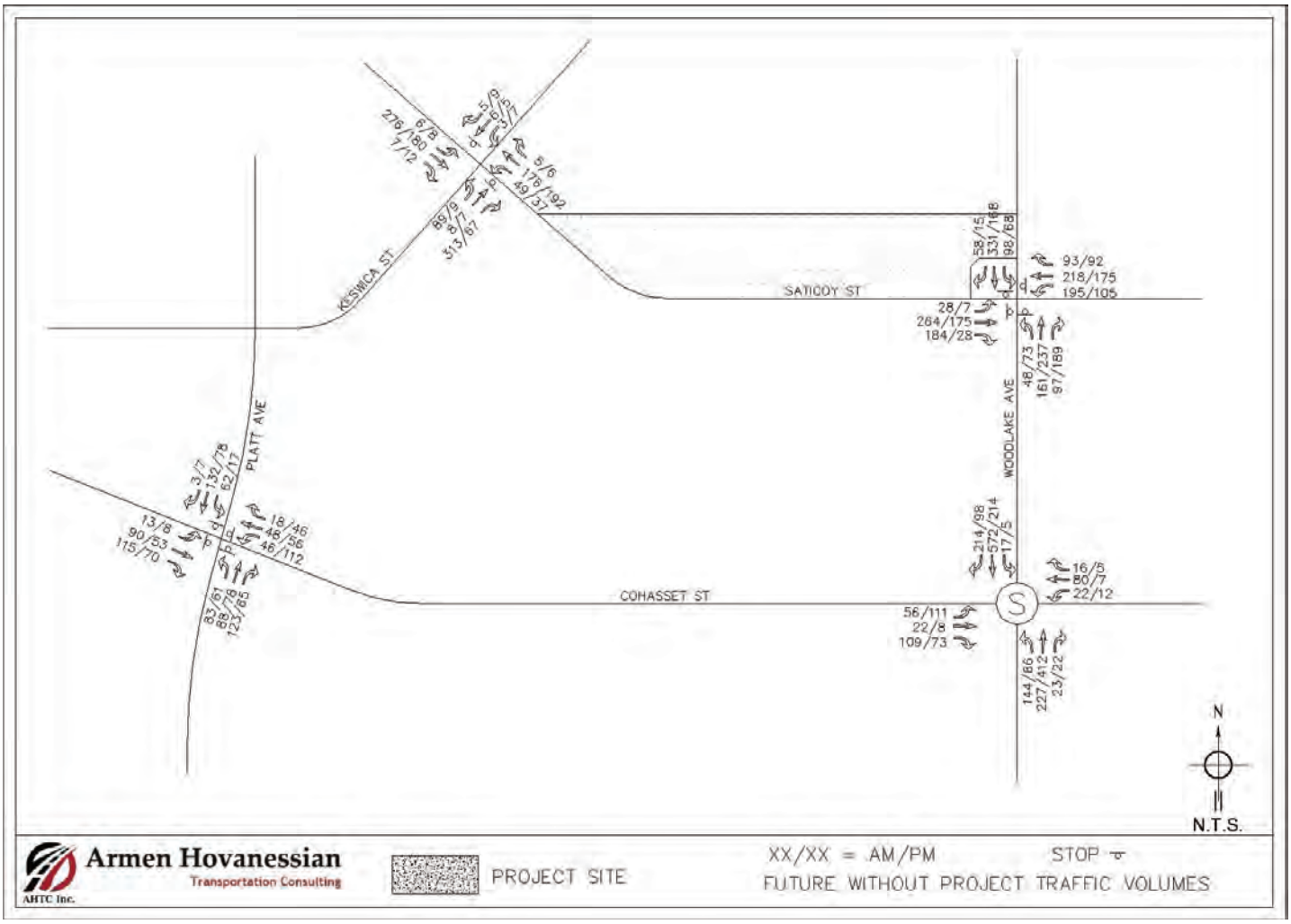
Related Projects

There were no related projects identified within the ½ mile vicinity of the project site.

Ambient Traffic Growth

To account for the future ambient traffic growth from intensification of existing developments, and other projects that are located further than a half mile from the project site, the existing traffic volumes were increased by an ambient growth rate of 1% per year to the anticipated year of completion 2035. These values were used to forecast the future traffic volumes without project traffic volumes as shown in Figure 9.

Figure 9 – Future without Project Traffic Volumes



Operational Evaluation

Operational analyses of vehicle average control delays, levels of service, and queueing were conducted at the study intersections for the following conditions and their traffic volumes.

1) Existing Traffic Conditions (See Figure 6)
2) Existing Plus Project Traffic Conditions (See Figure 10)
3) Future (2035) Without Project Traffic Conditions (See Figure 9)
4) Future (2035) Plus Project Traffic Conditions (See Figure 11)

Figure 10 – Existing Plus Project Traffic Volumes

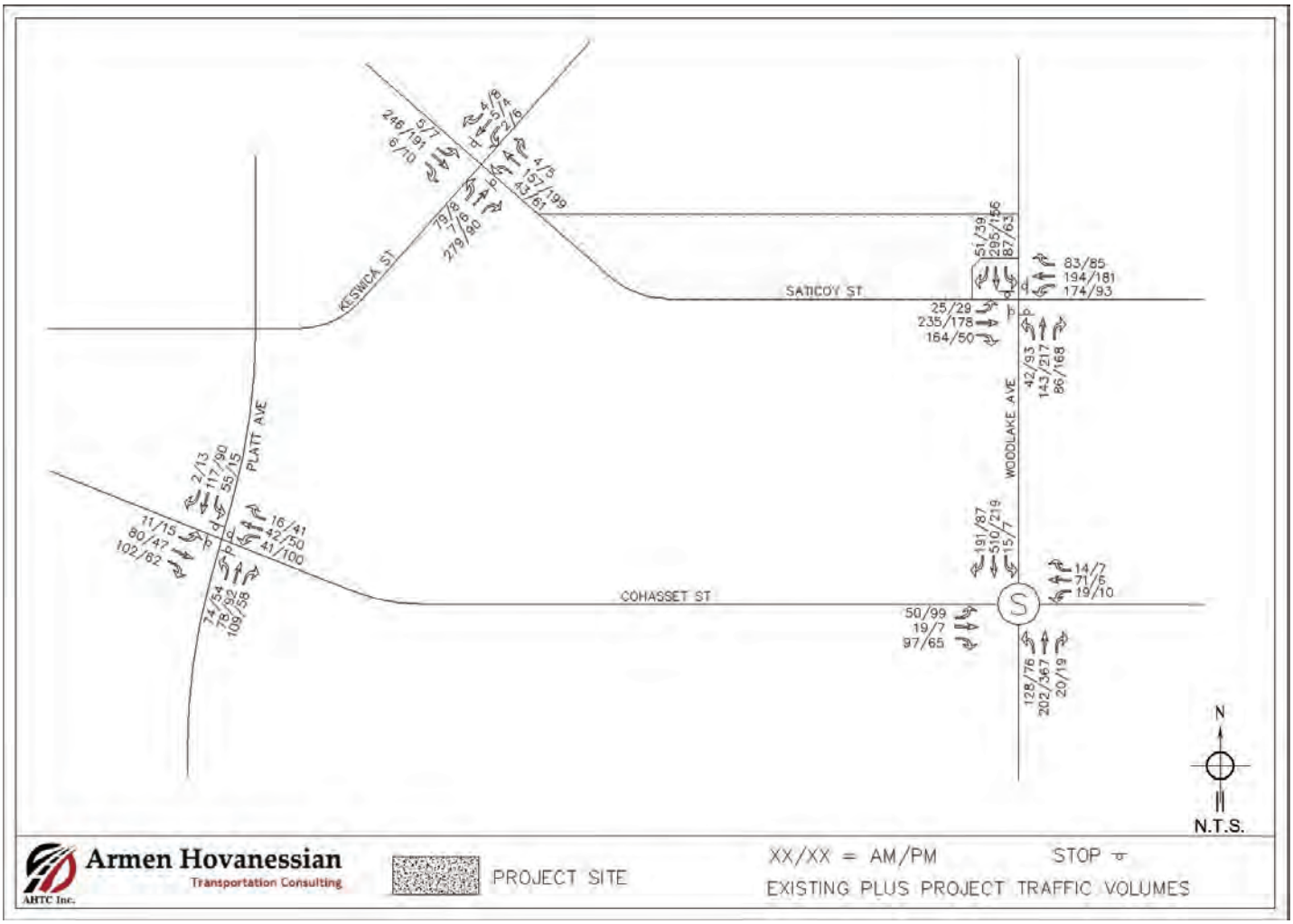
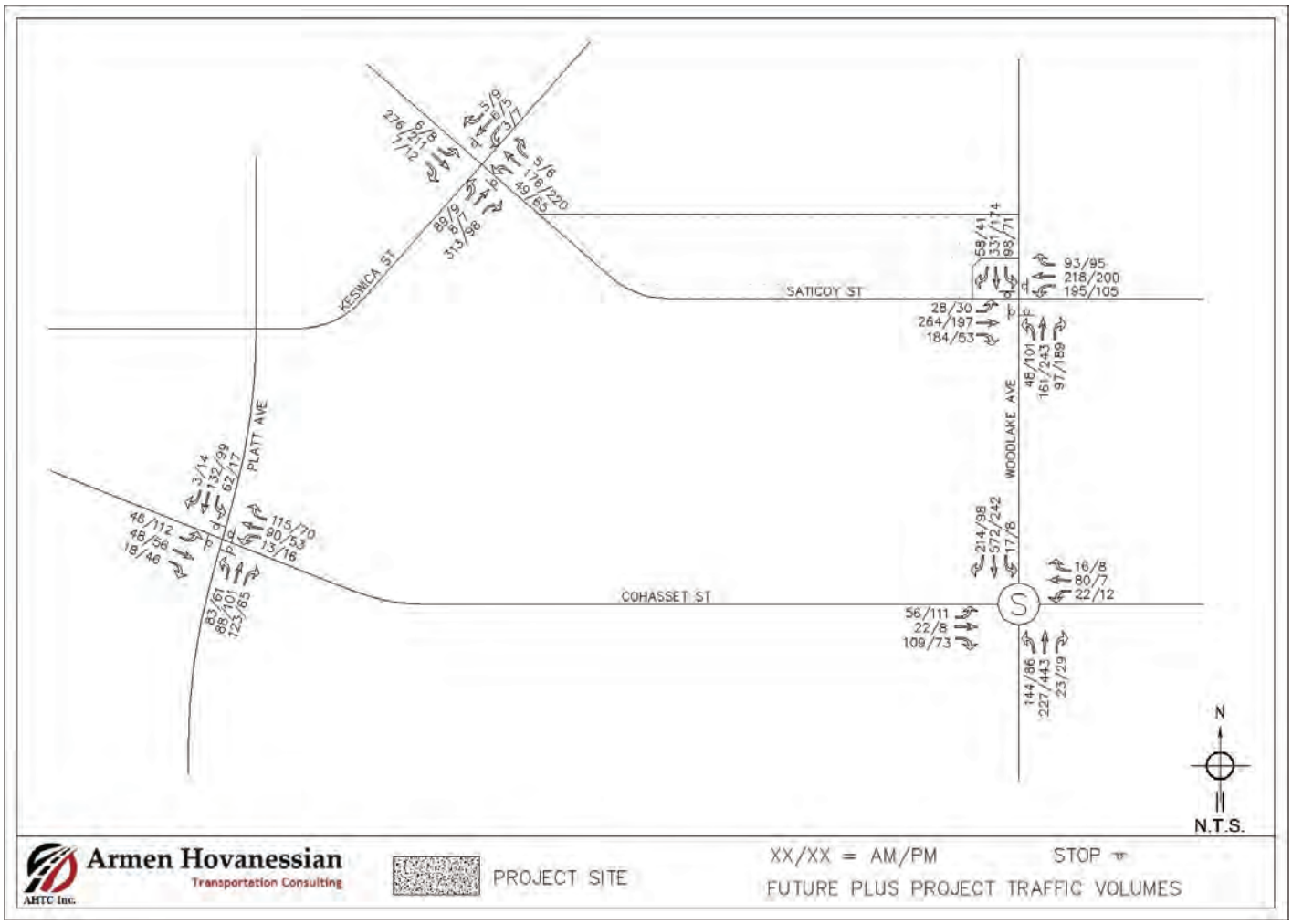


Figure 11 – Future Plus Project Traffic Volumes



Delay and Queueing Methodology

Signalized Intersections

For signalized intersections, the City utilizes the Highway Capacity Manual (HCM) operations methodology for performing signalized intersection capacity analysis. This method relies on the determination of a delay or Level of Service (LOS) at each of the study intersection by first determining their corresponding average control delay per vehicle. Control delay includes initial deceleration delay, queue move-up time, stopped delay and final acceleration delay. It is a measure of driver discomfort, frustration, fuel consumption and lost travel time.

Level of Service (LOS) varies from at best LOS A (free flow/excellent) to at worst LOS of F (stop-and-go/failure). Shown below, in Table 9, are the LOS categories and their corresponding HCM average control delay ranges for signalized intersections.

Table 9 – LOS at Signalized Intersection

Level of Service	Average Control Delay per Vehicle (Sec/Veh)
A	0 to 10.00
B	10.01 to 20.00
C	20.01 to 35.00
D	35.01 to 55.00
E	55.01 to 80.00
F	Over 80.00

Unsignalized Intersections

For unsignalized intersections, the City utilizes the Highway Capacity Manual (HCM) methodologies for performing two-way stop-controlled (TWSC) and all-way Stop-controlled (AWTC) intersection capacity analyses. For TWSC intersection analysis, LOS is calculated for each movement of the intersection and the most critical LOS is the one that represents the effectiveness of that intersection. For AWSC intersection analysis, LOS is defined by the control delay of the entire intersection. The LOS thresholds, as shown in Table 10, for TWSC and AWSC intersections differ from those for signalized intersections to reflect different driver expectations. Shown below are the LOS categories and their corresponding HCM average control delay ranges for TWSC and AWSC intersections.

Table 10 – LOS at Unsignalized Intersections

Level of Service	Average Control Delay per Vehicle (Sec/Veh)
A	0 to 10.00
B	Over 10 to 15
C	Over 15 to 25
D	Over 25 to 35
E	Over 35 to 50
F	Over 50

Level of Service and Queueing Analysis

The results of the operational analyses are summarized in the following tables:

- Table 11: Levels of Service, Delays and Queue Lengths for existing conditions.
- Table 12: Levels of Service, Delays and Queue Lengths for existing plus project conditions.

- Table 13: Levels of Service, Delays and Queue Lengths for future without project conditions.
- Table 14: Levels of Service, Delays and Queue Lengths for future with project conditions.

Table 11 – LOS Existing Conditions

Study Intersection	Int. Control	Approach	Movement	Existing					
				AM			PM		
				Delay (sec)	LOS	95th % Queue (ft)	Delay (sec)	LOS	95th % Queue (ft)
Cohasset Street & Woodlake Avenue	Traffic Signal	NB	left	10.6	B	53	6.9	A	30
			through	5.3	A	26	6.3	A	50
			right	5.3	A		6.3	A	
		SB	left	6.8	A	51	6.6	A	4
			through	7	A	75	6	A	30
			right	7.1	A		6	A	
		WB	left		A			A	
			through	10.6	B	48	7.8	A	13
			right		A			A	
		EB	left		A			A	
			through	11.4	B	51	9	A	56
			right		A			A	
Cohasset Street/March Avenue & Platt Avenue	All-Way Stop Control	NB	left	10.3	B	0.7	9.6	A	0.5
			through	9.1	A	0.3	8.8	A	0.2
			right	8.8	A	0.6	8.1	A	0.3
		SB	left	11.10	B	0.8	9.5	A	0.3
			through	9.8	A	0.4	9.1	A	0.2
			right		A			A	
		WB	left		A			A	
			through	10.4	B	0.7	10.9	B	1.4
			right		A			A	
		EB	left		A			A	
			through	11.1	B	1.4	9.1	A	0.7
			right		A			A	
Saticoy Street & Woodlake Avenue	All Way Stop Control	NB	left	16.1	C	1.3	13.9	B	1.7
			through	17.1	C	1.9	16.5	C	3.1
			right		A			A	
		SB	left	24.7	C	4	13.6	B	1.3
			through	19.3	C	2.7	11.7	B	0.7
			right		A			A	
		WB	left	31	D	5.5	14.9	B	1.8
			through	17.1	C	2.2	12.9	B	1.4
			right		A			A	
		EB	left		A			A	
			through	27.4	D	4.8	14.6	B	1.7

			right	15.4	C	1.8	9.9	A	0.2
Keswick Street & Saticoy Street	All Way Stop Control	NB	left	10.8	B	0.9	8.9	A	0.7
			through	9.8	A	0.5	8.4	A	0.5
			right		A			A	
		SB	left	10.5	B	0.9	8.5	A	0.4
			through	10.4	B	0.9	8.4	A	0.5
			right		A			A	
		WB	left		A			A	
			through	8.9	A	0.1	8	A	0.1
			right		A			A	
		EB	left		A			A	
			through	13.5	B	3.3	8	A	0.3
			right		A			A	

Table 12 – LOS Existing + Project Conditions

Study Intersection	Int. Control	Approach	Movement	Existing + Project					
				AM			PM		
				Delay (sec)	LOS	95th % Queue (ft)	Delay (sec)	LOS	95th % Queue (ft)
Cohasset Street & Woodlake Avenue	Traffic Signal	NB	left	10.6	B	53	7.1	A	30
			through	5.3	A	26	6.4	A	54
			right	5.3	A		6.4	A	
		SB	left	6.8	A	51	6.8	A	6
			through	7	A	75	6.1	A	33
			right	7.1	A		6.1	A	
		WB	left		A			A	
			through	10.6	B	48	7.9	A	15
			right		A			A	
		EB	left		A			A	
			through	11.4	B	51	9.1	A	59
			right		A			A	
Cohasset Street/March Avenue & Platt Avenue	All-Way Stop Control	NB	left	10.3	B	0.7	9.9	A	0.5
			through	9.1	A	0.3	9.1	A	0.4
			right	8.8	A	0.6	8.2	A	0.3
		SB	left	11.10	B	0.8	9.8	A	0.4
			through	9.8	A	0.4	9.5	A	0.4
			right		A			A	
		WB	left		A			A	
			through	10.4	B	0.7	11.4	B	1.5
			right		A			A	
		EB	left		A			A	
			through	11.1	B	1.4	9.6	A	0.8
			right		A			A	
Saticoy Street & Woodlake Avenue	All Way Stop Control	NB	left	16.1	C	1.3	17.2	C	2.5
			through	17.1	C	1.9	19.5	C	3.8

			right		A			A	
		SB	left	24.7	C	4	15.2	C	1.5
			through	19.3	C	2.7	13.3	B	1.1
			right		A			A	
		WB	left	31	D	5.5	17.1	C	2.2
			through	17.1	C	2.2	14.9	B	1.8
			right		A			A	
		EB	left		A			A	
			through	27.4	D	4.8	18.6	C	2.7
			right	15.4	C	1.8	10.9	B	0.4
Keswick Street & Saticoy Street	All Way Stop Control	NB	left	10.8	B	0.9	9.8	A	1
			through	9.8	A	0.5	8.7	A	0.6
			right		A			A	
		SB	left	10.5	B	0.9	8.9	A	0.6
			through	10.4	B	0.9	8.8	A	0.6
			right		A			A	
		WB	left		A			A	
			through	8.9	A	0.1	8.3	A	0.1
			right		A			A	
		EB	left		A			A	
			through	13.5	B	3.3	8.5	A	0.5
			right		A			A	

Table 13 – LOS Future without Project Conditions

Study Intersection	Int. Control	Approach	Movement	Future w/o Project					
				AM			PM		
				Delay (sec)	LOS	95th % Queue (ft)	Delay (sec)	LOS	95th % Queue (ft)
Cohasset Street & Woodlake Avenue	Traffic Signal	NB	left	11.6	B	92	7.3	A	35
			through	5	A	30	6.5	A	60
			right	5	A		6.5	A	
		SB	left	5.4	A	9	6.9	A	5
			through	6.9	A	93	6.1	A	34
			right	6.9	A		6.2	A	
		WB	left		A			A	
			through	12	B	53	8.1	A	15
			right		A			A	
		EB	left		A			A	
			through	13.1	B	57	9.5	A	68
			right		A			A	
Cohasset Street/March Avenue & Platt Avenue	All-Way Stop Control	NB	left	10.9	B	0.8	10.1	B	0.6
			through	9.5	A	0.4	9.1	A	0.3
			right	9.4	A	0.7	8.4	A	0.3

		SB	left	11.9	B	1	10	A	0.4
			through	10.3	B	0.5	9.5	A	0.3
			right		A			A	
		WB	left		A			A	
			through	11.1	B	0.8	11.9	B	1.7
			right		A			A	
		EB	left		A			A	
			through	12.3	B	1.8	9.7	A	0.8
			right		A			A	
Saticoy Street & Woodlake Avenue	All Way Stop Control	NB	left	18.7	C	1.8	16	C	2.2
			through	20.9	C	2.7	21.2	C	4.5
			right		A			A	
		SB	left	35.2	E	5.9	15.5	C	1.7
			through	24.8	C	3.9	12.8	B	0.9
			right		A			A	
		WB	left	49.7	E	8.3	17.3	C	2.4
			through	21.2	C	3	14.7	B	1.9
			right		A			A	
		EB	left		A			A	
			through	42	E	7.3	17	C	2.2
			right	18.5	C	2.4	10.5	B	0.2
Keswick Street & Saticoy Street	All Way Stop Control	NB	left	11.6	B	1.1	9.2	A	0.8
			through	10.3	B	0.6	8.6	A	0.5
			right		A			A	
		SB	left	11.3	B	1.1	8.7	A	0.5
			through	11.2	B	1.1	8.6	A	0.5
			right		A			A	
		WB	left		A			A	
			through	9.3	A	0.1	8.1	A	0.1
			right		A			A	
		EB	left		A			A	
			through	16.2	C	4.4	8.2	A	0.4
			right		A			A	

Table 14 – LOS Future + Project Conditions

Study Intersection	Int. Control	Approach	Movement	Future + Project					
				AM			PM		
				Delay (sec)	LOS	95th % Queue (ft)	Delay (sec)	LOS	95th % Queue (ft)
Cohasset Street & Woodlake Avenue	Traffic Signal	NB	left	11.6	B	92	7.3	A	35
			through	5	A	30	6.5	A	63
			right	5	A		6.5	A	
		SB	left	5.4	A	9	7	A	7
			through	6.9	A	93	6.1	A	37
			right	6.9	A		6.2	A	

		WB	left		A			A	
			through	12	B	53	8.3	A	17
			right		A			A	
		EB	left		A			A	
			through	13.1	B	57	9.8	A	71
			right		A			A	
Cohasset Street/March Avenue & Platt Avenue	All-Way Stop Control	NB	left	10.9	B	0.8	10.3	B	0.6
			through	9.5	A	0.4	9.5	A	0.4
			right	9.4	A	0.7	8.5	A	0.3
		SB	left	11.90	B	1	10.3	B	0.4
			through	10.3	B	0.5	9.9	A	0.4
			right		A			A	
		WB	left		A			A	
			through	11.1	B	0.8	12.3	B	1.8
			right		A			A	
		EB	left		A			A	
			through	12.3	B	1.8	10.2	B	0.9
			right		A			A	
Saticoy Street & Woodlake Avenue	All Way Stop Control	NB	left	18.7	C	1.8	20.5	C	3.2
			through	20.9	C	2.7	26.2	D	5.4
			right		A			A	
		SB	left	35.2	E	5.9	17.5	C	2
			through	24.8	C	3.9	14.8	B	1.3
			right		A			A	
		WB	left	49.7	E	8.3	20.3	C	3
			through	21.2	C	3	17.3	C	2.4
			right		A			A	
		EB	left		A			A	
			through	42	E	7.3	22.7	C	3.6
			right	18.5	C	2.4	11.6	B	0.4
Keswick Street & Saticoy Street	All Way Stop Control	NB	left	11.6	B	1.1	10.1	B	1.2
			through	10.3	B	0.6	8.9	A	0.6
			right		A			A	
		SB	left	11.3	B	1.1	9.1	A	0.6
			through	11.2	B	1.1	9	A	0.7
			right		A			A	
		WB	left		A			A	
			through	9.3	A	0.1	8.5	A	0.1
			right		A			A	
		EB	left		A			A	
			through	16.2	C	4.4	8.7	A	0.6
			right		A			A	

Please refer to Appendix 7 for the (HCM) analysis worksheets for the analyzed intersections.

As shown in the Level of Service comparison Table 15, with the addition of the project traffic to the future traffic, the level of services for all traffic movements at the study intersections will remain the substantially the same except for four traffic movement. However, the queueing length will for all four traffic movements will at all four only increase by less than one car length with negligible delay. Therefore, the project does not add any substantial amount of traffic to the study intersections.

Table 15 – Comparison of LOS- Future to Future + Project Conditions

Study Intersection	Int. Control	Approach	Movement	Comparison of Future To Future + Project									
				AM					PM				
				Diff. in Delay (sec)	LOS Future	LOS Future + Project	Diff. in 95% Queue (ft)	Number of Cars	Diff. in Delay (sec)	LOS Future	LOS Future + Project	Diff. in 95% Queue (ft)	Number of Cars
Cohasset Street & Woodlake Avenue	Traffic Signal	NB	left	0	B	B	0	0	0	A	A	0	0
			through	0	A	A	0	0	0	A	A	3	0.15
			right	0	A	A	0	0	0	A	A	0	0
		SB	left	0	A	A	0	0	0.1	A	A	2	0.1
			through	0	A	A	0	0	0	A	A	3	0.15
			right	0	A	A	0	0	0	A	A	0	0
		WB	left	0	A	A	0	0	0	A	A	0	0
			through	0	B	B	0	0	0.2	A	A	2	0.1
			right	0	A	A	0	0	0	A	A	0	0
		EB	left	0	A	A	0	0	0	A	A	0	0
			through	0	B	B	0	0	0.3	A	A	3	0.15
			right	0	A	A	0	0	0	A	A	0	0
Cohasset Street/March Avenue & Platt Avenue	All-Way Stop Control	NB	left	0	B	B	0	0	0.2	B	B	0	0
			through	0	A	A	0	0	0.4	A	A	0.1	0.005
			right	0	A	A	0	0	0.1	A	A	0	0
		SB	left	0	B	B	0	0	0.3	A	B	0	0
			through	0	B	B	0	0	0.4	A	A	0.1	0.005
			right	0	A	A	0	0	0	A	A	0	0
		WB	left	0	A	A	0	0	0	A	A	0	0
			through	0	B	B	0	0	0.4	B	B	0.1	0.005
			right	0	A	A	0	0	0	A	A	0	0
		EB	left	0	A	A	0	0	0	A	A	0	0
			through	0	B	B	0	0	0.5	A	B	0.1	0.005
			right	0	A	A	0	0	0	A	A	0	0
Saticoy Street & Woodlake Avenue	All Way Stop Control	NB	left	0	C	C	0	0	4.5	C	C	1	0.05
			through	0	C	C	0	0	5	C	D	0.9	0.045
			right	0	A	A	0	0	0	A	A	0	0
		SB	left	0	E	E	0	0	2	C	C	0.3	0.015
			through	0	C	C	0	0	2	B	B	0.4	0.02
			right	0	A	A	0	0	0	A	A	0	0
		WB	left	0	E	E	0	0	3	C	C	0.6	0.03
			through	0	C	C	0	0	2.6	B	C	0.5	0.025
			right	0	A	A	0	0	0	A	A	0	0
		EB	left	0	A	A	0	0	0	A	A	0	0
			through	0	E	E	0	0	5.7	C	C	1.4	0.07
			right	0	C	C	0	0	1.1	B	B	0.2	0.01
Keswick Street & Saticoy Street	All Way Stop Control	NB	left	0	B	B	0	0	0.9	A	B	0.4	0.02
			through	0	B	B	0	0	0.3	A	A	0.1	0.005
			right	0	A	A	0	0	0	A	A	0	0
		SB	left	0	B	B	0	0	0.4	A	A	0.1	0.005
			through	0	B	B	0	0	0.4	A	A	0.2	0.01
			right	0	A	A	0	0	0	A	A	0	0
		WB	left	0	A	A	0	0	0	A	A	0	0
			through	0	A	A	0	0	0.4	A	A	0	0
			right	0	A	A	0	0	0	A	A	0	0
		EB	left	0	A	A	0	0	0	A	A	0	0
			through	0	C	C	0	0	0.5	A	A	0.2	0.01
			right	0	A	A	0	0	0	A	A	0	0

Recommended Actions

The project does not have major adverse effects on access, safety, and circulation in the roadway system within the study area or at the analyzed intersections. Therefore, no additional actions would be needed.

Project Construction

This section evaluates the project construction transportation effects. The evaluation is related to the temporary construction related effects that may result from the construction activities of the project, which may include safety, operational, or delay impacts.

Screening Criteria

The TAG establishes seven screening criteria to determine whether further non-CEQA transportation analysis is required to address any potential project construction transportation effects and determine any possible adverse effect on existing pedestrian, bicycle, or transit facilities. The screening criteria is listed below:

Table 16 – Screening Criteria for Temporary Project Construction Effects

	Screening Criteria Questions	Answer	Action
1	Would the project require construction activities to take place within the right-of-way of a Boulevard or Avenue (as designated in the Mobility Plan 2035) which would necessitate temporary lane, alley, or street closures for more than one day (including day and evening hours, and overnight closures if on a residential street)?	Yes	If answer is yes to any of these questions further analysis is required
2	Would the project require construction activities to take place within the right-of-way of a Collector or Local Street (as designated in the Mobility Plan 2035) which would necessitate temporary lane, alley, or street closures for more than seven days (including day and evening hours, and including overnight closures if on a residential street)?	Yes	
3	Would in-street construction activities result in the loss of regular vehicle, bicycle, or pedestrian access, including loss of bicycle parking to an existing land use for more than one day, including day and evening hours and overnight closures if access is lost to residential units?	Yes	

4	Would in-street construction activities result in the loss of regular ADA pedestrian access to an existing transit station, stop, or facility (e.g., layover zone) during revenue hours?	No	
5	Would in-street construction activities result in the temporary loss for more than one day of an existing bus stop or rerouting of a bus route that serves the project site?	No	
6	Would construction activities result in the temporary removal and/or loss of on-street metered parking for more than 30 days?	No	
7	Would the project involve a discretionary action to construct new buildings or additions of more than 1,000 square feet that require access for hauling construction materials and equipment from streets of less than 24-feet wide in a hillside area?	No	

Evaluation Criteria

The TAG establishes assessment factors to be considered in evaluating temporary construction related effects that may result from the construction activities of the project. These factors are listed below:

Table 17 – Evaluation Criteria for Temporary Project Construction Effects

Assessment Factors	Answers
Temporary Transportation Constraints:	
The length of time of temporary street closures or closures of two or more travel lanes	Unknown
The classification of the street (major arterial, state highway, substandard hillside local or collector, etc.) affected	Avenue II
The existing congestion levels on the affected street segments and intersections	Minor
The operational constraints of substandard hillside streets needing to access construction sites	N/A
Whether the affected street directly leads to a freeway on- or off-ramp or other state highway	No
Potential safety issues involved with street or lane closures	None

The presence of emergency services (fire, hospital, etc.) located nearby that regularly use the affected street	Yes
Temporary loss of access:	
The length of time of any loss of pedestrian or bicycle circulation past a construction area	Unknown
The length of time of any loss of vehicular, bicycle, or pedestrian access to a parcel fronting the construction area	Unknown
The length of time of any loss or impedance of access by emergency vehicles or area residents to hillside properties	None
The length of time of any loss of ADA pedestrian access to a transit station, stop, or facility	Unknown
The availability of nearby vehicular or pedestrian access within ¼ mile of the lost access	N/A
The type of land uses affected, and related safety, convenience, and/or economic issues	None
Temporary Loss of Bus Stops or Rerouting of Bus Lines:	
The length of time that an existing bus stop would be unavailable or that existing service would be interrupted	None
The availability of a nearby location (within ¼ mile) to which the bus stop or route can be temporarily relocated	Yes
The existence of other bus stops or routes with similar routes/destinations within a ¼-mile radius of the affected stops or routes	N/A
Whether the interruption would occur on a weekday, weekend, or holiday, and whether the existing bus route typically provides service that/those day(s).	Unknown

A comprehensive analysis and inventory of the existing transportation infrastructure and conditions within a ¼ -mile radius of the project was conducted and is included in the Project Context section of this report. Additionally, a review of the proposed construction procedures/plans was conducted to determine whether construction activity within the street right-of-way would cause/require any of the following:

Table 18 -Construction Activity Effect

During Construction	
Street, sidewalk, or lane closures	Yes
Block existing vehicle, bicycle, or pedestrian access along a street or to parcels fronting the street	Yes

Modification of access to transit stations, stops, or facilities during revenue hours	No
Closure or movement of an existing bus stop or rerouting of an existing bus line	Yes
Creation of transportation hazards	No

Corrective Measures

The project construction activities may result in temporary adverse effects on certain transportation facilities. To minimize and address these adverse effects, the following corrective measures were analyzed and recommended:

Table 19 – Project Construction Corrective Measures

Corrective Measures	Recommended
Traffic Management Plan	Yes
Detour Plan	Yes
Modification of construction procedures	N/A
Limit major road obstructions to off-peak hours	Yes
Coordinate with emergency service and public transit providers	Yes
Provide alternative vehicular, bicycle, and/or pedestrian access to affected parcels	N/A
Consult LADOT's Parking Meters Division regarding revenue recovery costs for the removal of parking meter spaces, if applicable	N/A
Coordinate access with adjacent property owners and tenants	Yes
Coordinate with Metro regarding maintenance of ADA access to Metro stations, stops, and transit facilities (e.g., layover zones) during revenue hours	N/A
Coordinate with transit providers regarding the need to temporarily close or relocate bus stops or reroute service	N/A

Residential Street Cut-Through Analysis

The objective of this analysis is to determine potential increases in average daily traffic (ADT) volumes on designated Local Streets near a project that can be classified as cut-through trips generated by the project, and that can adversely affect the character and function of those streets.

Cut-through trips are defined as those which feature travel along a street classified as a Local Street in the City's General Plan, with residential land-use frontage, as an alternative to a higher classification street segment (e.g., Collector, Avenue, or Boulevard as designated in the City's General Plan) to access a destination that is not within the neighborhood within which the Local Street is located.

SCREENING CRITERA

The TAG establishes the criteria to determine whether further analysis would be required to determine potential cut-through traffic increase because of the project. In addition to these two criteria,

- A net increase of 250 or more daily vehicle trips, and
- Project subject to a discretionary action that would be under review by the Department, the project would be subject to the following criteria:

Table 20 – Screening Criteria for Residential Street Cut-Through Traffic

Screening Criteria	Answer	
The project is located along a currently congested Boulevard or Avenue and adds trips that may lead to trip diversion to parallel routes along residential Local Streets. The congestion level of the Boulevard or Avenue can be determined based on the estimated peak hour LOS under project conditions of the study intersection(s) (as determined in Section 3.3). LOS E and F are considered to represent congested conditions	No	If answer is yes to 1, 2 & 3 further analysis is required
The project is projected to add a substantial amount of automobile traffic to the congested Boulevard(s), Avenue(s), or Collector(s) that could potentially cause a shift to alternative route(s);	No	
Nearby local residential street(s) (defined as Local streets as designated in the City's General Plan passing through a residential neighborhood) provide motorists with a viable alternative route. A viable alternative route is defined as one which is parallel and reasonably adjacent to the primary route as to make it attractive as an alternative to the primary route. LADOT has discretion to define which routes are viable alternative routes, based on, but not limited to, features such as geography and presence of existing traffic control devices, etc.	Yes	

Evaluation Criteria

The TAG establishes the evaluation criteria based on an estimate of the amount of daily project traffic that may shift to local residential streets, considering that the street system is less congested during non-peak hours than during peak hours. Once the estimated traffic volumes are identified, then these numbers must exceed the traffic volumes thresholds as shown in the table below:

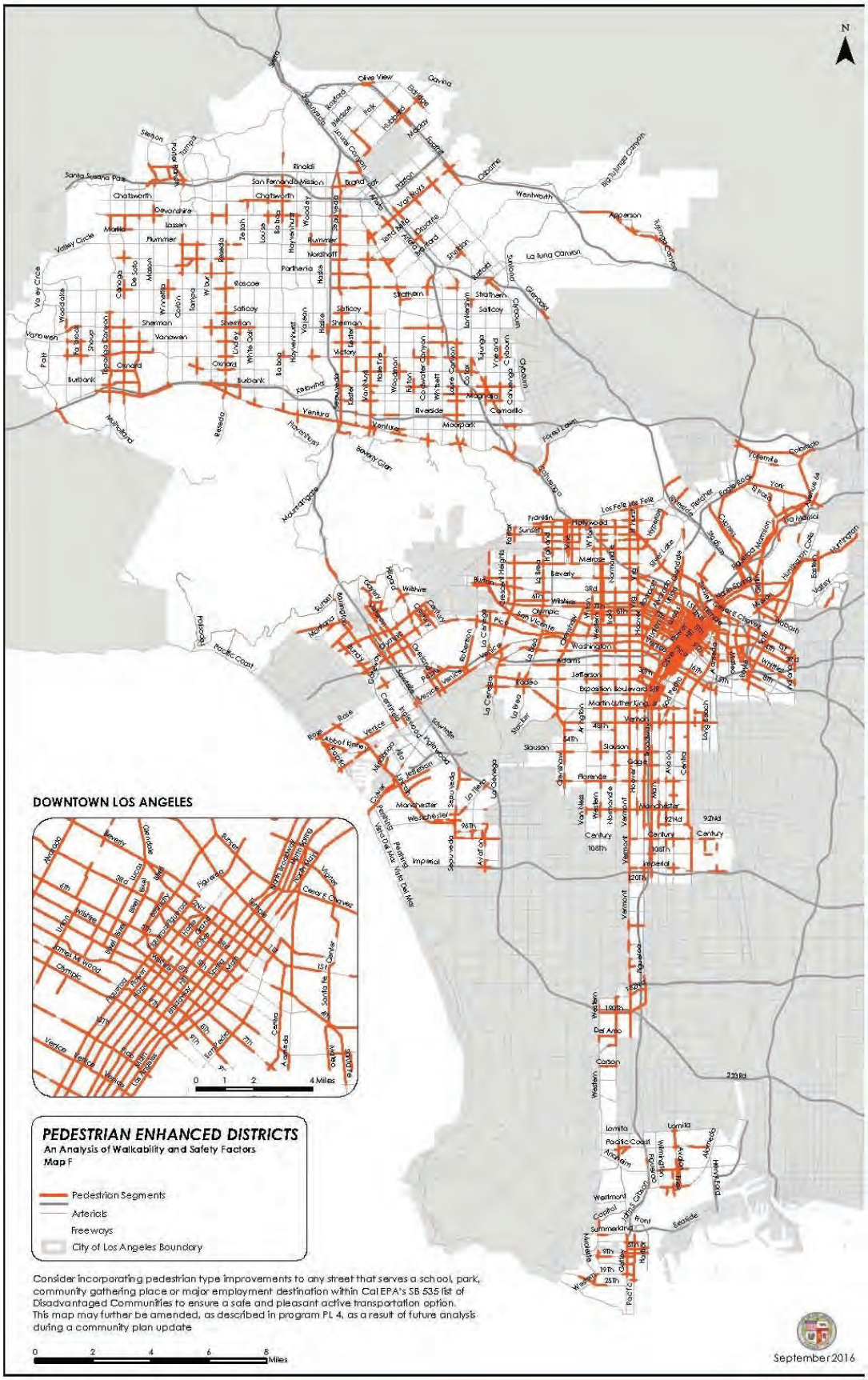
Table 21 – Residential/Local Street Diversion Criteria

Project ADT with Project (Final ADT)	Project Related Increase in ADT
1 to 999	120 or more
1,000 to 1,999	12 percent or more of final ADT
2,000 to 2,999	10 percent or more of final ADT
3,000 or more	8 percent or more of final ADT

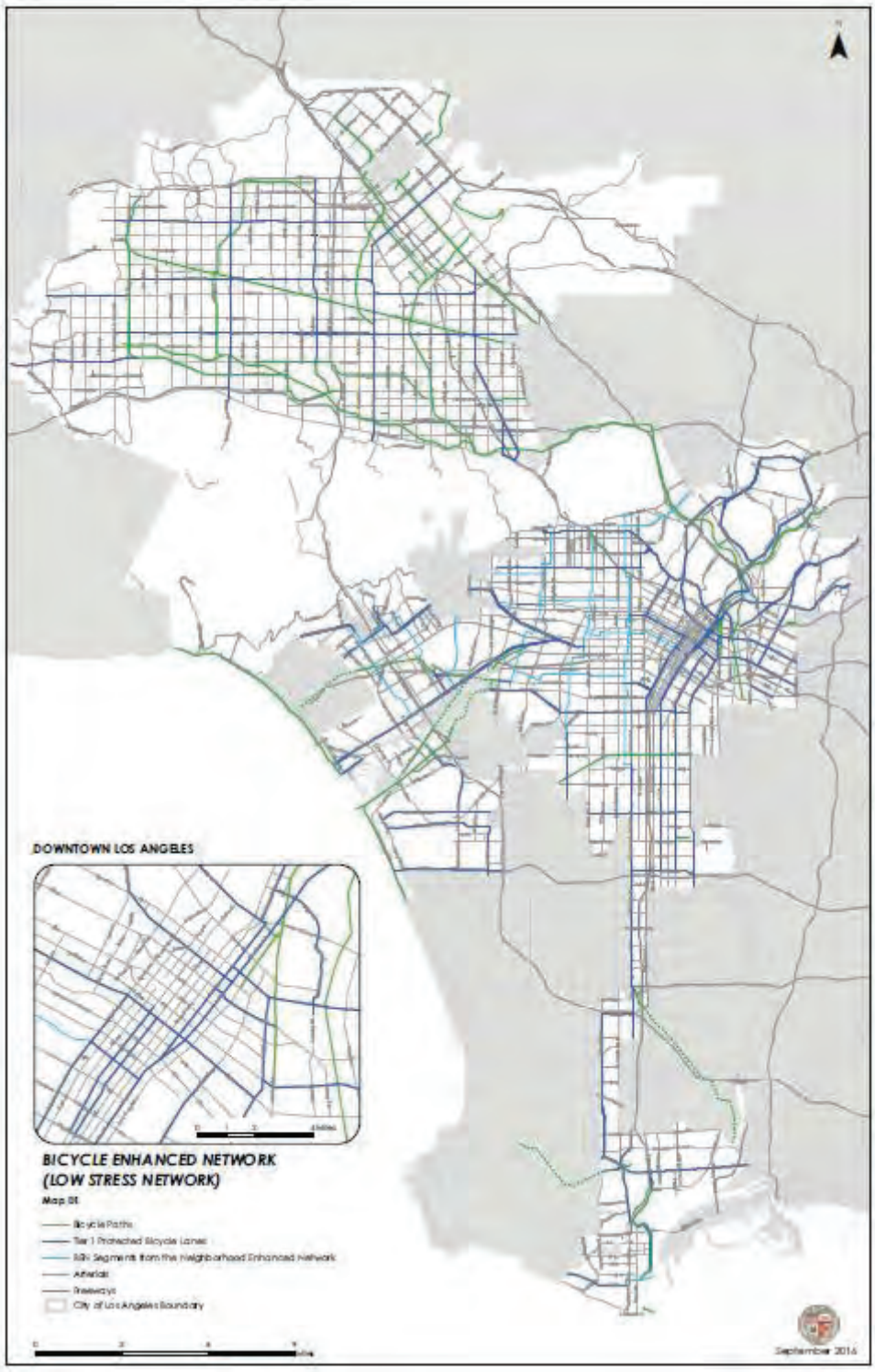
Recommended Actions

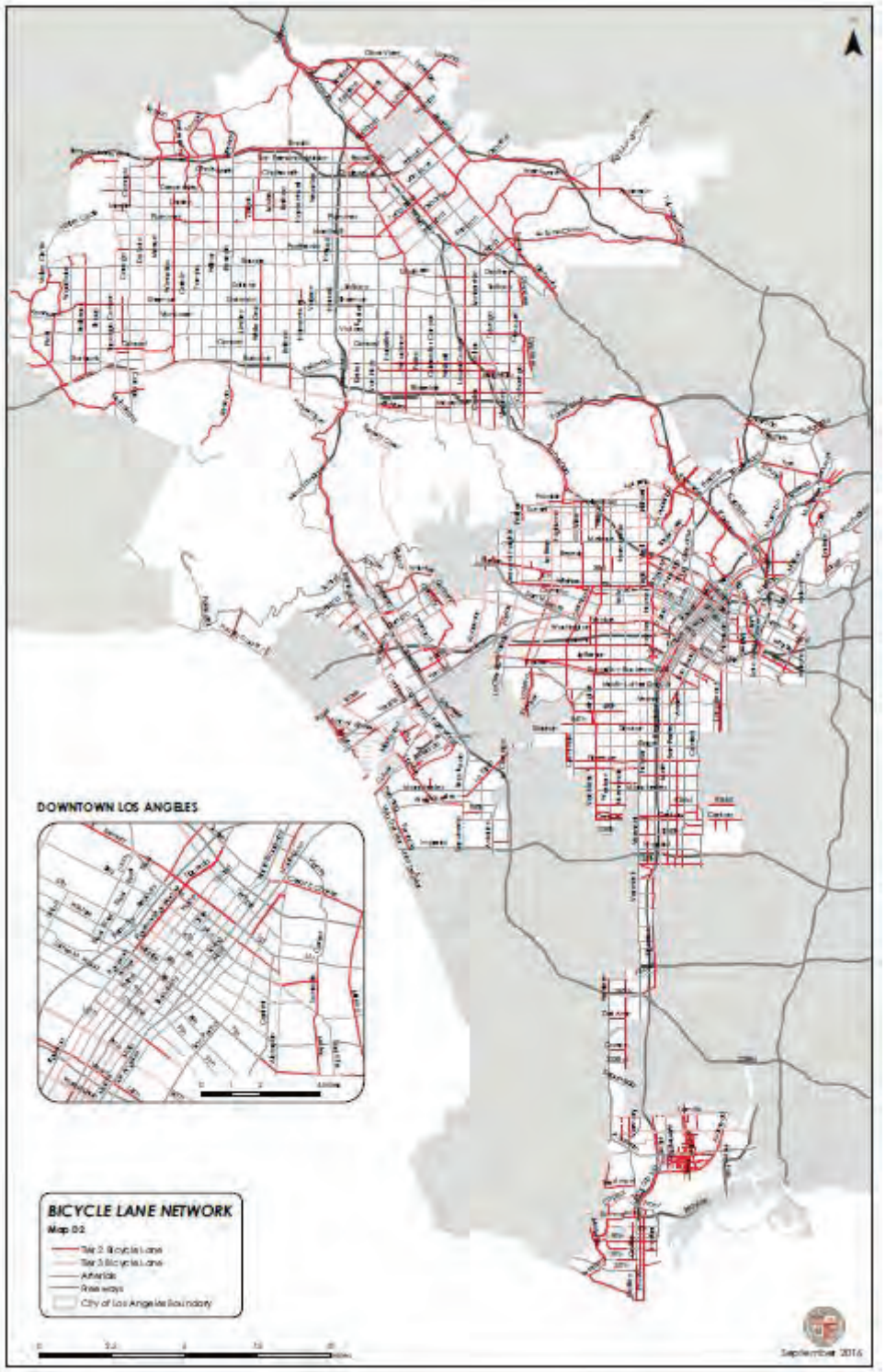
The project related traffic does not exceed the thresholds. Therefore, the project related traffic does not result in residential street diversion. The project is not subject to implementing corrective measures.

Appendix 1 – Pedestrian Districts Map


N
DOWNTOWN LOS ANGELES
0 1 2 4 Miles
PEDESTRIAN ENHANCED DISTRICTS
An Analysis of Walkability and Safety Factors
Map F
Pedestrian Segments
Arterials
Freeways
City of Los Angeles Boundary
Consider incorporating pedestrian type improvements to any street that serves a school, park, community gathering place or major employment destination within CalEPA's SB 535 list of Disadvantaged Communities to ensure a safe and pleasant active transportation option.
This map may further be amended, as described in program PL 4, as a result of future analysis during a community plan update
0 2 4 6 8 Miles
September 2016

Appendix 2 - Bicycle Lane Network Maps


DOWNTOWN LOS ANGELES
BICYCLE ENHANCED NETWORK
(LOW STRESS NETWORK)
Map 01
Bicycle Paths
Tier 1 Protected Bicycle Lanes
Bike Segments from the Neighborhood Enhanced Network
Arterials
Freeways
City of Los Angeles Boundary
September 2016


DOWNTOWN LOS ANGELES
BICYCLE LANE NETWORK
Map 02
Tier 2 Bicycle Lane
Tier 3 Bicycle Lane
Arterials
Freeways
City of Los Angeles Boundary
September 2016

Appendix 3 - Bus Schedules

Monday through Friday

Effective Dec 11 2022

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Eastbound *Al Este* (Approximate Times / Tiempos Aproximados)

WEST HILLS	NORTHRIDGE		PANORAMA CITY	SUN VALLEY	NORTH HOLLYWOOD	
8	7	6	5	4	3	2	1
West Hills Medical Center	Roscoe & Topanga Canyon	Roscoe & Reseda	Roscoe & Balboa	Roscoe & Van Nuys	Roscoe & Laurel Canyon	Lankershim & Burbank	North Hollywood Bl Lex (Red) Station
3:41A	3:48A	4:02A	4:07A	4:18A	4:26A	4:39A	4:43A
4:10	4:17	4:31	4:37	4:48	4:56	5:09	5:13
4:29	4:36	4:51	4:57	5:08	5:16	5:30	5:34
4:44	4:51	5:06	5:12	5:23	5:31	5:47	5:51
4:57	5:05	5:20	5:26	5:38	5:47	6:03	6:07
5:12	5:20	5:35	5:41	5:53	6:02	6:18	6:22
5:25	5:33	5:49	5:55	6:08	6:18	6:35	6:39
5:38	5:46	6:02	6:09	6:23	6:33	6:50	6:54
5:51	5:59	6:16	6:23	6:38	6:49	7:06	7:10
6:05	6:14	6:31	6:38	6:53	7:04	7:21	7:25
6:19	6:28	6:46	6:53	7:08	7:20	7:38	7:42
6:33	6:42	7:00	7:07	7:23	7:35	7:53	7:57
6:48	6:57	7:15	7:22	7:38	7:51	8:08	8:12
7:00	7:10	7:28	7:36	7:53	8:06	8:23	8:27
7:14	7:24	7:43	7:51	8:08	8:20	8:37	8:41
7:30	7:40	7:59	8:06	8:23	8:35	8:52	8:56
7:45	7:55	8:14	8:21	8:38	8:49	9:06	9:10
8:00	8:10	8:29	8:36	8:53	9:04	9:22	9:26
8:17	8:27	8:45	8:52	9:08	9:19	9:37	9:41
8:32	8:42	9:00	9:07	9:23	9:34	9:52	9:56
8:47	8:57	9:15	9:22	9:38	9:49	10:07	10:11
9:02	9:12	9:30	9:37	9:53	10:04	10:22	10:26
9:17	9:27	9:45	9:52	10:08	10:19	10:37	10:41
9:32	9:42	10:00	10:07	10:23	10:34	10:52	10:56
9:47	9:57	10:15	10:22	10:38	10:49	11:07	11:11
10:01	10:11	10:29	10:37	10:53	11:04	11:22	11:26
10:16	10:26	10:44	10:52	11:08	11:20	11:38	11:42
10:30	10:40	10:58	11:06	11:23	11:35	11:53	11:57
10:45	10:55	11:13	11:21	11:38	11:50	12:09P	12:13P
11:00	11:10	11:28	11:36	11:53	12:05P	12:24	12:28
11:15	11:25	11:43	11:51	12:08P	12:21	12:39	12:43
11:30	11:40	11:58	12:06P	12:23	12:36	12:54	12:58
11:45	11:55	12:13P	12:21	12:38	12:51	1:09	1:13
12:00P	12:10P	12:28	12:36	12:53	1:06	1:24	1:28
12:15	12:25	12:43	12:51	1:08	1:21	1:39	1:43
12:30	12:40	12:58	1:06	1:23	1:36	1:54	1:58
12:45	12:55	1:13	1:21	1:38	1:51	2:09	2:13
1:00	1:10	1:28	1:36	1:53	2:06	2:24	2:28
—	—	—	—	—	2:11	2:29	2:33
—	—	—	—	—	2:12	2:30	2:34
1:15	1:25	1:43	1:51	2:08	2:21	2:39	2:43
1:30	1:40	1:58	2:06	2:23	2:36	2:54	2:58
1:45	1:55	2:13	2:21	2:38	2:51	3:09	3:13
1:59	2:10	2:28	2:36	2:53	3:06	3:24	3:28
2:14	2:25	2:43	2:51	3:08	3:21	3:39	3:43
2:29	2:40	2:58	3:06	3:23	3:36	3:54	3:58
—	—	—	—	—	3:39	3:57	4:01
—	—	—	—	—	3:40	3:58	4:02
2:43	2:54	3:13	3:21	3:38	3:51	4:09	4:13
2:55	3:07	3:26	3:35	3:53	4:06	4:24	4:28
3:10	3:22	3:41	3:50	4:08	4:21	4:39	4:43
—	3:25	3:45	3:54	4:12	4:25	4:43	4:47
3:25	3:37	3:56	4:05	4:23	4:36	4:54	4:58
3:40	3:52	4:11	4:20	4:38	4:51	5:10	5:14
3:54	4:08	4:27	4:35	4:53	5:06	5:25	5:29
4:11	4:23	4:42	4:50	5:08	5:20	5:39	5:43
4:26	4:38	4:57	5:05	5:23	5:35	5:54	5:58
4:42	4:54	5:12	5:20	5:38	5:50	6:08	6:12
4:58	5:10	5:28	5:36	5:53	6:05	6:22	6:26
5:15	5:26	5:44	5:52	6:08	6:19	6:36	6:40
5:31	5:42	6:00	6:07	6:23	6:34	6:51	6:55
5:46	5:57	6:15	6:22	6:38	6:49	7:05	7:09
6:02	6:12	6:30	6:37	6:53	7:04	7:20	7:24
6:18	6:28	6:46	6:53	7:08	7:19	7:35	7:39
6:36	6:46	7:04	7:11	7:26	7:36	7:52	7:56
7:00	7:10	7:27	7:34	7:48	7:58	8:14	8:18
7:26	7:36	7:52	7:59	8:13	8:23	8:39	8:43
7:51	8:01	8:17	8:24	8:38	8:48	9:04	9:08
8:21	8:31	8:47	8:54	9:07	9:16	9:31	9:35
8:54	9:03	9:19	9:25	9:37	9:46	10:01	10:05
9:56	10:04	10:20	10:26	10:37	10:46	11:00	11:04
10:57	11:05	11:20	11:26	11:37	11:46	11:59	12:03A
12:00A	12:07A	12:21A	12:26A	12:37A	12:45A	12:58A	1:02

Westbound *Al Oeste* (Approximate Times / Tiempos Aproximados)

NORTH HOLLYWOOD		SUN VALLEY	PANORAMA CITY	NORTHRIDGE			WEST HILLS
1	2	3	4	5	6	7	8
North Hollywood Bl Lex (Red) Station	Lankershim & Burbank	Roscoe & Laurel Canyon	Roscoe & Van Nuys	Roscoe & Balboa	Roscoe & Reseda	Roscoe & Topanga Canyon	West Hills Medical Center
4:25A	4:28A	4:41A	4:58A	5:08A	5:06A	5:20A	5:31A
4:50	4:53	5:07	5:17	5:28	5:34	5:48	5:59
5:10	5:13	5:27	5:37	5:49	5:55	6:11	6:23
5:28	5:31	5:47	5:57	6:11	6:18	6:34	6:46
5:42	5:45	6:01	6:12	6:26	6:33	6:50	7:02
5:57	6:00	6:16	6:27	6:42	6:50	7:07	7:20
6:10	6:14	6:30	6:42	6:57	7:06	7:24	7:37
6:23	6:27	6:45	6:57	7:13	7:22	7:40	7:53
6:38	6:42	7:00	7:12	7:28	7:37	7:56	8:09
6:53	6:57	7:15	7:27	7:43	7:52	8:10	8:23
7:08	7:12	7:30	7:42	7:58	8:07	8:26	8:37
7:21	7:25	7:44	7:57	8:12	8:21	8:38	8:51
7:36	7:40	7:59	8:12	8:27	8:35	8:52	9:05
7:51	7:55	8:14	8:27	8:40	8:48	9:05	9:18
8:07	8:11	8:30	8:42	8:55	9:03	9:20	9:33
8:22	8:26	8:45	8:57	9:10	9:18	9:35	9:48
8:37	8:41	9:00	9:12	9:25	9:33	9:50	10:03
8:52	8:56	9:15	9:27	9:40	9:48	10:05	10:18
9:07	9:11	9:30	9:42	9:55	10:03	10:20	10:33
9:22	9:26	9:45	9:57	10:10	10:18	10:35	10:48
9:36	9:40	9:59	10:12	10:25	10:33	10:50	11:03
9:51	9:55	10:14	10:27	10:40	10:48	11:05	11:19
10:06	10:10	10:29	10:42	10:55	11:03	11:20	11:34
10:21	10:25	10:44	10:57	11:10	11:18	11:35	11:49
10:36	10:40	10:59	11:12	11:25	11:33	11:50	12:04P
10:51	10:55	11:14	11:27	11:40	11:48	12:05P	12:19
11:06	11:10	11:29	11:42	11:55	12:03P	12:20	12:34
11:21	11:25	11:44	11:57	12:10P	12:18	12:35	12:49
11:36	11:40	11:59	12:12P	12:25	12:33	12:50	1:04
11:51	11:55	12:14P	12:27	12:40	12:48	1:05	1:19
12:06P	12:10P	12:29	12:42	12:55	1:03	1:20	1:34
12:21	12:25	12:44	12:57	1:11	1:19	1:36	1:50
12:36	12:40	12:59	1:12	1:26	1:34	1:51	2:05
12:50	12:54	1:13	1:27	1:41	1:49	2:06	2:20
1:05	1:09	1:28	1:42	1:56	2:04	2:21	2:35
1:20	1:24	1:43	1:57	2:11	2:19	2:36	2:50
1:35	1:39	1:58	2:12	2:26	2:34	2:51	3:05
—	—	—	2:24	2:38	2:46	3:03	—
1:50	1:54	2:13	2:27	2:41	2:49	3:06	3:20
2:05	2:09	2:28	2:42	2:56	3:04	3:21	3:35
2:20	2:24	2:43	2:57	3:11	3:19	3:36	3:50
2:35	2:39	2:58	3:12	3:26	3:34	3:52	4:06
—	—	—	—	—	—	4:03	4:17
2:50	2:54	3:13	3:27	3:41	3:49	4:07	4:21
3:04	3:08	3:28	3:42	3:56	4:04	4:22	4:36
—	—	—	3:52	4:06	4:14	4:32	—
3:19	3:23	3:43	3:57	4:12	4:20	4:38	4:52
3:33	3:37	3:57	4:12	4:27	4:35	4:53	5:07
3:47	3:51	4:12	4:27	4:42	4:50	5:08	5:22
4:01	4:06	4:27	4:42	4:57	5:05	5:23	5:37
4:16	4:21	4:42	4:57	5:12	5:20	5:38	5:52
4:31	4:36	4:57	5:12	5:27	5:35	5:53	6:07
4:47	4:52	5:12	5:27	5:42	5:50	6:08	6:22
5:02	5:07	5:27	5:42	5:57	6:05	6:22	6:36
5:17	5:22	5:42	5:57	6:11	6:19	6:36	6:50
5:34	5:39	5:59	6:12	6:26	6:34	6:51	7:05
5:49	5:54	6:14	6:27	6:41	6:49	7:06	7:19
6:05	6:09	6:29	6:42	6:56	7:04	7:20	7:33
6:20	6:24	6:44	6:57	7:10	7:18	7:34	7:47
6:37	6:41	7:00	7:13	7:26	7:34	7:50	8:03
6:53	6:57	7:16	7:29	7:42	7:49	8:05	8:17
7:09	7:13	7:32	7:45	7:58	8:05	8:21	8:33
7:25	7:29	7:48	8:01	8:14	8:21	8:37	8:49
7:45	7:49	8:06	8:17	8:30	8:36	8:52	9:04
8:02	8:06	8:23	8:34	8:44	8:52	9:07	9:18
8:27	8:31	8:47	8:57	9:08	9:14	9:28	9:39
8:56	9:00	9:16	9:26	9:37	9:43	9:57	10:08
9:26	9:30	9:45	9:55	10:05	10:11	10:24	10:35
9:56	10:00	10:15	10:24	10:34	10:40	10:53	11:04
10:43	10:47	11:02	11:11	11:21	11:26	11:39	11:50
11:44	11:48	12:02A	12:11A	12:21A	12:26A	12:38A	12:49A
12:45A	12:48A	1:01	1:10	1:20	1:25	1:37	1:48
1:46	1:49	2:01	2:10	2:20	2:25	2:37	2:48

Saturday

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Eastbound *Al Este* (Approximate Times / Tiempos Aproximados)

WEST HILLS	NORTHRIDGE		PANORAMA CITY	SUN VALLEY	NORTH HOLLYWOOD	
8	7	6	5	4	3	2	1
West Hills Medical Center	Roscoe & Topanga Canyon	Roscoe & Reseda	Roscoe & Balboa	Roscoe & Van Nuys	Roscoe & Laurel Canyon	Lankershim & Burbank	North Hollywood Bl Lex (Red) Station
4:00A	4:07A	4:21A	4:26A	4:37A	4:45A	4:58A	5:02A
4:27	4:34	4:49	4:55	5:06	5:14	5:28	5:32
4:51	4:58	5:13	5:19	5:30	5:39	5:53	5:57
5:10	5:18	5:33	5:39	5:50	5:59	6:13	6:17
5:29	5:37	5:52	5:58	6:10	6:19	6:33	6:37
5:48	5:56	6:12	6:18	6:30	6:39	6:54	6:58
6:07	6:15	6:31	6:37	6:50	6:59	7:15	7:19
6:25	6:33	6:50	6:56	7:10	7:20	7:36	7:40
6:44	6:52	7:09	7:16	7:30	7:40	7:56	8:00
7:04	7:12	7:29	7:36	7:50	8:00	8:16	8:20
7:24	7:32	7:49	7:56	8:10	8:20	8:36	8:40
7:44	7:52	8:09	8:16	8:30	8:41	8:57	9:01
8:02	8:11	8:28	8:36	8:50	9:01	9:18	9:22
8:22	8:31	8:48	8:56	9:10	9:21	9:39	9:43
8:41	8:50	9:08	9:16	9:30	9:41	9:59	10:03
8:59	9:09	9:27	9:35	9:50	10:01	10:19	10:23
9:19	9:29	9:47	9:55	10:10	10:21	10:39	10:43
9:39	9:49	10:07	10:15	10:30	10:41	10:59	11:03
9:59	10:09	10:27	10:35	10:50	11:01	11:19	11:23
10:19	10:29	10:47	10:55	11:10	11:22	11:40	11:44
10:39	10:49	11:07	11:15	11:30	11:42	12:00P	12:04P
10:58	11:09	11:27	11:35	11:50	12:03P	12:20	12:24
11:18	11:29	11:47	11:55	12:10P	12:22	12:40	12:44
11:38	11:49	12:07P	12:15P	12:30	12:42	1:00	1:04
11:56	12:07P	12:26	12:34	12:50	1:02	1:20	1:24
12:16P	12:27	12:46	12:54	1:10	1:22	1:40	1:44
12:36	12:47	1:06	1:14	1:30	1:42	2:00	2:04
12:57	1:08	1:26	1:34	1:50	2:02	2:20	2:24
1:17	1:28	1:46	1:54	2:10	2:22	2:40	2:44
1:37	1:48	2:06	2:14	2:30	2:42	3:00	3:04
1:57	2:08	2:26	2:34	2:50	3:02	3:20	3:24
2:17	2:28	2:46	2:54	3:10	3:21	3:39	3:43
2:37	2:48	3:06	3:14	3:30	3:41	3:59	4:03
2:57	3:08	3:26	3:34	3:50	4:01	4:19	4:23
3:17	3:28	3:46	3:54	4:10	4:21	4:39	4:43
3:37	3:48	4:06	4:14	4:30	4:41	4:59	5:03
3:58	4:09	4:27	4:34	4:50	5:01	5:19	5:23
4:19	4:30	4:48	4:55	5:10	5:21	5:39	5:43
4:39	4:50	5:08	5:15	5:30	5:41	5:59	6:03
4:59	5:10	5:28	5:35	5:50	6:01	6:19	6:23
5:20	5:31	5:48	5:55	6:10	6:21	6:39	6:43
5:43	5:53	6:10	6:17	6:32	6:42	6:59	7:03
6:06	6:16	6:33	6:40	6:54	7:04	7:21	7:25
6:30	6:39	6:56	7:03	7:17	7:27	7:44	7:48
6:55	7:04	7:21	7:28	7:42	7:52	8:09	8:13
7:24	7:33	7:49	7:56	8:09	8:19	8:35	8:39
7:53	8:02	8:18	8:25	8:38	8:47	9:02	9:06
8:24	8:33	8:49	8:55	9:07	9:16	9:31	9:35
8:54	9:03	9:19	9:25	9:37	9:46	10:01	10:05
9:56	10:04	10:20	10:26	10:37	10:46	11:00	11:04
10:57	11:05	11:20	11:26	11:37	11:46	11:59	12:03A
12:00A	12:07A	12:21A	12:26A	12:37A	12:45A	12:58A	1:02

Westbound *Al Oeste* (Approximate Times / Tiempos Aproximados)

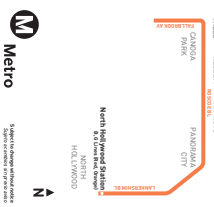
NORTH HOLLYWOOD		SUN VALLEY	PANORAMA CITY	NORTHRIDGE			WEST HILLS
1	2	3	4	5	6	7	8
North Hollywood Bl Lex (Red) Station	Lankershim & Burbank	Roscoe & Laurel Canyon	Roscoe & Van Nuys	Roscoe & Balboa	Roscoe & Reseda	Roscoe & Topanga Canyon	West Hills Medical Center
4:25A	4:28A	4:41A	4:58A	5:08A	5:05A	5:17A	5:28A
4:52	4:55	5:08	5:17	5:27	5:32	5:44	5:55
5:12	5:15	5:28	5:37	5:48	5:53	6:05	6:16
5:32	5:35	5:48	5:57	6:09	6:15	6:28	6:39
5:51	5:54	6:08	6:17	6:29	6:35	6:49	7:00
6:10	6:13	6:27	6:37	6:50	6:56	7:10	7:21
6:28	6:32	6:47	6:57	7:10	7:16	7:30	7:42
6:48	6:52	7:07	7:17	7:30	7:36	7:51	8:03
7:07	7:11	7:26	7:37	7:50	7:56	8:11	8:23
7:26	7:30	7:46	7:57	8:09	8:15	8:30	8:42
7:46	7:50	8:06	8:17	8:29	8:35	8:50	9:02
8:05	8:09	8:25	8:37	8:49	8:55	9:11	9:23
8:25	8:29	8:45	8:57	9:09	9:16	9:32	9:44
8:44	8:48	9:05	9:17	9:29	9:36	9:53	10:05
9:04	9:08	9:25	9:37	9:49	9:56	10:13	10:25
9:23	9:27	9:45	9:57	10:09	10:16	10:33	10:45
9:43	9:47	10:05	10:17	10:29	10:36	10:53	11:05
10:03	10:07	10:25	10:37	10:49	10:56	11:14	11:26
10:23	10:27	10:45	10:57	11:09	11:16	11:34	11:47
10:42	10:46	11:04	11:17	11:29	11:36	11:54	12:07P
11:02	11:06	11:24	11:37	11:49	11:56	12:14P	12:27
11:22	11:26	11:44	11:57	12:10P	12:17P	12:35	12:48
11:42	11:46	12:04P	12:17P	12:30	12:37	12:55	1:08
12:02P	12:06P	12:24	12:37	12:50	12:57	1:15	1:28
12:22	12:26	12:44	12:57	1:10	1:17	1:35	1:48
12:42	12:46	1:04	1:17	1:30	1:37	1:55	2:08
1:02	1:06	1:24	1:37	1:50	1:57	2:15	2:28
1:21	1:25	1:43	1:56	2:10	2:17	2:35	2:48
1:41	1:45	2:03	2:16	2:30	2:37	2:55	3:08
2:01	2:05	2:23	2:36	2:50	2:57	3:15	3:28
2:21	2:25	2:43	2:56	3:10	3:17	3:35	3:48
2:42	2:46	3:04	3:17	3:31	3:38	3:56	4:08
3:02	3:06	3:24	3:37	3:51	3:58	4:16	4:28
3:22	3:26	3:44	3:57	4:11	4:18	4:36	4:48
3:42	3:46	4:04	4:17	4:31	4:38	4:56	5:08
4:02	4:06	4:24	4:37	4:51	4:58	5:16	5:28
4:22	4:26	4:44	4:57	5:10	5:17	5:35	5:47
4:43	4:47	5:05	5:17	5:30	5:37	5:55	6:07
5:03	5:07	5:25	5:37	5:50	5:57	6:14	6:26
5:24	5:28	5:45	5:57	6:10	6:17	6:34	6:46
5:44	5:48	6:05	6:17	6:30	6:37	6:54	7:06
6:04	6:08	6:25	6:37	6:50	6:57	7:13	7:25
6:24	6:28	6:45	6:57	7:09	7:16	7:32	7:44
6:44	6:48	7:05	7:17	7:29	7:36	7:52	8:04
7:05	7:09	7:26	7:37	7:49	7:56	8:11	8:23
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7:45	7:49	8:06	8:17	8:29	8:35	8:50	9:01
8:06	8:10	8:27	8:37	8:48	8:54	9:08	9:19
8:28	8:32	8:48	8:58	9:09	9:15	9:29	9:40
8:56	9:00	9:16	9:26	9:37	9:43	9:57	10:08
9:26	9:30	9:45	9:55	10:05	10:11	10:24	10:35
9:56	10:00	10:15	10:24	10:34	10:40	10:53	11:04
10:43	10:47	11:02	11:11	11:21	11:26	11:39	11:50
11:44	11:48	12:02A	12:11A	12:21A	12:26A	12:38A	12:49A
12:45A	12:48A	1:01	1:10	1:20	1:25	1:37	1:48
1:46	1:49	2:01	2:10	2:20	2:25	2:37	2:48

Need to know on the go?

Download *Transit* app for trip plans, service alerts, maps and more.

transit







Effective Dec 11 2022

Metro Local

Westbound to West Hills
Eastbound to North Hollywood
via Roscoe Bl, Lankershim Bl

152

Sunday & Holidays

Effective Dec 11 2022

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Eastbound *Al Este* (Approximate Times / Tiempos Aproximados)

WEST HILLS		NORTHRIDGE		PANORAMA CITY	SUN VALLEY	NORTH HOLLYWOOD	
6	7	5	5	4	3	2	1
West Hills Medical Center	Roscoe & Topanga Canyon	Roscoe & Reseda	Roscoe & Balboa	Roscoe & Van Nuys	Roscoe & Laurel Canyon	Lankershim & Burbank	North Hollywood Red Line (Red) Station
4:00A	4:07A	4:21A	4:26A	4:37A	4:45A	4:58A	5:02A
4:27	4:34	4:49	4:55	5:06	5:14	5:28	5:32
4:51	4:58	5:13	5:19	5:30	5:39	5:53	5:57
5:10	5:18	5:33	5:39	5:50	5:59	6:13	6:17
5:29	5:37	5:52	5:58	6:10	6:19	6:33	6:37
5:48	5:56	6:12	6:18	6:30	6:39	6:54	6:58
6:07	6:15	6:31	6:37	6:50	6:59	7:15	7:19
6:25	6:33	6:50	6:56	7:10	7:20	7:36	7:40
6:44	6:52	7:09	7:16	7:30	7:40	7:48	8:00
7:04	7:12	7:29	7:36	7:50	8:00	8:16	8:20
7:24	7:32	7:49	7:56	8:10	8:20	8:36	8:40
7:44	7:52	8:09	8:16	8:30	8:41	8:57	9:01
8:02	8:11	8:28	8:36	8:50	9:01	9:18	9:22
8:22	8:31	8:48	8:56	9:10	9:21	9:39	9:43
8:41	8:50	9:08	9:16	9:30	9:41	9:59	10:03
8:59	9:09	9:27	9:35	9:50	10:01	10:19	10:23
9:19	9:29	9:47	9:55	10:10	10:21	10:39	10:43
9:39	9:49	10:07	10:15	10:30	10:41	10:59	11:03
9:59	10:09	10:27	10:35	10:50	11:01	11:19	11:23
10:19	10:29	10:47	10:55	11:10	11:22	11:40	11:44
10:39	10:49	11:07	11:15	11:30	11:42	12:00P	12:04P
10:58	11:09	11:27	11:35	11:50	12:03P	12:20	12:24
11:18	11:29	11:47	11:55	12:10P	12:22	12:31	12:44
11:38	11:49	12:07P	12:15P	12:30	12:42	1:00	1:04
11:56	12:08P	12:27	12:35	12:51	1:03	1:21	1:25
12:16P	12:28	12:47	12:55	1:11	1:23	1:41	1:45
12:36	12:48	1:07	1:15	1:31	1:43	2:01	2:05
12:57	1:09	1:27	1:35	1:51	2:03	2:21	2:25
1:17	1:29	1:47	1:55	2:11	2:23	2:41	2:45
1:37	1:49	2:07	2:15	2:31	2:43	3:01	3:05
1:57	2:09	2:27	2:35	2:51	3:03	3:21	3:25
2:18	2:30	2:48	2:56	3:11	3:22	3:39	3:44
2:37	2:49	3:07	3:15	3:30	3:41	3:59	4:03
2:57	3:09	3:27	3:35	3:50	4:01	4:19	4:23
3:18	3:29	3:47	3:55	4:10	4:21	4:39	4:43
3:38	3:49	4:07	4:15	4:30	4:41	4:59	5:03
3:59	4:10	4:28	4:35	4:50	5:01	5:19	5:23
4:19	4:30	4:48	4:55	5:10	5:21	5:39	5:43
4:39	4:50	5:08	5:15	5:30	5:41	5:59	6:03
4:59	5:10	5:28	5:35	5:50	6:01	6:19	6:23
5:20	5:31	5:48	5:55	6:10	6:21	6:39	6:43
5:43	5:53	6:10	6:17	6:32	6:42	6:59	7:03
6:06	6:16	6:33	6:40	6:54	7:04	7:21	7:25
6:30	6:39	6:56	7:03	7:17	7:27	7:44	7:48
6:55	7:04	7:21	7:28	7:42	7:52	8:09	8:13
7:24	7:33	7:49	7:56	8:09	8:19	8:35	8:39
7:53	8:02	8:18	8:25	8:38	8:47	9:02	9:06
8:24	8:33	8:49	8:55	9:07	9:16	9:31	9:35
8:54	9:03	9:19	9:25	9:37	9:46	10:01	10:05
9:56	10:04	10:20	10:26	10:37	10:46	11:00	11:04
10:57	11:05	11:20	11:26	11:37	11:46	11:59	12:03A
12:00A	12:07A	12:21A	12:26A	12:37A	12:45A	12:58A	1:02

Westbound *Al Oeste* (Approximate Times / Tiempos Aproximados)

NORTH HOLLYWOOD		SUN VALLEY	PANORAMA CITY	NORTHRIDGE		WEST HILLS	
1	2	3	4	5	6	7	8
North Hollywood Red Line (Red) Station	Lankershim & Burbank	Roscoe & Laurel Canyon	Roscoe & Van Nuys	Roscoe & Balboa	Roscoe & Reseda	Roscoe & Topanga Canyon	West Hills Medical Center
4:25A	4:29A	4:41A	4:50A	5:00A	5:05A	5:17A	5:28A
4:52	4:55	5:08	5:17	5:27	5:32	5:44	5:55
5:12	5:15	5:28	5:37	5:47	5:52	6:04	6:15
5:32	5:35	5:48	5:57	6:08	6:14	6:27	6:38
5:51	6:54	6:08	6:17	6:28	6:34	6:48	6:59
6:10	6:13	6:27	6:37	6:49	6:55	7:09	7:20
6:29	6:32	6:47	6:57	7:10	7:16	7:30	7:42
6:49	6:52	7:07	7:17	7:30	7:36	7:50	8:02
7:07	7:11	7:26	7:37	7:50	7:56	8:11	8:23
7:25	7:29	7:45	7:57	8:09	8:15	8:30	8:42
7:45	7:49	8:05	8:17	8:29	8:35	8:50	9:02
8:05	8:09	8:25	8:37	8:49	8:55	9:11	9:23
8:25	8:29	8:45	8:57	9:09	9:16	9:32	9:44
8:44	8:48	9:05	9:17	9:29	9:36	9:53	10:05
9:04	9:08	9:25	9:37	9:49	9:56	10:13	10:25
9:23	9:27	9:45	9:57	10:09	10:16	10:33	10:45
9:43	9:47	10:05	10:17	10:29	10:36	10:53	11:05
10:03	10:07	10:25	10:37	10:49	10:56	11:14	11:26
10:23	10:27	10:45	10:57	11:09	11:16	11:34	11:47
10:42	10:46	11:04	11:17	11:29	11:36	11:54	12:07P
11:02	11:06	11:24	11:37	11:49	11:56	12:14P	12:27
11:22	11:26	11:44	11:57	12:10P	12:17P	12:35	12:48
11:42	11:46	12:04P	12:17P	12:30	12:37	12:55	1:08
12:02P	12:06P	12:24	12:37	12:50	12:57	1:15	1:28
12:21	12:25	12:43	12:57	1:10	1:17	1:35	1:48
12:41	12:46	1:03	1:17	1:30	1:37	1:55	2:08
1:02	1:06	1:24	1:37	1:50	1:57	2:14	2:27
1:22	1:26	1:44	1:57	2:10	2:17	2:34	2:47
1:42	1:46	2:04	2:17	2:30	2:37	2:54	3:07
2:02	2:06	2:24	2:37	2:50	2:57	3:14	3:27
2:22	2:26	2:44	2:57	3:10	3:17	3:34	3:47
2:43	2:47	3:05	3:17	3:30	3:37	3:54	4:06
3:03	3:07	3:25	3:37	3:50	3:57	4:14	4:26
3:23	3:27	3:45	3:57	4:10	4:17	4:34	4:46
3:43	3:47	4:05	4:17	4:30	4:37	4:54	5:06
4:03	4:07	4:25	4:37	4:50	4:57	5:14	5:26
4:23	4:27	4:45	4:57	5:10	5:17	5:34	5:46
4:43	4:47	5:05	5:17	5:30	5:37	5:54	6:06
5:03	5:07	5:25	5:37	5:50	5:57	6:14	6:26
5:24	5:28	5:45	5:57	6:09	6:16	6:33	6:45
5:44	5:48	6:05	6:17	6:29	6:36	6:53	7:05
6:04	6:08	6:25	6:37	6:49	6:56	7:12	7:24
6:24	6:28	6:45	6:57	7:09	7:16	7:32	7:44
6:44	6:48	7:05	7:17	7:29	7:36	7:52	8:04
7:04	7:08	7:25	7:37	7:49	7:56	8:11	8:23
7:24	7:28	7:45	7:57	8:09	8:15	8:30	8:41
7:45	7:49	8:06	8:17	8:29	8:35	8:50	9:01
8:05	8:09	8:26	8:37	8:48	8:54	9:08	9:19
8:27	8:31	8:47	8:58	9:09	9:15	9:29	9:40
8:56	9:00	9:16	9:26	9:37	9:43	9:57	10:08
9:26	9:30	9:45	9:55	10:05	10:11	10:24	10:35
9:56	10:00	10:15	10:24	10:34	10:40	10:53	11:04
10:43	10:47	11:02	11:11	11:21	11:26	11:39	11:50
11:44	11:48	12:02A	12:11A	12:21A	12:26A	12:38A	12:49A
12:45A	12:48A	1:01	1:10	1:20	1:25	1:37	1:48
1:46	1:49	2:01	2:10	2:20	2:25	2:37	2:48

Sunday and Holiday Schedules

Sunday and Holiday Schedule in effect on New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day.

Horarios de domingo y días feriados

Horarios de domingo, y días feriados en vigor para New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day y Christmas Day.

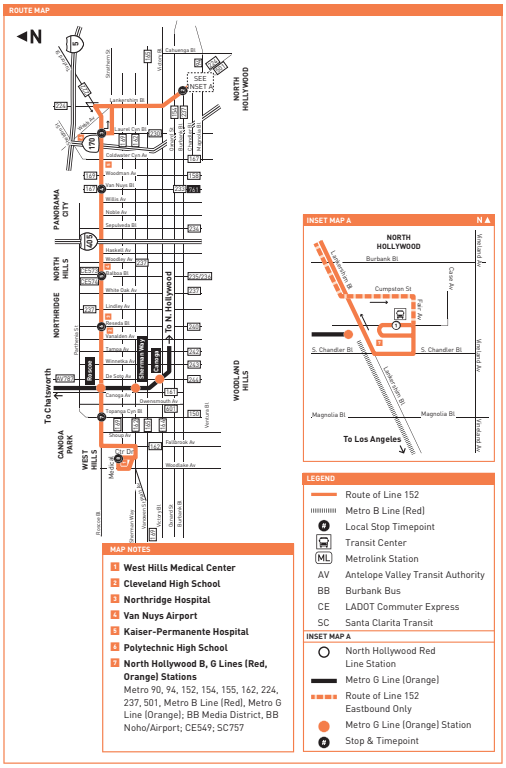
Special Notes

- **A** Operates on school days except early dismissal days, call Metro for more information.
- **B** Operates on early dismissal school days only, call Metro for more information.
- **C** Trip begins at Roscoe & Peoria 17 minutes before time shown and operates on early dismissal school days only. Call Metro for more information.
- **D** Trip begins at Roscoe & Peoria 17 minutes before time shown and operates on school days except early dismissal days. Call Metro for more information.
- **E** Trip begins at Roscoe & Vanalden 17 minutes before time shown and operates on school days except early dismissal days. Call Metro for more information.

Avisos especiales

- **A** *Opera en días escolares excepto los días de salida temprana, llame a Metro para obtener más información.*
- **B** *Opera en los días escolares de salida temprana solamente, llame a Metro para obtener más información.*
- **C** *El viaje comienza en Roscoe y Peoria 17 minutos antes de la hora que se muestra y opera en los días escolares de salida temprana solamente. Llame a Metro para obtener más información.*
- **D** *El viaje comienza en Roscoe y Peoria 17 minutos antes de la hora que se muestra y opera en días escolares excepto los días de salida temprana. Llame a Metro para obtener más información.*
- **E** *El viaje comienza en Roscoe y Vanalden 17 minutos antes de la hora que se muestra y opera en días escolares excepto los días de salida temprana. Llame a Metro para obtener más información.*

ROUTE MAP



INSET MAP A

MAP NOTES

1. **West Hills Medical Center**
2. **Cleveland High School**
3. **Northridge Hospital**
4. **Van Nuys Airport**
5. **Kaiser-Permanente Hospital**
6. **Polytechnic High School**
7. **North Hollywood B, G Lines (Red, Orange) Stations**
   Metro 90, 94, 152, 154, 155, 162, 224, 237, 501, Metro B Line (Red), Metro G Line (Orange); BB Media District, BB Noho/Airport; CE549; SC757

LEGEND

- Route of Line 152
- Metro B Line (Red)
- Local Stop Timepoint
- Transit Center
- ML Metrolink Station
- AV Antelope Valley Transit Authority
- BB Burbank Bus
- CE LADOT Commuter Express
- SC Santa Clarita Transit

INSET MAP A

- North Hollywood Red Line Station
- Metro G Line (Orange)
- Route of Line 152 Eastbound Only
- Metro G Line (Orange) Station
- Stop & Timepoint

Need information?

Transit Information: 323.466.3876
Customer Relations: 213.922.6235
In an Emergency: 1.888.950.7233 or 911

And for all you need to know, visit *metro.net*.

Lose something?

Learn more about Metro's Lost & Found service. Visit *metro.net/lostandfound* or call 323.937.8920.

150967

Monday through Friday

Effective Dec 11 2022

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Eastbound *Al Este* (Approximate Times / Tiempos Aproximados)

WOODLAND HILLS	WEST HILLS	CANOGA PARK	RESEDA	VAN NUYS		NORTH HOLLYWOOD	
1	2	3	4	5	6	7	8
Fallbrook & Ventura	West Hills Medical Center	Sherman Way & Topanga Canyon	Sherman Way & Reseda	Sherman Way & Balboa	Sherman Way & Van Nuys	Sherman Way & Laurel Canyon	North Hollywood Station
—	4:06A	4:12A	4:26A	4:31A	4:41A	4:51A	5:06A
4:33A	—	4:44	4:58	5:03	5:13	5:23	5:38
—	4:58	5:04	5:18	5:23	5:33	5:44	5:59
5:10	—	5:21	5:36	5:42	5:53	6:04	6:19
—	5:28	5:34	5:50	5:56	6:08	6:20	6:36
5:37	—	5:48	6:04	6:11	6:23	6:35	6:52
—	5:56	6:02	6:18	6:25	6:38	6:51	7:08
6:06	—	6:13	6:29	6:37	6:50	7:03	7:23
—	6:22	6:28	6:44	6:52	7:05	7:19	7:40
6:30	—	6:42	7:01	7:09	7:23	7:37	7:55
—	6:49	6:54	7:16	7:24	7:38	7:52	8:10
6:58	—	7:11	7:31	7:39	7:53	8:08	8:26
—	7:19	7:26	7:46	7:54	8:08	8:23	8:41
7:28	—	7:41	8:01	8:09	8:23	8:38	8:56
—	7:49	7:56	8:16	8:24	8:38	8:53	9:11
7:58	—	8:11	8:31	8:39	8:53	9:08	9:25
—	8:17	8:25	8:45	8:53	9:08	9:23	9:41
8:28	—	8:41	9:00	9:08	9:23	9:38	9:56
—	8:49	8:57	9:15	9:23	9:38	9:53	10:11
8:59	—	9:11	9:29	9:38	9:53	10:08	10:24
—	9:19	9:26	9:44	9:53	10:08	10:23	10:41
9:30	—	9:42	10:00	10:09	10:23	10:38	10:54
—	9:49	9:57	10:15	10:24	10:38	10:53	11:11
9:59	—	10:11	10:30	10:39	10:53	11:08	11:24
—	10:18	10:26	10:45	10:54	11:08	11:23	11:41
10:29	—	10:41	11:00	11:09	11:23	11:38	11:56
—	10:48	10:56	11:15	11:24	11:38	11:53	12:11P
10:59	—	11:11	11:30	11:39	11:53	12:08P	12:26
—	11:18	11:26	11:45	11:54	12:08P	12:23	12:41
11:29	—	11:41	11:59	12:09P	12:23	12:38	12:56
—	11:48	11:56	12:15P	12:24	12:38	12:53	1:11
11:59	—	12:11P	12:30	12:39	12:53	1:08	1:24
12:29P	12:18P	12:41	1:00	1:09	1:23	1:38	1:57
—	12:47	12:55	1:14	1:23	1:38	1:53	2:13
12:58	—	1:10	1:29	1:38	1:53	2:08	2:28
—	1:17	1:25	1:44	1:53	2:08	2:23	2:43
1:26	—	1:39	1:59	2:08	2:23	2:38	2:58
—	1:45	1:53	2:14	2:23	2:38	2:53	3:13
1:55	—	2:08	2:29	2:38	2:53	3:09	3:29
—	2:15	2:23	2:44	2:53	3:08	3:24	3:44
2:24	—	2:37	2:58	3:07	3:23	3:39	3:59
—	2:43	2:51	3:12	3:22	3:38	3:54	4:14
2:53	—	3:04	3:25	3:35	3:51	4:09	4:30
—	3:13	3:21	3:43	3:52	4:08	4:24	4:45
3:23	—	3:34	3:58	4:07	4:23	4:39	5:00
—	3:43	3:51	4:13	4:22	4:38	4:54	5:15
3:52	—	4:06	4:28	4:37	4:53	5:09	5:30
—	4:13	4:21	4:43	4:52	5:08	5:24	5:45
4:22	—	4:36	4:58	5:07	5:23	5:39	6:00
—	4:43	4:51	5:13	5:22	5:38	5:54	6:14
4:52	—	5:06	5:28	5:37	5:53	6:08	6:27
—	5:14	5:22	5:44	5:53	6:08	6:23	6:42
5:23	—	5:37	5:59	6:08	6:23	6:37	6:56
—	5:46	5:56	6:15	6:24	6:38	6:52	7:11
5:56	—	6:10	6:30	6:39	6:53	7:07	7:26
—	6:16	6:24	6:45	6:54	7:08	7:22	7:41
6:29	—	6:42	7:03	7:12	7:26	7:40	7:59
—	6:56	7:04	7:25	7:34	7:48	8:02	8:21
7:18	—	7:31	7:49	7:58	8:11	8:24	8:43
—	7:53	8:01	8:19	8:28	8:41	8:54	9:12
8:19	—	8:32	8:50	8:59	9:11	9:23	9:40
—	8:57	9:04	9:22	9:30	9:41	9:53	10:09
9:24	—	9:36	9:53	10:01	10:11	10:23	10:39
—	10:01	10:08	10:23	10:31	10:41	10:51	11:06
10:29	—	10:40	10:55	11:02	11:11	11:20	11:35
—	11:05	11:11	11:24	11:33	11:42	11:51	12:04A
—	12:05A	12:11A	12:25A	12:33A	12:42A	12:51A	1:04
—	1:05	—	—	1:33	1:42	1:51	2:04
—	2:05	2:11	2:24	2:33	2:42	2:51	3:04
—	3:05	3:11	3:24	3:33	3:42	3:51	4:04

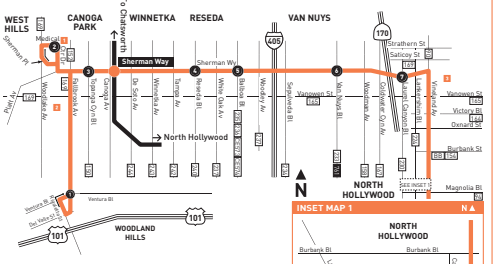
Monday through Friday

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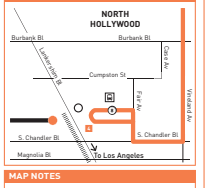
Westbound *Al Oeste* (Approximate Times / Tiempos Aproximados)

NORTH HOLLYWOOD		VAN NUYS		RESEDA	CANOGA PARK	WEST HILLS	WOODLAND HILLS
8	7	6	5	4	3	2	1
North Hollywood Station	Sherman Way & Laurel Canyon	Sherman Way & Van Nuys	Sherman Way & Balboa	Sherman Way & Reseda	Sherman Way & Topanga Canyon	West Hills Medical Center	Fallbrook & Ventura
5:02A	5:21A	5:31A	5:41A	5:48A	6:03A	6:09A	—
5:21	5:40	5:51	6:01	6:08	6:23	—	6:38A
5:36	5:55	6:06	6:18	6:25	6:42	6:49	—
5:49	6:09	6:21	6:33	6:40	6:57	—	7:13
6:06	6:24	6:36	6:47	6:54	7:15	7:23	—
6:18	6:38	6:51	7:04	7:12	7:31	—	7:47
6:32	6:52	7:06	7:20	7:28	7:47	7:55	—
6:45	7:04	7:21	7:35	7:43	8:02	—	8:18
6:59	7:21	7:36	7:50	7:58	8:17	8:26	—
7:14	7:36	7:51	8:05	8:13	8:32	—	8:48
7:30	7:52	8:07	8:21	8:29	8:48	8:57	—
7:45	8:07	8:22	8:36	8:44	9:03	—	9:18
8:00	8:22	8:37	8:51	8:59	9:18	9:27	—
8:14	8:37	8:52	9:06	9:14	9:33	—	9:48
8:29	8:52	9:07	9:20	9:28	9:47	9:56	—
8:45	9:07	9:22	9:35	9:44	10:03	—	10:18
9:00	9:22	9:37	9:50	9:59	10:18	10:27	—
9:15	9:37	9:52	10:05	10:14	10:33	—	10:48
9:29	9:52	10:07	10:21	10:30	10:49	10:58	—
9:44	10:07	10:22	10:36	10:45	11:04	—	11:19
9:59	10:22	10:37	10:51	11:00	11:19	11:28	—
10:14	10:37	10:52	11:06	11:15	11:34	—	11:49
10:29	10:52	11:07	11:21	11:30	11:49	11:58	—
10:43	11:06	11:22	11:36	11:45	12:04P	—	12:19P
10:57	11:21	11:37	11:51	11:59	12:18P	12:28P	—
11:12	11:36	11:52	12:06P	12:15P	12:34	—	12:49
11:27	11:51	12:07P	12:21	12:30	12:49	12:58	—
11:41	12:05P	12:22	12:36	12:45	1:04	—	1:19
11:56	12:20	12:37	12:51	1:00	1:19	1:28	—
12:11P	12:35	12:52	1:06	1:15	1:34	—	1:49
12:26	12:50	1:07	1:21	1:30	1:49	1:58	—
12:41	1:05	1:22	1:36	1:45	2:04	—	2:19
12:56	1:20	1:37	1:51	2:00	2:19	2:28	—
1:11	1:35	1:52	2:06	2:15	2:34	—	2:49
1:26	1:50	2:07	2:21	2:30	2:49	2:58	—
1:41	2:05	2:22	2:36	2:45	3:04	—	3:21
1:56	2:20	2:37	2:51	3:00	3:21	3:30	—
2:11	2:35	2:52	3:06	3:16	3:37	—	3:54
2:26	2:50	3:07	3:22	3:32	3:53	4:02	—
2:40	3:04	3:22	3:37	3:47	4:08	—	4:25
2:55	3:20	3:38	3:53	4:03	4:24	4:33	—
3:10	3:35	3:53	4:08	4:18	4:39	—	4:56
3:25	3:51	4:09	4:24	4:34	4:55	5:04	—
3:40	4:06	4:24	4:39	4:49	5:10	—	5:27
3:55	4:21	4:39	4:54	5:04	5:25	5:34	—
4:10	4:36	4:54	5:09	5:19	5:39	—	5:56
4:25	4:51	5:09	5:24	5:34	5:54	6:03	—
4:41	5:07	5:25	5:40	5:50	6:09	—	6:26
4:56	5:22	5:40	5:55	6:04	6:23	6:32	—
5:11	5:37	5:55	6:10	6:19	6:37	—	6:54
5:27	5:53	6:10	6:25	6:33	6:52	7:01	—
5:42	6:07	6:24	6:38	6:46	7:05	—	7:21
5:57	6:22	6:39	6:53	7:01	7:19	7:28	—
6:12	6:37	6:54	7:07	7:15	7:33	—	7:49
6:28	6:51	7:07	7:20	7:28	7:45	7:54	—
6:43	7:07	7:22	7:35	7:43	8:00	—	8:15
7:06	7:29	7:42	7:55	8:03	8:19	8:28	—
7:26	7:49	8:02	8:14	8:22	8:38	—	8:53
7:47	8:09	8:22	8:34	8:42	8:58	9:05	—
8:07	8:29	8:42	8:54	9:02	9:18	—	9:32
8:34	8:55	9:07	9:19	9:27	9:43	—	9:57
9:00	9:20	9:32	9:44	9:52	10:07	10:14	—
9:41	10:01	10:12	10:23	10:30	10:44	10:51	—
10:25	10:44	10:55	11:05	11:12	11:25	11:32	—
11:25	11:44	11:54	12:04A	12:11A	12:24A	12:31A	—
12:25A	12:44A	12:54A	1:04	1:11	1:24	1:31	—
1:25	1:44	1:54	2:04	2:11	2:24	2:31	—
2:25	2:44	2:54	3:04	3:11	3:24	3:31	—
3:25	3:44	3:54	4:04	4:11	4:24	—	—
4:25	4:44	4:54	5:04	5:11	5:24	—	—

ROUTE MAP



INSET MAP 1



LEGEND

- Route of Lines 162
- Metro B Line (Red)
- Metro G Line (Orange)
- Metro G Line (Orange) Station
- Metro B Line (Red) Station
- Local Stop Timepoint
- Local Stop Timepoint - Single Direction Only
- Transit Center
- ML Metrolink Station
- BB Burbank Bus
- CE LADOT Commuter Express
- SC Santa Clarita Transit

MAP NOTES

1. **West Hills Medical Center**
2. **Fallbrook Center**
3. **Hollywood Burbank Airport**
4. **North Hollywood B, G Lines (Red, Orange) Stations**

Metro 90, 94, 152, 154, 155, 162, 224, 237, 501, Metro B Line (Red), Metro G Line (Orange); BB Media District, BB Noho/Airport; CE549; SC757

Need to know on the go?

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transit



Metro

Subject to change without notice

Metro Local

Eastbound to North Hollywood
Westbound to Woodland Hills
via Fallbrook Av, Sherman Wy, Vineland Av

162

Effective Dec 11 2022

metro.net
323.GO.METRO (323.466.3876)

Wheelchair Hotline
800.37.7828

511
Call Karma Relay Service

Travel Info
Call 511

Saturday

Effective Dec 11 2022

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Eastbound *Al Este* (Approximate Times / Tiempos Aproximados)

WOODLAND HILLS	WEST HILLS	CANOGA PARK	RESEDA	VAN NUYS		NORTH HOLLYWOOD	
1	2	3	4	5	6	7	8
Fallbrook & Ventura	West Hills Medical Center	Sherman Way & Topanga Canyon	Sherman Way & Reseda	Sherman Way & Balboa	Sherman Way & Van Nuys	Sherman Way & Laurel Canyon	North Hollywood Station
—	4:02A	4:08A	4:23A	4:30A	4:41A	4:51A	5:03A
4:57A	—	5:07	5:23	5:30	5:41	5:51	6:03
—	5:52	5:58	6:14	6:21	6:34	6:46	7:00
6:14	—	6:25	6:44	6:52	7:06	7:18	7:32
—	6:50	6:57	7:16	7:24	7:38	7:50	8:05
7:16	—	7:27	7:46	7:54	8:08	8:21	8:36
—	7:50	7:57	8:16	8:24	8:38	8:51	9:06
8:14	—	8:24	8:44	8:53	9:07	9:21	9:36
—	8:38	8:48	9:05	9:13	9:27	9:41	9:55
8:55	—	9:07	9:27	9:35	9:49	10:03	10:18
—	9:17	9:25	9:44	9:55	10:09	10:23	10:38
9:33	—	9:45	10:06	10:15	10:29	10:44	11:00
—	9:54	10:02	10:24	10:34	10:49	11:04	11:21
10:10	—	10:22	10:44	10:54	11:09	11:26	11:41
—	10:34	10:42	11:04	11:14	11:29	11:44	12:01P
10:51	—	11:03	11:25	11:35	11:49	12:04P	12:21
—	11:15	11:23	11:45	11:55	12:09P	12:24	12:41
11:30	—	11:43	12:05P	12:15P	12:29	12:45	1:02
—	11:54	12:04P	12:26	12:35	12:49	1:05	1:22
12:10P	—	12:24	12:44	12:55	1:09	1:25	1:42
—	12:35P	12:45	1:04	1:15	1:29	1:45	2:02
12:49	—	1:03	1:24	1:35	1:49	2:05	2:22
—	1:15	1:23	1:44	1:55	2:09	2:25	2:42
1:29	—	1:43	2:04	2:15	2:29	2:44	3:01
—	1:55	2:03	2:24	2:35	2:49	3:03	3:19
2:10	—	2:24	2:47	2:55	3:09	3:23	3:38
—	2:37	2:45	3:07	3:15	3:29	3:43	3:58
2:51	—	3:05	3:27	3:35	3:49	4:03	4:18
—	3:17	3:25	3:47	3:55	4:09	4:23	4:38
3:31	—	3:45	4:07	4:15	4:29	4:42	4:57
—	3:57	4:05	4:26	4:35	4:49	5:02	5:17
4:09	—	4:23	4:44	4:53	5:07	5:20	5:35
—	4:34	4:42	5:03	5:12	5:26	5:39	5:55
4:51	—	5:05	5:23	5:35	5:49	6:02	6:17
—	5:17	5:25	5:44	5:55	6:09	6:22	6:37
5:31	—	5:45	6:04	6:15	6:29	6:42	6:57
—	5:58	6:06	6:26	6:35	6:49	7:02	7:17
6:12	—	6:26	6:44	6:55	7:09	7:22	7:37
—	6:48	6:56	7:16	7:25	7:39	7:52	8:10
7:16	—	7:28	7:48	7:57	8:10	8:23	8:42
—	7:53	8:01	8:19	8:28	8:41	8:54	9:12
8:22	—	8:35	8:53	9:02	9:14	9:26	9:43
—	8:57	9:04	9:23	9:31	9:43	9:55	10:09
9:24	—	9:34	9:53	10:01	10:11	10:23	10:37
—	10:01	10:08	10:23	10:31	10:41	10:51	11:06
10:29	—	10:40	10:55	11:02	11:11	11:20	11:35
—	11:05	11:11	11:26	11:33	11:42	11:51	12:06A
—	12:05A	12:11A	12:26A	12:33A	12:42A	12:51A	1:06
—	1:05	1:11	1:26	1:33	1:42	1:51	2:06
—	2:05	2:11	2:26	2:33	2:42	2:51	3:06
—	3:05	3:11	3:26	3:33	3:42	3:51	4:06

Saturday

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Westbound *Al Oeste* (Approximate Times / Tiempos Aproximados)

NORTH HOLLYWOOD		VAN NUYS		RESEDA	CANOGA PARK	WEST HILLS	WOODLAND HILLS
8	7	6	5	4	3	2	1
North Hollywood Station	Sherman Way & Laurel Canyon	Sherman Way & Van Nuys	Sherman Way & Balboa	Sherman Way & Reseda	Sherman Way & Topanga Canyon	West Hills Medical Center	Fallbrook & Ventura
5:03A	5:20A	5:31A	5:41A	5:48A	6:02A	6:09A	—
5:33	5:50	6:01	6:11	6:18	6:32	—	6:44A
6:02	6:19	6:31	6:42	6:49	7:05	7:13	—
6:31	6:49	7:01	7:12	7:19	7:35	—	7:47
7:00	7:18	7:31	7:42	7:49	8:05	8:14	—
7:30	7:48	8:01	8:14	8:22	8:40	—	8:53
7:57	8:16	8:31	8:44	8:53	9:13	9:22	—
8:24	8:43	8:58	9:11	9:20	9:40	—	9:53
8:44	9:03	9:18	9:31	9:40	10:00	10:09	—
9:04	9:23	9:38	9:51	10:00	10:20	—	10:33
9:24	9:43	9:58	10:11	10:20	10:40	10:49	—
9:44	10:03	10:18	10:31	10:40	11:00	—	11:14
10:04	10:23	10:38	10:52	11:01	11:21	11:30	—
10:22	10:42	10:58	11:12	11:21	11:41	—	11:55
10:42	11:02	11:18	11:32	11:41	12:01P	12:10P	—
11:02	11:22	11:38	11:53	12:03P	12:24	—	12:39P
11:21	11:41	11:58	12:13P	12:23	12:44	12:53	—
11:41	12:01P	12:18P	12:33	12:43	1:04	—	1:19
11:59	12:21	12:38	12:53	1:03	1:24	1:33	—
12:20P	12:41	12:58	1:13	1:23	1:44	—	1:59
1:00	1:21	1:38	1:53	2:03	2:24	2:13	—
1:20	1:41	1:58	2:13	2:22	2:43	—	2:39
1:40	2:01	2:18	2:32	2:41	3:01	2:53	—
2:00	2:21	2:38	2:52	3:01	3:21	—	3:14
2:20	2:41	2:58	3:12	3:21	3:41	3:38	—
2:40	3:01	3:18	3:32	3:41	4:01	—	3:54
3:01	3:22	3:38	3:52	4:01	4:21	4:10	—
3:20	3:42	3:58	4:12	4:21	4:41	—	4:34
3:40	4:02	4:18	4:32	4:41	5:01	4:50	—
4:00	4:22	4:38	4:52	5:01	5:21	—	5:14
4:20	4:42	4:58	5:12	5:21	5:41	5:30	—
4:40	5:02	5:18	5:32	5:41	6:01	—	5:54
4:59	5:22	5:38	5:52	6:01	6:20	6:09	—
5:20	5:42	5:58	6:11	6:19	6:38	—	6:32
5:40	6:02	6:18	6:31	6:39	6:58	6:47	—
6:02	6:22	6:38	6:51	6:59	7:18	—	7:10
6:29	6:49	7:06	7:17	7:25	7:44	7:27	—
6:57	7:17	7:31	7:44	7:52	8:09	—	7:56
7:28	7:47	8:01	8:13	8:21	8:37	8:18	—
7:57	8:18	8:31	8:43	8:51	9:07	9:14	—
8:27	8:48	9:01	9:13	9:21	9:37	—	9:51
9:06	9:24	9:36	9:48	9:56	10:10	10:17	—
9:50	10:08	10:20	10:32	10:40	10:54	11:02	—
10:40	10:58	11:10	11:23	11:31	11:45	11:53	—
11:25	11:44	11:56	12:08A	12:17A	12:30A	12:37A	—
12:25A	12:44A	12:56A	1:08	1:17	1:31	1:38	—
1:25	1:44	1:56	2:08	2:17	2:31	2:38	—
2:25	2:44	2:56	3:08	3:17	3:31	3:38	—
3:25	3:44	3:56	4:08	4:17	4:31	—	—
4:25	4:44	4:56	5:08	5:17	5:31	—	—

Sunday and Holiday

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Eastbound *Al Este* (Approximate Times / Tiempos Aproximados)

WOODLAND HILLS	WEST HILLS	CANOGA PARK	RESEDA	VAN NUYS		NORTH HOLLYWOOD	
1	2	3	4	5	6	7	8
Fallbrook & Ventura	West Hills Medical Center	Sherman Way & Topanga Canyon	Sherman Way & Reseda	Sherman Way & Balboa	Sherman Way & Van Nuys	Sherman Way & Laurel Canyon	North Hollywood Station
—	4:06A	4:12A	4:26A	4:31A	4:41A	4:51A	5:06A
5:01A	—	5:12	5:26	5:31	5:41	5:51	6:06
—	5:52	5:58	6:15	6:22	6:34	6:45	7:00
6:19	—	6:30	6:48	6:56	7:09	7:20	7:36
—	6:53	7:00	7:18	7:26	7:39	7:50	8:06
7:17	—	7:28	7:48	7:56	8:09	8:21	8:37
—	7:50	7:57	8:18	8:26	8:39	8:51	9:07
8:15	—	8:27	8:48	8:56	9:09	9:21	9:37
—	8:49	8:57	9:18	9:26	9:39	9:51	10:08
9:13	—	9:25	9:46	9:55	10:09	10:21	10:38
—	9:47	9:55	10:16	10:25	10:39	10:51	11:08
10:12	—	10:25	10:46	10:55	11:09	11:21	11:38
—	10:47	10:55	11:16	11:25	11:39	11:51	12:08P
11:12	—	11:25	11:46	11:55	12:09P	12:21P	12:39
—	11:47	11:55	12:16P	12:25P	12:39	12:53	1:11
12:11P	—	12:24P	12:46	12:55	1:09	1:24	1:42
—	12:45P	12:53	1:16	1:25	1:39	1:54	2:12
1:10	—	1:23	1:46	1:55	2:09	2:24	2:42
—	1:45	1:53	2:16	2:25	2:39	2:51	3:09
2:14	—	2:27	2:47	2:55	3:09	3:21	3:39
—	2:49	2:57	3:17	3:25	3:39	3:51	4:09
3:15	—	3:28	3:48	3:56	4:09	4:21	4:39
—	3:50	3:58	4:17	4:25	4:39	4:52	5:10
4:15	—	4:28	4:47	4:55	5:09	5:21	5:39
—	4:50	4:58	5:17	5:25	5:39	5:51	6:09
5:18	—	5:30	5:49	5:57	6:09	6:21	6:39
—	5:52	6:00	6:19	6:27	6:39	6:51	7:09
6:18	—	6:30	6:49	6:57	7:09	7:21	7:39
—	6:51	6:59	7:18	7:26	7:39	7:53	8:12
7:18	—	7:30	7:48	7:57	8:10	8:23	8:42
—	7:53	8:01	8:19	8:28	8:41	8:54	9:12
8:19	—	8:31	8:50	8:58	9:11	9:23	9:40
—	8:57	9:04	9:22	9:30	9:43	9:53	10:09
9:24	—	9:34	9:53	10:01	10:11	10:23	10:39
—	10:01	10:08	10:23	10:31	10:41	10:51	11:06
10:29	—	10:40	10:55	11:02	11:11	11:20	11:35
—	11:05	11:11	11:26	11:33	11:42	11:51	12:06A
—	12:05A	12:11A	12:26A	12:33A	12:42A	12:51A	1:06
—	1:05	1:11	1:26	1:33	1:42	1:51	2:06
—	2:05	2:11	2:26	2:33	2:42	2:51	3:06
—	3:05	3:11	3:26	3:33	3:42	3:51	4:06

Sunday and Holiday

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Westbound *Al Oeste* (Approximate Times / Tiempos Aproximados)

NORTH HOLLYWOOD		VAN NUYS		RESEDA	CANOGA PARK	WEST HILLS	WOODLAND HILLS
8	7	6	5	4	3	2	1
North Hollywood Station	Sherman Way & Laurel Canyon	Sherman Way & Van Nuys	Sherman Way & Balboa	Sherman Way & Reseda	Sherman Way & Topanga Canyon	West Hills Medical Center	Fallbrook & Ventura
5:02A	5:21A	5:31A	5:41A	5:48A	6:01A	6:08A	—
5:32	5:51	6:01	6:11	6:18	6:31	—	6:45A
6:01	6:20	6:31	6:41	6:48	7:01	7:09	—
6:30	6:49	7:01	7:11	7:18	7:36	—	7:49
7:00	7:19	7:31	7:42	7:49	8:05	8:14	—
7:30	7:49	8:01	8:13	8:21	8:38	—	8:54
7:58	8:18	8:31	8:43	8:52	9:09	9:18	—
8:28	8:48	9:01	9:14	9:23	9:40	—	9:57
8:54	9:17	9:31	9:44	9:53	10:11	10:20	—
9:24	9:47	10:01	10:14	10:23	10:42	—	10:58
9:54	10:17	10:31	10:45	10:54	11:13	11:22	—
10:25	10:47	11:01	11:15	11:24	11:43	—	11:59
10:55	11:17	11:31	11:45	11:54	12:13P	12:22P	—
11:25	11:47	12:01P	12:15P	12:25P	12:44	—	1:00P
11:53	12:15P	12:31	12:45	12:55	1:15	1:24	—
12:23P	12:45	1:01	1:15	1:25	1:45	—	2:02
12:53	1:15	1:31	1:45	1:55	2:15	2:24	—
1:23	1:45	2:01	2:13	2:21	2:41	—	2:58
1:53	2:15	2:31	2:43	2:51	3:09	3:18	—
2:23	2:43	3:01	3:13	3:21	3:39	—	3:56
2:54	3:15	3:31	3:43	3:51	4:09	4:18	—
3:24	3:46	4:01	4:13	4:21	4:39	—	4:54
3:54	4:16	4:31	4:43	4:51	5:09	5:18	—
4:24	4:46	5:01	5:13	5:21	5:39	—	5:56
4:54	5:16	5:31	5:43	5:51	6:08	6:17	—
5:24	5:46	6:01	6:13	6:21	6:38	—	6:54
5:54	6:17	6:31	6:43	6:51	7:08	7:17	—
6:26	6:47	7:01	7:13	7:21	7:38	—	7:56
6:57	7:18	7:31	7:43	7:51	8:08	8:17	—
7:27	7:48	8:01	8:13	8:21	8:37	—	8:52
7:57	8:18	8:31	8:43	8:51	9:07	9:14	—
8:27	8:48	9:01	9:13	9:21	9:37	—	9:51
9:04	9:24	9:36	9:48	9:56	10:10	10:17	—
9:40	10:00	10:11	10:22	10:29	10:43	10:50	—
10:25	10:44	10:55	11:05	11:12	11:25	11:32	—
11:25	11:44	11:56	12:06A	12:11A	12:24A	12:31A	—
12:25A	12:44A	12:56A	1:06	1:11	1:24	1:31	—
1:25	1:44	1:56	2:06	2:11	2:24	2:31	—
2:25	2:44	2:56	3:06	3:11	3:24	3:31	—
3:25	3:44	3:56	4:06	4:11	4:24	—	—
4:25	4:44	4:56	5:06	5:11	5:24	—	—

Sunday and Holiday Schedules

Sunday and Holiday Schedule in effect on New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day.

Horarios de domingo y días feriados

Horarios de domingo y días feriados en vigor para New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day y Christmas Day

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Customer Relations: 213.922.6235
In an Emergency: 1.888.950.7233 or 911

150972

Monday through Friday

Effective Oct 23 2022

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Eastbound *Al Este* (Approximate Times / Tiempos Aproximados)

WEST HILLS	CANOGA PARK	RESEDA	LAKE BALBOA	VAN NUYS	NORTH HOLLYWOOD	BURBANK	
1	2	3	4	5	6	7	8
Platt & Victory	Vanowen & Topanga Canyon	Vanowen & Reseda	Vanowen & Balboa	Vanowen & Van Nuys	Vanowen & Laurel Canyon	Hollywood Burbank Airport & Empire	Burbank Station
4:37A	4:44A	4:55A	5:01A	5:11A	5:21A	5:29A	5:43A
4:57	5:04	5:17	5:23	5:33	5:43	5:51	6:05
5:16	5:23	5:36	5:42	5:53	6:04	6:13	6:28
5:29	5:36	5:50	5:56	6:08	6:20	6:29	6:46
5:43	5:50	6:04	6:10	6:23	6:35	6:44	7:01
5:56	6:03	6:18	6:24	6:38	6:50	6:59	7:16
6:11	6:18	6:33	6:39	6:53	7:06	7:16	7:33
6:25	6:33	6:48	6:54	7:08	7:21	7:31	7:49
6:37	6:45	7:01	7:09	7:23	7:36	7:46	8:04
6:52	7:00	7:16	7:24	7:38	7:52	8:02	8:20
7:06	7:14	7:30	7:39	7:53	8:07	8:17	8:35
7:20	7:28	7:45	7:54	8:08	8:21	8:31	8:49
7:34	7:43	8:00	8:09	8:23	8:36	8:46	9:04
7:50	7:59	8:15	8:24	8:38	8:51	9:01	9:19
8:06	8:15	8:31	8:39	8:53	9:06	9:16	9:34
8:21	8:30	8:46	8:54	9:08	9:20	9:30	9:48
8:37	8:44	9:02	9:09	9:23	9:35	9:45	10:03
8:52	9:01	9:17	9:24	9:38	9:50	10:00	10:18
9:07	9:16	9:32	9:39	9:53	10:05	10:15	10:33
9:22	9:31	9:47	9:54	10:08	10:20	10:30	10:48
9:37	9:46	10:02	10:09	10:23	10:35	10:45	11:03
9:52	10:01	10:17	10:24	10:38	10:50	11:00	11:18
10:07	10:16	10:32	10:39	10:53	11:05	11:15	11:33
10:22	10:31	10:47	10:54	11:08	11:20	11:30	11:48
10:37	10:46	11:02	11:09	11:23	11:35	11:45	12:03P
10:52	11:01	11:17	11:24	11:38	11:50	12:00P	12:18
11:07	11:16	11:32	11:39	11:53	12:05P	12:15	12:33
11:22	11:31	11:47	11:54	12:08P	12:20	12:30	12:48
11:37	11:46	12:02P	12:09P	12:23	12:35	12:45	1:03
11:51	12:00P	12:16	12:23	12:38	12:50	1:00	1:18
12:06P	12:15	12:31	12:38	12:53	1:05	1:15	1:33
12:21	12:30	12:46	12:53	1:08	1:20	1:30	1:48
12:36	12:45	1:01	1:08	1:23	1:35	1:45	2:03
12:51	1:00	1:16	1:23	1:38	1:50	2:00	2:18
1:06	1:15	1:31	1:38	1:53	2:05	2:15	2:33
1:21	1:30	1:46	1:53	2:08	2:20	2:30	2:48
—	—	—	E1:53	2:08	2:20	—	—
—	—	—	E1:55	2:10	2:22	2:32	2:50
1:36	1:45	2:01	2:08	2:23	2:35	2:45	3:03
1:51	2:00	2:16	2:23	2:38	2:50	3:00	3:18
2:06	2:15	2:31	2:38	2:53	3:05	3:15	3:33
2:21	2:30	2:46	2:53	3:08	3:21	3:31	3:49
2:33	2:42	2:58	3:07	3:23	3:36	3:46	4:04
2:47	2:56	3:13	3:22	3:38	3:51	4:01	4:19
—	—	—	E3:22	3:38	3:51	—	—
—	—	—	E3:24	3:40	3:53	4:03	4:21
3:01	3:11	3:28	3:37	3:53	4:06	4:16	4:34
3:15	3:25	3:42	3:51	4:08	4:21	4:31	4:49
3:30	3:40	3:57	4:05	4:23	4:36	4:46	5:04
3:44	3:54	4:12	4:20	4:38	4:51	5:01	5:19
4:00	4:09	4:27	4:35	4:53	5:06	5:16	5:34
4:15	4:24	4:42	4:50	5:08	5:21	5:31	5:49
4:32	4:41	4:59	5:06	5:23	5:36	5:46	6:04
4:48	4:57	5:14	5:21	5:38	5:51	6:01	6:19
5:03	5:12	5:29	5:36	5:53	6:06	6:16	6:34
5:19	5:28	5:45	5:52	6:08	6:21	6:31	6:49
5:35	5:44	6:01	6:08	6:23	6:36	6:46	7:04
5:52	6:01	6:17	6:24	6:38	6:50	7:00	7:17
6:07	6:16	6:32	6:39	6:53	7:05	7:15	7:32
6:27	6:36	6:52	6:59	7:13	7:25	7:35	7:51
6:48	6:57	7:12	7:19	7:33	7:45	7:54	8:10
7:18	7:27	7:42	7:49	8:02	8:13	8:22	8:38
8:07	8:15	8:29	8:35	8:47	8:58	9:06	9:21
9:10	9:17	9:30	9:36	9:47	9:58	10:06	10:20
10:10	10:17	10:30	10:36	10:47	10:58	11:06	11:20
11:10	11:17	11:30	11:36	11:47	11:58	12:06A	12:20A

Monday through Friday

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Westbound *Al Oeste* (Approximate Times / Tiempos Aproximados)

BURBANK		NORTH HOLLYWOOD	VAN NUYS	LAKE BALBOA	RESEDA	CANOGA PARK	WEST HILLS
8	7	6	5	4	3	2	1
Burbank Station	Hollywood Burbank Airport & Empire	Vanowen & Laurel Canyon	Vanowen & Van Nuys	Vanowen & Balboa	Vanowen & Reseda	Vanowen & Topanga Canyon	Platt & Victory
4:29A	4:43A	4:52A	5:03A	5:13A	5:28A	5:34A	5:44A
5:00	5:15	5:24	5:35	5:46	5:53	6:07	6:20
5:19	5:34	5:44	5:55	6:07	6:14	6:28	6:42
5:33	5:48	5:58	6:10	6:22	6:29	6:44	6:58
5:48	6:03	6:13	6:25	6:38	6:45	7:00	7:14
6:03	6:18	6:28	6:40	6:53	7:00	7:16	7:30
6:18	6:33	6:43	6:55	7:10	7:18	7:34	7:48
6:27	6:43	6:53	7:06	7:22	7:30	7:47	8:01
—	—	7:00	7:14	7:30	7:39	7:56	8:10
6:41	6:57	7:08	7:22	7:40	7:49	8:05	8:19
—	—	7:16	7:30	7:49	7:58	8:13	8:27
6:56	7:12	7:23	7:38	7:57	8:05	8:20	8:34
—	—	7:31	7:46	8:04	8:12	8:27	8:41
7:12	7:28	7:39	7:54	8:10	8:18	8:33	8:47
—	—	7:47	8:02	8:17	8:25	8:40	8:54
7:28	7:45	7:56	8:10	8:25	8:33	8:48	9:02
7:43	8:00	8:11	8:25	8:39	8:46	9:01	9:15
7:59	8:16	8:27	8:40	8:54	9:01	9:16	9:30
8:14	8:31	8:42	8:55	9:08	9:15	9:30	9:44
8:29	8:46	8:57	9:10	9:23	9:30	9:45	9:59
8:45	9:02	9:12	9:25	9:38	9:45	10:00	10:14
9:00	9:17	9:27	9:40	9:53	10:00	10:15	10:29
9:15	9:32	9:42	9:55	10:08	10:15	10:30	10:44
9:30	9:47	9:57	10:10	10:23	10:30	10:45	10:59
9:45	10:02	10:12	10:25	10:38	10:45	11:00	11:14
10:00	10:17	10:27	10:40	10:53	11:00	11:15	11:29
10:15	10:32	10:42	10:55	11:08	11:15	11:30	11:44
10:29	10:46	10:56	11:10	11:23	11:30	11:45	11:59
10:44	11:01	11:11	11:25	11:38	11:45	12:00P	12:14P
10:58	11:16	11:26	11:40	11:53	12:00P	12:15	12:29
11:13	11:31	11:41	11:55	12:08P	12:15	12:30	12:44
11:28	11:46	11:56	12:10P	12:23	12:30	12:45	12:59
11:43	12:01P	12:11P	12:25	12:38	12:45	1:00	1:14
11:58	12:16	12:26	12:40	12:53	1:00	1:15	1:29
12:13P	12:31	12:41	12:55	1:08	1:15	1:30	1:44
12:28	12:46	12:56	1:10	1:23	1:30	1:45	1:59
12:43	1:01	1:11	1:25	1:38	1:45	2:00	2:14
—	—	—	—	—	E1:57	2:12	2:26
12:57	1:16	1:26	1:40	1:53	2:00	2:15	2:29
1:11	1:30	1:41	1:55	2:08	2:15	2:30	2:45
1:26	1:45	1:56	2:10	2:23	2:30	2:45	3:00
1:41	2:00	2:11	2:25	2:39	2:46	3:01	3:16
1:56	2:15	2:26	2:40	2:54	3:01	3:16	3:31
2:11	2:30	2:41	2:55	3:10	3:18	3:33	3:48
—	—	—	—	—	E3:26	3:41	3:56
2:26	2:45	2:56	3:10	3:26	3:35	3:50	4:05
2:41	3:00	3:11	3:25	3:40	3:49	4:04	4:19
2:56	3:15	3:26	3:40	3:55	4:04	4:19	4:34
3:11	3:30	3:41	3:55	4:10	4:19	4:34	4:49
3:26	3:45	3:56	4:10	4:25	4:34	4:49	5:04
3:41	4:00	4:11	4:25	4:40	4:48	5:03	5:18
3:56	4:15	4:26	4:40	4:55	5:03	5:18	5:33
4:11	4:30	4:41	4:55	5:10	5:18	5:33	5:48
4:26	4:45	4:56	5:10	5:25	5:33	5:48	6:03
4:41	5:00	5:11	5:25	5:40	5:48	6:03	6:18
4:56	5:15	5:26	5:40	5:55	6:03	6:18	6:33
5:11	5:30	5:41	5:55	6:09	6:17	6:32	6:47
5:26	5:45	5:56	6:10	6:23	6:31	6:46	7:01
5:41	6:00	6:11	6:25	6:38	6:45	7:00	7:15
5:57	6:16	6:27	6:40	6:53	7:00	7:14	7:29
6:12	6:31	6:42	6:55	7:07	7:14	7:28	7:42
6:27	6:46	6:57	7:10	7:22	7:29	7:43	7:57
6:43	7:02	7:12	7:25	7:37	7:44	7:58	8:11
7:02	7:21	7:31	7:44	7:56	8:03	8:16	8:29
7:23	7:51	8:00	8:12	8:23	8:29	8:42	8:55
8:13	8:31	8:40	8:52	9:03	9:09	9:21	9:34
8:53	9:11	9:20	9:32	9:43	9:49	10:01	—
9:35	9:53	10:02	10:12	10:23	10:29	10:41	10:54
10:35	10:52	11:01	11:11	11:21	11:27	11:38	—
11:35	11:52	12:01A	12:11A	12:21A	12:27A	12:38A	—

Saturday, Sunday and Holiday Schedules

Saturday, Sunday and Holiday Schedule in effect on New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day.

Horarios de sábado, domingo y días feriados

Horarios de sábado, domingo, y días feriados en vigor para New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day y Christmas Day.

Special Notes

E Operates school days only, call Metro for more information.
E Operates school days, Tuesdays only, call Metro for more information.

Avisos especiales

E *Solo funciona durante los días escolares, llame a Metro para obtener más información.*
E *Opera los días escolares, solo los martes, llame a Metro para obtener más información.*

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Text: 213.788.2777
App: LA Metro Transit Watch

Call 911 for emergencies.

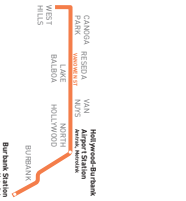


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Customer Relations:	213.922.6235
In an Emergency:	1.888.950.7233 or 911

Metro

Subject to change without notice. Sujeto a cambios sin previo aviso.



Wheelchair Hotline 800.37.7828

metro.net (800.371.5465)

Travel Info

California Relay Service 711

Metro Local

Eastbound to Burbank
Westbound to West Hills
via Vanowen St

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Effective Oct 23 2022

Saturday, Sunday and Holiday

Effective Oct 23 2022

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Eastbound *Al Este* (Approximate Times / Tiempos Aproximados)

WEST HILLS	CANOGA PARK	RESEDA	LAKE BALBOA	VAN NUYS	NORTH HOLLYWOOD	BURBANK	
1	2	3	4	5	6	7	8
Platt & Victory	Vanowen & Topanga Canyon	Vanowen & Reseda	Vanowen & Balboa	Vanowen & Van Nuys	Vanowen & Laurel Canyon	Hollywood Burbank Airport & Empire	Burbank Station
5:18A	5:25A	5:39A	5:45A	5:56A	6:06A	6:14A	6:28A
5:54	6:01	6:15	6:21	6:32	6:42	6:50	7:04
6:28	6:35	6:49	6:55	7:06	7:16	7:24	7:38
6:58	7:05	7:19	7:25	7:36	7:46	7:54	8:08
7:28	7:35	7:49	7:55	8:06	8:16	8:24	8:38
7:58	8:05	8:19	8:25	8:36	8:48	8:57	9:12
8:27	8:34	8:48	8:54	9:06	9:18	9:26	9:42
8:55	9:03	9:17	9:23	9:36	9:48	9:57	10:14
9:24	9:32	9:47	9:53	10:06	10:18	10:27	10:44
9:52	10:00	10:15	10:22	10:36	10:48	10:57	11:14
10:22	10:30	10:45	10:52	11:06	11:18	11:27	11:44
10:52	11:00	11:15	11:22	11:36	11:48	11:57	12:16P
11:21	11:30	11:45	11:52	12:06P	12:18P	12:27P	12:46
11:51	12:00P	12:15P	12:22P	12:36	12:48	12:57	1:16
12:21P	12:30	12:45	12:52	1:06	1:18	1:27	1:46
12:51	1:00	1:15	1:22	1:36	1:48	1:57	2:16
1:21	1:30	1:45	1:52	2:06	2:18	2:27	2:46
1:51	2:00	2:15	2:22	2:36	2:48	2:57	3:16
2:21	2:30	2:45	2:52	3:06	3:17	3:26	3:45
2:52	3:01	3:16	3:23	3:36	3:47	3:56	4:15
3:22	3:31	3:46	3:53	4:06	4:17	4:26	4:45
3:52	4:01	4:16	4:23	4:36	4:47	4:56	5:15
4:22	4:31	4:46	4:53	5:06	5:17	5:26	5:45
4:52	5:01	5:16	5:23	5:36	5:47	5:56	6:14
5:22	5:31	5:46	5:53	6:06	6:17	6:25	6:43
5:53	6:02	6:17	6:23	6:36	6:47	6:55	7:12
6:32	6:41	6:56	7:02	7:14	7:25	7:33	7:50
7:13	7:22	7:37	7:43	7:55	8:06	8:14	8:30
8:05	8:14	8:28	8:34	8:46	8:57	9:05	9:20
9:10	9:17	9:30	9:36	9:47	9:58	10:06	10:20
10:10	10:17	10:30	10:36	10:47	10:58	11:06	11:20
11:10	11:17	11:30	11:36	11:47	11:58	12:06A	12:20A

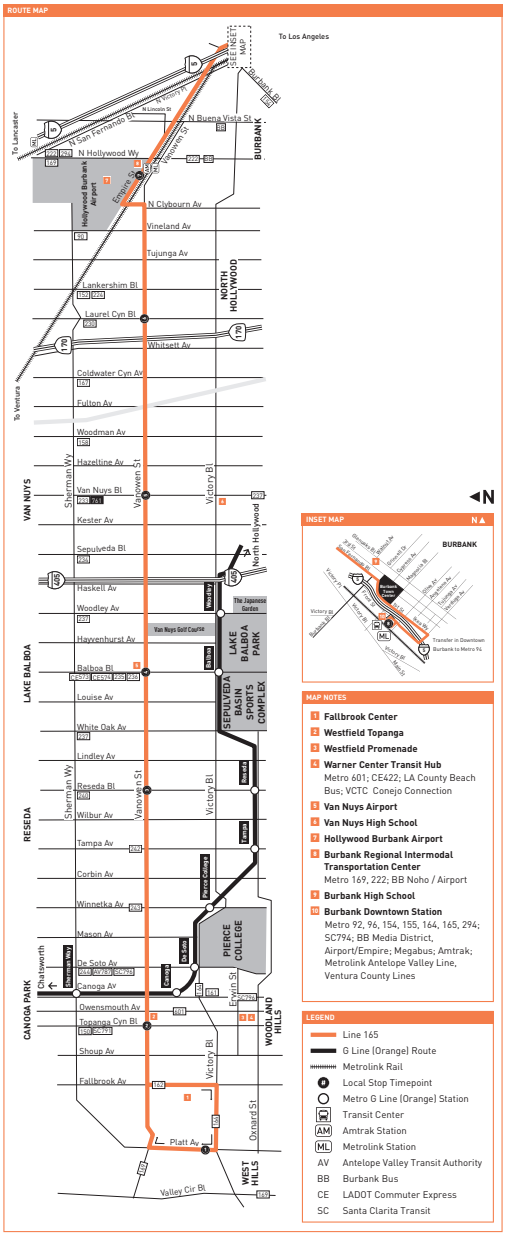
Saturday, Sunday and Holiday

165

Westbound *Al Oeste* (Approximate Times / Tiempos Aproximados)

BURBANK		NORTH HOLLYWOOD	VAN NUYS	LAKE BALBOA	RESEDA	CANOGA PARK	WEST HILLS
8	7	6	5	4	3	2	1
Burbank Station	Hollywood Burbank Airport & Empire	Vanowen & Laurel Canyon	Vanowen & Van Nuys	Vanowen & Balboa	Vanowen & Reseda	Vanowen & Topanga Canyon	Platt & Victory
4:45A	4:59A	5:08A	5:19A	5:29A	5:36A	5:50A	6:02A
5:25	5:40	5:49	6:00	6:11	6:18	6:32	6:44
6:05	6:20	6:29	6:40	6:51	6:58	7:12	7:24
6:35	6:50	6:59	7:10	7:21	7:28	7:42	7:55
7:05	7:20	7:29	7:40	7:51	7:58	8:12	8:25
7:34	7:49	7:59	8:10	8:21	8:28	8:42	8:55
8:04	8:19	8:29	8:40	8:51	8:58	9:12	9:25
8:34	8:49	8:59	9:10	9:21	9:28	9:43	9:56
9:03	9:18	9:28	9:40	9:51	9:58	10:13	10:26
9:31	9:47	9:57	10:10	10:22	10:29	10:44	10:57
10:01	10:17	10:27	10:40	10:54	11:01	11:16	11:29
10:30	10:47	10:57	11:10	11:24	11:31	11:46	11:59
11:00	11:17	11:27	11:40	11:54	12:01P	12:16P	12:29P
11:29	11:47	11:57	12:10P	12:24P	12:31	12:46	12:59
11:59	12:17P	12:27P	12:40	12:54	1:01	1:16	1:29
12:29P	12:47	12:57	1:10	1:24	1:31	1:46	1:59
12:59	1:17	1:27	1:40	1:54	2:01	2:16	2:29
1:29	1:47	1:57	2:10	2:23	2:30	2:45	2:58
1:56	2:16	2:26	2:39	2:52	2:59	3:14	3:27
2:25	2:45	2:55	3:08	3:21	3:28	3:43	3:56
2:54	3:14	3:24	3:37	3:50	3:57	4:12	4:25
3:24	3:44	3:54	4:07	4:19	4:26	4:41	4:54
3:54	4:14	4:24	4:37	4:49	4:56	5:10	5:23
4:24	4:44	4:54	5:07	5:19	5:25	5:39	5:52
4:54	5:14	5:24	5:37	5:49	5:55	6:09	6:22
5:30	5:50	6:00	6:12	6:24	6:30	6:44	6:57
6:11	6:30	6:40	6:52	7:04	7:10	7:24	7:37
6:51	7:10	7:20	7:32	7:44	7:51	8:05	8:19
7:33	7:51	8:00	8:12	8:24	8:30	8:43	8:56
8:13	8:31	8:40	8:52	9:03	9:09	9:21	9:34
8:53	9:11	9:20	9:32	9:43	9:49	10:01	—
9:35	9:53	10:02	10:12	10:23	10:29	10:41	10:54
10:35	10:52	11:01	11:11	11:21	11:27	11:38	—
11:35	11:52	12:01A	12:11A	12:21A	12:27A	12:38A	—

ROUTE MAP



180869

Monday through Friday

169

Effective Oct 23 2022

Eastbound *Al Este* (Approximate Times / Tiempos Aproximados)

CANOGA PARK	WOODLAND HILLS	WEST HILLS	CANOGA PARK	RESEDA	VAN NUYS	NORTH HOLLYWOOD	SUN VALLEY	BURBANK
1	2	3	4	5	6	7	8	9
Canoga Station	Valley Circle & Burbank	West Hills Medical Center	Saticoy & Topanga Canyon	Saticoy & Reseda	Van Nuys & Saticoy	Saticoy & Laurel Canyon	Vineland & Strathern	Hollywood Burbank Airport (RITC)
—	—	4:53A	4:59A	5:14A	5:33A	5:53A	6:00A	6:11A
—	—	5:42	5:49	6:05	6:27	6:48	6:56	7:07
6:10A	6:29A	6:42	6:50	7:08	7:32	7:57	8:05	8:17
7:02	7:26	7:40	7:49	8:08	8:33	8:57	9:05	9:17
8:03	8:30	8:43	8:51	9:08	9:31	9:56	10:04	10:16
9:10	9:32	9:44	9:51	10:07	10:30	10:55	11:03	11:15
10:10	10:31	10:44	10:51	11:07	11:30	11:56	12:04P	12:16P
11:08	11:30	11:43	11:51	12:07P	12:30P	12:56P	1:04	1:16
12:06P	12:29P	12:42P	12:50P	1:07	1:30	1:57	2:05	2:17
—	—	—	—	—	D 2:03	—	—	—
1:04	1:28	1:42	1:49	2:06	2:31	2:59	3:07	3:19
—	—	—	—	—	B 3:38	—	—	—
2:06	2:30	2:45	2:52	3:09	3:38	4:07	4:15	4:27
3:04	3:31	3:47	3:56	4:14	4:42	5:10	5:18	5:30
—	A 3:56	4:12	—	—	—	—	—	—
3:38	4:05	4:21	4:30	4:48	5:14	5:41	5:49	6:01
4:13	4:39	4:55	5:03	5:21	5:47	6:13	6:21	6:32
5:15	5:42	5:56	6:04	6:21	6:44	7:09	7:16	7:27
6:15	6:38	6:51	6:58	7:13	7:34	7:56	8:03	8:14
7:11	7:33	7:46	7:53	8:08	8:27	8:48	8:55	9:06

Monday through Friday

169

Westbound *Al Oeste* (Approximate Times / Tiempos Aproximados)

BURBANK	SUN VALLEY	NORTH HOLLYWOOD	VAN NUYS	RESEDA	CANOGA PARK	WEST HILLS	WOODLAND HILLS	CANOGA PARK
9	8	7	6	5	4	3	2	1
Hollywood Burbank Airport (RITC)	Vineland & Strathern	Saticoy & Laurel Canyon	Van Nuys & Saticoy	Saticoy & Reseda	Saticoy & Topanga Canyon	West Hills Medical Center	Valley Circle & Burbank	Canoga Station
—	—	—	—	—	—	6:16A	6:30A	6:51A
5:38A	5:50A	5:57A	6:22A	6:44A	7:04A	7:11	7:26	7:49
—	—	—	—	—	7:37	7:44	7:59	8:22
6:36	6:48	6:55	7:23	7:48	8:06	8:13	8:27	8:50
7:32	7:45	7:53	8:23	8:46	9:02	9:09	9:23	9:45
8:32	8:44	8:52	9:21	9:42	9:58	10:05	10:19	10:41
9:33	9:45	9:53	10:22	10:43	10:59	11:06	11:20	11:42
10:33	10:45	10:53	11:22	11:42	11:58	12:05P	12:19P	12:42P
11:35	11:47	11:54	12:22P	12:42P	12:58P	1:05	1:19	1:43
12:36P	12:48P	12:55P	1:23	1:45	2:03	2:10	2:25	2:50
1:32	1:44	1:52	2:22	2:45	3:03	3:11	3:25	3:52
—	—	—	—	—	—	—	B 3:58	4:25
2:38	2:51	2:59	3:29	3:53	4:12	4:20	4:33	4:59
3:38	3:51	3:58	4:28	4:51	5:09	5:16	5:29	5:54
4:43	4:55	5:02	5:31	5:53	6:10	6:17	6:30	6:54
5:47	5:59	6:06	6:33	6:54	7:10	7:16	7:30	7:52
6:47	6:58	7:05	7:30	7:50	8:05	8:11	—	—
7:46	7:57	8:04	8:29	8:49	9:04	9:10	—	—

Saturday

169

Eastbound *Al Este* (Approximate Times / Tiempos Aproximados)

CANOGA PARK	RESEDA	VAN NUYS	NORTH HOLLYWOOD	SUN VALLEY	BURBANK
4	5	6	7	8	9
Saticoy & Topanga Canyon	Saticoy & Reseda	Van Nuys & Saticoy	Saticoy & Laurel Canyon	Vineland & Strathern	Hollywood Burbank Airport (RITC)
6:21A	6:38A	7:00A	7:22A	7:30A	7:43A
7:20	7:37	8:00	8:23	8:31	8:43
8:21	8:38	9:00	9:23	9:31	9:42
9:22	9:38	10:00	10:24	10:32	10:43
10:21	10:37	11:00	11:24	11:32	11:43
11:21	11:37	12:00P	12:24P	12:32P	12:43P
12:22P	12:37P	1:00	1:25	1:33	1:44
1:22	1:37	2:00	2:26	2:34	2:45
2:19	2:34	3:00	3:27	3:35	3:46
3:17	3:34	4:00	4:27	4:35	4:46
4:18	4:35	5:00	5:25	5:33	5:44
5:21	5:37	6:00	6:24	6:31	6:41
6:21	6:37	7:00	7:23	7:30	7:40
7:22	7:38	8:00	8:22	8:29	8:39

Saturday

169

Westbound *Al Oeste* (Approximate Times / Tiempos Aproximados)

BURBANK	SUN VALLEY	NORTH HOLLYWOOD	VAN NUYS	RESEDA	CANOGA PARK
9	8	7	6	5	4
Hollywood Burbank Airport (RITC)	Vineland & Strathern	Saticoy & Laurel Canyon	Van Nuys & Saticoy	Saticoy & Reseda	Saticoy & Topanga Canyon
6:16A	6:28A	6:35A	7:00A	7:23A	7:40A
7:12	7:24	7:32	8:00	8:23	8:40
8:11	8:23	8:31	9:00	9:21	9:37
9:11	9:23	9:31	10:00	10:21	10:37
10:11	10:23	10:31	11:00	11:20	11:36
11:11	11:23	11:31	12:00P	12:20P	12:36P
12:10P	12:22P	12:30P	1:00	1:21	1:38
1:10	1:22	1:30	2:00	2:23	2:41
2:11	2:23	2:31	3:00	3:23	3:40
3:10	3:22	3:30	4:00	4:22	4:39
4:11	4:23	4:31	5:00	5:22	5:39
5:13	5:25	5:32	6:00	6:22	6:39
6:16	6:27	6:34	7:00	7:20	7:36
7:18	7:29	7:36	8:00	8:19	8:33

Sunday & Holidays

169

Eastbound *Al Este* (Approximate Times / Tiempos Aproximados)

CANOGA PARK	RESEDA	VAN NUYS	NORTH HOLLYWOOD	SUN VALLEY	BURBANK
4	5	6	7	8	9
Saticoy & Topanga Canyon	Saticoy & Reseda	Van Nuys & Saticoy	Saticoy & Laurel Canyon	Vineland & Strathern	Hollywood Burbank Airport (RITC)
7:19A	7:36A	8:00A	8:24A	8:32A	8:44A
8:20	8:36	9:00	9:25	9:33	9:45
9:21	9:37	10:00	10:25	10:33	10:45
10:22	10:37	11:00	11:25	11:33	11:45
11:21	11:37	12:00P	12:25P	12:33P	12:45P
12:21P	12:37P	1:00	1:26	1:34	1:46
1:22	1:37	2:00	2:25	2:33	2:45
2:21	2:36	3:00	3:25	3:33	3:45
3:19	3:35	4:00	4:27	4:35	4:47
4:18	4:34	5:00	5:26	5:34	5:46
5:22	5:38	6:00	6:23	6:31	6:42
6:23	6:38	7:00	7:23	7:30	7:41
7:25	7:40	8:00	8:21	8:28	8:39

Sunday & Holidays

169

Westbound *Al Oeste* (Approximate Times / Tiempos Aproximados)

BURBANK	SUN VALLEY	NORTH HOLLYWOOD	VAN NUYS	RESEDA	CANOGA PARK
9	8	7	6	5	4
Hollywood Burbank Airport (RITC)	Vineland & Strathern	Saticoy & Laurel Canyon	Van Nuys & Saticoy	Saticoy & Reseda	Saticoy & Topanga Canyon
7:13A	7:25A	7:32A	8:00A	8:23A	8:40A
8:11	8:23	8:32	9:00	9:23	9:40
9:13	9:24	9:32	10:00	10:22	10:39
10:14	10:25	10:33	11:00	11:22	11:39
11:13	11:24	11:32	12:00P	12:22P	12:39P
12:13P	12:24P	12:32P	1:00	1:22	1:40
1:11	1:23	1:31	2:00	2:22	2:40
2:11	2:23	2:30	3:00	3:23	3:41
3:12	3:24	3:31	4:00	4:22	4:39
4:12	4:24	4:31	5:00	5:23	5:40
5:14	5:25	5:32	6:00	6:22	6:39
6:16	6:27	6:34	7:00	7:21	7:36
7:20	7:30	7:37	8:00	8:19	8:34

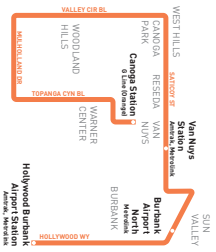
Special Notes

- A Operates school days only, call Metro for more information.
- B Operates school days only departing from Mariano at this time, call Metro for more information.
- C Operates School days only except Tuesday, call Metro for more information.
- D Operates school days Tuesday only, call Metro for more information.

Avisos especiales

- A *Solo funciona durante los días escolares, llame a Metro para obtener más información.*
- B *Opera los días escolares solo saliendo de Mariano en este momento, llame a Metro para obtener más información.*
- C *Opera solo los días escolares excepto los martes, llame a Metro para obtener más información.*
- D *Opera los días escolares los martes solamente, llame a Metro para más información.*

Metro



Subject to change without notice
Sujeto a cambios sin previo aviso

metro.net
323.GO.METRO

Wheelchair Hotline
800.621.7828

Travel Info
511

California Relay Service
711

Metro Local

Eastbound to Burbank
Westbound to Canoga Station
via Saticoy St and Valley Circle Bl

169

Effective Oct 23 2022

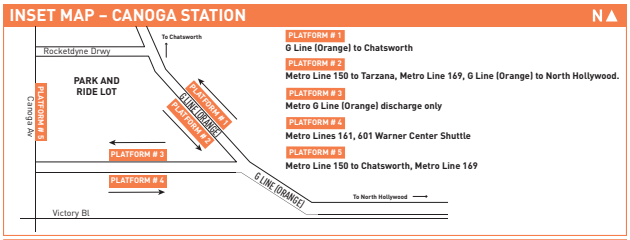
Sunday and Holiday Schedules

Sunday and Holiday Schedule in effect on New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day.

Horarios de domingo y días feriados

Horarios de domingo y días feriados en vigor para New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day y Christmas Day

INSET MAP – CANOGA STATION



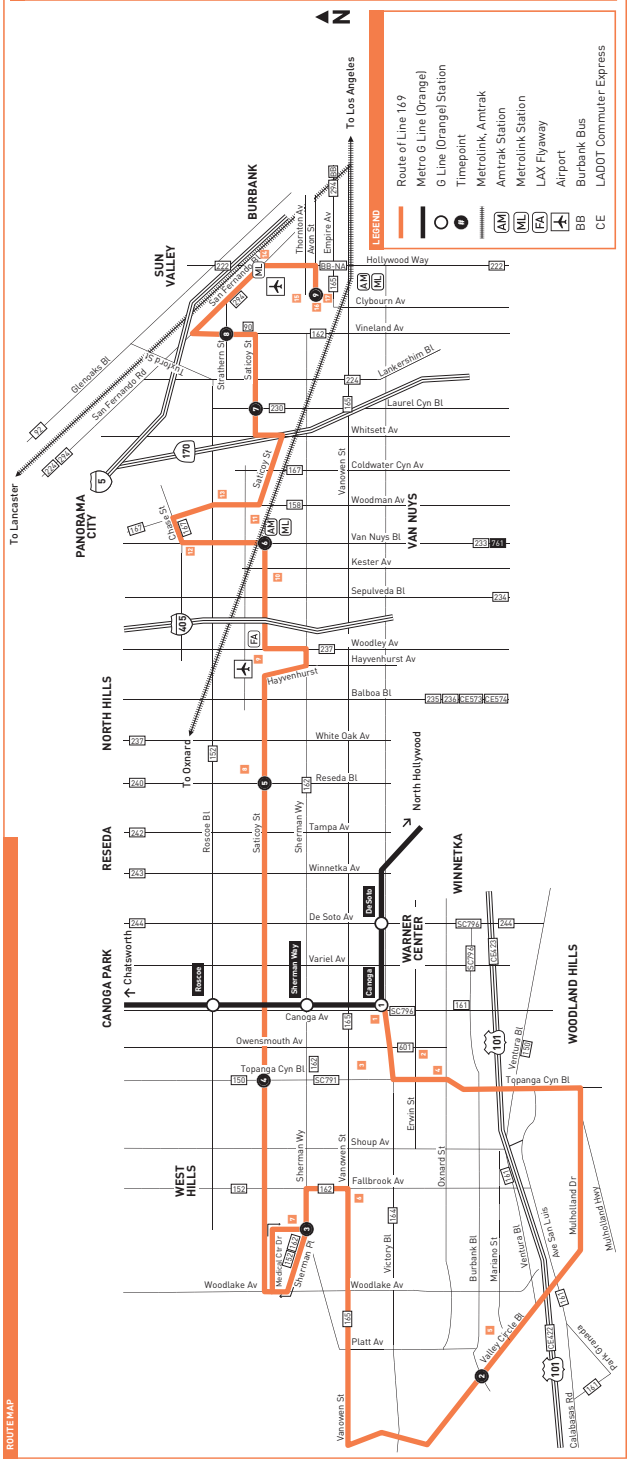
MAP NOTES

1. **Canoga G Line (Orange) Station** Metro 150, 161, 169, 601; G Line (Orange); Nearby transfers to Metro 164, 165; AVTA 787; VCTC Conejo Connections; SC796
2. **Warner Center Transit Hub** Metro 601; VCTC Conejo Connection; Nearby transfers to CE422; LA County Beach Bus
3. **Westfield Topanga**
4. **Westfield Promenade**
5. **El Camino Real H.S.**
6. **Fallbrook Shopping Center**
7. **West Hills Medical Center** Transfer to Metro 152, 162, 169
8. **Northridge Hospital**
9. **Van Nuys Airport**
10. **Fulton College Preparatory School**
11. **Van Nuys Metrolink Station** Metro 169, 233, 761; Metrolink Ventura County Line; Amtrak
12. **Panorama Mall**
13. **Kaiser Foundation Hospital**
14. **Burbank Airport - North Station**
15. **Hollywood Burbank Airport**
16. **Regional Intermodal Transportation Center** Metro 169, 222; BB NoHo/Airport Transfers to Metrolink, Amtrak
17. **Burbank Airport - South Station** Metro 165; Metrolink Ventura County Line; Amtrak

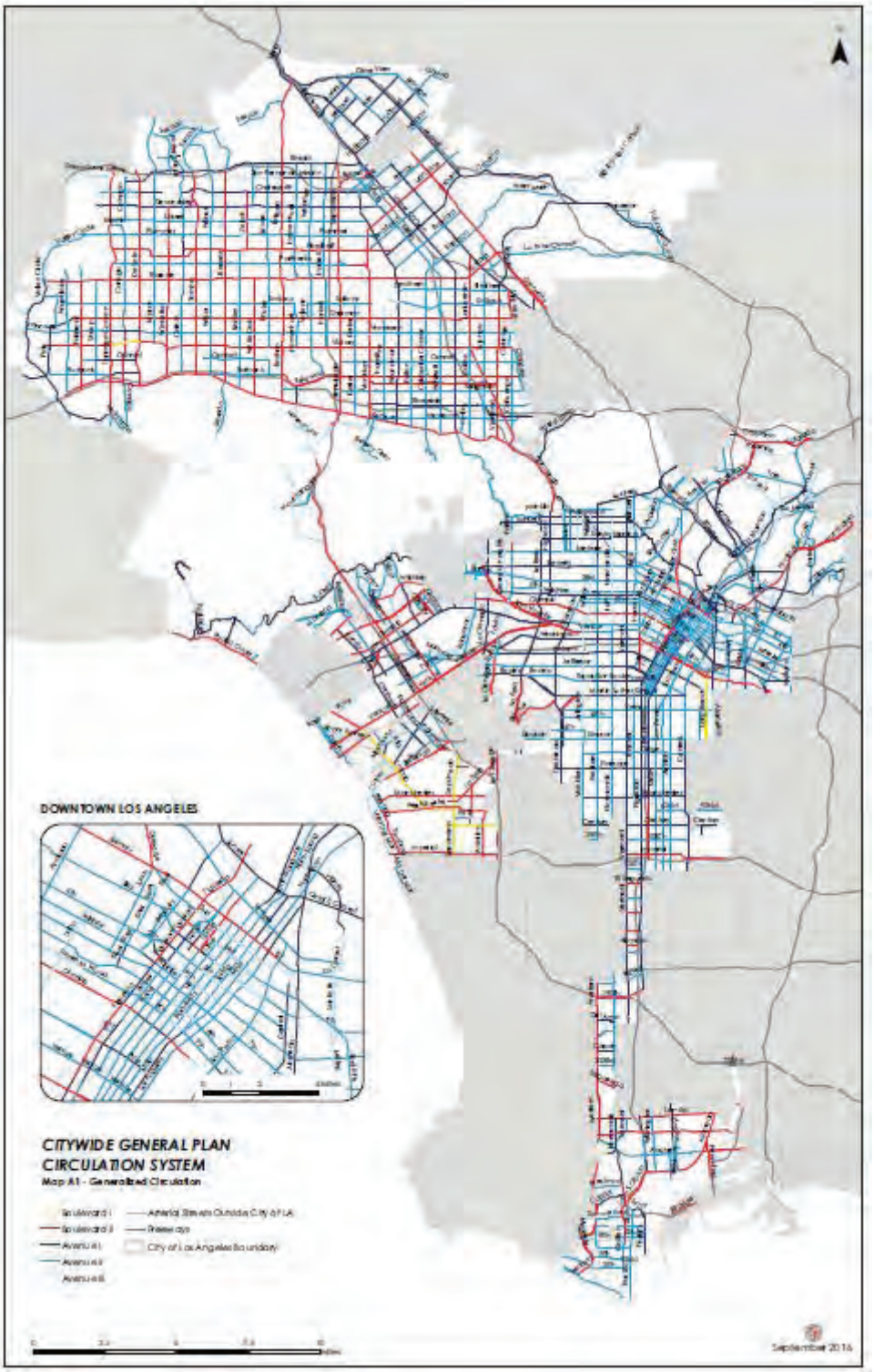
LEGEND

- Route of Line 169
- Metro G Line (Orange)
- G Line (Orange) Station
- Timepoint
- Metrolink, Amtrak
- Amtrak Station
- Metrolink Station
- LAX Flyaway
- Airport
- Burbank Bus
- LADOT Commuter Express

ROUTE MAP



Appendix 4 - Street Designation Map


DOWNTOWN LOS ANGELES
CITYWIDE GENERAL PLAN
CIRCULATION SYSTEM
Map A1 - Generalized Circulation
September 2016

Appendix 5 - LADOT's VMT Calculator Results

CITY OF LOS ANGELES VMT CALCULATOR Version 1.3

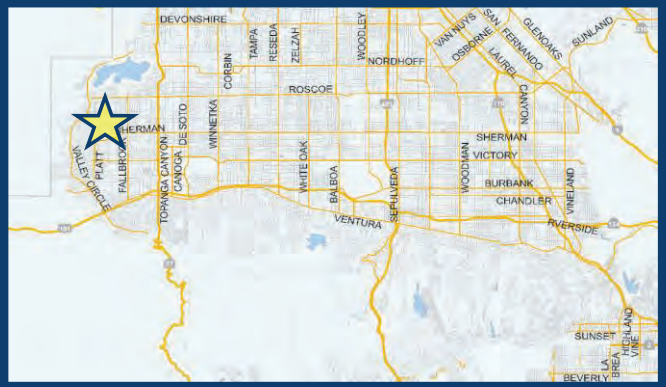
Project Screening Criteria: Is this project required to conduct a vehicle miles traveled analysis?

Project Information

Project: Chaminade College Prepatory

Scenario:

Address: 7500 N CHAMINADE AVE, 91304



Is the project replacing an existing number of residential units with a smaller number of residential units AND is located within one-half mile of a fixed-rail or fixed-guideway transit station?

○ Yes ○ No

Existing Land Use

Land Use Type	Value	Unit
Housing | Single Family		DU
Retail | General Retail	53.5	ksf
School | High School	1360	Students

☐ Click here to add a single custom land use type (will be included in the above list)

Proposed Project Land Use

Land Use Type	Value	Unit
School | High School		Students
School | High School	1360	Students
(custom) Athletic Center | Retail/Non-Retail	Non-Retai	LU type
(custom) Athletic Center | Residents	0	Person
(custom) Athletic Center | Employees	4	Person
(custom) Athletic Center | Daily	952	Trips
(custom) Athletic Center | HBW-Attraction Split	4	Percent
(custom) Athletic Center | HBO-Attraction Split	51	Percent
(custom) Athletic Center | NHB-Attraction Split	23	Percent
(custom) Athletic Center | HBW-Production Spl	0	Percent
(custom) Athletic Center | HBO-Production Spl	0	Percent
(custom) Athletic Center | NHB-Production Spli	22	Percent

☑ Click here to add a single custom land use type (will be included in the above list)

Project Screening Summary

Existing Land Use	Proposed
3,981 Daily Vehicle Trips	2,803 Daily Vehicle Trips
33,085 Daily VMT	22,681 Daily VMT

Tier 1 Screening Criteria

Project will have less residential units compared to existing residential units & is within one-half mile of a fixed-rail station. ☐

Tier 2 Screening Criteria

The net increase in daily trips < 250 trips	-1,178 Net Daily Trips
The net increase in daily VMT ≤ 0	-10,404 Net Daily VMT
The proposed project consists of only retail land uses ≤ 50,000 square feet total.	0.000 ksf

The proposed project is not required to perform VMT analysis.

Measuring the Miles

12/15/2022

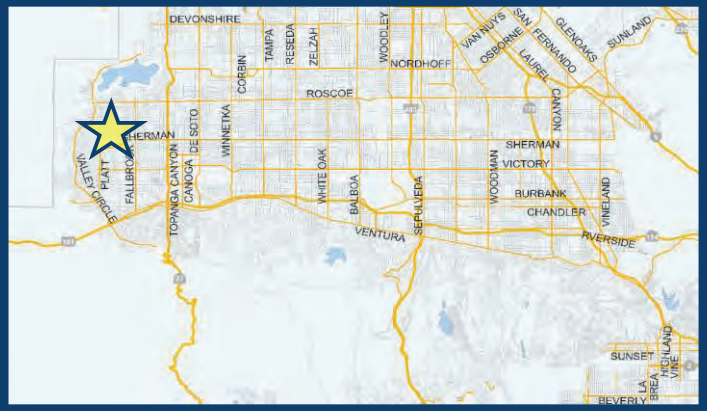
CITY OF LOS ANGELES VMT CALCULATOR Version 1.3

Project Information

Project: Chaminade College Prepatory

Scenario:

Address: 7500 N CHAMINADE AVE, 91304



Proposed Project Land Use Type	Value	Unit
School | Hig		
(custom) At		
(custom) At		
(custom) At		

TDM Strategies

Select each section to show individual strategies

Use ☑ to denote if the TDM strategy is part of the proposed project or is a mitigation strategy

	Proposed Project	With Mitigation
Max Home Based TDM Achieved?	**No**	**No**
Max Work Based TDM Achieved?	**No**	**No**

A Parking

Reduce Parking Supply ☐ Proposed Prj ☐ Mitigation
- 100 city code parking provision for the project site
- 74 actual parking provision for the project site

Unbundle Parking ☐ Proposed Prj ☐ Mitigation
- 100 monthly parking cost (dollar) for the project site

Parking Cash-Out ☐ Proposed Prj ☐ Mitigation
- 50 percent of employees eligible

Price Workplace Parking ☐ Proposed Prj ☐ Mitigation
- 6.0 daily parking charge (dollar)
- 50 percent of employees subject to priced parking

Residential Area Parking Permits ☐ Proposed Prj ☐ Mitigation
- 200 cost (dollar) of annual permit

B Transit

C Education & Encouragement

D Commute Trip Reductions

E Shared Mobility

F Bicycle Infrastructure

Analysis Results

Proposed Project	With Mitigation
2,803 Daily Vehicle Trips	**2,803** Daily Vehicle Trips
22,681 Daily VMT	**22,681** Daily VMT
N/A Household VMT per Capita	**N/A** Household VMT per Capita
N/A Work VMT per Employee	**N/A** Work VMT per Employee

Significant VMT Impact?

Proposed Project	With Mitigation
Household: N/A Threshold = 9.4 15% Below APC	**Household: N/A** Threshold = 9.4 15% Below APC
Work: N/A Threshold = 11.6 15% Below APC	**Work: N/A** Threshold = 11.6 15% Below APC

Measuring the Miles

12/15/2022

CITY OF LOS ANGELES VMT CALCULATOR

Report 1: Project & Analysis Overview

Date: April 18, 2023
Project Name: Chaminade College Prepatory
Project Scenario:
Project Address: 7500 N CHAMINADE AVE, 91304

Version 1.3

Project Information			
Land Use Type		**Value**	**Units**
Housing	*Single Family*	*0*	*DU*
	Multi Family	*0*	*DU*
	Townhouse	*0*	*DU*
	Hotel	*0*	*Rooms*
	Motel	*0*	*Rooms*
Affordable Housing	*Family*	*0*	*DU*
	Senior	*0*	*DU*
	Special Needs	*0*	*DU*
	Permanent Supportive	*0*	*DU*
Retail	*General Retail*	*0.000*	*ksf*
	Furniture Store	*0.000*	*ksf*
	Pharmacy/Drugstore	*0.000*	*ksf*
	Supermarket	*0.000*	*ksf*
	Bank	*0.000*	*ksf*
	Health Club	*0.000*	*ksf*
	High-Turnover Sit-Down Restaurant	*0.000*	*ksf*
	Fast-Food Restaurant	*0.000*	*ksf*
	Quality Restaurant	*0.000*	*ksf*
	Auto Repair	*0.000*	*ksf*
	Home Improvement	*0.000*	*ksf*
	Free-Standing Discount	*0.000*	*ksf*
	Movie Theater	*0*	*Seats*
Office	*General Office*	*0.000*	*ksf*
	Medical Office	*0.000*	*ksf*
Industrial	*Light Industrial*	*0.000*	*ksf*
	Manufacturing	*0.000*	*ksf*
	Warehousing/Self-Storage	*0.000*	*ksf*
School	*University*	*0*	*Students*
	High School	1,360	Students
	Middle School	*0*	*Students*
	Elementary	*0*	*Students*
	Private School (K-12)	*0*	*Students*
Other	Athletic Center	952	Trips

CITY OF LOS ANGELES VMT CALCULATOR

Report 1: Project & Analysis Overview

Date: April 18, 2023
Project Name: Chaminade College Prepatory
Project Scenario:
Project Address: 7500 N CHAMINADE AVE, 91304

Version 1.3

CITY OF LOS ANGELES VMT CALCULATOR

Report 1: Project & Analysis Overview

Date: April 18, 2023
Project Name: Chaminade College Prepatory
Project Scenario:
Project Address: 7500 N CHAMINADE AVE, 91304

Version 1.3

Analysis Results			
Total Employees: 140 Total Population: 0			
Proposed Project		***With Mitigation***	
2,803	**Daily Vehicle Trips**	**2,803**	**Daily Vehicle Trips**
22,681	**Daily VMT**	**22,681**	**Daily VMT**
N/A	**Household VMT per Capita**	**N/A**	**Household VMT per Capita**
N/A	**Work VMT per Employee**	**N/A**	**Work VMT per Employee**
Significant VMT Impact?			
APC: South Valley			
Impact Threshold: 15% Below APC Average Household = 9.4 Work = 11.6			
Proposed Project		***With Mitigation***	
VMT Threshold	**Impact**	**VMT Threshold**	**Impact**
Household > 9.4 Work > 11.6	N/A N/A	Household > 9.4 Work > 11.6	N/A N/A

CITY OF LOS ANGELES VMT CALCULATOR

Report 2: TDM Inputs

Date: April 18, 2023
Project Name: Chaminade College Prepatory
Project Scenario:
Project Address: 7500 N CHAMINADE AVE, 91304

Version 1.3

TDM Strategy Inputs

Strategy Type		Description	Proposed Project	Mitigations
Parking	*Reduce parking supply*	*City code parking provision (spaces)*	*0*	*0*
		Actual parking provision (spaces)	*0*	*0*
	Unbundle parking	*Monthly cost for parking ($)*	*$0*	*$0*
	Parking cash-out	*Employees eligible (%)*	*0%*	*0%*
	Price workplace parking	*Daily parking charge ($)*	*$0.00*	*$0.00*
		Employees subject to priced parking (%)	*0%*	*0%*
	Residential area parking permits	*Cost of annual permit ($)*	*$0*	*$0*

(cont. on following page)

TDM Strategy Inputs, Cont.

Strategy Type		Description	Proposed Project	Mitigations
Transit	*Reduce transit headways*	*Reduction in headways (increase in frequency) (%)*	*0%*	*0%*
		Existing transit mode share (as a percent of total daily trips) (%)	*0%*	*0%*
		Lines within project site improved (<50%, >=50%)	*0*	*0*
	Implement neighborhood shuttle	*Degree of implementation (low, medium, high)*	*0*	*0*
		Employees and residents eligible (%)	*0%*	*0%*
	Transit subsidies	*Employees and residents eligible (%)*	*0%*	*0%*
		Amount of transit subsidy per passenger (daily equivalent) ($)	*$0.00*	*$0.00*
Education & Encouragement	*Voluntary travel behavior change program*	*Employees and residents participating (%)*	*0%*	*0%*
	Promotions and marketing	*Employees and residents participating (%)*	*0%*	*0%*

(cont. on following page)

TDM Strategy Inputs, Cont.

Strategy Type		Description	Proposed Project	Mitigations
Commute Trip Reductions	*Required commute trip reduction program*	*Employees participating (%)*	*0%*	*0%*
	Alternative Work Schedules and Telecommute	*Employees participating (%)*	*0%*	*0%*
		Type of program	*0*	*0*
	Employer sponsored vanpool or shuttle	*Degree of implementation (low, medium, high)*	*0*	*0*
		Employees eligible (%)	*0%*	*0%*
		Employer size (small, medium, large)	*0*	*0*
	Ride-share program	*Employees eligible (%)*	*0%*	*0%*
Shared Mobility	*Car share*	*Car share project setting (Urban, Suburban, All Other)*	*0*	*0*
	Bike share	*Within 600 feet of existing bike share station - OR- implementing new bike share station (Yes/No)*	*0*	*0*
	School carpool program	*Level of implementation (Low, Medium, High)*	*0*	*0*

(cont. on following page)

TDM Strategy Inputs, Cont.

Strategy Type		Description	Proposed Project	Mitigations
Bicycle Infrastructure	*Implement/Improve on-street bicycle facility*	*Provide bicycle facility along site (Yes/No)*	*0*	*0*
	Include Bike parking per LAMC	*Meets City Bike Parking Code (Yes/No)*	*0*	*0*
	Include secure bike parking and showers	*Includes indoor bike parking/lockers, showers, & repair station (Yes/No)*	*0*	*0*
Neighborhood Enhancement	*Traffic calming improvements*	*Streets with traffic calming improvements (%)*	*0%*	*0%*
		Intersections with traffic calming improvements (%)	*0%*	*0%*
	Pedestrian network improvements	*Included (within project and connecting off-site/within project only)*	*0*	*0*

CITY OF LOS ANGELES VMT CALCULATOR

Report 3: TDM Outputs

Date: April 18, 2023
Project Name: Chaminade College Prepatory
Project Scenario:
Project Address: 7500 N CHAMINADE AVE, 91304

Version 1.3

TDM Adjustments by Trip Purpose & Strategy

Place type: Suburban Center

		Home Based Work Production		*Home Based Work Attraction*		*Home Based Other Production*		*Home Based Other Attraction*		*Non-Home Based Other Production*		*Non-Home Based Other Attraction*		*Source*
		Proposed	Mitigated	Proposed	Mitigated	Proposed	Mitigated	Proposed	Mitigated	Proposed	Mitigated	Proposed	Mitigated	
Parking	Reduce parking supply	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	TDM Strategy Appendix, Parking sections 1 - 5
	Unbundle parking	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
	Parking cash-out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
	Price workplace parking	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
	Residential area parking permits	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	
Transit	Reduce transit headways	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	TDM Strategy Appendix, Transit sections 1 - 3
	Implement neighborhood shuttle	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
	Transit subsidies	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Education & Encouragement	Voluntary travel behavior change program	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	TDM Strategy Appendix, Education & Encouragement sections 1 - 2
	Promotions and marketing	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Commute Trip Reductions	Required commute trip reduction program	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	TDM Strategy Appendix, Commute Trip Reductions sections 1 - 4
	Alternative Work Schedules and Telecommute Program	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
	Employer sponsored vanpool or shuttle	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
	Ride-share program	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Shared Mobility	Car-share	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	TDM Strategy Appendix, Shared Mobility sections 1 - 3
	Bike share	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	
	School carpool program	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	

CITY OF LOS ANGELES VMT CALCULATOR

Report 3: TDM Outputs

Date: April 18, 2023
Project Name: Chaminade College Prepatory
Project Scenario:
Project Address: 7500 N CHAMINADE AVE, 91304

Version 1.3

TDM Adjustments by Trip Purpose & Strategy, Cont.

Place type: Suburban Center

		Home Based Work Production		*Home Based Work Attraction*		*Home Based Other Production*		*Home Based Other Attraction*		*Non-Home Based Other Production*		*Non-Home Based Other Attraction*		*Source*
		Proposed	Mitigated	Proposed	Mitigated	Proposed	Mitigated	Proposed	Mitigated	Proposed	Mitigated	Proposed	Mitigated	
Bicycle Infrastructure	Implement/ Improve on-street bicycle facility	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	TDM Strategy Appendix, Bicycle Infrastructure sections 1 - 3
	Include Bike parking per LAMC	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	
	Include secure bike parking and showers	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	
Neighborhood Enhancement	Traffic calming improvements	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	TDM Strategy Appendix, Neighborhood Enhancement
	Pedestrian network improvements	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	

Final Combined & Maximum TDM Effect

	Home Based Work Production		*Home Based Work Attraction*		*Home Based Other Production*		*Home Based Other Attraction*		*Non-Home Based Other Production*		*Non-Home Based Other Attraction*	
	Proposed	Mitigated	Proposed	Mitigated	Proposed	Mitigated	Proposed	Mitigated	Proposed	Mitigated	Proposed	Mitigated
COMBINED TOTAL	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
MAX. TDM EFFECT	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*

= Minimum (X%, 1-[(1-A)*(1-B)…])
where X%=

PLACE TYPE MAX:	*urban*	*75%*
	compact infill	*40%*
	suburban center	*20%*
	suburban	*15%*

Note: (1-[(1-A)*(1-B)…]) reflects the dampened combined effectiveness of TDM Strategies (e.g., A, B,…). See the TDM Strategy Appendix (*Transportation Assessment Guidelines Attachment G)* for further discussion of dampening.

CITY OF LOS ANGELES VMT CALCULATOR

Report 4: MXD Methodology

Date: April 18, 2023
Project Name: Chaminade College Prepatory
Project Scenario:
Project Address: 7500 N CHAMINADE AVE, 91304

Version 1.3

MXD Methodology - Project Without TDM

	Unadjusted Trips	MXD Adjustment	MXD Trips	Average Trip Length	Unadjusted VMT	MXD VMT
Home Based Work Production	0	0.0%	0	13.6	0	0
Home Based Other Production	0	0.0%	0	7.4	0	0
Non-Home Based Other Production	389	-1.5%	383	11.1	4,318	4,251
Home-Based Work Attraction	235	-4.7%	224	10.7	2,515	2,397
Home-Based Other Attraction	2,255	-20.0%	1,803	6.8	15,334	12,260
Non-Home Based Other Attraction	399	-1.5%	393	9.6	3,830	3,773

MXD Methodology with TDM Measures

	Proposed Project			*Project with Mitigation Measures*		
	TDM Adjustment	Project Trips	Project VMT	TDM Adjustment	Mitigated Trips	Mitigated VMT
Home Based Work Production	0.0%	0	0	0.0%	0	0
Home Based Other Production	0.0%	0	0	0.0%	0	0
Non-Home Based Other Production	0.0%	383	4,251	0.0%	383	4,251
Home-Based Work Attraction	0.0%	224	2,397	0.0%	224	2,397
Home-Based Other Attraction	0.0%	1,803	12,260	0.0%	1,803	12,260
Non-Home Based Other Attraction	0.0%	393	3,773	0.0%	393	3,773

MXD VMT Methodology Per Capita & Per Employee

Total Population: 0
Total Employees: 140
APC: South Valley

	Proposed Project	*Project with Mitigation Measures*
Total Home Based Production VMT	**0**	**0**
Total Home Based Work Attraction VMT	**2,397**	**2,397**
Total Home Based VMT Per Capita	**N/A**	**N/A**
Total Work Based VMT Per Employee	**N/A**	**N/A**

Appendix 6 - Traffic Volume Counts

CITY TRAFFIC COUNTERS

WWW.CTCOUNTERS.COM

File Name : PlattAve_CohassetSt
Site Code : 00000000
Start Date : 1/18/2023
Page No : 1

Groups Printed- Vehicles

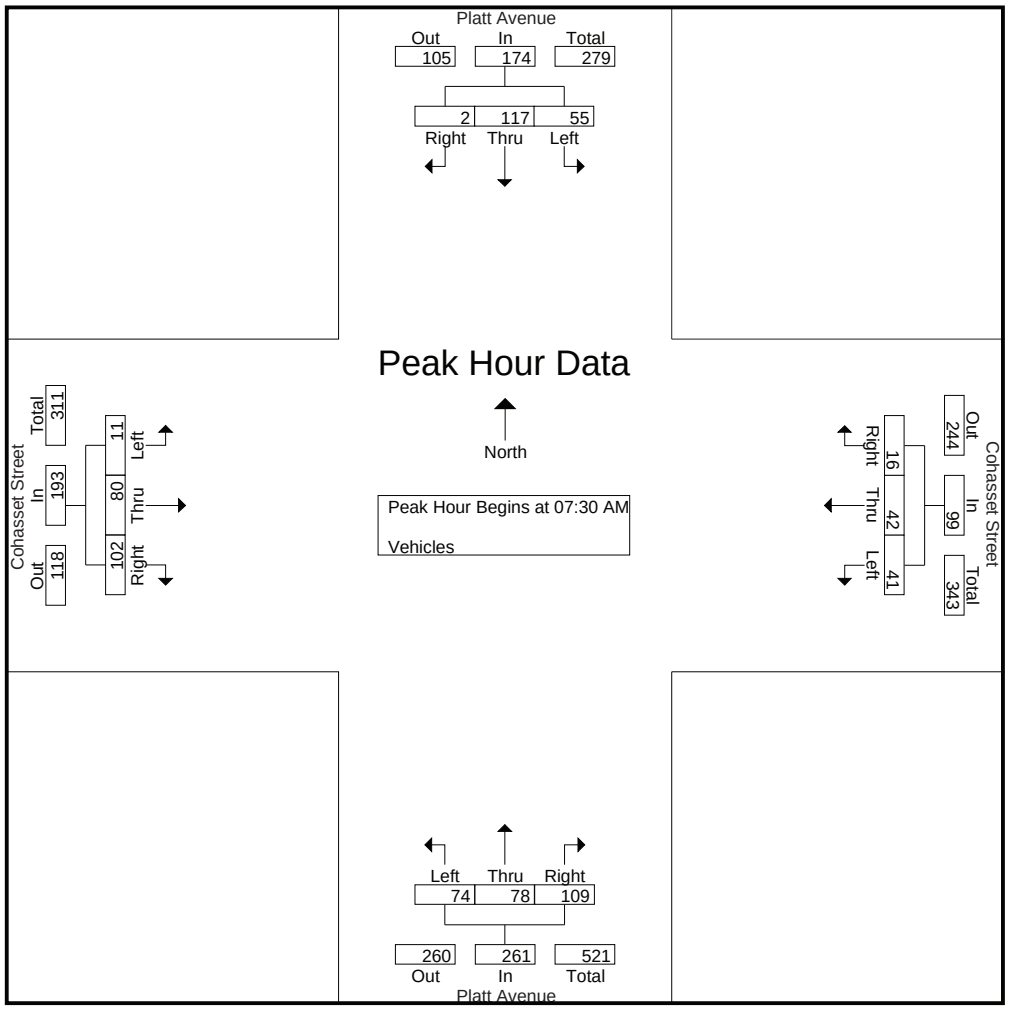
	Platt Avenue Southbound			Cohasset Street Westbound			Platt Avenue Northbound			Cohasset Street Eastbound			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Int. Total
06:00 AM	1	5	0	3	0	0	0	1	2	0	0	4	16
06:15 AM	4	6	0	6	1	1	0	0	6	0	4	3	31
06:30 AM	0	2	0	6	1	1	2	2	3	0	0	3	20
06:45 AM	0	10	0	2	0	0	2	8	4	0	3	3	32
Total	5	23	0	17	2	2	4	11	15	0	7	13	99
07:00 AM	0	9	0	6	1	0	8	8	7	0	0	8	47
07:15 AM	3	9	0	6	1	2	7	7	8	0	4	13	60
07:30 AM	2	33	0	9	7	2	16	9	11	1	4	18	112
07:45 AM	8	19	0	6	13	1	17	20	18	3	23	27	155
Total	13	70	0	27	22	5	48	44	44	4	31	66	374
08:00 AM	21	26	1	12	19	8	32	27	35	6	31	33	251
08:15 AM	24	39	1	14	3	5	9	22	45	1	22	24	209
08:30 AM	5	11	0	4	2	1	4	15	6	0	10	12	70
08:45 AM	0	9	0	5	3	2	7	9	4	0	5	10	54
Total	50	85	2	35	27	16	52	73	90	7	68	79	584
03:00 PM	7	21	5	47	16	20	10	17	24	4	17	13	201
03:15 PM	5	12	1	24	17	13	14	25	17	1	13	10	152
03:30 PM	3	15	0	17	8	4	16	19	10	2	11	22	127
03:45 PM	0	21	0	12	9	4	14	8	7	0	6	17	98
Total	15	69	6	100	50	41	54	69	58	7	47	62	578
04:00 PM	2	5	1	12	7	4	12	28	11	1	8	15	106
04:15 PM	2	9	1	10	11	5	22	24	16	1	8	9	118
04:30 PM	1	10	0	16	9	2	15	18	12	1	5	16	105
04:45 PM	1	10	1	12	6	5	9	15	9	1	5	8	82
Total	6	34	3	50	33	16	58	85	48	4	26	48	411
05:00 PM	0	12	2	9	8	0	14	23	9	1	3	9	90
05:15 PM	2	5	1	14	10	3	14	14	4	0	3	8	78
05:30 PM	1	9	1	8	8	1	6	18	6	0	6	9	73
05:45 PM	1	5	0	6	8	2	6	13	16	0	4	8	69
Total	4	31	4	37	34	6	40	68	35	1	16	34	310
Grand Total	93	312	15	266	168	86	256	350	290	23	195	302	2356
Apprch %	22.1	74.3	3.6	51.2	32.3	16.5	28.6	39.1	32.4	4.4	37.5	58.1	
Total %	3.9	13.2	0.6	11.3	7.1	3.7	10.9	14.9	12.3	1	8.3	12.8	

CITY TRAFFIC COUNTERS

WWW.CTCOUNTERS.COM

File Name : PlattAve_CohassetSt
Site Code : 00000000
Start Date : 1/18/2023
Page No : 2

	Platt Avenue Southbound				Cohasset Street Westbound				Platt Avenue Northbound				Cohasset Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 11:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	2	33	0	35	9	7	2	18	16	9	11	36	1	4	18	23	112
07:45 AM	8	19	0	27	6	13	1	20	17	20	18	55	3	23	27	53	155
08:00 AM	21	26	**1**	48	12	**19**	**8**	**39**	**32**	**27**	35	**94**	**6**	**31**	**33**	**70**	**251**
08:15 AM	**24**	**39**	1	**64**	**14**	3	5	22	9	22	**45**	76	1	22	24	47	209
Total Volume	55	117	2	174	41	42	16	99	74	78	109	261	11	80	102	193	727
% App. Total	31.6	67.2	1.1		41.4	42.4	16.2		28.4	29.9	41.8		5.7	41.5	52.8		
PHF	.573	.750	.500	.680	.732	.553	.500	.635	.578	.722	.606	.694	.458	.645	.773	.689	.724

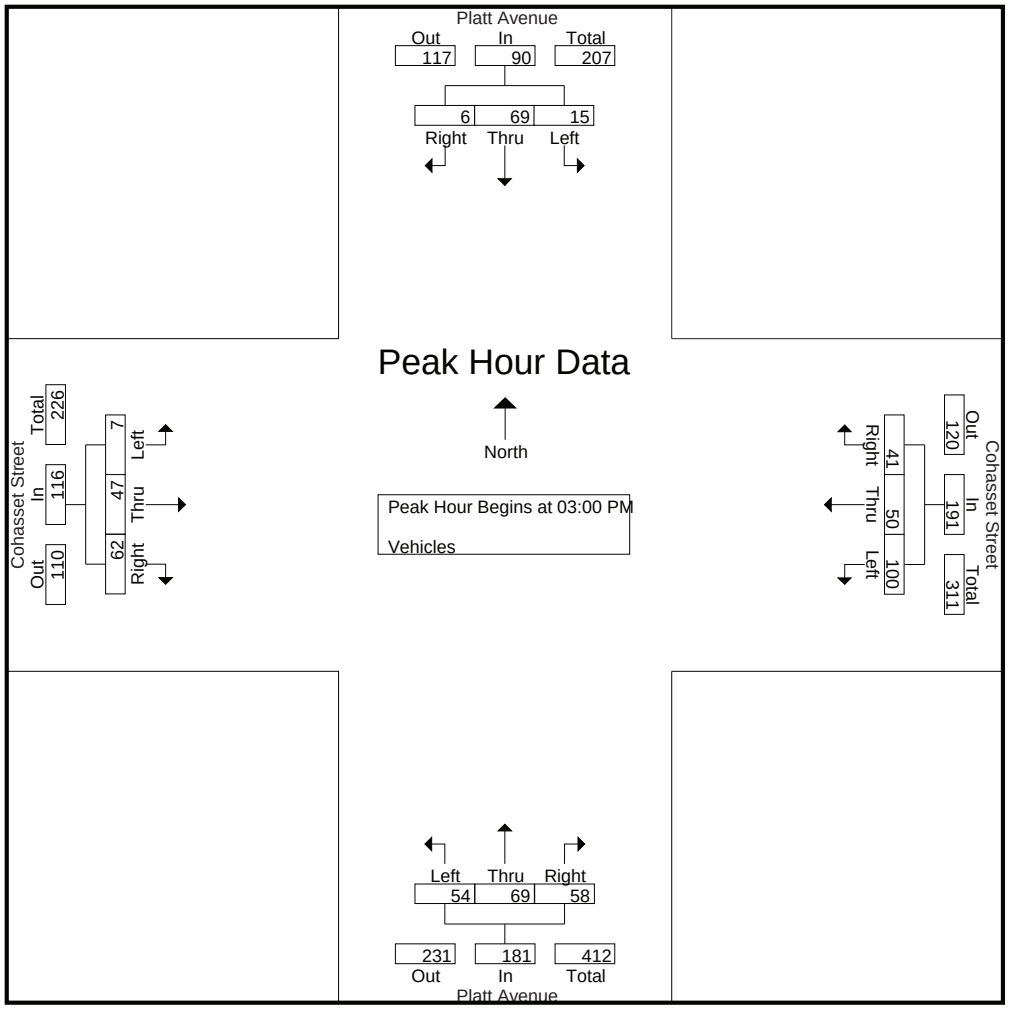


CITY TRAFFIC COUNTERS

WWW.CTCOUNTERS.COM

File Name : PlattAve_CohassetSt
Site Code : 00000000
Start Date : 1/18/2023
Page No : 3

	Platt Avenue Southbound				Cohasset Street Westbound				Platt Avenue Northbound				Cohasset Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 03:00 PM																	
03:00 PM	**7**	**21**	**5**	**33**	**47**	16	**20**	**83**	10	17	**24**	51	**4**	**17**	13	34	**201**
03:15 PM	5	12	1	18	24	**17**	13	54	14	**25**	17	**56**	1	13	10	24	152
03:30 PM	3	15	0	18	17	8	4	29	**16**	19	10	45	2	11	**22**	**35**	127
03:45 PM	0	21	0	21	12	9	4	25	14	8	7	29	0	6	17	23	98
Total Volume	15	69	6	90	100	50	41	191	54	69	58	181	7	47	62	116	578
% App. Total	16.7	76.7	6.7		52.4	26.2	21.5		29.8	38.1	32		6	40.5	53.4		
PHF	.536	.821	.300	.682	.532	.735	.513	.575	.844	.690	.604	.808	.438	.691	.705	.829	.719



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File Name : SaticoySt_KeswickSt
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Groups Printed- Vehicles

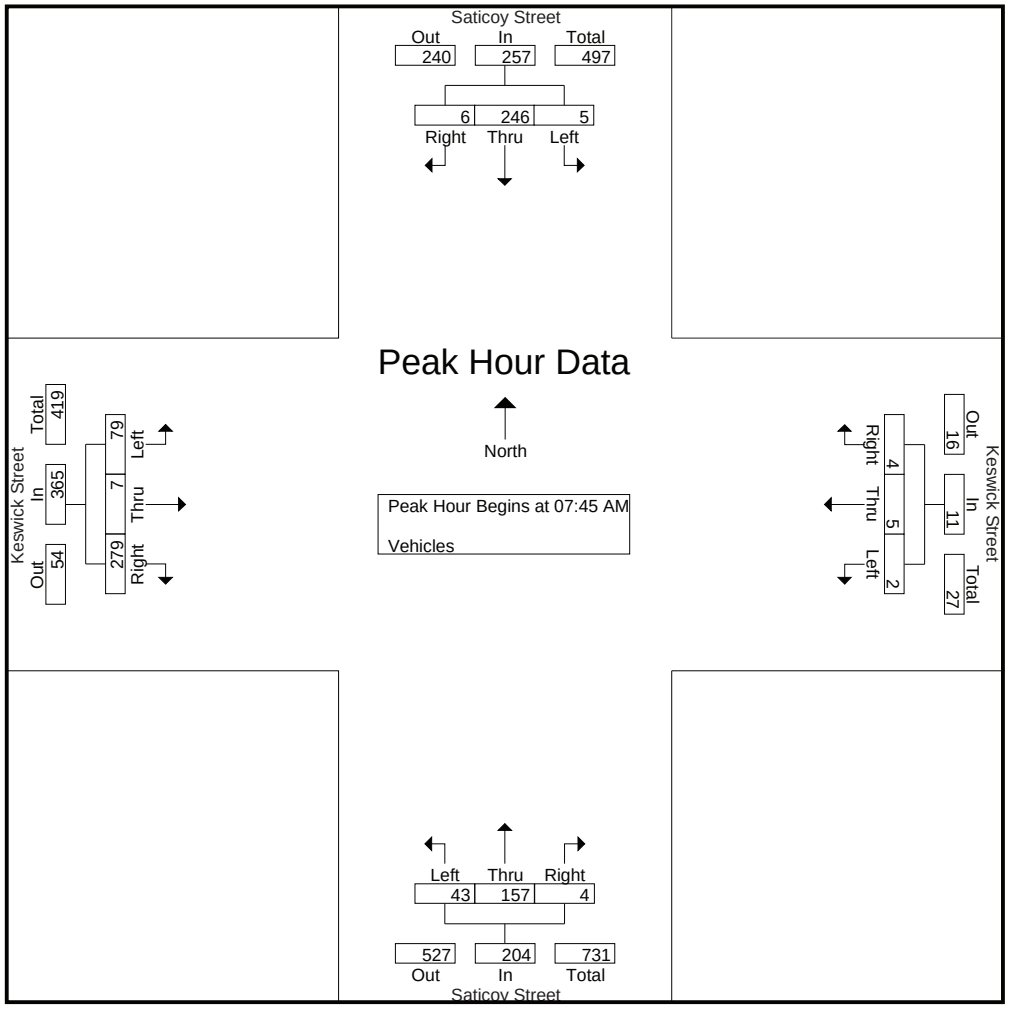
	Saticoy Street Southbound			Keswick Street Westbound			Saticoy Street Northbound			Keswick Street Eastbound			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Int. Total
06:00 AM	0	5	0	0	1	0	0	1	0	0	0	2	9
06:15 AM	0	3	0	0	0	0	0	4	0	0	0	4	11
06:30 AM	0	6	0	0	0	0	2	1	0	0	0	1	10
06:45 AM	0	5	0	1	1	0	3	10	0	0	0	3	23
Total	0	19	0	1	2	0	5	16	0	0	0	10	53
07:00 AM	0	6	0	0	1	0	3	9	0	0	0	7	26
07:15 AM	0	27	1	1	1	0	5	17	0	5	0	13	70
07:30 AM	1	38	0	3	2	2	8	34	1	1	0	24	114
07:45 AM	1	64	0	1	2	1	11	41	0	7	0	35	163
Total	2	135	1	5	6	3	27	101	1	13	0	79	373
08:00 AM	1	77	3	1	1	1	13	45	3	24	5	77	251
08:15 AM	1	67	1	0	1	2	13	42	1	37	2	136	303
08:30 AM	2	38	2	0	1	0	6	29	0	11	0	31	120
08:45 AM	2	37	0	0	0	0	5	36	2	0	1	14	97
Total	6	219	6	1	3	3	37	152	6	72	8	258	771
03:00 PM	0	39	0	1	1	1	11	24	2	2	1	19	101
03:15 PM	2	43	0	0	1	0	5	44	1	3	3	17	119
03:30 PM	0	42	2	0	1	2	7	47	2	2	2	17	124
03:45 PM	3	33	2	3	2	2	11	44	2	2	1	15	120
Total	5	157	4	4	5	5	34	159	7	9	7	68	464
04:00 PM	2	42	6	3	0	4	10	36	0	1	0	10	114
04:15 PM	2	31	0	3	1	2	8	43	1	0	1	6	98
04:30 PM	0	36	1	1	1	4	7	34	1	1	4	15	105
04:45 PM	0	30	2	2	2	2	12	36	2	0	1	14	103
Total	4	139	9	9	4	12	37	149	4	2	6	45	420
05:00 PM	0	45	1	1	2	6	7	40	1	1	3	7	114
05:15 PM	0	28	1	2	1	1	9	33	1	2	1	5	84
05:30 PM	1	47	0	1	0	5	10	38	0	1	0	12	115
05:45 PM	0	31	1	4	0	0	6	27	0	1	1	7	78
Total	1	151	3	8	3	12	32	138	2	5	5	31	391
Grand Total	18	820	23	28	23	35	172	715	20	101	26	491	2472
Apprch %	2.1	95.2	2.7	32.6	26.7	40.7	19	78.8	2.2	16.3	4.2	79.4	
Total %	0.7	33.2	0.9	1.1	0.9	1.4	7	28.9	0.8	4.1	1.1	19.9	

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	Saticoy Street Southbound				Keswick Street Westbound				Saticoy Street Northbound				Keswick Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 11:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:45 AM																	
07:45 AM	1	64	0	65	**1**	**2**	1	**4**	11	41	0	52	7	0	35	42	163
08:00 AM	1	**77**	**3**	**81**	1	1	1	3	**13**	**45**	**3**	**61**	24	**5**	77	106	251
08:15 AM	1	67	1	69	0	1	**2**	3	13	42	1	56	**37**	2	**136**	**175**	**303**
08:30 AM	**2**	38	2	42	0	1	0	1	6	29	0	35	11	0	31	42	120
Total Volume	5	246	6	257	2	5	4	11	43	157	4	204	79	7	279	365	837
% App. Total	1.9	95.7	2.3		18.2	45.5	36.4		21.1	77	2		21.6	1.9	76.4		
PHF	.625	.799	.500	.793	.500	.625	.500	.688	.827	.872	.333	.836	.534	.350	.513	.521	.691

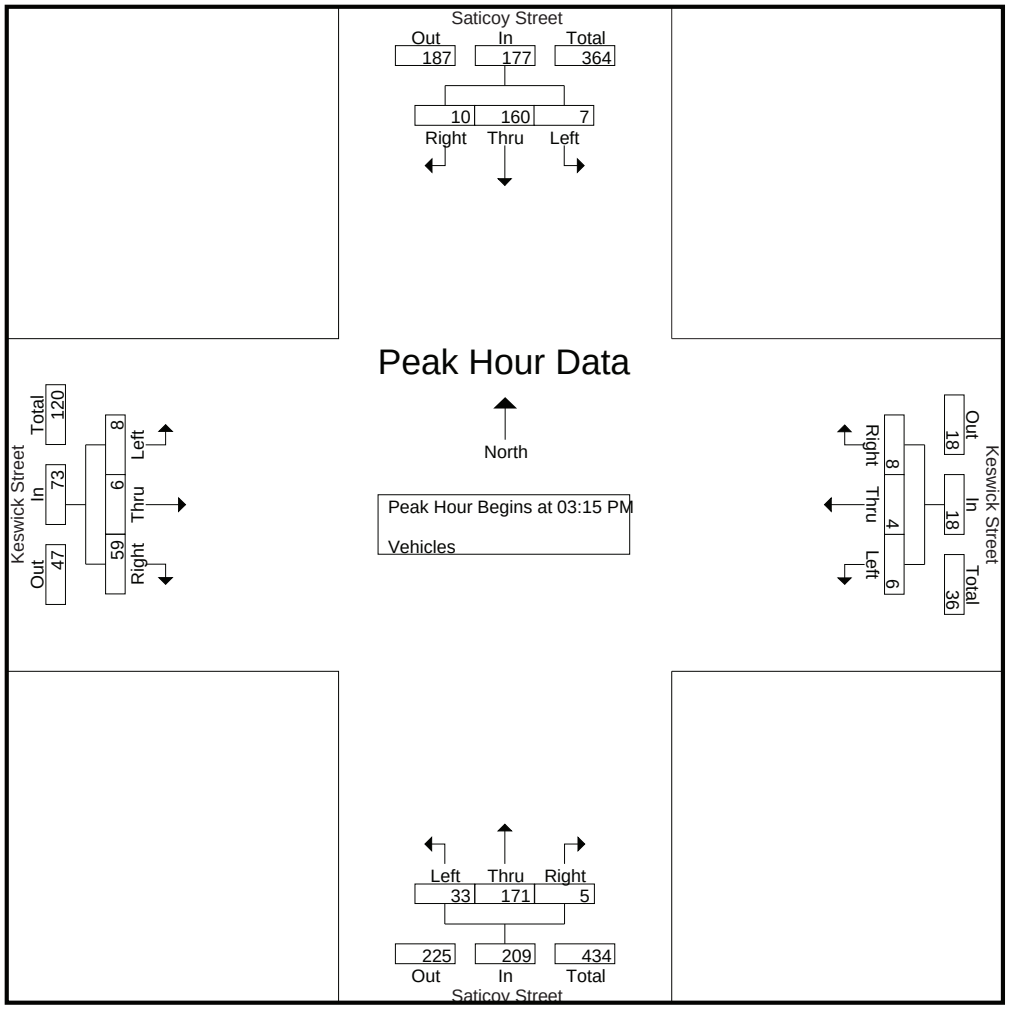


CITY TRAFFIC COUNTERS

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	Saticoy Street Southbound				Keswick Street Westbound				Saticoy Street Northbound				Keswick Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 03:15 PM																	
03:15 PM	2	**43**	0	45	0	1	0	1	5	44	1	50	**3**	**3**	**17**	**23**	119
03:30 PM	0	42	2	44	0	1	2	3	7	**47**	**2**	56	2	2	17	21	**124**
03:45 PM	**3**	33	2	38	**3**	**2**	2	**7**	**11**	44	2	**57**	2	1	15	18	120
04:00 PM	2	42	**6**	**50**	3	0	**4**	7	10	36	0	46	1	0	10	11	114
Total Volume	7	160	10	177	6	4	8	18	33	171	5	209	8	6	59	73	477
% App. Total	4	90.4	5.6		33.3	22.2	44.4		15.8	81.8	2.4		11	8.2	80.8		
PHF	.583	.930	.417	.885	.500	.500	.500	.643	.750	.910	.625	.917	.667	.500	.868	.793	.962



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Groups Printed- Vehicles

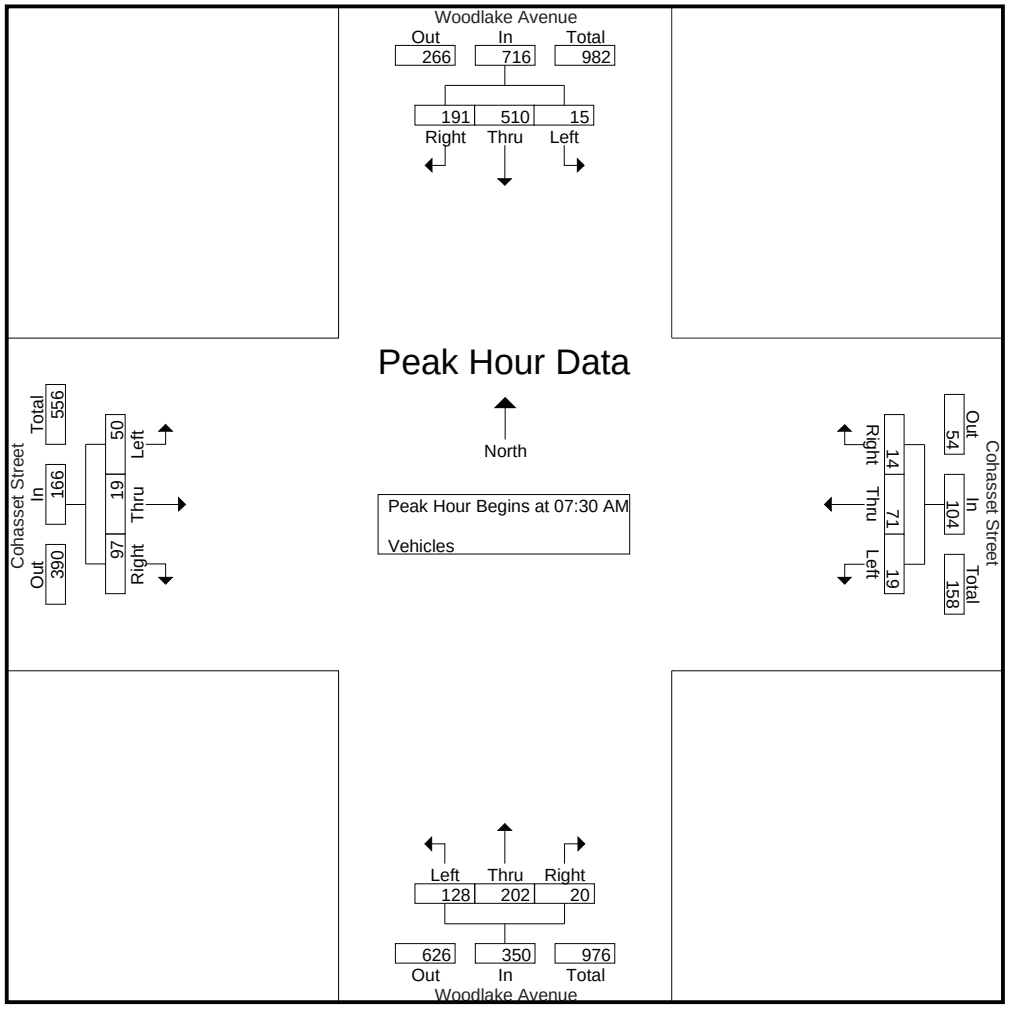
	Woodlake Avenue Southbound			Cohasset Street Westbound			Woodlake Avenue Northbound			Cohasset Street Eastbound			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Int. Total
06:00 AM	0	13	4	0	0	0	3	6	0	1	0	4	31
06:15 AM	0	19	4	1	0	0	1	3	0	3	0	4	35
06:30 AM	1	18	2	0	7	2	3	7	2	1	5	6	54
06:45 AM	0	38	4	2	0	1	3	13	0	2	0	7	70
Total	1	88	14	3	7	3	10	29	2	7	5	21	190
07:00 AM	1	42	6	2	0	0	4	24	2	8	0	4	93
07:15 AM	0	84	16	4	1	3	5	31	3	3	0	6	156
07:30 AM	1	123	25	8	3	3	7	56	2	6	0	15	249
07:45 AM	2	91	29	5	13	4	22	52	4	11	4	26	263
Total	4	340	76	19	17	10	38	163	11	28	4	51	761
08:00 AM	1	123	62	2	18	3	48	51	2	15	10	25	360
08:15 AM	11	173	75	4	37	4	51	43	12	18	5	31	464
08:30 AM	1	125	14	7	0	0	13	38	1	15	1	16	231
08:45 AM	1	88	11	4	0	2	5	32	0	2	0	11	156
Total	14	509	162	17	55	9	117	164	15	50	16	83	1211
03:00 PM	2	82	16	5	2	1	11	80	3	12	0	15	229
03:15 PM	3	73	22	3	4	1	23	85	8	12	2	16	252
03:30 PM	0	71	21	2	1	0	10	83	1	11	2	17	219
03:45 PM	1	65	13	6	0	1	20	68	5	9	1	16	205
Total	6	291	72	16	7	3	64	316	17	44	5	64	905
04:00 PM	1	69	16	3	2	0	23	84	8	15	0	15	236
04:15 PM	2	50	15	4	3	1	21	88	4	27	4	21	240
04:30 PM	1	38	28	2	2	0	19	78	5	23	3	11	210
04:45 PM	0	51	21	4	0	2	16	79	3	14	0	17	207
Total	4	208	80	13	7	3	79	329	20	79	7	64	893
05:00 PM	1	52	23	0	1	1	20	122	7	35	0	16	278
05:15 PM	2	60	19	2	0	1	18	81	4	11	0	13	211
05:30 PM	2	42	14	2	1	0	17	74	11	13	0	17	193
05:45 PM	2	44	10	0	1	2	13	62	4	11	0	8	157
Total	7	198	66	4	3	4	68	339	26	70	0	54	839
Grand Total	36	1634	470	72	96	32	376	1340	91	278	37	337	4799
Apprch %	1.7	76.4	22	36	48	16	20.8	74.2	5	42.6	5.7	51.7	
Total %	0.8	34	9.8	1.5	2	0.7	7.8	27.9	1.9	5.8	0.8	7	

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	Woodlake Avenue Southbound				Cohasset Street Westbound				Woodlake Avenue Northbound				Cohasset Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 11:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	1	123	25	149	**8**	3	3	14	7	**56**	2	65	6	0	15	21	249
07:45 AM	2	91	29	122	5	13	**4**	22	22	52	4	78	11	4	26	41	263
08:00 AM	1	123	62	186	2	18	3	23	48	51	2	101	15	**10**	25	50	360
08:15 AM	**11**	**173**	**75**	**259**	4	**37**	4	**45**	**51**	43	**12**	**106**	**18**	5	**31**	**54**	**464**
Total Volume	15	510	191	716	19	71	14	104	128	202	20	350	50	19	97	166	1336
% App. Total	2.1	71.2	26.7		18.3	68.3	13.5		36.6	57.7	5.7		30.1	11.4	58.4		
PHF	.341	.737	.637	.691	.594	.480	.875	.578	.627	.902	.417	.825	.694	.475	.782	.769	.720

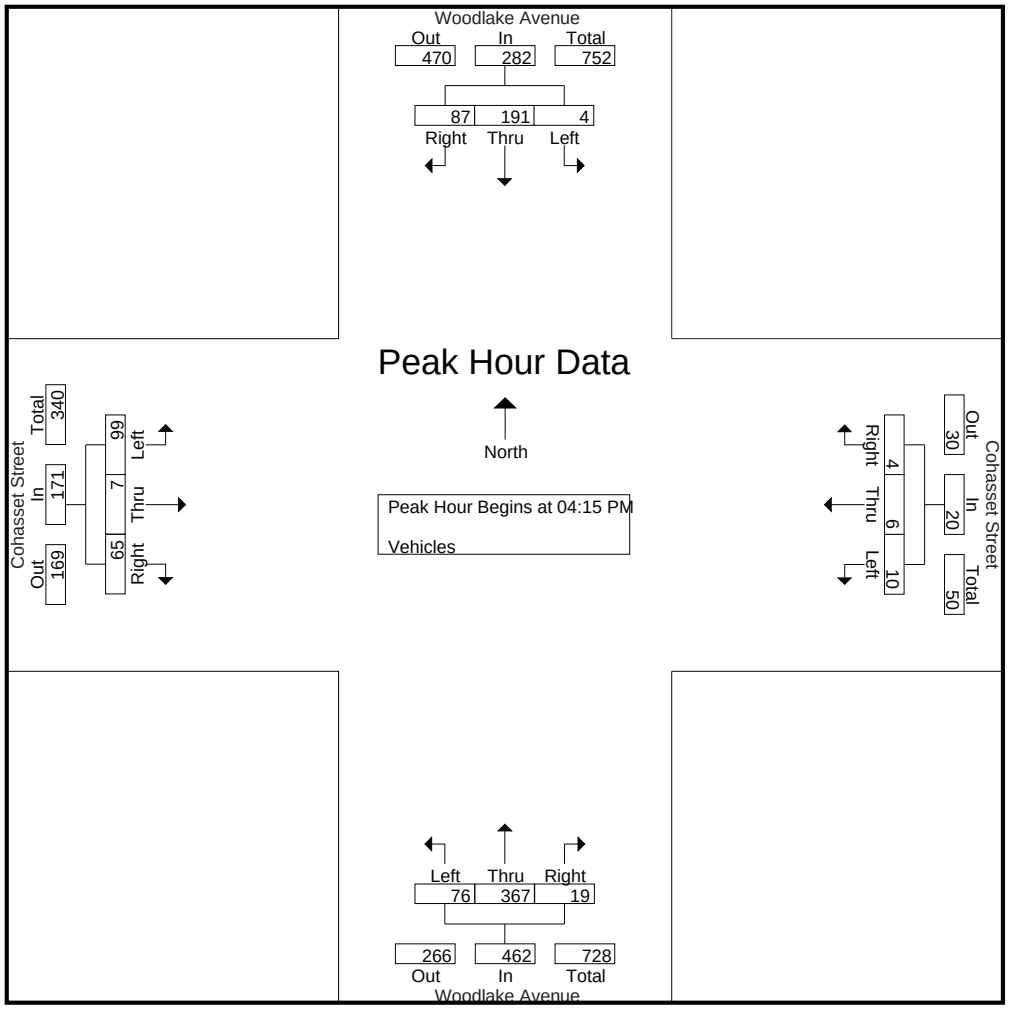


CITY TRAFFIC COUNTERS

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	Woodlake Avenue Southbound				Cohasset Street Westbound				Woodlake Avenue Northbound				Cohasset Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:15 PM																	
04:15 PM	**2**	50	15	67	**4**	**3**	1	**8**	**21**	88	4	113	27	**4**	**21**	**52**	240
04:30 PM	1	38	**28**	67	2	2	0	4	19	78	5	102	23	3	11	37	210
04:45 PM	0	51	21	72	4	0	**2**	6	16	79	3	98	14	0	17	31	207
05:00 PM	1	**52**	23	**76**	0	1	1	2	20	**122**	**7**	**149**	**35**	0	16	51	**278**
Total Volume	4	191	87	282	10	6	4	20	76	367	19	462	99	7	65	171	935
% App. Total	1.4	67.7	30.9		50	30	20		16.5	79.4	4.1		57.9	4.1	38		
PHF	.500	.918	.777	.928	.625	.500	.500	.625	.905	.752	.679	.775	.707	.438	.774	.822	.841



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Groups Printed- Vehicles

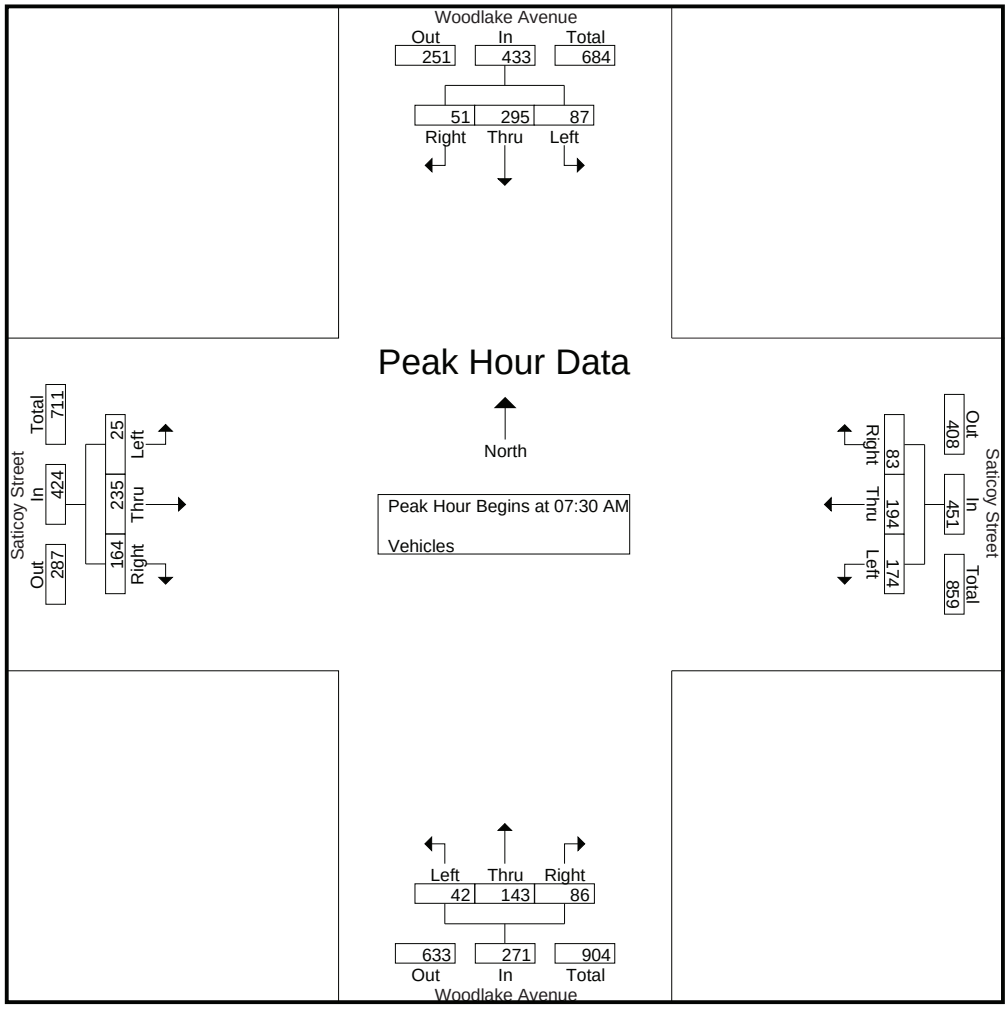
	Woodlake Avenue Southbound			Saticoy Street Westbound			Woodlake Avenue Northbound			Saticoy Street Eastbound			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Int. Total
06:00 AM	10	7	0	6	3	2	0	6	1	0	8	3	46
06:15 AM	10	16	2	8	7	4	1	1	4	2	11	1	67
06:30 AM	11	20	0	12	5	3	1	5	6	1	13	0	77
06:45 AM	15	23	1	16	24	3	0	11	4	0	16	2	115
Total	46	66	3	42	39	12	2	23	15	3	48	6	305
07:00 AM	12	23	2	24	14	5	2	19	8	1	15	3	128
07:15 AM	14	52	6	41	20	14	3	19	12	4	29	7	221
07:30 AM	22	86	6	35	38	6	15	39	18	2	39	18	324
07:45 AM	13	53	3	39	52	25	10	33	17	4	71	21	341
Total	61	214	17	139	124	50	30	110	55	11	154	49	1014
08:00 AM	27	74	21	52	44	32	5	32	31	6	72	45	441
08:15 AM	25	82	21	48	60	20	12	39	20	13	53	80	473
08:30 AM	16	60	10	32	35	7	8	23	19	6	52	39	307
08:45 AM	13	47	3	26	33	13	5	14	11	0	51	14	230
Total	81	263	55	158	172	72	30	108	81	25	228	178	1451
03:00 PM	18	53	3	24	29	16	15	45	22	5	38	13	281
03:15 PM	16	39	4	28	32	14	16	48	37	10	48	15	307
03:30 PM	10	51	8	29	28	11	24	40	29	3	40	7	280
03:45 PM	14	38	4	18	41	16	13	43	21	5	42	15	270
Total	58	181	19	99	130	57	68	176	109	23	168	50	1138
04:00 PM	14	32	2	19	34	23	11	47	35	0	37	15	269
04:15 PM	15	36	4	19	44	16	11	68	26	1	28	3	271
04:30 PM	9	32	2	24	39	21	17	39	32	3	47	3	268
04:45 PM	19	34	2	18	50	12	13	59	33	1	34	5	280
Total	57	134	10	80	167	72	52	213	126	5	146	26	1088
05:00 PM	17	42	2	21	26	21	23	71	59	1	35	11	329
05:15 PM	15	42	7	30	41	28	12	42	44	1	40	6	308
05:30 PM	16	25	5	17	29	17	18	42	26	4	40	6	245
05:45 PM	12	23	2	20	36	22	7	36	25	3	29	4	219
Total	60	132	16	88	132	88	60	191	154	9	144	27	1101
Grand Total	363	990	120	606	764	351	242	821	540	76	888	336	6097
Apprch %	24.6	67.2	8.1	35.2	44.4	20.4	15.1	51.2	33.7	5.8	68.3	25.8	
Total %	6	16.2	2	9.9	12.5	5.8	4	13.5	8.9	1.2	14.6	5.5	

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	Woodlake Avenue Southbound				Saticoy Street Westbound				Woodlake Avenue Northbound				Saticoy Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 11:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	22	**86**	6	114	35	38	6	79	**15**	**39**	18	**72**	2	39	18	59	324
07:45 AM	13	53	3	69	39	52	25	116	10	33	17	60	4	71	21	96	341
08:00 AM	**27**	74	**21**	122	**52**	44	**32**	**128**	5	32	**31**	68	6	**72**	45	123	441
08:15 AM	25	82	21	**128**	48	**60**	20	128	12	39	20	71	**13**	53	**80**	**146**	**473**
Total Volume	87	295	51	433	174	194	83	451	42	143	86	271	25	235	164	424	1579
% App. Total	20.1	68.1	11.8		38.6	43	18.4		15.5	52.8	31.7		5.9	55.4	38.7		
PHF	.806	.858	.607	.846	.837	.808	.648	.881	.700	.917	.694	.941	.481	.816	.513	.726	.835

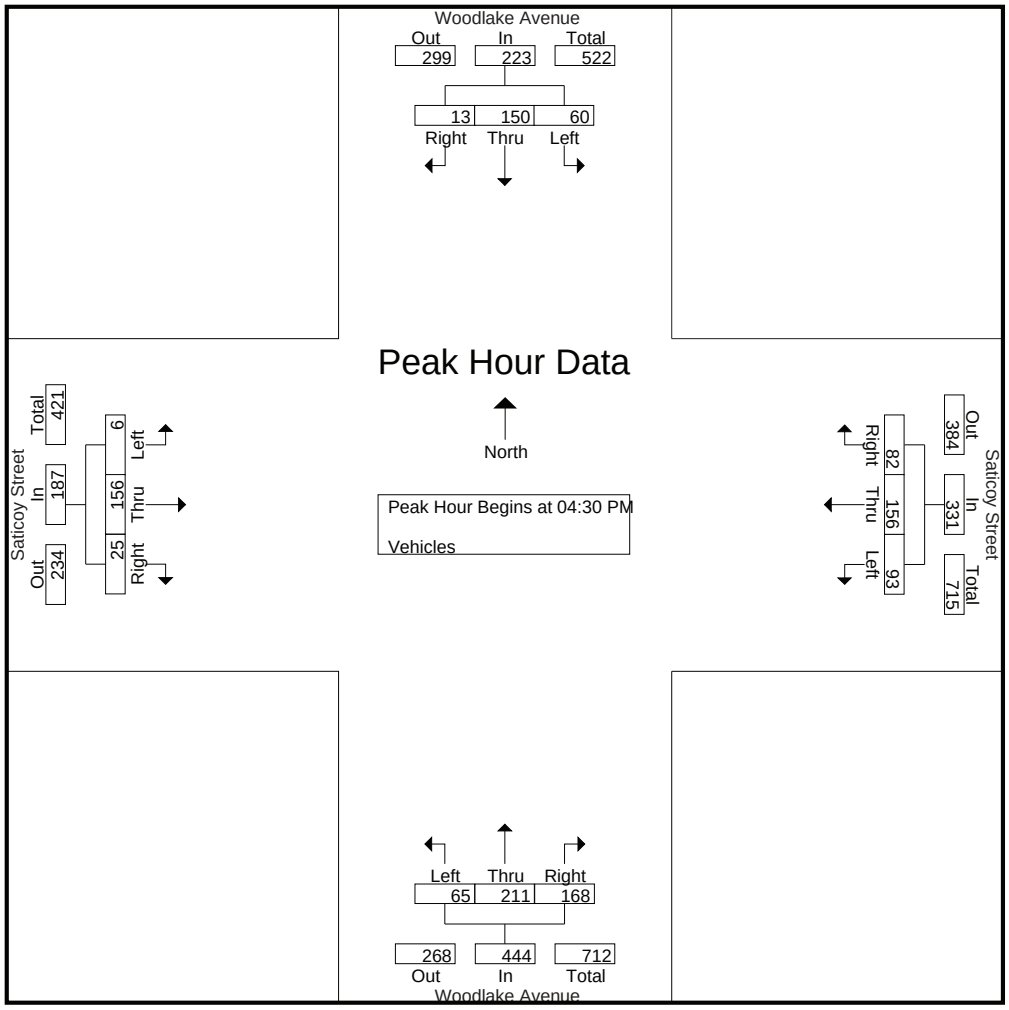


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	Woodlake Avenue Southbound				Saticoy Street Westbound				Woodlake Avenue Northbound				Saticoy Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	9	32	2	43	24	39	21	84	17	39	32	88	**3**	**47**	3	**53**	268
04:45 PM	**19**	34	2	55	18	**50**	12	80	13	59	33	105	1	34	5	40	280
05:00 PM	17	**42**	2	61	21	26	21	68	**23**	**71**	**59**	**153**	1	35	**11**	47	**329**
05:15 PM	15	42	**7**	**64**	**30**	41	**28**	**99**	12	42	44	98	1	40	6	47	308
Total Volume	60	150	13	223	93	156	82	331	65	211	168	444	6	156	25	187	1185
% App. Total	26.9	67.3	5.8		28.1	47.1	24.8		14.6	47.5	37.8		3.2	83.4	13.4		
PHF	.789	.893	.464	.871	.775	.780	.732	.836	.707	.743	.712	.725	.500	.830	.568	.882	.900



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Start Date : 1/18/2023
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Groups Printed- Driveway 1 - Driveway 2 - Driveway 3 - Driveway 4 - Driveway 5 - Driveway 6

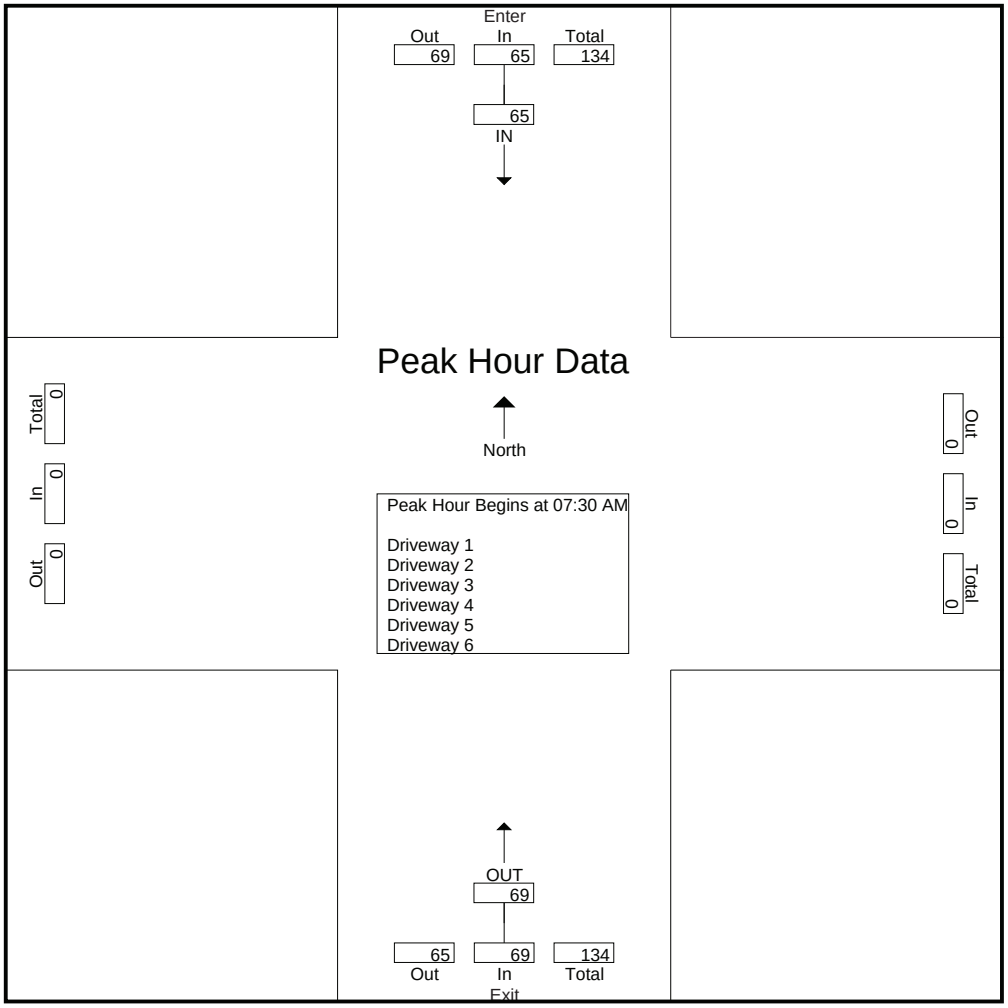
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Start Time	IN	OUT	Int. Total
06:15 AM	4	5	9
06:30 AM	2	0	2
06:45 AM	7	1	8
Total	13	6	19
07:00 AM	4	4	8
07:15 AM	10	1	11
07:30 AM	16	28	44
07:45 AM	8	6	14
Total	38	39	77
08:00 AM	18	14	32
08:15 AM	23	21	44
08:30 AM	20	12	32
08:45 AM	8	7	15
Total	69	54	123
			219 AM Total
03:00 PM	27	30	57
03:15 PM	19	20	39
03:30 PM	25	20	45
03:45 PM	35	37	72
Total	106	107	213
04:00 PM	23	32	55
04:15 PM	19	15	34
04:30 PM	24	16	40
04:45 PM	29	27	56
Total	95	90	185
05:00 PM	32	39	71
05:15 PM	23	25	48
05:30 PM	28	37	65
05:45 PM	23	18	41
Total	106	119	225
			623 PM Total
Grand Total	427	415	842
Apprch %	100	100	
Total %	50.7	49.3	
Driveway 1	69	81	150
% Driveway 1	16.2	19.5	17.8
Driveway 2	56	68	124
% Driveway 2	13.1	16.4	14.7
Driveway 3	46	61	107
% Driveway 3	10.8	14.7	12.7
Driveway 4	142	58	200
% Driveway 4	33.3	14	23.8
Driveway 5	78	107	185
% Driveway 5	18.3	25.8	22
Driveway 6	36	40	76
% Driveway 6	8.4	9.6	9

CITY TRAFFIC COUNTERS

WWW.CTCOUNTERS.COM

File Name : WestHillsShoppingCenterDriveways
Site Code : 00000000
Start Date : 1/18/2023
Page No : 2

	Enter			Exit			
Start Time	IN	App. Total	App. Total	OUT	App. Total	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1							
Peak Hour for Entire Intersection Begins at 07:30 AM							
07:30 AM	16	16	0	**28**	**28**	0	**44**
07:45 AM	8	8	0	6	6	0	14
08:00 AM	18	18	0	14	14	0	32
08:15 AM	**23**	**23**	0	21	21	0	44
Total Volume	65	65	0	69	69	0	134
% App. Total	100			100			
PHF	.707	.707	.000	.616	.616	.000	.761

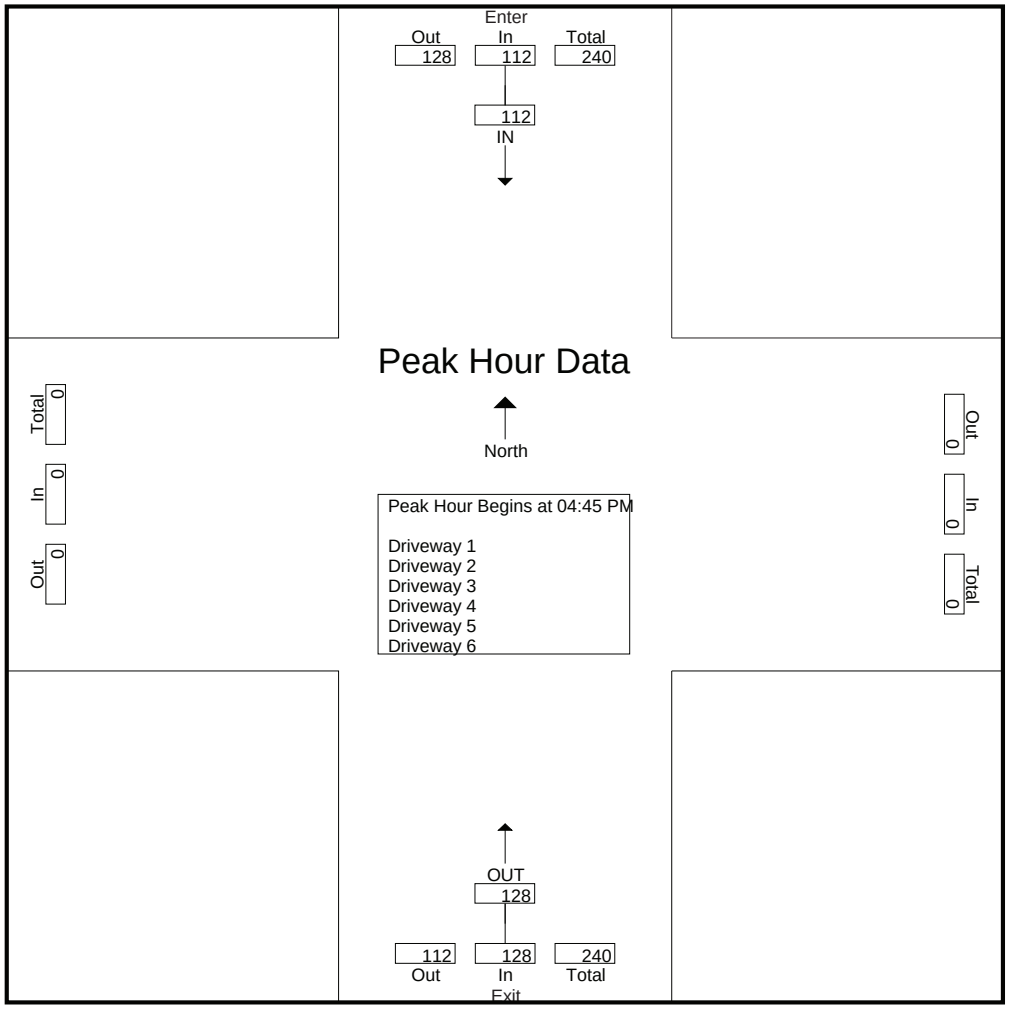


CITY TRAFFIC COUNTERS

WWW.CTCOUNTERS.COM

File Name : WestHillsShoppingCenterDriveways
Site Code : 00000000
Start Date : 1/18/2023

	Enter			Exit			
Start Time	IN	App. Total	App. Total	OUT	App. Total	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1							
Peak Hour for Entire Intersection Begins at 04:45 PM							
04:45 PM	29	29	0	27	27	0	56
05:00 PM	**32**	**32**	0	**39**	**39**	0	**71**
05:15 PM	23	23	0	25	25	0	48
05:30 PM	28	28	0	37	37	0	65
Total Volume	112	112	0	128	128	0	240
% App. Total	100			100			
PHF	.875	.875	.000	.821	.821	.000	.845



ATHLETIC CENTER ATTENDEES

	Activity	Attendees	January			February			March			April			May			June			July			August			September*			October			November			December		
			AM	PM	DAY	AM	PM	DAY	AM	PM	DAY	AM	PM	DAY	AM	PM	DAY	AM	PM	DAY	AM	PM	DAY	AM	PM	DAY	AM	PM	DAY	AM	PM	DAY	AM	PM	DAY	AM	PM	DAY
1	High School Swim Competitions	40 Parents + Official 10 per Year				0	90	90	0	90	90	0	90	90																								
2	Middle School Swim Competitions	40 Parents + Official 10 per Year																																				
3	Other Schools Swim Practice	0				0	8	8	0	8	8	0	8	8													0	8	8	0	8	8	0	8	8			
4	Swim Lessons / Water Exercise Classes	32 Participants - 6 sessions per day 3 AM 3 PM	192	192	384	192	192	384	192	192	384	192	192	384	192	192	384	192	192	384	192	192	384	192	192	384	192	192	384	192	192	384	192	192	384	192	192	384
5	Local Community Swim	32 Participants 4 sessions per day no other activity at the center																																				
6	Local Non-School Athletic Groups - Games & Practices	60 Players w/Parents + 10 Coaches & Officials 4 sessions per day in the PM													0	560	560	0	560	560	0	560	560	0	560	560	0	560	560	0	560	560	0	560	560	0	560	560
Total Attendees			192	192	384	192	290	482	192	290	482	192	290	482	192	752	944	192	752	944	192	752	944	192	752	944	192	760	952	192	760	952	192	760	952	192	752	944

	Highest Peak Hour		
* Maxumum number of trips in yellow highlight			
Total trip generation rate per attendee is 2 for peak and non-peak hours	AM	PM	Daily
Assuming 70% of the trips arrive and leave during the peak hours in the AM & PM	134	532	952

Appendix 7 - HCM Analysis Worksheets

Intersection	
Intersection Delay, s/veh	10.3
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	11	80	102	41	42	16	74	78	109	55	117	2
Future Vol, veh/h	11	80	102	41	42	16	74	78	109	55	117	2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	12	87	111	45	46	17	80	85	118	60	127	2
Number of Lanes	0	1	0	0	1	0	0	2	1	0	2	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	2	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	3	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	2	1	1
HCM Control Delay	11.1	10.4	9.4	10.6
HCM LOS	B	B	A	B

Lane	NBLn1	NBLn2	NBLn3	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	74%	0%	0%	6%	41%	48%	0%
Vol Thru, %	26%	100%	0%	41%	42%	52%	97%
Vol Right, %	0%	0%	100%	53%	16%	0%	3%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	100	52	109	193	99	114	61
LT Vol	74	0	0	11	41	55	0
Through Vol	26	52	0	80	42	59	59
RT Vol	0	0	109	102	16	0	2
Lane Flow Rate	109	57	118	210	108	123	66
Geometry Grp	7	7	7	7	7	8	8
Degree of Util (X)	0.186	0.091	0.167	0.328	0.186	0.223	0.114
Departure Headway (Hd)	6.163	5.788	5.078	5.635	6.222	6.493	6.223
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	583	619	706	638	577	553	576
Service Time	3.893	3.518	2.809	3.369	3.96	4.23	3.96
HCM Lane V/C Ratio	0.187	0.092	0.167	0.329	0.187	0.222	0.115
HCM Control Delay	10.3	9.1	8.8	11.1	10.4	11.1	9.8
HCM Lane LOS	B	A	A	B	B	B	A
HCM 95th-tile Q	0.7	0.3	0.6	1.4	0.7	0.8	0.4

Intersection	
Intersection Delay, s/veh	22.4
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	25	235	164	174	194	83	42	143	86	87	295	51
Future Vol, veh/h	25	235	164	174	194	83	42	143	86	87	295	51
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	27	255	178	189	211	90	46	155	93	95	321	55
Number of Lanes	0	1	1	0	2	0	0	2	0	0	2	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	2	2
HCM Control Delay	22.8	25.5	16.7	22.2
HCM LOS	C	D	C	C

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	37%	0%	10%	0%	64%	0%	37%	0%
Vol Thru, %	63%	45%	90%	0%	36%	54%	63%	74%
Vol Right, %	0%	55%	0%	100%	0%	46%	0%	26%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	114	158	260	164	271	180	235	199
LT Vol	42	0	25	0	174	0	87	0
Through Vol	72	72	235	0	97	97	148	148
RT Vol	0	86	0	164	0	83	0	51
Lane Flow Rate	123	171	283	178	295	196	255	216
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.314	0.408	0.674	0.387	0.718	0.441	0.619	0.502
Departure Headway (Hd)	9.172	8.581	8.587	7.811	8.781	8.113	8.748	8.369
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	392	419	421	462	412	444	413	432
Service Time	6.92	6.328	6.317	5.541	6.511	5.844	6.48	6.1
HCM Lane V/C Ratio	0.314	0.408	0.672	0.385	0.716	0.441	0.617	0.5
HCM Control Delay	16.1	17.1	27.4	15.4	31	17.1	24.7	19.3
HCM Lane LOS	C	C	D	C	D	C	C	C
HCM 95th-tile Q	1.3	1.9	4.8	1.8	5.5	2.2	4	2.7

Intersection	
Intersection Delay, s/veh	11.7
Intersection LOS	B

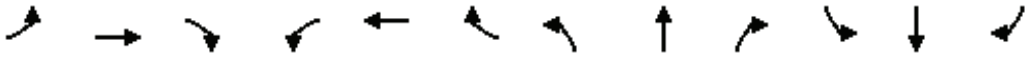
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	79	7	279	2	5	4	43	157	4	5	246	6
Future Vol, veh/h	79	7	279	2	5	4	43	157	4	5	246	6
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	86	8	303	2	5	4	47	171	4	5	267	7
Number of Lanes	0	1	0	0	1	0	0	2	0	0	2	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	1	1
HCM Control Delay	13.5	8.9	10.4	10.4
HCM LOS	B	A	B	B

Lane	NBLn1	NBLn2	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	35%	0%	22%	18%	4%	0%
Vol Thru, %	65%	95%	2%	45%	96%	95%
Vol Right, %	0%	5%	76%	36%	0%	5%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	122	83	365	11	128	129
LT Vol	43	0	79	2	5	0
Through Vol	79	79	7	5	123	123
RT Vol	0	4	279	4	0	6
Lane Flow Rate	132	90	397	12	139	140
Geometry Grp	7	7	2	2	7	7
Degree of Util (X)	0.227	0.149	0.539	0.019	0.231	0.23
Departure Headway (Hd)	6.2	5.986	4.888	5.756	5.967	5.914
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	580	599	742	620	602	607
Service Time	3.936	3.722	2.888	3.806	3.702	3.649
HCM Lane V/C Ratio	0.228	0.15	0.535	0.019	0.231	0.231
HCM Control Delay	10.8	9.8	13.5	8.9	10.5	10.4
HCM Lane LOS	B	A	B	A	B	B
HCM 95th-tile Q	0.9	0.5	3.3	0.1	0.9	0.9

HCM 6th Signalized Intersection Summary
9: Cohasset St & Woodlake Ave

04/14/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	50	19	97	19	71	14	128	202	20	158	510	191
Future Volume (veh/h)	50	19	97	19	71	14	128	202	20	158	510	191
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	54	21	105	21	77	15	139	220	22	172	554	208
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	214	77	208	168	307	53	438	1505	149	700	1166	436
Arrive On Green	0.23	0.23	0.23	0.23	0.23	0.23	0.46	0.46	0.46	0.46	0.46	0.46
Sat Flow, veh/h	314	340	915	166	1351	232	704	3266	323	1138	2530	947
Grp Volume(v), veh/h	180	0	0	113	0	0	139	119	123	172	389	373
Grp Sat Flow(s),veh/h/ln	1569	0	0	1749	0	0	704	1777	1812	1138	1777	1700
Q Serve(g_s), s	0.8	0.0	0.0	0.0	0.0	0.0	5.6	1.3	1.3	3.4	4.9	5.0
Cycle Q Clear(g_c), s	3.1	0.0	0.0	1.7	0.0	0.0	10.5	1.3	1.3	4.7	4.9	5.0
Prop In Lane	0.30		0.58	0.19		0.13	1.00		0.18	1.00		0.56
Lane Grp Cap(c), veh/h	500	0	0	528	0	0	438	819	835	700	819	783
V/C Ratio(X)	0.36	0.00	0.00	0.21	0.00	0.00	0.32	0.15	0.15	0.25	0.47	0.48
Avail Cap(c_a), veh/h	1451	0	0	1584	0	0	582	1184	1207	933	1184	1133
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	10.9	0.0	0.0	10.4	0.0	0.0	9.7	5.1	5.1	6.5	6.1	6.1
Incr Delay (d2), s/veh	0.4	0.0	0.0	0.2	0.0	0.0	0.8	0.2	0.2	0.4	0.9	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.0	0.0	0.5	0.0	0.0	0.7	0.3	0.3	0.5	1.1	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	11.4	0.0	0.0	10.6	0.0	0.0	10.6	5.3	5.3	6.8	7.0	7.1
LnGrp LOS	B	A	A	B	A	A	B	A	A	A	A	A
Approach Vol, veh/h		180			113			381			934	
Approach Delay, s/veh		11.4			10.6			7.2			7.0	
Approach LOS		B			B			A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		19.9		12.8		19.9		12.8				
Change Period (Y+Rc), s		* 4.8		5.4		* 4.8		5.4				
Max Green Setting (Gmax), s		* 22		28.0		* 22		28.0				
Max Q Clear Time (g_c+I1), s		7.0		3.7		12.5		5.1				
Green Ext Time (p_c), s		8.0		0.6		2.6		1.0				

Intersection Summary		
HCM 6th Ctrl Delay	7.8	
HCM 6th LOS	A	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Lane Group	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	180	113	139	242	172	762
v/c Ratio	0.44	0.29	0.34	0.11	0.25	0.36
Control Delay	10.4	13.8	9.3	4.7	6.9	5.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.4	13.8	9.3	4.7	6.9	5.3
Queue Length 50th (ft)	14	19	15	10	17	36
Queue Length 95th (ft)	51	48	53	26	51	75
Internal Link Dist (ft)	1351	277		694		755
Turn Bay Length (ft)						
Base Capacity (vph)	1092	1222	429	2242	717	2210
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.16	0.09	0.32	0.11	0.24	0.34

Intersection Summary

Intersection	
Intersection Delay, s/veh	9.7
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	7	47	62	100	50	41	54	69	58	15	69	6
Future Vol, veh/h	7	47	62	100	50	41	54	69	58	15	69	6
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	8	51	67	109	54	45	59	75	63	16	75	7
Number of Lanes	0	1	0	0	1	0	0	2	1	0	2	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	2	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	3	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	2	1	1
HCM Control Delay	9.1	10.9	8.9	9.3
HCM LOS	A	B	A	A

Lane	NBLn1	NBLn2	NBLn3	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	70%	0%	0%	6%	52%	30%	0%
Vol Thru, %	30%	100%	0%	41%	26%	70%	85%
Vol Right, %	0%	0%	100%	53%	21%	0%	15%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	77	46	58	116	191	50	41
LT Vol	54	0	0	7	100	15	0
Through Vol	23	46	0	47	50	35	35
RT Vol	0	0	58	62	41	0	6
Lane Flow Rate	84	50	63	126	208	54	44
Geometry Grp	7	7	7	7	7	8	8
Degree of Util (X)	0.137	0.077	0.085	0.181	0.319	0.091	0.072
Departure Headway (Hd)	5.912	5.558	4.85	5.181	5.528	6.11	5.851
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	603	640	732	686	646	581	606
Service Time	3.689	3.334	2.626	2.96	3.297	3.908	3.649
HCM Lane V/C Ratio	0.139	0.078	0.086	0.184	0.322	0.093	0.073
HCM Control Delay	9.6	8.8	8.1	9.1	10.9	9.5	9.1
HCM Lane LOS	A	A	A	A	B	A	A
HCM 95th-tile Q	0.5	0.2	0.3	0.7	1.4	0.3	0.2

Intersection	
Intersection Delay, s/veh	14.3
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	6	156	25	93	156	82	65	211	168	60	150	13
Future Vol, veh/h	6	156	25	93	156	82	65	211	168	60	150	13
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	7	170	27	101	170	89	71	229	183	65	163	14
Number of Lanes	0	1	1	0	2	0	0	2	0	0	2	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	2	2
HCM Control Delay	14	13.9	15.5	12.9
HCM LOS	B	B	C	B

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	38%	0%	4%	0%	54%	0%	44%	0%
Vol Thru, %	62%	39%	96%	0%	46%	49%	56%	85%
Vol Right, %	0%	61%	0%	100%	0%	51%	0%	15%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	171	274	162	25	171	160	135	88
LT Vol	65	0	6	0	93	0	60	0
Through Vol	106	106	156	0	78	78	75	75
RT Vol	0	168	0	25	0	82	0	13
Lane Flow Rate	185	297	176	27	186	174	147	96
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.366	0.535	0.367	0.051	0.386	0.33	0.307	0.191
Departure Headway (Hd)	7.11	6.476	7.51	6.772	7.468	6.823	7.539	7.206
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	506	556	479	529	481	527	477	497
Service Time	4.849	4.216	5.255	4.517	5.208	4.562	5.286	4.952
HCM Lane V/C Ratio	0.366	0.534	0.367	0.051	0.387	0.33	0.308	0.193
HCM Control Delay	13.9	16.5	14.6	9.9	14.9	12.9	13.6	11.7
HCM Lane LOS	B	C	B	A	B	B	B	B
HCM 95th-tile Q	1.7	3.1	1.7	0.2	1.8	1.4	1.3	0.7

Intersection	
Intersection Delay, s/veh	8.5
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	8	6	59	6	4	8	33	171	5	7	160	10
Future Vol, veh/h	8	6	59	6	4	8	33	171	5	7	160	10
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	9	7	64	7	4	9	36	186	5	8	174	11
Number of Lanes	0	1	0	0	1	0	0	2	0	0	2	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	1	1
HCM Control Delay	8	8	8.7	8.4
HCM LOS	A	A	A	A

Lane	NBLn1	NBLn2	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	28%	0%	11%	33%	8%	0%
Vol Thru, %	72%	94%	8%	22%	92%	89%
Vol Right, %	0%	6%	81%	44%	0%	11%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	119	91	73	18	87	90
LT Vol	33	0	8	6	7	0
Through Vol	86	86	6	4	80	80
RT Vol	0	5	59	8	0	10
Lane Flow Rate	129	98	79	20	95	98
Geometry Grp	7	7	2	2	7	7
Degree of Util (X)	0.181	0.134	0.098	0.026	0.131	0.133
Departure Headway (Hd)	5.065	4.887	4.456	4.797	5	4.881
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	710	735	805	746	718	736
Service Time	2.789	2.611	2.481	2.828	2.724	2.606
HCM Lane V/C Ratio	0.182	0.133	0.098	0.027	0.132	0.133
HCM Control Delay	8.9	8.4	8	8	8.5	8.4
HCM Lane LOS	A	A	A	A	A	A
HCM 95th-tile Q	0.7	0.5	0.3	0.1	0.4	0.5

HCM 6th Signalized Intersection Summary
9: Cohasset St & Woodlake Ave

04/14/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	99	7	65	10	6	4	76	367	19	4	191	87
Future Volume (veh/h)	99	7	65	10	6	4	76	367	19	4	191	87
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	108	8	71	11	7	4	83	399	21	4	208	95
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	386	53	137	338	185	71	612	1295	68	557	905	399
Arrive On Green	0.24	0.24	0.24	0.24	0.24	0.24	0.38	0.38	0.38	0.38	0.38	0.38
Sat Flow, veh/h	723	224	579	564	778	298	1076	3435	180	967	2400	1057
Grp Volume(v), veh/h	187	0	0	22	0	0	83	206	214	4	152	151
Grp Sat Flow(s),veh/h/ln	1526	0	0	1640	0	0	1076	1777	1838	967	1777	1680
Q Serve(g_s), s	1.7	0.0	0.0	0.0	0.0	0.0	1.5	2.2	2.2	0.1	1.5	1.6
Cycle Q Clear(g_c), s	2.7	0.0	0.0	0.2	0.0	0.0	3.1	2.2	2.2	2.3	1.5	1.6
Prop In Lane	0.58		0.38	0.50		0.18	1.00		0.10	1.00		0.63
Lane Grp Cap(c), veh/h	577	0	0	593	0	0	612	670	693	557	670	634
V/C Ratio(X)	0.32	0.00	0.00	0.04	0.00	0.00	0.14	0.31	0.31	0.01	0.23	0.24
Avail Cap(c_a), veh/h	1795	0	0	1831	0	0	1093	1464	1515	990	1464	1385
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	8.7	0.0	0.0	7.8	0.0	0.0	6.7	5.8	5.8	6.6	5.6	5.6
Incr Delay (d2), s/veh	0.3	0.0	0.0	0.0	0.0	0.0	0.2	0.5	0.5	0.0	0.4	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.0	0.0	0.1	0.0	0.0	0.2	0.4	0.4	0.0	0.3	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	9.0	0.0	0.0	7.8	0.0	0.0	6.9	6.3	6.3	6.6	6.0	6.0
LnGrp LOS	A	A	A	A	A	A	A	A	A	A	A	A
Approach Vol, veh/h		187			22			503			307	
Approach Delay, s/veh		9.0			7.8			6.4			6.0	
Approach LOS		A			A			A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		14.8		11.7		14.8		11.7				
Change Period (Y+Rc), s		* 4.8		5.4		* 4.8		5.4				
Max Green Setting (Gmax), s		* 22		28.0		* 22		28.0				
Max Q Clear Time (g_c+I1), s		4.3		2.2		5.1		4.7				
Green Ext Time (p_c), s		2.9		0.1		4.4		1.1				

Intersection Summary												
HCM 6th Ctrl Delay			6.8									
HCM 6th LOS			A									

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Lane Group	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	187	22	83	420	4	303
v/c Ratio	0.46	0.06	0.14	0.21	0.01	0.15
Control Delay	11.6	9.6	7.1	6.1	6.2	4.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.6	9.6	7.1	6.1	6.2	4.5
Queue Length 50th (ft)	18	3	8	21	1	10
Queue Length 95th (ft)	56	13	30	50	4	30
Internal Link Dist (ft)	1351	277		694		755
Turn Bay Length (ft)						
Base Capacity (vph)	1100	1122	705	2349	630	2285
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.17	0.02	0.12	0.18	0.01	0.13

Intersection Summary

Intersection	
Intersection Delay, s/veh	10.3
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	11	80	102	41	42	16	74	78	109	55	117	2
Future Vol, veh/h	11	80	102	41	42	16	74	78	109	55	117	2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	12	87	111	45	46	17	80	85	118	60	127	2
Number of Lanes	0	1	0	0	1	0	0	2	1	0	2	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	2	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	3	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	2	1	1
HCM Control Delay	11.1	10.4	9.4	10.6
HCM LOS	B	B	A	B

Lane	NBLn1	NBLn2	NBLn3	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	74%	0%	0%	6%	41%	48%	0%
Vol Thru, %	26%	100%	0%	41%	42%	52%	97%
Vol Right, %	0%	0%	100%	53%	16%	0%	3%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	100	52	109	193	99	114	61
LT Vol	74	0	0	11	41	55	0
Through Vol	26	52	0	80	42	59	59
RT Vol	0	0	109	102	16	0	2
Lane Flow Rate	109	57	118	210	108	123	66
Geometry Grp	7	7	7	7	7	8	8
Degree of Util (X)	0.186	0.091	0.167	0.328	0.186	0.223	0.114
Departure Headway (Hd)	6.163	5.788	5.078	5.635	6.222	6.493	6.223
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	583	619	706	638	577	553	576
Service Time	3.893	3.518	2.809	3.369	3.96	4.23	3.96
HCM Lane V/C Ratio	0.187	0.092	0.167	0.329	0.187	0.222	0.115
HCM Control Delay	10.3	9.1	8.8	11.1	10.4	11.1	9.8
HCM Lane LOS	B	A	A	B	B	B	A
HCM 95th-tile Q	0.7	0.3	0.6	1.4	0.7	0.8	0.4

Intersection	
Intersection Delay, s/veh	22.4
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	25	235	164	174	194	83	42	143	86	87	295	51
Future Vol, veh/h	25	235	164	174	194	83	42	143	86	87	295	51
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	27	255	178	189	211	90	46	155	93	95	321	55
Number of Lanes	0	1	1	0	2	0	0	2	0	0	2	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	2	2
HCM Control Delay	22.8	25.5	16.7	22.2
HCM LOS	C	D	C	C

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	37%	0%	10%	0%	64%	0%	37%	0%
Vol Thru, %	63%	45%	90%	0%	36%	54%	63%	74%
Vol Right, %	0%	55%	0%	100%	0%	46%	0%	26%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	114	158	260	164	271	180	235	199
LT Vol	42	0	25	0	174	0	87	0
Through Vol	72	72	235	0	97	97	148	148
RT Vol	0	86	0	164	0	83	0	51
Lane Flow Rate	123	171	283	178	295	196	255	216
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.314	0.408	0.674	0.387	0.718	0.441	0.619	0.502
Departure Headway (Hd)	9.172	8.581	8.587	7.811	8.781	8.113	8.748	8.369
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	392	419	421	462	412	444	413	432
Service Time	6.92	6.328	6.317	5.541	6.511	5.844	6.48	6.1
HCM Lane V/C Ratio	0.314	0.408	0.672	0.385	0.716	0.441	0.617	0.5
HCM Control Delay	16.1	17.1	27.4	15.4	31	17.1	24.7	19.3
HCM Lane LOS	C	C	D	C	D	C	C	C
HCM 95th-tile Q	1.3	1.9	4.8	1.8	5.5	2.2	4	2.7

Intersection	
Intersection Delay, s/veh	11.7
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	79	7	279	2	5	4	43	157	4	5	246	6
Future Vol, veh/h	79	7	279	2	5	4	43	157	4	5	246	6
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	86	8	303	2	5	4	47	171	4	5	267	7
Number of Lanes	0	1	0	0	1	0	0	2	0	0	2	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	1	1
HCM Control Delay	13.5	8.9	10.4	10.4
HCM LOS	B	A	B	B

Lane	NBLn1	NBLn2	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	35%	0%	22%	18%	4%	0%
Vol Thru, %	65%	95%	2%	45%	96%	95%
Vol Right, %	0%	5%	76%	36%	0%	5%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	122	83	365	11	128	129
LT Vol	43	0	79	2	5	0
Through Vol	79	79	7	5	123	123
RT Vol	0	4	279	4	0	6
Lane Flow Rate	132	90	397	12	139	140
Geometry Grp	7	7	2	2	7	7
Degree of Util (X)	0.227	0.149	0.539	0.019	0.231	0.23
Departure Headway (Hd)	6.2	5.986	4.888	5.756	5.967	5.914
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	580	599	742	620	602	607
Service Time	3.936	3.722	2.888	3.806	3.702	3.649
HCM Lane V/C Ratio	0.228	0.15	0.535	0.019	0.231	0.231
HCM Control Delay	10.8	9.8	13.5	8.9	10.5	10.4
HCM Lane LOS	B	A	B	A	B	B
HCM 95th-tile Q	0.9	0.5	3.3	0.1	0.9	0.9

HCM 6th Signalized Intersection Summary
9: Cohasset St & Woodlake Ave

04/14/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	50	19	97	19	71	14	128	202	20	158	510	191
Future Volume (veh/h)	50	19	97	19	71	14	128	202	20	158	510	191
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	54	21	105	21	77	15	139	220	22	172	554	208
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	214	77	208	168	307	53	438	1505	149	700	1166	436
Arrive On Green	0.23	0.23	0.23	0.23	0.23	0.23	0.46	0.46	0.46	0.46	0.46	0.46
Sat Flow, veh/h	314	340	915	166	1351	232	704	3266	323	1138	2530	947
Grp Volume(v), veh/h	180	0	0	113	0	0	139	119	123	172	389	373
Grp Sat Flow(s),veh/h/ln	1569	0	0	1749	0	0	704	1777	1812	1138	1777	1700
Q Serve(g_s), s	0.8	0.0	0.0	0.0	0.0	0.0	5.6	1.3	1.3	3.4	4.9	5.0
Cycle Q Clear(g_c), s	3.1	0.0	0.0	1.7	0.0	0.0	10.5	1.3	1.3	4.7	4.9	5.0
Prop In Lane	0.30		0.58	0.19		0.13	1.00		0.18	1.00		0.56
Lane Grp Cap(c), veh/h	500	0	0	528	0	0	438	819	835	700	819	783
V/C Ratio(X)	0.36	0.00	0.00	0.21	0.00	0.00	0.32	0.15	0.15	0.25	0.47	0.48
Avail Cap(c_a), veh/h	1451	0	0	1584	0	0	582	1184	1207	933	1184	1133
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	10.9	0.0	0.0	10.4	0.0	0.0	9.7	5.1	5.1	6.5	6.1	6.1
Incr Delay (d2), s/veh	0.4	0.0	0.0	0.2	0.0	0.0	0.8	0.2	0.2	0.4	0.9	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.0	0.0	0.5	0.0	0.0	0.7	0.3	0.3	0.5	1.1	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	11.4	0.0	0.0	10.6	0.0	0.0	10.6	5.3	5.3	6.8	7.0	7.1
LnGrp LOS	B	A	A	B	A	A	B	A	A	A	A	A
Approach Vol, veh/h		180			113			381			934	
Approach Delay, s/veh		11.4			10.6			7.2			7.0	
Approach LOS		B			B			A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		19.9		12.8		19.9		12.8				
Change Period (Y+Rc), s		* 4.8		5.4		* 4.8		5.4				
Max Green Setting (Gmax), s		* 22		28.0		* 22		28.0				
Max Q Clear Time (g_c+I1), s		7.0		3.7		12.5		5.1				
Green Ext Time (p_c), s		8.0		0.6		2.6		1.0				

Intersection Summary		
HCM 6th Ctrl Delay	7.8	
HCM 6th LOS	A	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Lane Group	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	180	113	139	242	172	762
v/c Ratio	0.44	0.29	0.34	0.11	0.25	0.36
Control Delay	10.4	13.8	9.3	4.7	6.9	5.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.4	13.8	9.3	4.7	6.9	5.3
Queue Length 50th (ft)	14	19	15	10	17	36
Queue Length 95th (ft)	51	48	53	26	51	75
Internal Link Dist (ft)	1351	277		694		755
Turn Bay Length (ft)						
Base Capacity (vph)	1092	1222	429	2242	717	2210
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.16	0.09	0.32	0.11	0.24	0.34

Intersection Summary

Intersection	
Intersection Delay, s/veh	10
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	15	47	62	100	50	41	54	92	58	15	90	13
Future Vol, veh/h	15	47	62	100	50	41	54	92	58	15	90	13
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	16	51	67	109	54	45	59	100	63	16	98	14
Number of Lanes	0	1	0	0	1	0	0	2	1	0	2	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	2	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	3	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	2	1	1
HCM Control Delay	9.6	11.4	9.2	9.7
HCM LOS	A	B	A	A

Lane	NBLn1	NBLn2	NBLn3	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	64%	0%	0%	12%	52%	25%	0%
Vol Thru, %	36%	100%	0%	38%	26%	75%	78%
Vol Right, %	0%	0%	100%	50%	21%	0%	22%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	85	61	58	124	191	60	58
LT Vol	54	0	0	15	100	15	0
Through Vol	31	61	0	47	50	45	45
RT Vol	0	0	58	62	41	0	13
Lane Flow Rate	92	67	63	135	208	65	63
Geometry Grp	7	7	7	7	7	8	8
Degree of Util (X)	0.155	0.106	0.088	0.206	0.334	0.114	0.105
Departure Headway (Hd)	6.073	5.75	5.041	5.491	5.788	6.305	6.019
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	593	626	714	655	625	569	596
Service Time	3.785	3.462	2.753	3.216	3.499	4.036	3.75
HCM Lane V/C Ratio	0.155	0.107	0.088	0.206	0.333	0.114	0.106
HCM Control Delay	9.9	9.1	8.2	9.6	11.4	9.8	9.5
HCM Lane LOS	A	A	A	A	B	A	A
HCM 95th-tile Q	0.5	0.4	0.3	0.8	1.5	0.4	0.4

Intersection	
Intersection Delay, s/veh	16.8
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	29	178	50	93	181	85	93	217	168	63	156	39
Future Vol, veh/h	29	178	50	93	181	85	93	217	168	63	156	39
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	32	193	54	101	197	92	101	236	183	68	170	42
Number of Lanes	0	1	1	0	2	0	0	2	0	0	2	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	2	2
HCM Control Delay	17.1	16	18.5	14.3
HCM LOS	C	C	C	B

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	46%	0%	14%	0%	51%	0%	45%	0%
Vol Thru, %	54%	39%	86%	0%	49%	52%	55%	67%
Vol Right, %	0%	61%	0%	100%	0%	48%	0%	33%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	202	277	207	50	184	176	141	117
LT Vol	93	0	29	0	93	0	63	0
Through Vol	109	109	178	0	91	91	78	78
RT Vol	0	168	0	50	0	85	0	39
Lane Flow Rate	219	301	225	54	199	191	153	127
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.47	0.589	0.501	0.109	0.444	0.392	0.347	0.271
Departure Headway (Hd)	7.725	7.051	8.024	7.23	8.007	7.398	8.155	7.684
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	467	511	448	494	449	485	440	467
Service Time	5.487	4.813	5.792	4.998	5.772	5.162	5.927	5.455
HCM Lane V/C Ratio	0.469	0.589	0.502	0.109	0.443	0.394	0.348	0.272
HCM Control Delay	17.2	19.5	18.6	10.9	17.1	14.9	15.2	13.3
HCM Lane LOS	C	C	C	B	C	B	C	B
HCM 95th-tile Q	2.5	3.8	2.7	0.4	2.2	1.8	1.5	1.1

Intersection	
Intersection Delay, s/veh	9
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	8	6	90	6	4	8	61	199	5	7	191	10
Future Vol, veh/h	8	6	90	6	4	8	61	199	5	7	191	10
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	9	7	98	7	4	9	66	216	5	8	208	11
Number of Lanes	0	1	0	0	1	0	0	2	0	0	2	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	1	1
HCM Control Delay	8.5	8.3	9.4	8.8
HCM LOS	A	A	A	A

Lane	NBLn1	NBLn2	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	38%	0%	8%	33%	7%	0%
Vol Thru, %	62%	95%	6%	22%	93%	91%
Vol Right, %	0%	5%	87%	44%	0%	9%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	161	105	104	18	103	106
LT Vol	61	0	8	6	7	0
Through Vol	100	100	6	4	96	96
RT Vol	0	5	90	8	0	10
Lane Flow Rate	174	114	113	20	111	115
Geometry Grp	7	7	2	2	7	7
Degree of Util (X)	0.254	0.158	0.145	0.028	0.159	0.161
Departure Headway (Hd)	5.245	5.02	4.63	5.069	5.151	5.05
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	684	713	773	704	695	709
Service Time	2.985	2.76	2.668	3.119	2.894	2.793
HCM Lane V/C Ratio	0.254	0.16	0.146	0.028	0.16	0.162
HCM Control Delay	9.8	8.7	8.5	8.3	8.9	8.8
HCM Lane LOS	A	A	A	A	A	A
HCM 95th-tile Q	1	0.6	0.5	0.1	0.6	0.6

HCM 6th Signalized Intersection Summary
9: Cohasset St & Woodlake Ave

04/14/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	99	7	65	10	6	7	76	398	19	7	219	87
Future Volume (veh/h)	99	7	65	10	6	7	76	398	19	7	219	87
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	108	8	71	11	7	8	83	433	21	8	238	95
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	384	54	138	293	168	120	597	1310	63	542	950	368
Arrive On Green	0.24	0.24	0.24	0.24	0.24	0.24	0.38	0.38	0.38	0.38	0.38	0.38
Sat Flow, veh/h	720	225	578	425	705	502	1047	3450	167	937	2502	970
Grp Volume(v), veh/h	187	0	0	26	0	0	83	222	232	8	167	166
Grp Sat Flow(s),veh/h/ln	1523	0	0	1632	0	0	1047	1777	1840	937	1777	1696
Q Serve(g_s), s	1.7	0.0	0.0	0.0	0.0	0.0	1.6	2.4	2.4	0.2	1.7	1.8
Cycle Q Clear(g_c), s	2.7	0.0	0.0	0.3	0.0	0.0	3.4	2.4	2.4	2.5	1.7	1.8
Prop In Lane	0.58		0.38	0.42		0.31	1.00		0.09	1.00		0.57
Lane Grp Cap(c), veh/h	576	0	0	580	0	0	597	674	699	542	674	644
V/C Ratio(X)	0.32	0.00	0.00	0.04	0.00	0.00	0.14	0.33	0.33	0.01	0.25	0.26
Avail Cap(c_a), veh/h	1777	0	0	1813	0	0	1055	1452	1504	952	1452	1386
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	8.7	0.0	0.0	7.9	0.0	0.0	6.9	5.9	5.9	6.8	5.7	5.7
Incr Delay (d2), s/veh	0.3	0.0	0.0	0.0	0.0	0.0	0.2	0.6	0.6	0.0	0.4	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.0	0.0	0.1	0.0	0.0	0.2	0.5	0.5	0.0	0.3	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	9.1	0.0	0.0	7.9	0.0	0.0	7.1	6.4	6.4	6.8	6.1	6.1
LnGrp LOS	A	A	A	A	A	A	A	A	A	A	A	A
Approach Vol, veh/h		187			26			537			341	
Approach Delay, s/veh		9.1			7.9			6.5			6.1	
Approach LOS		A			A			A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		14.9		11.7		14.9		11.7				
Change Period (Y+Rc), s		* 4.8		5.4		* 4.8		5.4				
Max Green Setting (Gmax), s		* 22		28.0		* 22		28.0				
Max Q Clear Time (g_c+I1), s		4.5		2.3		5.4		4.7				
Green Ext Time (p_c), s		3.2		0.1		4.8		1.1				

Intersection Summary		
HCM 6th Ctrl Delay		6.9
HCM 6th LOS		A

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Lane Group	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	187	26	83	454	8	333
v/c Ratio	0.46	0.07	0.14	0.22	0.02	0.17
Control Delay	11.7	9.1	7.1	6.1	6.3	4.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.7	9.1	7.1	6.1	6.3	4.6
Queue Length 50th (ft)	18	3	8	22	1	11
Queue Length 95th (ft)	59	15	30	54	6	33
Internal Link Dist (ft)	1351	277		694		755
Turn Bay Length (ft)						
Base Capacity (vph)	1094	1128	683	2343	608	2287
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.17	0.02	0.12	0.19	0.01	0.15

Intersection Summary

Intersection	
Intersection Delay, s/veh	11.1
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	13	90	115	46	48	18	83	88	123	62	132	3
Future Vol, veh/h	13	90	115	46	48	18	83	88	123	62	132	3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	14	98	125	50	52	20	90	96	134	67	143	3
Number of Lanes	0	1	0	0	1	0	0	2	1	0	2	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	2	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	3	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	2	1	1
HCM Control Delay	12.3	11.1	10	11.3
HCM LOS	B	B	A	B

Lane	NBLn1	NBLn2	NBLn3	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	74%	0%	0%	6%	41%	48%	0%
Vol Thru, %	26%	100%	0%	41%	43%	52%	96%
Vol Right, %	0%	0%	100%	53%	16%	0%	4%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	112	59	123	218	112	128	69
LT Vol	83	0	0	13	46	62	0
Through Vol	29	59	0	90	48	66	66
RT Vol	0	0	123	115	18	0	3
Lane Flow Rate	122	64	134	237	122	139	75
Geometry Grp	7	7	7	7	7	8	8
Degree of Util (X)	0.217	0.107	0.197	0.386	0.219	0.262	0.135
Departure Headway (Hd)	6.391	6.016	5.305	5.867	6.489	6.775	6.497
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	562	595	675	611	551	529	551
Service Time	4.135	3.76	3.048	3.614	4.243	4.529	4.251
HCM Lane V/C Ratio	0.217	0.108	0.199	0.388	0.221	0.263	0.136
HCM Control Delay	10.9	9.5	9.4	12.3	11.1	11.9	10.3
HCM Lane LOS	B	A	A	B	B	B	B
HCM 95th-tile Q	0.8	0.4	0.7	1.8	0.8	1	0.5

Intersection	
Intersection Delay, s/veh	31.5
Intersection LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	28	264	184	195	218	93	48	161	97	98	331	58
Future Vol, veh/h	28	264	184	195	218	93	48	161	97	98	331	58
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	30	287	200	212	237	101	52	175	105	107	360	63
Number of Lanes	0	1	1	0	2	0	0	2	0	0	2	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	2	2
HCM Control Delay	32.9	38.3	20	30.4
HCM LOS	D	E	C	D

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	37%	0%	10%	0%	64%	0%	37%	0%
Vol Thru, %	63%	45%	90%	0%	36%	54%	63%	74%
Vol Right, %	0%	55%	0%	100%	0%	46%	0%	26%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	129	178	292	184	304	202	264	224
LT Vol	48	0	28	0	195	0	98	0
Through Vol	81	81	264	0	109	109	166	166
RT Vol	0	97	0	184	0	93	0	58
Lane Flow Rate	140	193	317	200	330	220	286	243
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.383	0.497	0.815	0.47	0.865	0.534	0.746	0.607
Departure Headway (Hd)	9.879	9.282	9.239	8.458	9.428	8.757	9.382	8.998
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	365	388	394	426	383	413	387	401
Service Time	7.633	7.035	6.987	6.206	7.177	6.506	7.131	6.747
HCM Lane V/C Ratio	0.384	0.497	0.805	0.469	0.862	0.533	0.739	0.606
HCM Control Delay	18.7	20.9	42	18.5	49.7	21.2	35.2	24.8
HCM Lane LOS	C	C	E	C	E	C	E	C
HCM 95th-tile Q	1.8	2.7	7.3	2.4	8.3	3	5.9	3.9

Intersection	
Intersection Delay, s/veh	13.3
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	89	8	313	3	6	5	49	176	5	6	276	7
Future Vol, veh/h	89	8	313	3	6	5	49	176	5	6	276	7
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	97	9	340	3	7	5	53	191	5	7	300	8
Number of Lanes	0	1	0	0	1	0	0	2	0	0	2	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	1	1
HCM Control Delay	16.2	9.3	11.1	11.2
HCM LOS	C	A	B	B

Lane	NBLn1	NBLn2	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	36%	0%	22%	21%	4%	0%
Vol Thru, %	64%	95%	2%	43%	96%	95%
Vol Right, %	0%	5%	76%	36%	0%	5%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	137	93	410	14	144	145
LT Vol	49	0	89	3	6	0
Through Vol	88	88	8	6	138	138
RT Vol	0	5	313	5	0	7
Lane Flow Rate	149	101	446	15	157	158
Geometry Grp	7	7	2	2	7	7
Degree of Util (X)	0.268	0.175	0.625	0.026	0.271	0.27
Departure Headway (Hd)	6.47	6.249	5.049	6.108	6.224	6.168
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	555	573	713	583	578	582
Service Time	4.216	3.996	3.09	4.178	3.967	3.912
HCM Lane V/C Ratio	0.268	0.176	0.626	0.026	0.272	0.271
HCM Control Delay	11.6	10.3	16.2	9.3	11.3	11.2
HCM Lane LOS	B	B	C	A	B	B
HCM 95th-tile Q	1.1	0.6	4.4	0.1	1.1	1.1

HCM 6th Signalized Intersection Summary
9: Cohasset St & Woodlake Ave

04/15/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	56	22	109	22	80	16	144	227	23	17	572	214
Future Volume (veh/h)	56	22	109	22	80	16	144	227	23	17	572	214
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	61	24	118	24	87	17	157	247	25	18	622	233
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	203	70	196	158	291	50	417	1622	163	707	1258	471
Arrive On Green	0.22	0.22	0.22	0.22	0.22	0.22	0.50	0.50	0.50	0.50	0.50	0.50
Sat Flow, veh/h	329	324	906	176	1346	233	646	3261	327	1107	2530	947
Grp Volume(v), veh/h	203	0	0	128	0	0	157	134	138	18	437	418
Grp Sat Flow(s),veh/h/ln	1559	0	0	1756	0	0	646	1777	1811	1107	1777	1700
Q Serve(g_s), s	1.9	0.0	0.0	0.0	0.0	0.0	7.6	1.5	1.5	0.3	5.8	5.8
Cycle Q Clear(g_c), s	4.0	0.0	0.0	2.1	0.0	0.0	13.5	1.5	1.5	1.8	5.8	5.8
Prop In Lane	0.30		0.58	0.19		0.13	1.00		0.18	1.00		0.56
Lane Grp Cap(c), veh/h	469	0	0	500	0	0	417	884	901	707	884	845
V/C Ratio(X)	0.43	0.00	0.00	0.26	0.00	0.00	0.38	0.15	0.15	0.03	0.49	0.49
Avail Cap(c_a), veh/h	1329	0	0	1454	0	0	492	1088	1109	834	1088	1041
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	12.5	0.0	0.0	11.8	0.0	0.0	10.5	4.9	4.9	5.4	6.0	6.0
Incr Delay (d2), s/veh	0.6	0.0	0.0	0.3	0.0	0.0	1.1	0.2	0.2	0.0	0.9	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	0.0	0.0	0.7	0.0	0.0	0.9	0.3	0.3	0.0	1.3	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	13.1	0.0	0.0	12.0	0.0	0.0	11.6	5.0	5.0	5.4	6.9	6.9
LnGrp LOS	B	A	A	B	A	A	B	A	A	A	A	A
Approach Vol, veh/h		203			128			429			873	
Approach Delay, s/veh		13.1			12.0			7.4			6.9	
Approach LOS		B			B			A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		22.5		13.1		22.5		13.1				
Change Period (Y+Rc), s		* 4.8		5.4		* 4.8		5.4				
Max Green Setting (Gmax), s		* 22		28.0		* 22		28.0				
Max Q Clear Time (g_c+I1), s		7.8		4.1		15.5		6.0				
Green Ext Time (p_c), s		7.6		0.7		2.2		1.2				

Intersection Summary		
HCM 6th Ctrl Delay		8.2
HCM 6th LOS		A

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Lane Group	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	203	128	157	272	18	855
v/c Ratio	0.49	0.34	0.43	0.12	0.03	0.40
Control Delay	11.4	14.6	12.5	4.9	5.5	5.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.4	14.6	12.5	4.9	5.5	5.8
Queue Length 50th (ft)	17	22	18	12	2	43
Queue Length 95th (ft)	57	53	#92	30	9	93
Internal Link Dist (ft)	1351	277		694		755
Turn Bay Length (ft)						
Base Capacity (vph)	1035	1132	366	2177	676	2148
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.20	0.11	0.43	0.12	0.03	0.40

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Intersection	
Intersection Delay, s/veh	10.3
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	8	53	70	112	56	46	61	78	65	17	78	7
Future Vol, veh/h	8	53	70	112	56	46	61	78	65	17	78	7
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	9	58	76	122	61	50	66	85	71	18	85	8
Number of Lanes	0	1	0	0	1	0	0	2	1	0	2	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	2	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	3	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	2	1	1
HCM Control Delay	9.7	11.9	9.3	9.8
HCM LOS	A	B	A	A

Lane	NBLn1	NBLn2	NBLn3	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	70%	0%	0%	6%	52%	30%	0%
Vol Thru, %	30%	100%	0%	40%	26%	70%	85%
Vol Right, %	0%	0%	100%	53%	21%	0%	15%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	87	52	65	131	214	56	46
LT Vol	61	0	0	8	112	17	0
Through Vol	26	52	0	53	56	39	39
RT Vol	0	0	65	70	46	0	7
Lane Flow Rate	95	57	71	142	233	61	50
Geometry Grp	7	7	7	7	7	8	8
Degree of Util (X)	0.162	0.091	0.1	0.215	0.373	0.109	0.086
Departure Headway (Hd)	6.164	5.809	5.1	5.437	5.773	6.44	6.177
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	583	618	704	661	628	557	581
Service Time	3.89	3.534	2.825	3.161	3.473	4.172	3.909
HCM Lane V/C Ratio	0.163	0.092	0.101	0.215	0.371	0.11	0.086
HCM Control Delay	10.1	9.1	8.4	9.7	11.9	10	9.5
HCM Lane LOS	B	A	A	A	B	A	A
HCM 95th-tile Q	0.6	0.3	0.3	0.8	1.7	0.4	0.3

Intersection	
Intersection Delay, s/veh	16.9
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	7	175	28	105	175	92	73	237	189	68	168	15
Future Vol, veh/h	7	175	28	105	175	92	73	237	189	68	168	15
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	8	190	30	114	190	100	79	258	205	74	183	16
Number of Lanes	0	1	1	0	2	0	0	2	0	0	2	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	2	2
HCM Control Delay	16.1	16	19.2	14.4
HCM LOS	C	C	C	B

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	38%	0%	4%	0%	55%	0%	45%	0%
Vol Thru, %	62%	39%	96%	0%	45%	49%	55%	85%
Vol Right, %	0%	61%	0%	100%	0%	51%	0%	15%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	192	308	182	28	193	180	152	99
LT Vol	73	0	7	0	105	0	68	0
Through Vol	119	119	175	0	88	88	84	84
RT Vol	0	189	0	28	0	92	0	15
Lane Flow Rate	208	334	198	30	209	195	165	108
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.436	0.64	0.44	0.061	0.46	0.394	0.369	0.23
Departure Headway (Hd)	7.534	6.898	8.003	7.261	7.911	7.263	8.035	7.696
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	477	521	449	492	454	496	446	466
Service Time	5.291	4.655	5.768	5.025	5.671	5.021	5.801	5.461
HCM Lane V/C Ratio	0.436	0.641	0.441	0.061	0.46	0.393	0.37	0.232
HCM Control Delay	16	21.2	17	10.5	17.3	14.7	15.5	12.8
HCM Lane LOS	C	C	C	B	C	B	C	B
HCM 95th-tile Q	2.2	4.5	2.2	0.2	2.4	1.9	1.7	0.9

Intersection	
Intersection Delay, s/veh	8.6
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	9	7	67	7	5	9	37	192	6	8	180	12
Future Vol, veh/h	9	7	67	7	5	9	37	192	6	8	180	12
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	10	8	73	8	5	10	40	209	7	9	196	13
Number of Lanes	0	1	0	0	1	0	0	2	0	0	2	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	1	1
HCM Control Delay	8.2	8.1	8.9	8.6
HCM LOS	A	A	A	A

Lane	NBLn1	NBLn2	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	28%	0%	11%	33%	8%	0%
Vol Thru, %	72%	94%	8%	24%	92%	88%
Vol Right, %	0%	6%	81%	43%	0%	12%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	133	102	83	21	98	102
LT Vol	37	0	9	7	8	0
Through Vol	96	96	7	5	90	90
RT Vol	0	6	67	9	0	12
Lane Flow Rate	145	111	90	23	107	111
Geometry Grp	7	7	2	2	7	7
Degree of Util (X)	0.206	0.152	0.115	0.031	0.15	0.152
Departure Headway (Hd)	5.132	4.951	4.577	4.943	5.072	4.948
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	700	724	782	723	707	725
Service Time	2.862	2.681	2.608	2.982	2.803	2.679
HCM Lane V/C Ratio	0.207	0.153	0.115	0.032	0.151	0.153
HCM Control Delay	9.2	8.6	8.2	8.1	8.7	8.6
HCM Lane LOS	A	A	A	A	A	A
HCM 95th-tile Q	0.8	0.5	0.4	0.1	0.5	0.5

HCM 6th Signalized Intersection Summary
9: Cohasset St & Woodlake Ave

04/15/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	111	8	73	12	7	5	86	412	22	5	214	98
Future Volume (veh/h)	111	8	73	12	7	5	86	412	22	5	214	98
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	121	9	79	13	8	5	93	448	24	5	233	107
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	385	50	139	337	182	77	593	1330	71	534	928	412
Arrive On Green	0.24	0.24	0.24	0.24	0.24	0.24	0.39	0.39	0.39	0.39	0.39	0.39
Sat Flow, veh/h	737	208	575	582	752	318	1040	3431	183	922	2392	1063
Grp Volume(v), veh/h	209	0	0	26	0	0	93	231	241	5	171	169
Grp Sat Flow(s),veh/h/ln	1520	0	0	1651	0	0	1040	1777	1837	922	1777	1679
Q Serve(g_s), s	2.3	0.0	0.0	0.0	0.0	0.0	1.8	2.5	2.5	0.1	1.8	1.9
Cycle Q Clear(g_c), s	3.2	0.0	0.0	0.3	0.0	0.0	3.7	2.5	2.5	2.6	1.8	1.9
Prop In Lane	0.58		0.38	0.50		0.19	1.00		0.10	1.00		0.63
Lane Grp Cap(c), veh/h	574	0	0	596	0	0	593	689	712	534	689	651
V/C Ratio(X)	0.36	0.00	0.00	0.04	0.00	0.00	0.16	0.34	0.34	0.01	0.25	0.26
Avail Cap(c_a), veh/h	1721	0	0	1754	0	0	1013	1405	1453	905	1405	1328
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	9.1	0.0	0.0	8.0	0.0	0.0	7.0	5.9	5.9	6.9	5.7	5.7
Incr Delay (d2), s/veh	0.4	0.0	0.0	0.0	0.0	0.0	0.2	0.6	0.6	0.0	0.4	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.0	0.0	0.1	0.0	0.0	0.3	0.5	0.5	0.0	0.4	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	9.5	0.0	0.0	8.1	0.0	0.0	7.3	6.5	6.5	6.9	6.1	6.2
LnGrp LOS	A	A	A	A	A	A	A	A	A	A	A	A
Approach Vol, veh/h		209			26			565			345	
Approach Delay, s/veh		9.5			8.1			6.6			6.2	
Approach LOS		A			A			A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		15.5		12.1		15.5		12.1				
Change Period (Y+Rc), s		* 4.8		5.4		* 4.8		5.4				
Max Green Setting (Gmax), s		* 22		28.0		* 22		28.0				
Max Q Clear Time (g_c+I1), s		4.6		2.3		5.7		5.2				
Green Ext Time (p_c), s		3.2		0.1		5.0		1.2				

Intersection Summary		
HCM 6th Ctrl Delay		7.0
HCM 6th LOS		A

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Lane Group	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	209	26	93	472	5	340
v/c Ratio	0.49	0.07	0.16	0.24	0.01	0.17
Control Delay	12.4	9.6	7.7	6.5	6.6	4.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.4	9.6	7.7	6.5	6.6	4.7
Queue Length 50th (ft)	22	3	9	25	1	11
Queue Length 95th (ft)	68	15	35	60	5	34
Internal Link Dist (ft)	1351	277		694		755
Turn Bay Length (ft)						
Base Capacity (vph)	1089	1125	676	2333	595	2274
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.19	0.02	0.14	0.20	0.01	0.15

Intersection Summary

Intersection	
Intersection Delay, s/veh	11.1
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	13	90	115	46	48	18	83	88	123	62	132	3
Future Vol, veh/h	13	90	115	46	48	18	83	88	123	62	132	3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	14	98	125	50	52	20	90	96	134	67	143	3
Number of Lanes	0	1	0	0	1	0	0	2	1	0	2	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	2	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	3	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	2	1	1
HCM Control Delay	12.3	11.1	10	11.3
HCM LOS	B	B	A	B

Lane	NBLn1	NBLn2	NBLn3	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	74%	0%	0%	6%	41%	48%	0%
Vol Thru, %	26%	100%	0%	41%	43%	52%	96%
Vol Right, %	0%	0%	100%	53%	16%	0%	4%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	112	59	123	218	112	128	69
LT Vol	83	0	0	13	46	62	0
Through Vol	29	59	0	90	48	66	66
RT Vol	0	0	123	115	18	0	3
Lane Flow Rate	122	64	134	237	122	139	75
Geometry Grp	7	7	7	7	7	8	8
Degree of Util (X)	0.217	0.107	0.197	0.386	0.219	0.262	0.135
Departure Headway (Hd)	6.391	6.016	5.305	5.867	6.489	6.775	6.497
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	562	595	675	611	551	529	551
Service Time	4.135	3.76	3.048	3.614	4.243	4.529	4.251
HCM Lane V/C Ratio	0.217	0.108	0.199	0.388	0.221	0.263	0.136
HCM Control Delay	10.9	9.5	9.4	12.3	11.1	11.9	10.3
HCM Lane LOS	B	A	A	B	B	B	B
HCM 95th-tile Q	0.8	0.4	0.7	1.8	0.8	1	0.5

Intersection	
Intersection Delay, s/veh	31.5
Intersection LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	28	264	184	195	218	93	48	161	97	98	331	58
Future Vol, veh/h	28	264	184	195	218	93	48	161	97	98	331	58
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	30	287	200	212	237	101	52	175	105	107	360	63
Number of Lanes	0	1	1	0	2	0	0	2	0	0	2	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	2	2
HCM Control Delay	32.9	38.3	20	30.4
HCM LOS	D	E	C	D

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	37%	0%	10%	0%	64%	0%	37%	0%
Vol Thru, %	63%	45%	90%	0%	36%	54%	63%	74%
Vol Right, %	0%	55%	0%	100%	0%	46%	0%	26%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	129	178	292	184	304	202	264	224
LT Vol	48	0	28	0	195	0	98	0
Through Vol	81	81	264	0	109	109	166	166
RT Vol	0	97	0	184	0	93	0	58
Lane Flow Rate	140	193	317	200	330	220	286	243
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.383	0.497	0.815	0.47	0.865	0.534	0.746	0.607
Departure Headway (Hd)	9.879	9.282	9.239	8.458	9.428	8.757	9.382	8.998
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	365	388	394	426	383	413	387	401
Service Time	7.633	7.035	6.987	6.206	7.177	6.506	7.131	6.747
HCM Lane V/C Ratio	0.384	0.497	0.805	0.469	0.862	0.533	0.739	0.606
HCM Control Delay	18.7	20.9	42	18.5	49.7	21.2	35.2	24.8
HCM Lane LOS	C	C	E	C	E	C	E	C
HCM 95th-tile Q	1.8	2.7	7.3	2.4	8.3	3	5.9	3.9

Intersection	
Intersection Delay, s/veh	13.3
Intersection LOS	B

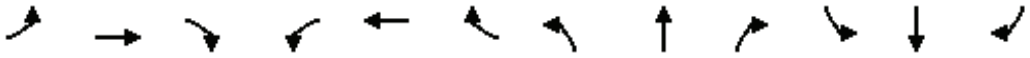
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	89	8	313	3	6	5	49	176	5	6	276	7
Future Vol, veh/h	89	8	313	3	6	5	49	176	5	6	276	7
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	97	9	340	3	7	5	53	191	5	7	300	8
Number of Lanes	0	1	0	0	1	0	0	2	0	0	2	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	1	1
HCM Control Delay	16.2	9.3	11.1	11.2
HCM LOS	C	A	B	B

Lane	NBLn1	NBLn2	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	36%	0%	22%	21%	4%	0%
Vol Thru, %	64%	95%	2%	43%	96%	95%
Vol Right, %	0%	5%	76%	36%	0%	5%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	137	93	410	14	144	145
LT Vol	49	0	89	3	6	0
Through Vol	88	88	8	6	138	138
RT Vol	0	5	313	5	0	7
Lane Flow Rate	149	101	446	15	157	158
Geometry Grp	7	7	2	2	7	7
Degree of Util (X)	0.268	0.175	0.625	0.026	0.271	0.27
Departure Headway (Hd)	6.47	6.249	5.049	6.108	6.224	6.168
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	555	573	713	583	578	582
Service Time	4.216	3.996	3.09	4.178	3.967	3.912
HCM Lane V/C Ratio	0.268	0.176	0.626	0.026	0.272	0.271
HCM Control Delay	11.6	10.3	16.2	9.3	11.3	11.2
HCM Lane LOS	B	B	C	A	B	B
HCM 95th-tile Q	1.1	0.6	4.4	0.1	1.1	1.1

HCM 6th Signalized Intersection Summary
9: Cohasset St & Woodlake Ave

04/15/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	56	22	109	22	80	16	144	227	23	17	572	214
Future Volume (veh/h)	56	22	109	22	80	16	144	227	23	17	572	214
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	61	24	118	24	87	17	157	247	25	18	622	233
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	203	70	196	158	291	50	417	1622	163	707	1258	471
Arrive On Green	0.22	0.22	0.22	0.22	0.22	0.22	0.50	0.50	0.50	0.50	0.50	0.50
Sat Flow, veh/h	329	324	906	176	1346	233	646	3261	327	1107	2530	947
Grp Volume(v), veh/h	203	0	0	128	0	0	157	134	138	18	437	418
Grp Sat Flow(s),veh/h/ln	1559	0	0	1756	0	0	646	1777	1811	1107	1777	1700
Q Serve(g_s), s	1.9	0.0	0.0	0.0	0.0	0.0	7.6	1.5	1.5	0.3	5.8	5.8
Cycle Q Clear(g_c), s	4.0	0.0	0.0	2.1	0.0	0.0	13.5	1.5	1.5	1.8	5.8	5.8
Prop In Lane	0.30		0.58	0.19		0.13	1.00		0.18	1.00		0.56
Lane Grp Cap(c), veh/h	469	0	0	500	0	0	417	884	901	707	884	845
V/C Ratio(X)	0.43	0.00	0.00	0.26	0.00	0.00	0.38	0.15	0.15	0.03	0.49	0.49
Avail Cap(c_a), veh/h	1329	0	0	1454	0	0	492	1088	1109	834	1088	1041
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	12.5	0.0	0.0	11.8	0.0	0.0	10.5	4.9	4.9	5.4	6.0	6.0
Incr Delay (d2), s/veh	0.6	0.0	0.0	0.3	0.0	0.0	1.1	0.2	0.2	0.0	0.9	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	0.0	0.0	0.7	0.0	0.0	0.9	0.3	0.3	0.0	1.3	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	13.1	0.0	0.0	12.0	0.0	0.0	11.6	5.0	5.0	5.4	6.9	6.9
LnGrp LOS	B	A	A	B	A	A	B	A	A	A	A	A
Approach Vol, veh/h		203			128			429			873	
Approach Delay, s/veh		13.1			12.0			7.4			6.9	
Approach LOS		B			B			A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		22.5		13.1		22.5		13.1				
Change Period (Y+Rc), s		* 4.8		5.4		* 4.8		5.4				
Max Green Setting (Gmax), s		* 22		28.0		* 22		28.0				
Max Q Clear Time (g_c+I1), s		7.8		4.1		15.5		6.0				
Green Ext Time (p_c), s		7.6		0.7		2.2		1.2				

Intersection Summary		
HCM 6th Ctrl Delay		8.2
HCM 6th LOS		A

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Lane Group	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	203	128	157	272	18	855
v/c Ratio	0.49	0.34	0.43	0.12	0.03	0.40
Control Delay	11.4	14.6	12.5	4.9	5.5	5.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.4	14.6	12.5	4.9	5.5	5.8
Queue Length 50th (ft)	17	22	18	12	2	43
Queue Length 95th (ft)	57	53	#92	30	9	93
Internal Link Dist (ft)	1351	277		694		755
Turn Bay Length (ft)						
Base Capacity (vph)	1035	1132	366	2177	676	2148
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.20	0.11	0.43	0.12	0.03	0.40

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Intersection	
Intersection Delay, s/veh	10.6
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	16	53	70	112	56	46	61	101	65	17	99	14
Future Vol, veh/h	16	53	70	112	56	46	61	101	65	17	99	14
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	17	58	76	122	61	50	66	110	71	18	108	15
Number of Lanes	0	1	0	0	1	0	0	2	1	0	2	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	2	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	3	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	2	1	1
HCM Control Delay	10.2	12.3	9.5	10.1
HCM LOS	B	B	A	B

Lane	NBLn1	NBLn2	NBLn3	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	64%	0%	0%	12%	52%	26%	0%
Vol Thru, %	36%	100%	0%	38%	26%	74%	78%
Vol Right, %	0%	0%	100%	50%	21%	0%	22%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	95	67	65	139	214	67	64
LT Vol	61	0	0	16	112	17	0
Through Vol	34	67	0	53	56	50	50
RT Vol	0	0	65	70	46	0	14
Lane Flow Rate	103	73	71	151	233	72	69
Geometry Grp	7	7	7	7	7	8	8
Degree of Util (X)	0.179	0.12	0.102	0.238	0.384	0.131	0.12
Departure Headway (Hd)	6.247	5.92	5.21	5.671	5.939	6.545	6.257
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	575	606	687	633	607	548	573
Service Time	3.98	3.653	2.943	3.403	3.668	4.285	3.998
HCM Lane V/C Ratio	0.179	0.12	0.103	0.239	0.384	0.131	0.12
HCM Control Delay	10.3	9.5	8.5	10.2	12.3	10.3	9.9
HCM Lane LOS	B	A	A	B	B	B	A
HCM 95th-tile Q	0.6	0.4	0.3	0.9	1.8	0.4	0.4

Intersection	
Intersection Delay, s/veh	20.4
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	30	197	53	105	200	95	101	243	189	71	174	41
Future Vol, veh/h	30	197	53	105	200	95	101	243	189	71	174	41
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	33	214	58	114	217	103	110	264	205	77	189	45
Number of Lanes	0	1	1	0	2	0	0	2	0	0	2	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	2	2
HCM Control Delay	20.6	18.8	23.8	16.3
HCM LOS	C	C	C	C

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	45%	0%	13%	0%	51%	0%	45%	0%
Vol Thru, %	55%	39%	87%	0%	49%	51%	55%	68%
Vol Right, %	0%	61%	0%	100%	0%	49%	0%	32%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	223	311	227	53	205	195	158	128
LT Vol	101	0	30	0	105	0	71	0
Through Vol	122	122	197	0	100	100	87	87
RT Vol	0	189	0	53	0	95	0	41
Lane Flow Rate	242	338	247	58	223	212	172	139
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.549	0.702	0.584	0.124	0.524	0.462	0.413	0.317
Departure Headway (Hd)	8.166	7.493	8.519	7.725	8.471	7.854	8.664	8.199
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	440	479	422	462	423	456	414	437
Service Time	5.949	5.275	6.306	5.511	6.257	5.639	6.457	5.991
HCM Lane V/C Ratio	0.55	0.706	0.585	0.126	0.527	0.465	0.415	0.318
HCM Control Delay	20.5	26.2	22.7	11.6	20.3	17.3	17.5	14.8
HCM Lane LOS	C	D	C	B	C	C	C	B
HCM 95th-tile Q	3.2	5.4	3.6	0.4	3	2.4	2	1.3

Intersection	
Intersection Delay, s/veh	9.2
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	9	7	98	7	5	9	65	220	6	8	211	12
Future Vol, veh/h	9	7	98	7	5	9	65	220	6	8	211	12
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	10	8	107	8	5	10	71	239	7	9	229	13
Number of Lanes	0	1	0	0	1	0	0	2	0	0	2	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	1	1
HCM Control Delay	8.7	8.5	9.6	9
HCM LOS	A	A	A	A

Lane	NBLn1	NBLn2	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	37%	0%	8%	33%	7%	0%
Vol Thru, %	63%	95%	6%	24%	93%	90%
Vol Right, %	0%	5%	86%	43%	0%	10%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	175	116	114	21	114	118
LT Vol	65	0	9	7	8	0
Through Vol	110	110	7	5	106	106
RT Vol	0	6	98	9	0	12
Lane Flow Rate	190	126	124	23	123	128
Geometry Grp	7	7	2	2	7	7
Degree of Util (X)	0.281	0.178	0.164	0.033	0.179	0.182
Departure Headway (Hd)	5.312	5.089	4.753	5.218	5.231	5.123
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	673	702	752	682	683	697
Service Time	3.062	2.839	2.8	3.282	2.983	2.875
HCM Lane V/C Ratio	0.282	0.179	0.165	0.034	0.18	0.184
HCM Control Delay	10.1	8.9	8.7	8.5	9.1	9
HCM Lane LOS	B	A	A	A	A	A
HCM 95th-tile Q	1.2	0.6	0.6	0.1	0.6	0.7

HCM 6th Signalized Intersection Summary
9: Cohasset St & Woodlake Ave

04/15/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	111	8	73	12	7	8	86	443	22	8	242	98
Future Volume (veh/h)	111	8	73	12	7	8	86	443	22	8	242	98
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	121	9	79	13	8	9	93	482	24	9	263	107
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	378	50	138	293	166	119	585	1374	68	524	991	393
Arrive On Green	0.24	0.24	0.24	0.24	0.24	0.24	0.40	0.40	0.40	0.40	0.40	0.40
Sat Flow, veh/h	736	207	573	461	693	495	1012	3445	171	893	2485	985
Grp Volume(v), veh/h	209	0	0	30	0	0	93	248	258	9	186	184
Grp Sat Flow(s),veh/h/ln	1517	0	0	1648	0	0	1012	1777	1840	893	1777	1693
Q Serve(g_s), s	2.4	0.0	0.0	0.0	0.0	0.0	1.9	2.8	2.8	0.2	2.0	2.1
Cycle Q Clear(g_c), s	3.3	0.0	0.0	0.4	0.0	0.0	4.0	2.8	2.8	3.0	2.0	2.1
Prop In Lane	0.58		0.38	0.43		0.30	1.00		0.09	1.00		0.58
Lane Grp Cap(c), veh/h	565	0	0	578	0	0	585	709	734	524	709	675
V/C Ratio(X)	0.37	0.00	0.00	0.05	0.00	0.00	0.16	0.35	0.35	0.02	0.26	0.27
Avail Cap(c_a), veh/h	1677	0	0	1713	0	0	963	1372	1421	857	1372	1308
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	9.4	0.0	0.0	8.3	0.0	0.0	7.1	5.9	5.9	7.0	5.7	5.7
Incr Delay (d2), s/veh	0.4	0.0	0.0	0.0	0.0	0.0	0.3	0.6	0.6	0.0	0.4	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.0	0.0	0.1	0.0	0.0	0.3	0.6	0.6	0.0	0.4	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	9.8	0.0	0.0	8.3	0.0	0.0	7.3	6.5	6.5	7.0	6.1	6.2
LnGrp LOS	A	A	A	A	A	A	A	A	A	A	A	A
Approach Vol, veh/h		209			30			599			379	
Approach Delay, s/veh		9.8			8.3			6.7			6.2	
Approach LOS		A			A			A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		16.1		12.2		16.1		12.2				
Change Period (Y+Rc), s		* 4.8		5.4		* 4.8		5.4				
Max Green Setting (Gmax), s		* 22		28.0		* 22		28.0				
Max Q Clear Time (g_c+I1), s		5.0		2.4		6.0		5.3				
Green Ext Time (p_c), s		3.5		0.1		5.3		1.2				

Intersection Summary		
HCM 6th Ctrl Delay	7.1	
HCM 6th LOS	A	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Lane Group	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	209	30	93	506	9	370
v/c Ratio	0.50	0.08	0.17	0.25	0.02	0.19
Control Delay	12.8	9.3	7.7	6.6	6.5	4.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.8	9.3	7.7	6.6	6.5	4.8
Queue Length 50th (ft)	22	3	9	27	1	13
Queue Length 95th (ft)	71	17	35	63	7	37
Internal Link Dist (ft)	1351	277		694		755
Turn Bay Length (ft)						
Base Capacity (vph)	1079	1124	654	2322	573	2272
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.19	0.03	0.14	0.22	0.02	0.16

Intersection Summary

CITY OF LOS ANGELES
INTER-DEPARTMENTAL CORRESPONDENCE

7500 N. Chaminade Ave
LADOT Case No. SFV23-114459
LADOT Project ID No. 54764

Date: May 16, 2023

To: Claudia Rodriguez, Senior City Planner
Department of City Planning

From: Vicente Cordero, Transportation Engineer
Department of Transportation

Subject: **TRANSPORTATION IMPACT ASSESSMENT FOR CHAMINADE COLLEGE PREPARATORY HIGH SCHOOL DEVELOPMENT LOCATED AT 7500 NORTH CHAMINADE AVENUE, 23241 WEST COHASSET STREET, 23260 WEST SATICOY STREET, 23217-23255 WEST SATICOY STREET, AND 7619-7629 NORTH WOODLAKE AVENUE (CPC-2009-1477-CU-ZV-ZAA-SPR)**

The Department of Transportation (LADOT) has reviewed the transportation assessment prepared by Armen Hovanessian Transportation Consulting (AHTC, Inc.), dated May 4, 2023, for the proposed Chaminade College Preparatory High School development located at 7500 North Chaminade Avenue, 23241 West Cohasset Street, 23260 West Saticoy Street, 23217-23255 West Saticoy and 7619-7629 North Woodlake Avenue in the Canoga Park-Winnetka-Woodland Hills-West Hills Community Planning Area of the City of Los Angeles. On July 30, 2019, pursuant to Senate Bill (SB) 743 and the recent changes to Section 15064.3 of the State's California Environmental Quality Act (CEQA) Guidelines, the City of Los Angeles adopted vehicle miles traveled (VMT) as the criteria by which to determine transportation impacts under CEQA. Based on the VMT thresholds established in LADOT's Transportation Assessment Guidelines (TAG), the proposed project would not result in a significant transportation impact on VMT as described below.

DISCUSSION AND FINDINGS

A. Project Description

The proposed project consists of the update and expansion of the existing Chaminade College Preparatory High School campus. The revised campus plan will include a total lot area of approximately 25.86 acres, including: 1) a new three-story school building, updated parking areas, remodeled athletic fields, new student quads, and renovated classrooms, student service centers and offices on the existing campus located on approximately 21.03 acres, at 7500 North Chaminade Avenue, 23241 West Cohasset Street and 23260 West Saticoy Street, 2) an expanded school campus area of approximately 4.83 acres located across Saticoy Street, at 23217-23255 West Saticoy Street and 7619-7629 North Woodlake Avenue, proposed for new athletic fields, an aquatic center/outdoor swimming pool, and accessory facilities/structures and associated surface parking facilities, and 3) a new pedestrian bridge

across Saticoy Street. The project area map can be seen in **Attachment A**. No increase in the maximum permitted student enrollment (1,360 students) is proposed. Upon project completion, the revised campus plan for the High School will include a total of approximately 193,818 square feet of Floor Area and approximately 501 on-site surface parking spaces. The school site and parking lots are accessible from four different two-way driveways on Cohasset Street, Chaminade Avenue, Keswick Street, and Saticoy Street. Vehicular access to the North Campus project site will be provided via three proposed two-way driveways including two driveways on Saticoy Street and one driveway on Woodlake Avenue. The project is expected to be completed by the year 2035.

B. CEQA Screening Threshold

A trip generation analysis was conducted to determine if the project would exceed the net 250 daily vehicle trips (DVT) screening threshold set forward by the TAG. The City of Los Angeles VMT Calculator Tool, which draws upon trip rate estimates published in the Institute of Transportation Engineers (ITE) Trip Generation Manual, 9th Edition, as well as applying trip generation adjustments when applicable, based on sociodemographic data and the built environment factors of the project's surroundings, determined that the project does **not** exceed the net 250 DVT threshold. The assessment determined that the project would generate a 1,178 net decrease in DVT and a 10,404 net decrease in daily VMT. The reduction in net DVT is the result of eliminating the shopping plaza which is a high trip generator use and replacing it with an athletic facility for the school use such as competitions and practices. As for community service, the school will provide limited access to other schools and the local community to benefit from the use of the athletic facilities.

Since the project's net DVT does not exceed the net 250 DVT threshold, further transportation impact assessment would not be required. Therefore, it was concluded that the implementation of the proposed project would not result in a significant VMT impact. A copy of the VMT calculator-screening pages are provided in **Attachment B.**

C. Access and Circulation

The access and circulation analysis included a delay study of the following intersections using the Highway Capacity Manual (HCM) methodology which calculates the amount of delay per vehicle based upon the intersection traffic volumes, lane configurations, and signal timing:

- Keswick Street & Saticoy Street
- Cohasset Street & Platt Avenue
- Cohasset Street & Woodlake Avenue
- Saticoy Street & Woodlake Avenue

Existing and Cumulative Traffic Conditions

Traffic volume counts were obtained for vehicular turning movements at the above study intersections. Vehicular turning movement counts were conducted on Wednesday, January 18, 2023, during the typical commuter hours of 6:00 AM to 9:00 AM and 3:00 PM to 6:00 PM, to obtain existing traffic volumes for the AM and PM peak hours respectively. To account for the future ambient traffic growth from intensification of existing developments and other projects that are located further than a half mile from the project site, the existing traffic volumes were increased by an ambient growth rate of 1% per year to the anticipated year of completion 2035.

Under the HCM methodology, level of service (LOS) at signalized and unsignalized intersections is defined based on the delay experienced per vehicle. The results for the Existing (2023), Existing (2023) Plus Project, Future (2035) Without Project, and Future (2035) Plus Project traffic conditions are shown in **Attachment C.** With the addition of the project traffic to the future traffic, the level of services for all traffic movements at the study intersections will remain substantially the same except for four traffic movements. However, the queueing length for all four traffic movements will only increase by less than one car length with negligible delay. Therefore, the project does not add any substantial amount of traffic to the study intersections. LADOT finds that the transportation assessment adequately evaluated potential project-related delays and level of service at the studied intersections.

Student Drop-Off/Pick-Up

AHTC, Inc. has prepared a Traffic management Plan (TMP) for the Chaminade College Preparatory High School to establish procedures related to student drop-off and pick-up operations.

The school site and parking lots are accessible from four different two-way driveways on Cohasset Street, Chaminade Avenue, Keswick Street, and Saticoy Street. These driveways are to be used for school faculty, staff, students, parents, and visitors. The Keswick driveway serves as an exit only driveway during the drop-off and pick-up times. Additionally, there is one on-street area on Saticoy Street used by school buses for student drop-off and pick-up with direct access to a pedestrian gate on the south side of Saticoy Street. The addition of the North Campus to the existing school operations will provide for three additional gated access points for the North Campus. There will be two two-way driveways on Saticoy Street serving the new (second) Senior Parking lot and one two-way driveway on Woodlake Avenue serving the parking lot adjacent to the aquatic center.

School Access Points:

1. Cohasset Street School Access

   The main gate located on Cohasset Street is designated to be used by sophomores, juniors, and staff. This access point provides ingress and egress access to the "Junior Parking Lot" with 216 parking spaces intended for self-driving junior students and staff. Approximately 196 self-driving juniors park at this location with 20 staff members. Parent drop-off or pick-up is not allowed anywhere on the Junior Parking Lot.

   Currently, parking is allowed on the north side of Cohasset Street east of Chaminade Avenue. The project proposes to install a passenger loading zone along the 400-foot school frontage on the north side of Cohasset Street to accommodate student drop-off and pick-up for queuing capacity for 20 vehicles along with bus loading and unloading for certain student activities usually occurring outside of normal drop-off and pick-up times.

2. Chaminade Avenue School Access

   Currently there is an onsite designated student drop-off and pick-up zone with vehicles entering the school main campus from the Chaminade Avenue gate and traveling northerly through the designated campus drop-off and pick-up zone and exiting through the Keswick Street "exit only" gate.

   Currently, parking is allowed on the eastside of Chaminade Avenue north of Cohasset Street. The project proposes to install no parking time restricted

signs for the AM and PM drop-off and pick-up times along the 600-foot school frontage on the eastside of Chaminade Avenue north of Cohasset Street. The parking restriction would allow queueing vehicles to form a line closer to the eastside of the street thereby avoid blocking the roadway.

3. Saticoy Street School Access (Main Campus)
   The gate located on the south side of Saticoy Street is designated to be used by seniors and staff. This access point provides ingress and egress access to the "Senior Parking Lot" with 168 parking spaces intended for self-driving students. Parent drop-off or pick-up is not allowed at this access point or anywhere on the Senior Parking Lot.

4. Saticoy Street School Access (North Campus)
   The gates located on the north side of Saticoy Street are designated to be used by seniors and staff to access 86 parking spaces. This access point provides ingress and egress access to the new Senior Parking Lot intended for self-driving students and staff. Parent drop-off or pick-up is not allowed at this access point or anywhere on the new Senior Parking Lot.

5. Woodlake Avenue School Access
   The gate located on the west side of Woodlake Avenue is designated to be used by seniors and staff. This access point provides ingress and egress access to the new Senior Parking Lot intended for self-driving students and staff. Parent drop-off or pick-up is not allowed at this access point or anywhere on the new Senior Parking Lot.

The school proposes to execute many traffic management steps during the school drop-off and pick-up peak periods to minimize the impacts to the surrounding neighborhood, the adjacent roadways, including using staff to assist in loading and unloading students. The school should strive for improving efficiency of the drop-off and pick-up operations by continually training staff on the procedures and distributing the traffic management information to the parents. This will help to minimize the disruptions to non-school traffic flow in the vicinity of the school.

LADOT finds that the TMP adequately evaluated the drop-off and pick-up operations at the school. The applicant shall consult with the LADOT West Valley District Office for the appropriate parking restriction signage.

PROJECT REQUIREMENTS

A. CEQA-Related Mitigation
   There are no CEQA related mitigation requirements required for this project.

B. Non-CEQA-Related Requirements and Considerations
   To comply with transportation and mobility goals and provisions of adopted City plans and ordinances, the applicant should be required to implement the following:

1. Construction Impacts
   LADOT recommends that a construction worksite traffic control plan be submitted to LADOT's Citywide Temporary Traffic Control Section for review and approval prior to the start of any construction work. Refer to https://ladot.lacity.org/businesses/temporary-traffic-control-plans to determine which section to coordinate review of the worksite traffic control plan. The plan should show the location of any roadway or sidewalk closures, traffic detours, haul routes, hours of operation, protective devices, warning signs and access to abutting properties. LADOT also recommends that construction related traffic be restricted to off-peak hours to the extent possible.

2. Highway Dedication and Street Widening Requirements
   Per the Mobility Element of the General Plan, **Chaminade Avenue** is designated as a local street and would require an 18-foot half-width roadway within a 30-foot half-width right-of-way. **Cohasset Street** is designator as a collector street and would require a 20-foot half-width roadway within a 33-foot half-width right-of-way. **Saticoy Street** is designated as an Avenue II and would require a 28-foot half-width roadway within a 43-foot half-width right-of-way. **Woodlake Avenue** is designated as an Avenue II and would require a 28-foot half-width roadway within a 43-foot half-width right-of-way.

   The applicant should check with Bureau of Engineering's Land Development Group to determine if there are any applicable highway dedication, street widening, and/or sidewalk requirements for this project.

3. Parking Requirements
   The revised campus plan proposes to provide approximately 501 on-site parking spaces upon project completion. The applicant should check with the Department of Building and Safety on the number of Code-required parking spaces needed for the project.

4. Driveway Access and Circulation
   The school site and parking lots are accessible from four different two-way driveways on Cohasset Street, Chaminade Avenue, Keswick Street, and Saticoy Street. These driveways are to be used for school faculty, staff, students, parents, and visitors. The Keswick Street driveway serves as an exit only driveway during the drop-off and pick-up times.

   Currently, the existing shopping center on the northwest corner of Saticoy Street and Woodlake Avenue has four existing two-way driveways on Saticoy Street and two existing two-way driveways off Woodlake Avenue. The project proposes to reduce the number of driveways such that vehicular access to the project site will be provided via three proposed two-way driveways. Two two-way driveways are proposed on Saticoy Street serving the new (second) Senior Parking lot and one two-way driveway is proposed on Woodlake Avenue serving the parking lot adjacent to the aquatic center. A copy of the project site plan is shown in **Attachment D**.

The applicant shall consult with the LADOT West Valley District Office for the appropriate signage for the proposed passenger loading zone for drop-off and pick-up on Cohasset Street along with any other parking restriction signage that may be needed.

The review of this study does not constitute approval of the existing driveway dimensions, access, and circulation scheme with regard to this project. Those elements require separate review and approval and should be coordinated with LADOT's Valley Planning Coordination Section (6262 Van Nuys Boulevard, Rm 320, @ 818-374-4699). To minimize and prevent last-minute design changes, the applicant should contact LADOT before the commencement of building or parking layout design efforts, for driveway width and internal circulation requirements. New driveways should be Case-2, designed with a recommended width of 28 feet for two-way operations, or 16 feet for one-way operations, or to the satisfaction of LADOT. Additionally, the applicant should check with City Planning regarding the project's vehicular access and design.

5. Development Review Fees
   Section 19.15 of the LAMC identifies specific fees for traffic study review, condition clearance, and permit issuance. The applicant shall comply with any applicable fees per this ordinance.

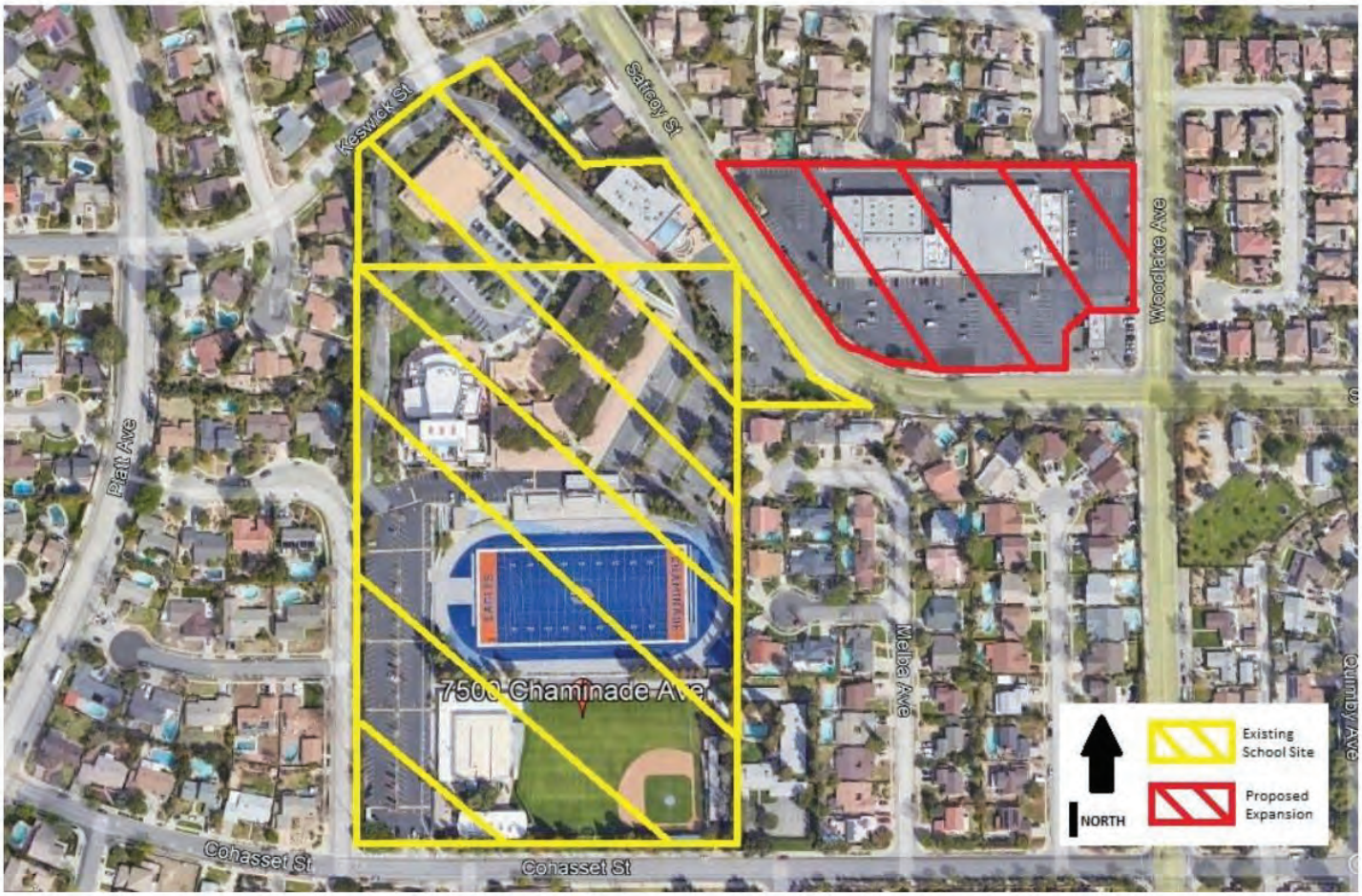
If you have any questions, please contact Sheila Ahoraian of my staff at (818) 374-4690.

Attachments

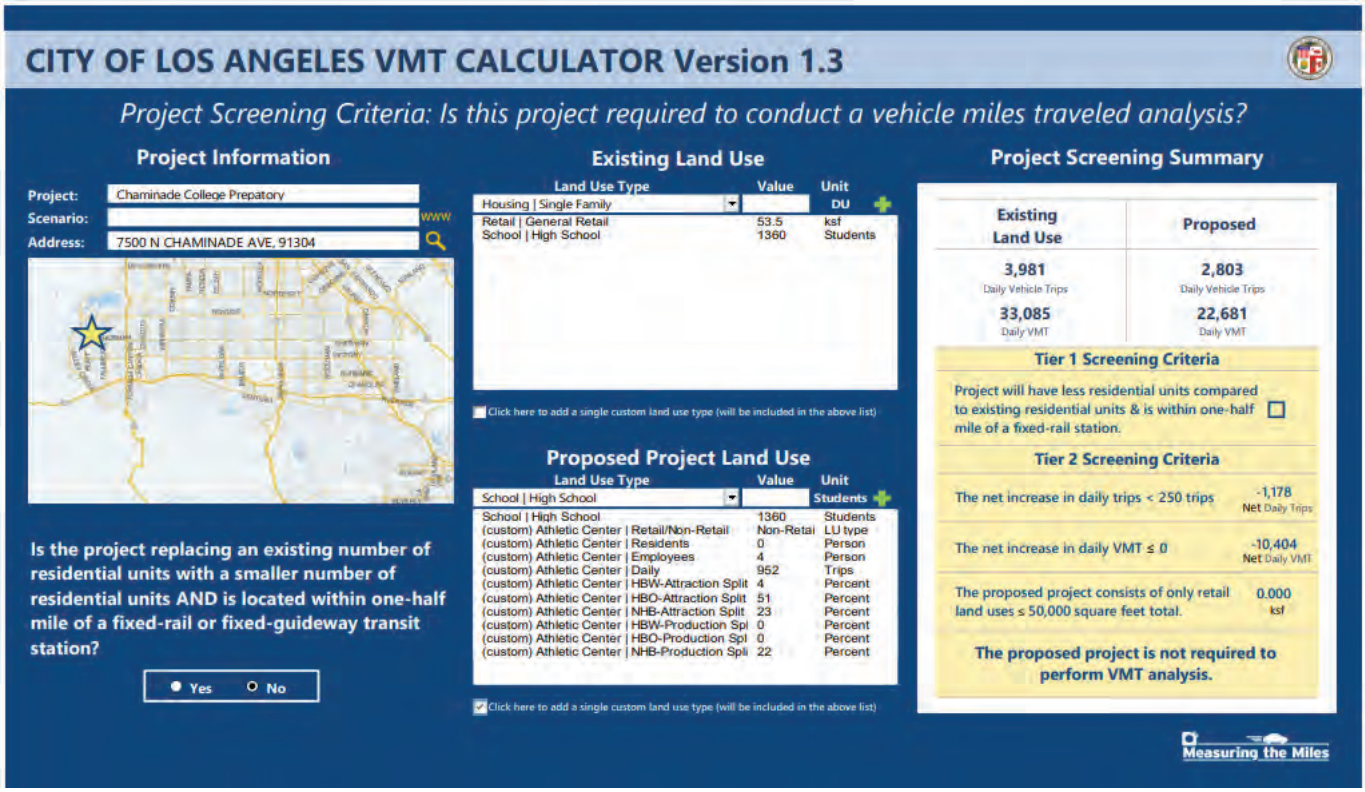
J:\Projects\SFV\54764-7500 N Chaminade Ave

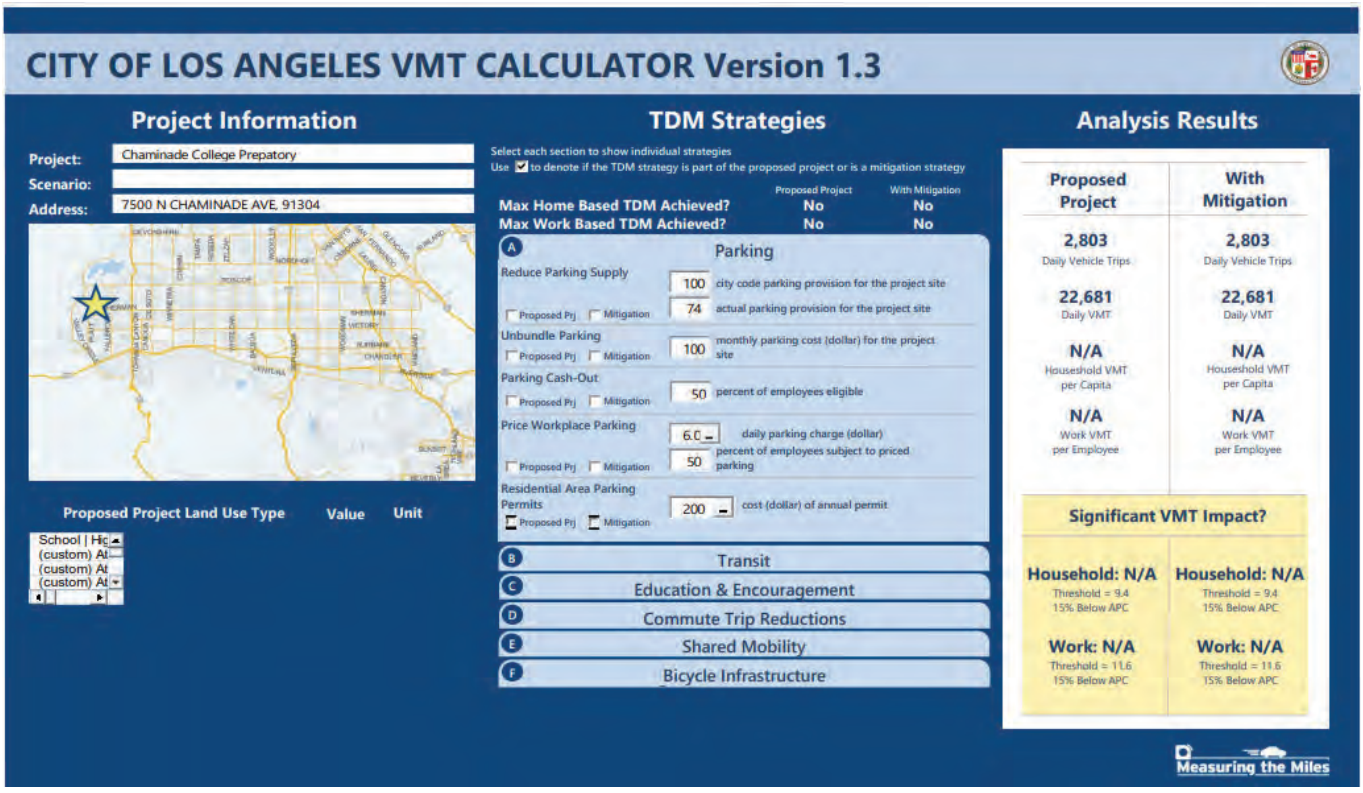
cc: Dan Rosales, Council District 12
Silva Abramian, LADOT West Valley District
Ali Nahass, BOE Valley District
Quyen Phan, BOE Land Development Group
Armen Hovanessian, Armen Hovanessian Transportation Consulting (AHTC, Inc.)

Attachment A
Project Area Map



Attachment B
City of LA VMT Calculator Results





Attachment C
Summary of Delay and Levels of Service (LOS)

Table 11 – LOS Existing Conditions

Study Intersection	Int. Control	Approach	Movement	Existing					
				AM			PM		
				Delay (sec)	LOS	95th % Queue (ft)	Delay (sec)	LOS	95th % Queue (ft)
Colonial Street & Woodlake Avenue	Traffic Signal	NB	left	10.6	B	53	6.9	A	30
			through	5.3	A	26	6.3	A	50
			right	5.3	A		6.3	A	
		SB	left	6.8	A	51	6.6	A	4
			through	7	A	75	6	A	30
			right	7.1	A		6	A	
		WB	left		A			A	
			through	10.6	B	48	7.8	A	13
			right		A			A	
		EB	left		A			A	
			through	11.4	B	51	9	A	56
			right		A			A	
Colonial Street/Match Avenue & Flint Avenue	All Way Stop Control	NB	left	10.3	B	0.7	9.6	A	0.5
			through	9.1	A	0.3	8.8	A	0.2
			right	8.8	A	0.6	8.1	A	0.3
		SB	left	11.10	B	0.8	9.5	A	0.3
			through	9.8	A	0.4	9.1	A	0.2
			right		A			A	
		WB	left		A			A	
			through	10.4	B	0.7	10.9	B	1.4
			right		A			A	
		EB	left		A			A	
			through	11.1	B	1.4	9.1	A	0.7
			right		A			A	
Salcoy Street & Woodlake Avenue	All Way Stop Control	NB	left	16.1	C	1.3	13.9	B	1.7
			through	17.1	C	1.9	16.5	C	3.1
			right		A			A	
		SB	left	24.7	C	4	13.6	B	1.3
			through	19.3	C	2.7	11.7	B	0.7
			right		A			A	
		WB	left	31	D	5.5	14.9	B	1.8
			through	17.1	C	2.2	12.9	B	1.4
			right		A			A	
		EB	left		A			A	
			through	27.4	D	4.8	14.6	B	1.7
			right	15.4	C	1.8	9.9	A	0.2
Keswick Street & Salcoy Street	All Way Stop Control	NB	left	10.8	B	0.9	8.9	A	0.7
			through	9.8	A	0.5	8.4	A	0.5
			right		A			A	
		SB	left	10.5	B	0.9	8.5	A	0.4
			through	10.4	B	0.9	8.4	A	0.5
			right		A			A	
		WB	left		A			A	
			through	8.9	A	0.1	8	A	0.1
			right		A			A	
		EB	left		A			A	
			through	13.5	B	3.3	8	A	0.3
			right		A			A	

Attachment C (cont'd)
Summary of Delay and Levels of Service (LOS)

Table 12 – LOS Existing + Project Conditions

Study Intersection	Int. Control	Approach	Movement	Existing + Project					
				AM			PM		
				Delay (sec)	LOS	95th % Queue (ft)	Delay (sec)	LOS	95th % Queue (ft)
Conasset Street & Woodlake Avenue	Traffic Signal	NB	left	10.6	B	53	7.1	A	30
			through	5.3	A	26	6.4	A	54
			right	5.3	A		6.4	A	
		SB	left	6.8	A	51	6.8	A	6
			through	7	A	75	6.1	A	33
			right	7.1	A		6.1	A	
		WB	left		A			A	
			through	10.6	B	48	7.9	A	15
			right		A			A	
		EB	left		A			A	
			through	11.4	B	51	9.1	A	59
			right		A			A	
Conasset Street/March Avenue & Platt Avenue	All Way Stop Control	NB	left	10.3	B	0.7	9.9	A	0.5
			through	9.1	A	0.3	9.1	A	0.4
			right	8.8	A	0.6	8.2	A	0.3
		SB	left	11.10	B	0.8	9.8	A	0.4
			through	9.8	A	0.4	9.5	A	0.4
			right		A			A	
		WB	left		A			A	
			through	10.4	B	0.7	11.4	B	1.5
			right		A			A	
		EB	left		A			A	
			through	11.1	B	1.4	9.6	A	0.8
			right		A			A	
Saticoy Street & Wooda le	All Way Stop Control	NB	left	16.1	C	1.3	17.2	C	2.5
			through	17.1	C	1.9	19.5	C	3.8
			right		A			A	
		SB	left	24.7	C	4	15.2	C	1.5
			through	19.3	C	2.7	13.3	B	1.1
			right		A			A	
		WB	left	31	D	5.5	17.1	C	2.2
			through	17.1	C	2.2	14.9	B	1.8
			right		A			A	
		EB	left		A			A	
			through	27.4	D	4.8	18.6	C	2.7
			right	15.4	C	1.8	10.9	B	0.4
Keswick Street & Saticoy Street	All Way Stop Control	NB	left	10.8	B	0.9	9.8	A	1
			through	9.8	A	0.5	8.7	A	0.6
			right		A			A	
		SB	left	10.5	B	0.9	8.9	A	0.6
			through	10.4	B	0.9	8.8	A	0.6
			right		A			A	
		WB	left		A			A	
			through	8.9	A	0.1	8.3	A	0.1
			right		A			A	
		EB	left		A			A	
			through	13.5	B	3.3	8.5	A	0.5
			right		A			A	

Attachment C (cont'd)
Summary of Delay and Levels of Service (LOS)

Table 13 – LOS Future without Project Conditions

Study Intersection	Int. Control	Approach	Movement	Future w/o Project					
				AM			PM		
				Delay (sec)	LOS	95th % Queue (ft)	Delay (sec)	LOS	95th % Queue (ft)
Cohasset Street & Woodlake Avenue	Traffic Signal	NB	left	11.6	B	92	7.3	A	35
			through	5	A	30	6.5	A	60
			right	5	A		6.5	A	
		SB	left	5.4	A	9	6.9	A	5
			through	6.9	A	93	6.1	A	34
			right	6.9	A		6.2	A	
		WB	left		A			A	
			through	12	B	53	8.1	A	15
			right		A			A	
		EB	left		A			A	
			through	13.1	B	57	9.5	A	68
			right		A			A	
Cohasset Street/March Avenue & Platt Avenue	All-Way Stop Control	NB	left	10.9	B	0.8	10.1	B	0.6
			through	9.5	A	0.4	9.1	A	0.3
			right	9.4	A	0.7	8.4	A	0.3
		SB	left	11.9	B	1	10	A	0.4
			through	10.3	B	0.5	9.5	A	0.3
			right		A			A	
		WB	left		A			A	
			through	11.1	B	0.8	11.9	B	1.7
			right		A			A	
		EB	left		A			A	
			through	12.3	B	1.8	9.7	A	0.8
			right		A			A	
Saticoy Street & Woodlake Avenue	All Way Stop Control	NB	left	18.7	C	1.8	16	C	2.2
			through	20.9	C	2.7	21.2	C	4.5
			right		A			A	
		SB	left	35.2	E	5.9	15.5	C	1.7
			through	24.8	C	3.9	12.8	B	0.9
			right		A			A	
		WB	left	49.7	E	8.3	17.3	C	2.4
			through	21.2	C	3	14.7	B	1.9
			right		A			A	
		EB	left		A			A	
			through	42	E	7.3	17	C	2.2
			right	18.5	C	2.4	10.5	B	0.2
Keswick Street & Saticoy Street	All Way Stop Control	NB	left	11.6	B	1.1	9.2	A	0.8
			through	10.3	B	0.6	8.6	A	0.5
			right		A			A	
		SB	left	11.3	B	1.1	8.7	A	0.5
			through	11.2	B	1.1	8.6	A	0.5
			right		A			A	
		WB	left		A			A	
			through	9.3	A	0.1	8.1	A	0.1
			right		A			A	
		EB	left		A			A	
			through	16.2	C	4.4	8.2	A	0.4
			right		A			A	

Attachment C (cont'd)
Summary of Delay and Levels of Service (LOS)

Table 14 – LOS Future + Project Conditions

Study Intersection	Int. Control	Approach	Movement	Future + Project					
				AM			PM		
				Delay (sec)	LOS	95th % Queue (ft)	Delay (sec)	LOS	95th % Queue (ft)
Cohasset Street & Woodlake Avenue	Traffic Signal	NB	left	11.6	B	92	7.3	A	35
			through	5	A	30	6.5	A	63
			right	5	A		6.5	A	
		SB	left	5.4	A	9	7	A	7
			through	6.9	A	93	6.1	A	37
			right	6.9	A		6.2	A	
		WB	left		A			A	
			through	12	B	53	8.3	A	17
			right		A			A	
		EB	left		A			A	
			through	13.1	B	57	9.8	A	71
			right		A			A	
Cohasset Street/Marsh Avenue & Platt Avenue	All Way Stop Control	NB	left	10.9	B	0.8	10.3	B	0.6
			through	9.5	A	0.4	9.5	A	0.4
			right	9.4	A	0.7	8.5	A	0.3
		SB	left	11.90	B	1	10.3	B	0.4
			through	10.3	B	0.5	9.9	A	0.4
			right		A			A	
		WB	left		A			A	
			through	11.1	B	0.8	12.3	B	1.8
			right		A			A	
		EB	left		A			A	
			through	12.3	B	1.8	10.2	B	0.9
			right		A			A	
Sarcoxy Street & Woodlake Avenue	All Way Stop Control	NB	left	18.7	C	1.8	20.5	C	3.2
			through	20.9	C	2.7	26.2	D	5.4
			right		A			A	
		SB	left	35.2	E	5.9	17.5	C	2
			through	24.8	C	3.9	14.8	B	1.3
			right		A			A	
		WB	left	49.7	E	8.3	20.3	C	3
			through	21.2	C	3	17.3	C	2.4
			right		A			A	
		EB	left		A			A	
			through	42	E	7.3	22.7	C	3.6
			right	18.5	C	2.4	11.6	B	0.4
Keswick Street & Sarcoxy Street	All Way Stop Control	NB	left	11.6	B	1.1	10.1	B	1.2
			through	10.3	B	0.6	8.9	A	0.6
			right		A			A	
		SB	left	11.3	B	1.1	9.1	A	0.6
			through	11.2	B	1.1	9	A	0.7
			right		A			A	
		WB	left		A			A	
			through	9.3	A	0.1	8.5	A	0.1
			right		A			A	
		EB	left		A			A	
			through	16.2	C	4.4	8.7	A	0.6
			right		A			A	

Attachment D
Project Site Plan



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TECHNICAL MEMORANDUM

To: Stacie Henderson
CAJA Environmental Services, LLC
15350 Sherman Way, Suite 315
Van Nuys, California 91406

From: Rafaella Lisboa, Project Manager

Date: March 9, 2023

Re: **Tribal Cultural Resources Review for the Proposed Chaminade College Preparatory High School Project, West Hills, California / SWCA Project No. 067816**

INTRODUCTION AND SUMMARY

CAJA Environmental Services, LLC (CAJA) retained SWCA Environmental Consultants (SWCA) to prepare a tribal cultural resource review for the proposed Chaminade College Preparatory High School Project (project), on behalf of Chaminade College Preparatory (Applicant). The project is located in the West Hills neighborhood of the city of Los Angeles, California. The project proposes to update and expand the campus at Chaminade College Preparatory high school. The improvements to the Main Campus will include two new quads, a new administrative office building, updates to existing classrooms and offices, two new sports fields, and temporary portable buildings. The development of the North Campus includes a new surface parking lot, two sports fields, and a pool. In addition, a new pedestrian bridge across Saticoy Street is proposed to connect the Main Campus and the North Campus. The project site is currently developed, with the Main Campus containing the existing Chaminade College Preparatory high school, which includes multi-story academic and administrative buildings, sports fields, and facilities, and the proposed North Campus containing a one-story multi-tenant mini shopping center and surface parking lot, built between 1962 and 1964. The surrounding area is fully urbanized and is characterized primarily by residential properties.

The project is subject to review under the California Environmental Quality Act (CEQA), and the City of Los Angeles (City) Department of City Planning is the lead CEQA agency. The project site is composed of five parcels: 7500 Chaminade Avenue (Assessor's Parcel Number [APN] 2027-005-002 and -009), which contains the high school campus (the Main Campus), the proposed project will develop another property designated as the North Campus, which is located at the northwest corner of Saticoy Street and Woodlake Avenue, at 23255 Saticoy Street, 7629 Woodlake Avenue, and 7621 Woodlake Avenue (APNs 2027-005-005, 2027-005-006, and 2027-005-007). The project site is in Section 35, Township 2 North, Range 17 West, and is plotted on the U.S. Geological Survey (USGS) Calabasas, California, quadrangle (Appendix A, Figures A-1 through A-3).[1]

[1] All figures in this report are included in Appendix A.

This technical memorandum provides a review of available evidence for known tribal cultural resources within the project site and analyzes the likelihood (i.e., sensitivity) for unknown tribal cultural resources to be present as buried archaeological deposits. The results of this study are intended to provide a basis upon which the potential for impacts to tribal cultural resources can be assessed in accordance with the significance thresholds in Appendix G of the CEQA Guidelines. This study includes a summary of resources identified in the California Historical Resources Information System (CHRIS) requested from the South Central Coastal Information Center (SCCIC), the results of a Sacred Lands File (SLF) search requested from the Native American Heritage Commission (NAHC), and background research. The CHRIS and SLF results letters are included in Appendices B and C, respectively.

Public Resources Code (PRC) Section 21082.3.1, as amended by Assembly Bill 52 (AB 52), requires the lead agency to begin consultation with culturally and geographically affiliated California Native American tribes prior to the release of a negative declaration, mitigated negative declaration, or environmental impact report for a project. The evaluation of a tribal cultural resource must consider the cultural values to a California Native American tribe, in addition to scientific and archaeological considerations. Although not all tribal cultural resources are archaeological in nature, those preserved below the surface would likely fit the definition of both an archaeological and tribal cultural resource. Accordingly, SWCA's assessment of the buried resource potential focuses exclusively on the scientific and archaeological sources of evidence, consistent with standard industry practices, and the analysis of the sensitivity for buried tribal cultural resources considered only those that are archaeological in nature. Tribal consultation for the project is being conducted concurrent with the preparation of this report; therefore, any input from consulting tribal parties has not been included.

This report was prepared by SWCA Cultural Resources Project Manager Rafaella Lisboa, M.A., Registered Professional Archaeologist (RPA), and Principal Investigator Michael Bever, Ph.D., RPA. Dr. Bever meets the Secretary of the Interior Professional Qualification Standards in archaeology and the Society for California Archaeology's standards for a principal investigator. Copies of this report are on-file with the Applicant, the City's Department of City Planning, and the SCCIC at California State University, Fullerton. All background materials are on file with SWCA's office in Pasadena, California.

Summary of Results

SWCA reviewed the results of CHRIS and SLF searches. Results from the CHRIS record search did not identify any known resources within the project site. The NAHC SLF search results were positive, indicating that there are known tribal cultural resources within the project site. The NAHC provided a contact list of tribal representatives who may have more information about these known resources. SWCA's supplemental research found that at least three former Chumash, Gabrielino, and Fernandeño-Tataviam villages—*Jucjauyunga, Momonga,* and *Ceegenga*—are in the vicinity, but outside of the project site. Aerial photographs from the early to mid-twentieth century show developments associated with former agricultural land uses directly within the project site.

While there are known significant Native American village sites located in the general vicinity, such as *Jucjauyunga* located approximately 1.6 miles southwest and *Momonga* 3.5 miles to the north, the project site is not located near enough or in a comparable environmental setting to suggest an increased likelihood for associated tribal cultural resources within the project site. The project site is set within what has been a broad floodplain of the Los Angeles River for which there are only generalized indicators of former use by Native Americans such that substantial material deposits are likely to have occurred. These generalized indicators include a reasonable proximity to former stream courses and important natural resources that occur in higher densities near waterways. Two intermittent streams are located in the vicinity of the project site: Dayton Creek formed approximately 0.6 mile to the north, and Bell Creek is approximately 0.7 mile to the south. Dayton Creek connects to Chatsworth Creek, which is located

approximately 0.7 miles east of the project site. Both Chatsworth and Bell Creeks connect to the south-flowing Los Angeles River, currently located approximately 2.1 miles southeast of the project site. The proximity to these streams could suggest the area was more intensively used by Native Americans, such that there would be a corresponding increase in the potential for a tribal cultural resource to be present. Late to middle Pleistocene old alluvial fan deposits below the artificial fill within the project site are naturally less likely to contain buried archaeological resources. The depth to the depth to the underlying, previously undisturbed sediments is unknown, but likely very shallow (e.g., 3 feet below ground surface). Additionally, the impacts to the near-surface from Historic period agricultural use and developments further decreases the likelihood of encountering any buried archaeological resources due to the compromised integrity of the physical setting. **Based on these findings, the sensitivity for tribal cultural resources is considered low.**

Although there are no known archaeological resources within the project site, and the sensitivity for tribal cultural resources is considered low, the location of a tribal cultural resource that is archaeological in nature is unpredictable and the potential for a resource to be present cannot be fully ruled out. SWCA assumes that the City will impose a condition of approval that addresses the inadvertent discovery of a tribal cultural resource. The condition requires that in the event a potential tribal cultural resource is discovered in the project site during ground-disturbing activities such as demolition, excavation, grading, or drilling, all ground-disturbing activities temporarily cease until it is determined whether the discovery is a tribal cultural resource and appropriate treatment is determined through consultation with a California Native American tribe on the City's AB 52 list and with a qualified archaeologist.

REGULATORY SETTING

State Regulations

Assembly Bill 52

AB 52 of 2014 amended PRC Section 5097.94 and added PRC Sections 21073, 21074, 21080.3.1, 21080.3.2, 21082.3, 21083.09, 21084.2, and 21084.3. Section 4 of AB 52 adds Sections 21074(a) and (b) to the PRC, which address tribal cultural resources and cultural landscapes. Section 21074(a) defines tribal cultural resources as one of the following:

(1) Sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that are either of the following:
    (A) Included or determined to be eligible for inclusion in the California Register of Historical Resources.
    (B) Included in a local register of historical resources as defined in subdivision (k) of Section 5020.1.
(2) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Section 5024.1. In applying the criteria set forth in subdivision (c) of Section 5024.1 for the purposes of this paragraph, the lead agency shall consider the significance of the resource to a California Native American tribe.

Section 1(a)(9) of AB 52 establishes that "a substantial adverse change to a tribal cultural resource has a significant effect on the environment." Effects on tribal cultural resources should be considered under CEQA. Section 6 of AB 52 adds Section 21080.3.2 to the PRC, which states that parties may propose mitigation measures "capable of avoiding or substantially lessening potential significant impacts to a tribal cultural resource or alternatives that would avoid significant impacts to a tribal cultural resource." Further, if a California Native American tribe requests consultation regarding project alternatives, mitigation measures, or significant effects to tribal cultural resources, the consultation shall include those

topics (PRC Section 21080.3.2[a]). The environmental document and the mitigation monitoring and reporting program (where applicable) shall include any mitigation measures that are adopted (PRC Section 21082.3[a]).

AB 52 TRIBAL CONSULTATION

California Native American tribes are defined in AB 52 as any Native American tribe located in California that is on the contact list maintained by the NAHC, whether or not they are federally recognized. AB 52 specifies that California Native American tribes traditionally and culturally affiliated with a geographic area may have expertise concerning their tribal cultural resources. Once an application for a project is completed or a public agency makes a decision to undertake a project, the lead agency has 14 days to formally notify Native American tribes designated by the NAHC as having traditional and cultural affiliation with a given project site and previously requested in writing to be notified by the lead agency (PRC Section 21082.3.1[b][d]). The notification shall include a brief description of the proposed project, the location, contact information for the agency contact, and notice that the tribe has 30 days to request, in writing, consultation (PRC Section 21082.3.1[d]). Consultation must be initiated by the lead agency within 30 days of receiving any California Native American tribe's request for consultation. Furthermore, consultation must be initiated prior to the release of a negative declaration, mitigated negative declaration, or environmental impact report for a project (PRC Section 21082.3.1[b][e]).

Consistent with the stipulations stated in Senate Bill 18 (Government Code Section 65352.4), consultation may include discussion concerning the type of environmental review necessary, the significance of the project's impacts on the tribal cultural resources, and, if necessary, project alternatives or the appropriate measures for preservation and mitigation that the California Native American tribe may recommend to the lead agency (PRC Section 21080.3.2[a]). The consultation shall be considered concluded when either the parties agree to measures mitigating or avoiding a significant effect, if one exists, on a tribal cultural resource; or a party, acting in good faith and after reasonable effort, concludes that agreement cannot be reached (PRC Section 21082.3.2[b]).

Pursuant to Government Code Sections 6254 and 6254.10, and PRC Section 21082.3(c), information submitted by a California Native American tribe during consultation under AB 52 shall not be included in the environmental document or otherwise disclosed to the public by the lead agency, project applicant, or the project applicant's agent, unless written permission is given. Exemptions to the confidentiality provisions include any information already publicly available, in lawful possession of the project applicant before being provided by the tribe, independently developed by the project applicant or the applicant's public agent, or lawfully obtained by a third party (PRC Section 21082.3[c]).

California Register of Historical Resources

Created in 1992 and implemented in 1998, the California Register of Historical Resources (CRHR) is "an authoritative guide in California to be used by state and local agencies, private groups, and citizens to identify the state's historical resources and to indicate what properties are to be protected, to the extent prudent and feasible, from substantial adverse change" (PRC Sections 21083.2 and 21084.1). Certain properties, including those listed in or formally determined eligible for listing in the National Register of Historic Places (NRHP) and California Historical Landmarks numbered 770 and higher, are automatically included in the CRHR. Other properties recognized under the California Points of Historical Interest program, identified as significant in historical resources surveys, or designated by local landmarks programs, may be nominated for inclusion in the CRHR. According to PRC Section 5024.1(c), a resource, either an individual property or a contributor to a historic district, may be listed in the CRHR if

the State Historical Resources Commission determines that it meets one or more of the following criteria, which are modeled on NRHP criteria:

- **Criterion 1:** It is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage.
- **Criterion 2:** It is associated with the lives of persons important in our past.
- **Criterion 3:** It embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values.
- **Criterion 4:** It has yielded, or may be likely to yield, information important in history or prehistory.

Resources nominated to the CRHR must retain enough of their historic character or appearance to convey the reasons for their significance. Resources whose historic integrity does not meet NRHP criteria may still be eligible for listing in the CRHR (California Association of Environmental Professionals 2019).

Local Regulations

City of Los Angeles, Department of City Planning

CONDITION OF APPROVAL

The City has developed a standard condition of approval to address the inadvertent discovery of tribal cultural resources during activities of a proposed project. The condition of approval is intended to ensure that if any such discoveries occur, they will be handled in compliance with state law so that any potential impacts would be less than significant. The condition of approval requires that in the event of discovery of a potential tribal cultural resource, all ground-disturbing activities—including but not limited to demolition, excavation, grading, or drilling—will temporarily cease. These activities cannot resume in the vicinity of the discovery until it is determined whether the discovery is a tribal cultural resource. If the discovery is confirmed as a tribal cultural resource, appropriate treatment will be determined if necessary. The identification and any treatments will be determined in consultation with a California Native American tribe on the City's AB 52 list and a qualified archaeologist. SWCA assumes the City will impose this standard condition of approval for the inadvertent discovery of tribal cultural resources.

ENVIRONMENTAL SETTING

The project site is located in the West Hills neighborhood situated in the western portion of the San Fernando Valley. The project site is within a highly developed and urbanized area bordered by the Simi Hills to the west, Chatsworth to the north, Canoga Park to the east and the U.S. Route 101 to the south. The immediate vicinity of the project site is characterized primarily by residential properties. Geographically, the project site is located 4 miles north of the Santa Monica Mountains and 2 miles southwest of Chatsworth Reservoir, which is formed on the eastern margin of the Simi Hills. The project site is situated on a relatively flat, alluvial plain with a slight southern aspect at an elevation of approximately 255 meters (m) (837 feet) above mean sea level. Historical topographic maps show two intermittent streams in the vicinity of the project site: Dayton Creek formed approximately 0.6 miles to the north, and Bell Creek is approximately 0.7 mile to the south. Dayton Creek connects to Chatsworth Creek, which is located approximately 0.7 miles east of the project site. Both Chatsworth and Bell Creeks connect to the south-flowing Los Angeles River, currently located approximately 2.1 miles southeast of the project site (Figure A-4).

The San Fernando Valley is drained by the Los Angeles River and its tributaries. The main channel of the Los Angeles River is located approximately 6.5 miles south of the project site. Historically the Los Angeles River did not have a permanent, well-defined channel this far west within the San Fernando Valley. Rather, with significant portions of the water being located underground, the surface in this vicinity was characterized by several smaller-order streams that would drain east and form tributaries of the Los Angeles River (Gumprecht 2001). Cycles of flooding would alter these stream courses and establish channels in some places, but through a series of flood control projects in the early to mid-twentieth century, a permanent channel for the Los Angeles River was established in its current location and by 1964, was lined with concrete. It was not just the Los Angeles River that was prone to flooding. Several of the stream courses extending from the surrounding foothills, which may have been nothing more than dry washes for years at a time, could become saturated and subject large areas to violent flooding during significant storms.

As mentioned above, the San Fernando Valley is primarily defined by deposits of alluvium—sediments deposited by water. These deposits began accumulating during the Pleistocene Epoch, which ended approximately 12,000 years ago, and are overlaid by Holocene age deposits—those that are formed fewer than 12,000 years ago. The maximum thickness of Holocene age deposits in the San Fernando Valley varies geographically, and ranges between 900 feet thick near Burbank and 100 feet thick in the north. The project site is mapped within a surficial geologic unit defined as late to middle Pleistocene old alluvial fan deposits, undivided (Qof) and late Miocene Modelo Formation, undivided (Tm). According to the paleontological resources study conducted for this project, the depth to the underlying, previously undisturbed sediments is unknown, but likely very shallow (e.g., 3 feet below ground surface) (Carson 2022).

CULTURAL SETTING

Prehistoric Period

In the last several decades, researchers have devised numerous prehistoric chronological sequences to aid in understanding cultural changes in southern California. Building on early studies and focusing on data synthesis, Wallace (1955, 1978) developed a prehistoric chronology for the southern California coastal region that is still widely used today and is applicable to near-coastal and many inland areas. Four horizons are presented in Wallace's prehistoric sequence: Early Man, Milling Stone, Intermediate, and Late Prehistoric. Although Wallace's 1955 synthesis initially lacked chronological precision due to a paucity of absolute dates (Moratto 1984:159), this situation has been alleviated by the availability of thousands of radiocarbon dates obtained by southern California researchers in the last three decades (Byrd and Raab 2007:217). Given this, several revisions were subsequently made to Wallace's 1955 synthesis using radiocarbon dates and projectile point assemblages (e.g., Koerper and Drover 1983; Koerper et al. 2002; Mason and Peterson 1994). The summary of prehistoric chronological sequences for southern California coastal and near-coastal areas presented below is a composite of information in Wallace (1955) and Warren (1968), as well as later studies, including Koerper and Drover (1983).

Horizon I: Early Man (ca. 10,000–6000 B.C.)

The earliest accepted dates for archaeological sites on the southern California coast are from two of the northern Channel Islands, located off the coast of Santa Barbara. On San Miguel Island, Daisy Cave clearly establishes the presence of people in this area ca. 10,000 years ago (Erlandson 1991:105). On Santa Rosa Island, human remains have been dated from the Arlington Springs site to ca. 13,000 years ago (Johnson et al. 2002). Present-day Orange and San Diego Counties contain several sites dating from 9,000 to 10,000 years ago (Byrd and Raab 2007:219; Macko 1998:41; Mason and Peterson 1994:55–57; Sawyer and Koerper 2006). Although the dating of these finds remains controversial, several sets of

human remains from the Los Angeles Basin (e.g., "Los Angeles Man," "La Brea Woman," and the Haverty skeletons) apparently date to the middle Holocene, if not earlier (Brooks et al. 1990; Erlandson et al. 2007:54).

Recent data from Horizon I sites indicate that the economy was a diverse mixture of hunting and gathering, with a major emphasis on aquatic resources in many coastal areas (e.g., Jones et al. 2002) and a greater emphasis on large-game hunting inland.

Horizon II: Milling Stone (6000–3000 B.C.)

Set during a drier climatic regime than the previous horizon, the Milling Stone horizon is characterized by subsistence strategies centered on collecting plant foods and small animals. The importance of seed processing is apparent in the dominance of stone grinding implements in contemporary archaeological assemblages, namely milling stones (metates) and hand stones (manos). Recent research indicates that Milling Stone horizon food procurement strategies varied in both time and space, reflecting divergent responses to variable coastal and inland environmental conditions (Byrd and Raab 2007:220).

Horizon III: Intermediate (3000 B.C.–A.D. 500)

The Intermediate horizon is characterized by a shift toward a hunting and maritime subsistence strategy, along with a wider use of plant foods. An increasing variety and abundance of fish, land mammal, and sea mammal remains are found in sites from this horizon along the California coast. Related chipped stone tools suitable for hunting are more abundant and diversified, and shell fishhooks became part of the toolkit during this period. Mortars and pestles became more common during this period, gradually replacing manos and metates as the dominant milling equipment and signaling a shift away from the processing and consuming of hard seed resources to the increasing importance of the acorn (e.g., Glassow et al. 1988; True 1993).

Horizon IV: Late Prehistoric (A.D. 500–Spanish contact)

In the Late Prehistoric horizon, there was an increase in the use of plant food resources in addition to an increase in land and sea mammal hunting. There was a concomitant increase in the diversity and complexity of material culture during the Late Prehistoric horizon, demonstrated by more classes of artifacts. The recovery of a greater number of small, finely chipped projectile points suggests increased use of the bow and arrow rather than the atlatl (spear thrower) and dart for hunting. Steatite cooking vessels and containers are also present in sites from this time, and there is an increased presence of smaller bone and shell circular fishhooks; perforated stones; arrow shaft straighteners made of steatite; a variety of bone tools; and personal ornaments such as beads made from shell, bone, and stone. There was also an increased use of asphalt for waterproofing and as an adhesive. Late Prehistoric burial practices are discussed in the Native American Ethnographic Overview section below.

By A.D. 1000, fired clay smoking pipes and ceramic vessels were being used at some sites (Drover 1971, 1975; Meighan 1954; Warren and True 1961). The scarcity of pottery in coastal and near-coastal sites implies that ceramic technology was not well developed in that area, or that occupants were trading with neighboring groups to the south and east for ceramics. The lack of widespread pottery manufacture is usually attributed to the high quality of tightly woven and watertight basketry that functioned in the same capacity as ceramic vessels.

During this period, there was an increase in population size accompanied by the advent of larger, more permanent villages (Wallace 1955:223). Large populations and, in places, high population densities are characteristic, with some coastal and near-coastal settlements containing as many as 1,500 people. Many

of the larger settlements were permanent villages in which people resided year-round. The populations of these villages may have also increased seasonally.

In Warren's (1968) cultural ecological scheme, the period between A.D. 500 and European contact, which occurred as early as 1542, is divided into three regional patterns: Chumash (Santa Barbara and Ventura Counties), Takic/Numic (Los Angeles, Orange, and western Riverside Counties), and Yuman (San Diego County). The seemingly abrupt introduction of cremation, pottery, and small triangular arrow points in parts of modern-day Los Angeles, Orange, and western Riverside Counties at the beginning of the Late Prehistoric period is thought to be the result of a Takic migration to the coast from inland desert regions. Modern Gabrielino, Juaneño, and Luiseño people in this region are considered the descendants of the Uto-Aztecan, Takic-speaking populations that settled along the California coast in this period.

Ethnographic Overview

Alfred Kroeber was the first scholar to propose boundaries of traditional territories inhabited by California Native American populations following Spanish contact. Kroeber's ethnographic work (1925) established the conventions for names and territorial boundaries, drawn heavily from linguistic groupings, on which subsequent scholarly research would be based (Bean and Smith 1978). These proposed tribal boundaries, however, are far from exact and subsequent scholars have suggested alternate delineations for traditional tribal territories for the region (cf. Johnson 2006). Based on more recent iterations of traditional tribal territory boundaries, the project site is located just within the boundaries of the Ventureño Chumash (King 2011) along a shared border with the Gabrielino to the east, and the Tataviam to the northeast. Therefore, ethnographic contexts for all three tribal groups are presented below.

Chumash

The project area is a cultural transition zone and was traditionally occupied by the Ventureño Chumash (Grant 1978a–c; Kroeber 1925). The Chumash people lived between Malibu in Los Angeles County and San Marcos Creek near the Monterey County line, on all four of the northern Channel Islands, and as far east as the edge of Kern County (Milliken and Johnson 2005). The Chumash territory was divided into seven parts, each representing various linguistic subgroups, some of which were nearly mutually unintelligible (Kroeber 1925; Milliken and Johnson 2005). Most of our information regarding Chumash traditional culture comes from the ethnographic studies conducted by J. P. Harrington, who worked among the surviving Chumash population between 1912 and 1958. The following descriptions of Chumash society are compiled from scant ethnographic and ethnohistoric sources that entail numerous biases and should be taken as general accounts of Native lifeways observed at the time of European contact and later (after indigenous lifeways had been severely disrupted by European presence in the Americas) that likely preclude primary aspects of cultural identity and practices.

The term "Chumash" is derived from a Native American word initially applied to the people living on Santa Cruz Island (King 1994); though Chumash now refers to the entire linguistic and ethnic group of societies that occupied the coast between San Luis Obispo and northwestern Los Angeles County, including the northern Channel Islands, and inland to the western edge of the San Joaquin Valley. Neighboring groups included the Salinan to the north, the Southern Valley Yokuts and Tataviam to the east, and the Gabrielino (Tongva) to the south.

The Chumash spoke at least six closely related Chumashan languages, which have been divided into two broad groups—Northern Chumash (consisting only of Obispeño) and Southern Chumash (Purisimeño, Ineseño, Barbareño, Ventureño, and Island Chumash) (Mithun 2001). While Island Chumash was the most divergent of the five southern languages, Ventureño may have had the most internal variation with at least six distinct dialects. The Chumashan languages are considered by some to be part of the Hokan language family, though others consider Chumashan to be an isolate stock with a long history in the Santa

Barbara region, and not part of the Hokan linguistic family (Mithun 2001). As much of these languages were lost during the past several hundred years post-European contact, it is likely that debate regarding their origins will continue.

Numerous large Chumash villages extended along the Santa Barbara coastline at the time of European contact, particularly at the mouths of large drainages (Grant 1978a:Figure 1) suggesting extensive use of the greater area by Indigenous peoples. At the time of Spanish contact in 1542 and again in 1769, accounts describe settlement along the Santa Barbara Channel coast as relatively dense with multiple large villages. Estimates of total Chumash population for the initial Contact period vary from 8,000–10,000 (Kroeber 1925:551) to 18,000–22,000 (Cook and Heizer 1965:21). Coastal Ventureño and Barbareño Chumash villages were described as containing anywhere from 30 to 120 houses with several hundred to over 1,000 inhabitants and multiple canoes (Brown 2001; Grant 1978b). Early accounts by Spanish explorers note that inland villages were smaller than their coastal counterparts, with 100–500 occupants.

Permanent Chumash villages located along the coast contained hemispherical dwellings arranged in close groups. These were constructed of bent poles and covered by grass or tule mats. Average family dwellings measured approximately 6–7 m (20–23 feet) and had a hole in the roof through which light could enter and smoke would escape, and in rainy weather, these holes were covered with animal skins. Larger dwellings were also described for housing related family groups; these measured approximately 15–17 m (50–56 feet) and could contain around 60 people (Brown 2001; Hudson and Blackburn 1981). Houses in the smaller inland villages were described as rectangular and more like those found among the adjacent Takic speakers, though style and types of artifacts were distinctly like those used by the coastal Chumash (Grant 1978a:518). The chief's house was often the largest dwelling, encompassing his extended household and providing for his hospitality duties. Villages often contained storehouses, one or more subterranean sweat lodges, and a semi-circular dance ground and associated sacred ceremonial enclosure, with a nearby game field surrounded by low walls (McCall and Perry 1986). Satellite gathering or processing areas included earth ovens used to roast yucca and other foods, rockshelters, quarries, and bedrock mortars for processing acorns and similar plant resources (King 1994).

Each Chumash village had a formal cemetery, generally separate from the village proper. Ethnographic records indicate that cemeteries were marked by tall painted poles and frequently had an entrance area where ceremonies were performed. Within the cemetery, stone, wood, or bone markers identified burial sites. Occasionally, individual burials were marked by painted boards with markings indicating the occupation or clan of the deceased (Gamble et al. 2001). Prior to burial, a wake was held in a sacred enclosure. Individuals were then interred face down in a flexed position with personal objects including effigies, steatite pipes, bowls, ollas, beads, and other grave goods. Social differentiation and hierarchy are inferred from archaeological studies that identified distinct areas appearing to denote high- and low-status families within the cemetery grounds (King 1969).

Chumash society was organized into craft guilds including canoe building, bead making, basketry making, woodworking, and weapon making, among others (Miller 1988). Being a guild member had strong economic advantages. Membership was primarily open to the upper class, and ranking members of the guilds were *ʻantap* society members. Chumash society was divided into three classes (McCall and Perry 1986). Upper class members held the important social and religious positions, including chief, canoe builders and owners, and members in the *ʻantap* society. The middle class contained about half the population, mainly hunters, gatherers, and general workers, and social outcasts and unproductive people populated the lower class. Unlike their southern neighbors, the Chumash did not have a lineage organization and most elite marriages were matrilocal.

Every village had a chief, or *wot*, who was usually male, but hereditary rights to this role were passed down matrilineally (Johnson 1987). The *wot* had both political and religious ceremonial duties to perform; his assistant, the *paha*, helped officiate at rituals. Other officials known as *ksen* were "messengers who traveled from place to place, making announcements and gathering news for the *wot*" (McCall and Perry 1986:40). A large village usually had three to four chiefs, one of whom would be the head chief (Brown 2001). Other portions of Chumash territory were organized into provinces, or groups of villages that were ruled by a single chief.

Chumash subsistence practices varied somewhat between coastal and inland groups based on available resources, but like many indigenous Californian groups, the acorn was a dietary staple. Acorns were gathered in the autumn and stored in villages, where they were ground to a meal, leached, and then cooked daily. In addition to acorns—mainly from the coast live oak (*Quercus agrifolia*)—other nuts, such as pine nuts and walnuts, were collected. Chumash diet also included cattail roots, fruits, and pads from *Opuntia* cactus, along with bulbs and tubers (Miller 1988; Timbrook 2007). Yucca stalks were harvested and roasted, and the buds and flowers were also gathered and consumed. Staples included small hard seeds of several annual and perennial plants such as grass, chia and other sages, and buckwheat. Seasonal resources included berries (blackberry, elderberry, grape, madrone, laurel, and wild cherry), mushrooms, and cress.

Seeds were processed using various grinding implements including wooden and stone mortars, pestles, bedrock mortars, and hand stones. Tools used to gather plant foodstuffs consisted of at least several forms of gathering and winnowing baskets, woven seed beaters, and sharpened digging sticks. A variety of basket styles were manufactured for the processing and serving of foods, including straining and leaching acorn meal, and processed meal and other foods were cooked in water-tight baskets (Miller 1988). Other baskets were made for storing grains, acorns, meal, prepared foods, and other dietary resources. Carved steatite bowls, ollas, and comals also were used for cooking, and meals were sometimes served on wooden plates and bowls.

On the coast, shellfish was harvested from intertidal habitats and fishing was conducted from shore as well as from wooden plank canoes (*tomol*), which may also have been employed for marine mammal hunting. The *tomol* not only facilitated marine resource procurement but also facilitated interaction between the mainland and the Channel Islands. Seals, sea lions, otters, porpoises, and whales were hunted with harpoons. Deep-sea fish such as bonito, sea bass, halibut, barracuda, yellowtail, and shark were caught with hooks and lines, harpoons, and deep or shoreline nets. Digging sticks were used to procure clams and scallops from the beach sands, and flat bone or wood wedges were used to pry mussels and abalone from intertidal rocks during low tides.

Local Chumash populations captured mule deer, antelope, cottontail, jackrabbit, mice, and wood rats; mountain and valley quail, dove, and resident and migratory waterfowl, among other birds; and various types of reptiles, amphibians, and insects. Larger animals, such as mule deer, coyote, and fox, were hunted with the bow and arrow; smaller game was captured with traps and snares. Hunting was accomplished by various means, with the bow and arrow, spears, slings, throwing sticks, traps, and deadfalls (Hudson and Blackburn 1979). Hunting parties were comprised of up to eight people; communal hunting groups used large nets and clubs, and individuals used throwing sticks to kill smaller prey like rabbits and hares (Brown 2001). Bone and shell were used to produce a wide range of utilitarian and nonutilitarian items, such as eating utensils, ornaments, whistles, gorges, fishhooks, harpoons, awls, and antler wedges. The steatite industry was especially developed in the southern areas, manifested in a variety of ornaments, vessel forms, and ceremonial objects.

Trade was an integral component of Chumash subsistence, and trade relationships among inland, coastal, and island groups were well established, though the specifics of what was traded between island and

mainland groups is less clear. Coastal Chumash traded with their inland Chumash neighbors, who in turn traded with their Yokut, Tataviam, Kitanemuk, and Gabrielino neighbors to the north, east, and south (Miller 1988). Extensive trade network increased the diversity of goods available throughout Chumash territory, encouraged craft specialization, and established the coastal villages as middlemen. The coastal villages were well positioned with their access to abundant marine resources; they built and kept the boats that moved trade goods across the channel and likely profited from this exchange.

The Chumash are well known for their material culture, which included highly decorated utilitarian tools and ceremonial items, as well as rock art (Grant 1978a–b; Hudson and Blackburn 1984, 1986). Carved steatite items included bowls decorated with beads, medicine tubes, effigies, beads, pipes, and charmstones. Rock paintings are found in sheltered locations near the coast and inland to the farthest reaches of the Chumash sphere. In the interior region inhabited by the Cuyama Chumash who spoke the Ineseño dialect, archaeological and ethnographic evidence strongly suggest a Chumash affiliation with the Carrizo Plain rock art, where the rock paintings—mostly pictographs comprised of polychrome abstract designs and some petroglyphs—reach a high degree of development. Despite being recognized as the location of the most extensive rock art, the Carrizo Plain area is among the least studied of Chumash regions. The remote location of the majority of Chumash rock art suggests the paintings may represent shrines or sacred areas.

Chumash religion was well developed and integrated into everyday life. Rituals and ceremonies were observed throughout the year; the most important was performed at the Winter Solstice, when a large festival was held in honor of the Sun. Astronomers carefully marked the shortest day of the year to know when to begin the rites and dances and used the observation to recalibrate their calendar. The *Hutush* autumn harvest festival, a time of thanksgiving, celebrated the Earth Goddess as provider of all foods (McCall and Perry 1986). Ceremonies were performed in everyday life and to mark special occasions; rituals were performed to name children, cure the sick of various ailments, and initiate young men into the mysteries of religion. The *'antap* society, restricted to the upper class, was also the federation of shamans who controlled ceremonial observances.

Gabrielino/Tongva

The name Gabrielino (sometimes spelled Gabrieleno or Gabrieleño) denotes those people who were administered by the Spanish from Mission San Gabriel Arcángel. By the same token, Native Americans in the sphere of influence of Mission San Fernando Rey de España were historically referred to as Fernandeño (Kroeber 1925). This group is now considered to be a regional dialect of the Gabrielino language, along with the Santa Catalina Island and San Nicolas Island dialects (Bean and Smith 1978). In the post-Contact period, Mission San Gabriel included natives of the greater Los Angeles area, as well as members of surrounding groups such as Kitanemuk, Serrano, and Cahuilla. There is little evidence that the people we call Gabrielino had a broad term for their group; rather, they identified themselves as an inhabitant of a specific community through the use of locational suffixes (e.g., a resident of Yaanga was called a Yabit, much the same way that a resident of New York is called a New Yorker) (Dakin 1978:222).

Native words that have been suggested as labels for the broader group of Native Americans in the Los Angeles region include Tongva (or Tong-v) and Kizh (Kij or Kichereno); although there is evidence that these terms originally referred to local places or smaller groups of people within the larger group that we now call Gabrielino (Heizer 1968). Many present-day descendants of these people have taken on Tongva as a preferred group name because it has a native rather than Spanish origin and one group of descendants prefers the term Kizh (King 1994). The term Gabrielino/Tongva, which combines the most commonly used group names, is used in the remainder of this study to designate native people of the Los Angeles Basin and their descendants.

Gabrielino/Tongva lands encompassed the greater Los Angeles Basin and three Channel Islands—San Clemente, San Nicolas, and Santa Catalina. Their mainland territory was bounded on the north by the Chumash at Topanga Creek, the Serrano at the San Gabriel Mountains in the east, and the Juaneño on the south at Aliso Creek (Bean and Smith 1978:538; Kroeber 1925:636).

The Gabrielino/Tongva language, as well as that of the neighboring Juaneño/Luiseño, Serrano, and Tatataviam/Alliklik, belongs to the Takic branch of the Uto-Aztecan language family, which can be traced to the Great Basin area (Mithun 2004:539, 543–544). This language family's origin differs substantially from that of the Chumash to the north and the Ipai, Tipai, and Kumeyaay farther south. The language of the Ipai, Tipai, and Kumeyaay is derived from the California-Delta branch of the Yuman-Cochimi language family, which originated in the American Southwest (Mithun 2004:577). The Chumash language is unlike both the Yuman-Cochimi and Uto-Aztecan families, and may represent a separate lineage (Mithun 2004:390). Linguistic analysis suggests that Takic-speaking immigrants from the Great Basin area began moving into southern California around 500 B.C. (Kroeber 1925:579). This migration may have displaced both Chumashan- and Yuman-speaking peoples, but the timing and extent of the migrations and their impact on indigenous peoples is not well understood. The Gabrielino/Tongva language consisted of two main dialects, Eastern and Western; the Western included much of the coast and the Channel Island population (King 2004). Lands of the Western group encompassed much of the western Los Angeles Basin and San Fernando Valley, northward along the coast to the Palos Verdes Peninsula (McCawley 1996:47).

Gabrielino/Tongva society was organized along patrilineal non-localized clans, a characteristic Takic pattern. Clans consisted of several lineages, each with their own ceremonial leader. The chief, or *tómyaar*, always came from the primary lineage of the clan/village. One or two clans generally made up the population of a village. Even though the Gabrielino/Tongva did not have a distinctly stratified society, there were two general classes of individuals: elites and commoners. The elites consisted of primary lineage members, other lineage leaders (who maintained a separate ceremonial language), the wealthy, and the elite families of the various villages who commonly married among themselves. The commoner class contained those from "fairly well-to-do and long-established lineages" (Bean and Smith 1978:543). A third, lower class consisted of slaves taken in war and individuals, unrelated to the inhabitants, who drifted into the village.

The Gabrielino/Tongva established large, permanent villages in the fertile lowlands along rivers and streams, and in sheltered areas along the coast, stretching from the foothills of the San Gabriel Mountains to the Pacific Ocean. A total tribal population has been estimated of at least 5,000 (Bean and Smith 1978:540), but recent ethnohistoric work suggests that a number approaching 10,000 seems more likely (O'Neil 2002). Several Gabrielino/Tongva villages appear to have served as trade centers, due in large part to their centralized geographic position in relation to the southern Channel Islands and to other tribes. These villages maintained particularly large populations and hosted annual trade fairs that would bring their population to 1,000 or more for the duration of the event (McCawley 1996:113–114).

Houses constructed by the Gabrielino/Tongva were large, circular, domed structures made of willow poles thatched with tule that could hold up to 50 people (Bean and Smith 1978). Other structures served as sweathouses, menstrual huts, ceremonial enclosures, and probably communal granaries. Cleared fields for races and games, such as lacrosse and pole throwing, were created adjacent to Gabrielino/Tongva villages (McCawley 1996:27).

The Gabrielino/Tongva subsistence economy centered on gathering and hunting. The surrounding environment was rich and varied, and the tribe exploited mountains, foothills, valleys, and deserts as well as riparian, estuarine, and open and rocky coastal eco-niches. Like most Native Californians, acorns were the staple food (an established industry by the time of the early Intermediate period). Acorns were

supplemented by the roots, leaves, seeds, and fruits of a wide variety of flora (e.g., islay, cactus, yucca, sages, and agave). Fresh- and saltwater fish, shellfish, birds, reptiles, and insects, as well as large and small mammals, were also consumed (Bean and Smith 1978:546; Kroeber 1925:631–632; McCawley 1996:119–131). Groups residing near the ocean used ocean-going plank canoes (known as a *ti'at*) and tule balsa canoes for fishing, travel, and trade between the mainland and the Channel Islands. The ocean-going canoes were capable of holding six to 14 people and were also used for travel and trade between the mainland and the Channel Islands. The tule balsa canoes were used for near-shore fishing (Blackburn 1963; McCawley 1996:117–127).

The Gabrielino/Tongva participated in an extensive exchange network, trading coastal goods for inland resources. They exported Santa Catalina Island steatite products, roots, seal and otter skins, fish and shellfish, red ochre, and lead ore to neighboring tribes, as well as people as far away as the Colorado River. In exchange, they received ceramic goods, deer skin shirts, obsidian, acorns, and other items. This burgeoning trade was facilitated through craft specialists, a standard medium of exchange (*Olivella* bead currency), and the regular destruction of valuables in ceremonies, which maintained a high demand for these goods (McCawley 1996:112–115).

Deceased Gabrielino/Tongva were either buried or cremated, with inhumation being more common on the Channel Islands and the neighboring mainland coast and cremation predominating on the remainder of the coast and in the interior (Harrington 1942; McCawley 1996:157). Cremation ashes have been found in archaeological contexts buried within stone bowls and in shell dishes (Ashby and Winterbourne 1966:27), as well as scattered among broken ground stone implements (Cleland et al. 2007). Archaeological data such as this correspond with ethnographic descriptions of an elaborate mourning ceremony that included a wide variety of offerings, including seeds, stone grinding tools, otter skins, baskets, wood tools, shell beads, bone and shell ornaments, and projectile points and knives. Offerings varied with the sex and status of the deceased (Johnston 1962:52–54; McCawley 1996:155–165; Reid 1926:24–25). At the behest of the Spanish missionaries, cremation essentially ceased during the post-Contact period (McCawley 1996:157).

European contact with the Gabrielino/Tongva occurred as early as 1542 with the Spanish expedition led by Juan Rodriguez Cabrillo, followed by Sebastián Vizcaíno in 1602, who both visited Santa Catalina Island. Colonization of Gabrielino/Tongva lands did not begin in earnest until after the inland expedition led by Gaspar de Portolá in 1769. By 1771, four missions had been constructed in the region, including Mission San Gabriel, founded in Los Angeles County in September 1771 (Bean and Smith 1978:540–541; Engelhardt 1927a; McCawley 1996:3–6).

In the early twentieth century, Gabrielino/Tongva who still lived in San Gabriel neighborhoods near the old mission joined the Mission Indian Federation and sought redress from the federal government over lost lands. A generation later, partly as an outgrowth of the Civil Rights Movement, Gabrielino/Tongva started to form political organizations of their own to affect handling of ancestral remains discovered at construction sites and to seek federal acknowledgement of their tribe. There are currently five such organizations with total membership approaching nearly a thousand people. They are still struggling to receive federal recognition.

Tataviam

The Tataviam lived in the upper drainage of the Santa Clara River between the San Fernando Valley to the south and the top of Pastoria Creek in the Tehachapi Mountains to the north. To the east, their ancestral lands extended to part of the southern fringe of Antelope Valley. The core Tataviam population centered on the south sides of the Liebre, Sawmill, and Sierra Pelona Mountains. Neighboring groups include the Ventureño Chumash to the west, Emigdiano Chumash to the north, Kitanemuk to the

northeast, Vanyume Serrano to the east, and Western Gabrielino to the south in the San Fernando Valley (Grant 1978c; Johnson and Earle 1990:193; King and Blackburn 1978:535).

The Tataviam language is a part of the Takic branch of the Uto-Aztecan language family, also spoken by the Western Gabrielino and Kitanemuk (Mithun 2001:540). This language family can be traced to the Great Basin area, which represents an origin different from the Chumash. According to Bright (1975), the Tataviam language may be "the remnant, influenced by Takic, of a language family otherwise unknown in southern California" or the language was probably Takic but not from the Serrano or Cupan branches like Kitanemuk and Vanyume, respectively. The Tataviam language probably began to differentiate itself from the others around 1000 B.C. (King and Blackburn 1978:535). The name "Tataviam" itself is derived from the Kitanemuk's designation for this group (King and Blackburn 1978:535). Kroeber (1925:614) referred to them as the "Alliklik," named by the Ventureño Chumash to separate them from the Beñeme Serrano in the western Mojave Desert and Antelope Valley.

Information about Tataviam social organization and political structure is relatively limited, but there is no evidence that would substantially differentiate them from the Kitanemuk and Western Gabrielino. Tataviam villages ranged from large centers of around 200 individuals to small settlements of 10 to 15 people (King and Blackburn 1978:536). Intermediate-sized villages were dispersed between the larger centers, with smaller villages spaced around the larger villages. Tataviam villages and placenames closest to the project site are *Achoicominga*, *Ceegenga* and *Passenga* (Fernandeño Tataviam Band of Mission Indians 2022; Hackel et al. 2015; Johnson 1997; King 2011). Figure A-5 shows the estimated locations of each former village site, which range from 2.3 to 8 kilometers (km) (1.4 to 5 miles) from the project site.

King and Blackburn (1978:534) estimate the total Tataviam population at the time of historic contact at no more than 1,000 people, with the widest possible territorial extent considered. Mortuary practices probably included cremation, as well as a mourning ceremony practiced in late summer or early fall (King and Blackburn 1978:535).

Archaeological data, the primary source of information available, indicate broad similarities among the Tataviam, Chumash, and Gabrielino (King and Blackburn 1978:536). Considering their environment and available data, it is probable that Tataviam relied more heavily on yucca as a staple than neighboring groups. Additional plant foods most likely included acorns, sage seeds, juniper seeds, and islay berries. Animal resources included small mammals such as rabbits and rodents, as well as deer and possibly antelope. Extensive trade networks developed between inland groups of the desert regions. They traded lithic material and large game animals with coastal groups for marine resources, shell, asphaltum, and steatite.

The first European visit to the general Tataviam area occurred in A.D. 1769, when Lieutenant Colonel Gaspar de Portolá led an overland expedition from the newly established settlement at San Diego in an attempt to find Monterey Bay. They traversed the San Fernando Valley in August 1769, passing to the north of where Mission San Fernando would be founded 28 years later. From there, they entered Tataviam territory in the Newhall-Saugus area through the Freemont Pass (Portolá 1909). The general vicinity was probably crossed again during the second Portolá expedition in 1770 and by the Friar Francisco Garces expedition in 1776 (Beck and Haase 1974:15). The Mission of San Fernando was founded in 1798 on the southern fringe of Tataviam lands, and by 1820, most of the population had been baptized at the mission. During this time, Tataviam often intermarried with surrounding Native American groups, most notably the Kitanemuk, and often attended and participated in Chumash ceremonies.

Following the Spanish period, interest in the Santa Clara Valley grew as fur trappers in the early 1800s, the discovery of gold in Placerita Canyon in 1842, and provisioning of miners heading for the gold strikes in the 1850s led to Euro-American settlement, ranching, and agriculture within the valley. Beef, grain, and other foodstuffs in demand by the miners resulted in an economic windfall for the ranches in the

valley. As a consequence, the ranchers expanded their range into Tataviam hunting grounds and harvesting fields. Tataviam families and communities intermarried with and were absorbed into other Native American settlements in southern California during the late nineteenth century (Johnson and Earle 1990:209). Several Tataviam descendant families lasted into the twentieth century, but by 1916, there were no longer any Tataviam speakers (King and Blackburn 1978:536).

Native American Communities in the San Fernando Valley

In general, it has proven very difficult or impossible to establish definitively the precise location of Native American villages occupied after Spanish contact (McCawley 1996:31–32). Native American place names recorded during this period did not necessarily represent continually occupied settlements within discrete locations. Instead, in at least some cases, the communities were represented by several smaller camps scattered throughout an approximate geography, shaped by natural features subject to change over generations (Johnston 1962:122). In fact, many of the villages had long since been abandoned by the time ethnographers, anthropologists, and historians attempted to document any of their locations, at which point the former village sites were affected by urban and agricultural development, and Native American lifeways had been irrevocably changed. Kroeber remarked on the subject as follows:

> Many of the latter (i.e., place-names) no doubt originally denoted villages; but it is usually impossible to determine. The Indians of this region, Serrano, Gabrielino, and Luiseño, have long had relations to the old ranchos or land grants, by which chiefly the country was known and designated until the Americans began to dot it with towns. The Indians kept in use, and often still retain, native names for these grants. Some were the designations of the principal village on the grant, others of the particular spot on which the ranch headquarters were erected, still others of the camp sites, or hills, or various natural features. The villages, however, are long since gone, or converted into reservations, and the Indians, with all their native terminology, think in terms of Spanish grants or American towns. Over much of southern California—the "Mission Indian" district—the opportunity to prepare an exact aboriginal village map passed away 50 years ago. (Kroeber 1925:616)

Efforts at relocating former settlements have been further complicated by the frequency with which alternative names and spellings for communities were used, and that there are conflicting reports on the meaning or locational references in the names. Although the precise location of any given village is subject to much speculation, it is clear the San Fernando Valley and greater Los Angeles area once contained many Gabrielino settlements, including several concentrated along the banks of major waterways, near the coast, and along the base of foothills.

The closest ethnographically documented villages to the project site are *Atavsanga* (also known as *Ataguama* or *Totongna*) located approximately 2 miles to the southwest, *Momonga* located 3.5 miles to the north (near present-day Chatsworth), and *Siutcanga* located approximately 8.4 miles to the southeast (near present-day Encino). As described above by Kroeber (1925) and later noted by others (e.g., Harrington 1986 [cited in McCawley 1996]), the settlements and placenames are often correlated with the later Spanish and Mexican period ranchos. This appears to be because the ranchos developed around existing Native American settlements, partly because Native Americans intentionally established rancherias near the Spanish and Mexican ranch houses, and also because the ranchos were the most common means by which geographic locations were historically described. For example, *Atavsanga* and *Siutcanga* are both believed to have been located within the boundaries of Ranchos El Escorpion and Encino, respectively. The project site is located approximately 0.7 miles north of Rancho El Escorpion (Figure A-6). The town of El Escorpion in Bell Canyon was one of the larger Native villages in the San Fernando Valley during the period of recruitment from the area by the San Fernando Mission (McLendon and Johnson 1999). According to McLendon and Johnson (1999), 75 people were baptized from

El Escorpion, many of whom had native names with ending characteristic of names in Chumash languages (McLendon and Johnson 1999). Mission registers indicate that kinship links with non-Escorpion people were through close ties and marriages with people born in adjacent Chumash speaking villages, as well as kinship links documented with the Tongva-speaking towns including *Momonga* in present day Chatsworth (McLendon and Johnson 1999).

Trails and travel corridors between settlements shared a similar association so that the roads established by the Spanish between the missions, presidios, and pueblos likely followed existing footpaths used by Native Americans, some of which have been retained by contemporary street alignments. Some of these early trails are depicted in nineteenth century maps (see Figures A-6 and A-7). The closest such trail to the project site—labeled "Road from Ventura to Los Angeles" in Figure A-6—is plotted approximately 2.5 miles south of the project site. This is typically understood to have been the route taken by the first Spanish land expedition, and then maintained as part of the network of roads connecting the major settlements of the Mission system, known as El Camino Real (lit. "The Royal Road"). The "road," however, was never a single trail. Many of these early travel routes were likely established along the trails previously used by Native Americans for foraging, communication, travel, and trade. Though foot trails can be ephemeral and completely change course from year to year, such trails are known to have existed between significant Gabrielino settlements, and temporary camps or other types of Native American features (such as burials) would have been common along these paths, especially where they intersect water sources or are located near other natural resources and culturally significant landmarks, including favorable viewsheds. The earliest survey maps created after California's annexation into the United States offer some indication of the trail system operating prior to this time. Unfortunately, as with the location of settlements, maps of Native American trails were never drawn after Spanish contact and the routes described in ethnographic sources refer only to generalized travel corridors.

George W. Kirkman's 1937 map (known as Kirkman-Harriman's pictorial and historical map of Los Angeles County) captures many of the prominent routes, including El Camino Real, and plots several Native American "village sites" (Figure A-8). Kirkman's map includes several of the ethnographically documented settlements described by scholars (shown in Figure A-5) as well as others of uncertain origin, some of which can be traced to the archaeological sites recorded in the early nineteenth century. For example, the location frequently given for *Siutcanga* is identified in the Kirkman map as having a village site, which is a reasonable distance from the location reported in other sources (e.g., Hackel et al. 2015; Johnston 1962; King 2011; McCawley 1996). Conversely, other of the "village sites" mapped by Kirkman do not correlate with other ethnographically documented sources or archaeological sites mapped in the CHRIS, and it is not clear where Kirkman got his information, and he does not list his primary sources. One such site was identified approximately 1 mile southwest of the project site on the east side of a Los Angeles River tributary and approximately 4 miles northwest of the point plotted for Canoga Park. As with the other sites in Kirkman's map that could not be corroborated by other evidence, the location of a Native American settlement in this location is certainly plausible. It should be noted that the Kirkman map and others like it (e.g., Gumprecht 2001:30; Johnston 1962) are understood by most scholars to convey a general sense of where significant sites and features were located but are intended as a representational rather than explicit geographic points. Even with archaeological evidence, it can be difficult to conclusively establish whether any given assemblage represents the remains of the former village site.

Historic Overview

The post-Contact history of California is divided into three periods that are defined by the ruling national government: the Spanish period (1769–1822), the Mexican period (1822–1848), and the American period (1848–present). Each period is briefly described below. Some chronologies include the Mission period (1769–1834), defined by the active span of those Spanish, and later Mexican, Catholic institutions.

The Protohistoric period is used here to refer to the era of initial interaction between Native Americans and European explorers and settlers, ranging from 1542 through the early 1800s in outlying areas, where a mixture of native and nonnative cultural traits can be observed archaeologically.

Spanish Period (1769–1822)

The first Europeans to observe what became southern California were members of the 1542–1543 expedition of Juan Rodriguez Cabrillo. When sailing past Santa Monica Bay, Cabrillo noted the numerous campfires of the Gabrielino/Tongva and thus named the area the Bay of Smokes. Cabrillo and other early explorers sailed along the coast and made limited expeditions into Alta (upper) California between 1529 and 1769. Although Spanish, Russian, and British explorers briefly visited Alta California during this nearly 250-year span, they did not establish permanent settlements.

Gaspar de Portolá and Franciscan Father Junípero Serra established the first Spanish settlement in Alta California at San Diego in 1769. Mission San Diego de Alcalá was the first of 21 missions built by the Spanish between 1769 and 1823. Portolá continued north, passing near the project site in August of 1769, and reaching San Francisco Bay on October 31. The process of converting the local Native American population to Christianity through baptism and relocation to mission grounds was begun in this region by the Franciscan padres at the San Gabriel Mission, which was established in 1771 (Engelhardt 1927a). The San Fernando Mission was founded 26 years later, its location chosen as a stopping point between the San Gabriel and San Buenaventura missions (Englehardt 1927b). Most Native Americans from the Los Angeles Basin were persuaded to settle in the vicinity of the two missions. These included the Eastern Gabrielino of the plains as far south as the Santa Ana River and west to the Los Angeles River. The padres also proselytized the Serrano of the San Gabriel and San Bernardino Mountains, as well as the Vanyume Serrano of the Mojave Desert; many of the western Cahuilla in the Coachella and San Jacinto Valley; some Luiseño of the San Jacinto Valley; and Western Gabrielino of the plains west of the Los Angeles River, San Fernando Valley, and the southern Channel Islands. The missions were charged with administering to the Native Americans within their areas. Although mission life gave the Native Americans the skills needed to survive in their rapidly changing world, the close quarters and regular contact with Europeans transmitted diseases for which they had no immunity, decimating their populations (McCawley 1996).

Mexican Period (1822–1848)

After the end of the Mexican Revolution against the Spanish crown (1810–1821), all Spanish holdings in North America (including both Alta and Baja California) became part of the newly formed Mexican Empire, and shortly thereafter, a constitutionally based United Mexican States. Under Mexican rule, the authority of the California missions gradually declined, culminating with their secularization. Events leading up to the secularization of the California missions spanned many years and much political upheaval, after which the Mexican Congress passed the Secularization Act in August 1833. Not only did the action divest the Franciscans of property, it also opened both of the Californias to colonization. The first 10 of the missions were secularized in 1834, San Gabriel among them.

Historical documents suggest that what followed was a period of intrigue, revolution, and lawlessness. With a disruption in trade came an increase in the number of American interlopers. Political resistance erupted on every front as Mexican citizens in California (*Californios*) vied for control of their ranchos against American intruders and Mexican authority. Although the Mexican government directed that each mission's lands, livestock, and equipment be divided among its neophytes, the majority of these holdings quickly fell into non-Indian hands. As mission landholdings passed into private hands, neophyte workers, who had become dependent on the missions, were left to fend for themselves.

If mission life was difficult for Native Americans, secularization was worse. After two generations of dependence upon the missions, they were suddenly disenfranchised. After secularization, "nearly all of the Gabrielinos went north while those of San Diego, San Luis and San Juan overran this county, filling the Angeles and surrounding ranchos with more servants than were required" (Dakin 1978[1939]:282).

Former mission lands were quickly divided and granted to private citizens for use as agricultural and pastoral land. Most of the land grants to Californios were located inland, a policy intended to increase the population away from the coastal areas where the Spanish settlements were concentrated (Dakin 1978[1939]:282). With no work at the mission, there was a far greater labor force in the region than could be employed.

After years of surreptitious commerce, the first party of American immigrants arrived in Los Angeles in 1841, including William Workman and John Rowland, who soon became influential landowners. As the possibility of a takeover of California by the United States loomed large in the 1840s, the Mexican government increased the number of land grants in an effort to keep the land in Mexican hands (Wilkman and Wilkman 2006). Governor Pío Pico and his predecessors made more than 600 rancho grants between 1833 and 1846, putting most of the state's lands into private ownership for the first time (Grumprecht 2001). Trade in the region changed as well. British and American trade displaced supply ships from Mexico and, in 1841, the first party of American immigrants arrived at the Pueblo de Los Angeles.

American Period (1848–Present)

The United States took control of California in 1846, seizing Monterey, San Francisco, San Diego, and Los Angeles with little resistance. Los Angeles soon slipped from American control, however, and was retaken in 1847. Approximately 600 U.S. sailors, marines, Army dragoons, and mountain men converged under the leadership of Colonel Stephen W. Kearney and Commodore Robert F. Stockton in early January of that year to challenge the California resistance, which was led by General Jose Maria Flores. The American party scored a decisive victory over the Californios in the Battle of the Rio San Gabriel and at the Battle of La Mesa the following day, effectively ending the war and opening the door for increased American immigration (Harlow 1992).

The 1848 Treaty of Guadalupe Hidalgo formally ended the war and required that legitimate land grants be honored. California was admitted as the 31st state on September 9, 1850. Pursuant to the Land Act of 1851 requiring claims be filed with the United States Public Lands Commission, Eulogio de Celis filed his claim in 1852; it was granted in 1873. After de Celis died in 1869, San Fernando Mission land was sold in 1874 to California State Senator Charles Maclay and his partner George K. Porter. Maclay founded the community of San Fernando in 1874 on his eastern section, and included land for the Southern Pacific Railroad (SPRR) that would eventually construct a tunnel through the pass at San Fernando.

In 1903, George Porter sold his share of the land to Leslie Brand's newly syndicated San Fernando Mission Land Company. One of their major shareholders was Moses Sherman, who sat on the city water commission board that in 1905 approved plans for the Los Angeles Aqueduct and later exercised their option to buy Porter's land (Roderick 2001). The aqueduct was constructed between 1908 and 1913, which was preceded by a real estate boom in the San Fernando Valley, leading to the founding of several modern-day cities and communities, including Owensmouth in March of 1912—renamed Canoga Park in 1931. Around 1911, the Pacific Electric Railway had extended its lines from Hollywood to Van Nuys, sharing portions of track with SPRR, and connecting passenger rails to the northwest portion of the San Fernando Valley. The San Fernando Valley was annexed to Los Angeles County in 1917, and the region's economy slowly began shifting from agricultural to light industrial and commercial.

Historical Development of the Project Site

The project site is located in the West Hills neighborhood of Los Angeles. Geographically, the project is in the western San Fernando Valley, 4 miles north of the Santa Monica Mountains and 2 miles southwest of Chatsworth Reservoir, which is formed on the eastern margin of the Simi Hills. The project site is located within an area designated as former San Fernando Mission Lands, which were established after the Spanish missions were secularized and converted into large-scale ranchos. Amongst the many large-scale ranchos in the San Fernando Valley is Rancho El Escorpion, located less than a mile south of the project. In 1845, the El Escorpion land was granted to Odon Chijuya, Urbano, and Manual of the Fernandeño and Ventureño Chumash, who were claimants of 1,110 acres, patented on September 16, 1876 (McLendon and Johnson 1999). Espiritu Chijuya, the eldest daughter of Odon Chijuya and sole surviving grantee of Rancho El Escorpion, married the Basque immigrant, Miguel Leonis. Through this marriage, Leonis, who was known as "The King of Calabasas," acquired Rancho El Escorpion, increasing his land holdings in the west end of the San Fernando Valley (California State University, Northridge 2023). When Leonis died in 1889, interest in San Fernando Valley real estate was increasing, and Leonis' relatives started selling portions of the land. Espiritu Chijuya continued to live at the Leonis Adobe until she died in 1906, and what remained of the rancho—along with 44,000 additional acres of the Valley—was purchased by the Los Angeles Suburban Home Company in anticipation of the construction of the Owens River Aqueduct. The expectations of investors notwithstanding, the western edge of Canoga Park was slow to develop relative to the rest of the Valley. The project site, for example, appears to have been vacant unused land or land used for agriculture from 1903 to 1944. This continued until at least 1959 when the area was graded for development, with residential buildings increasingly being developed in the vicinity of the project site. The Rancho El Escorpion lands became the town of Owensmouth, which was eventually renamed Canoga Park. In the 1980s, the homeowners in the shadow of El Escorpion peak petitioned the City of Los Angeles to be recognized as the separate community of West Hills (*Los Angeles Times* 2017).

METHODS

Although not all tribal cultural resources are archaeological in nature, those likely to be preserved below the surface are likely to fit the definition of an archaeological and tribal cultural resource. Similarly, the evaluation of a tribal cultural resource must consider the cultural values to a California Native American tribe, in addition to scientific and archaeological considerations. This section assesses the potential (i.e., sensitivity) for tribal cultural resources that are archaeological in nature to be preserved below the surface of the project site. This sensitivity assessment considers archaeological, ethnographic, historical, environmental, and other archival data sources. Evidence from these sources is used to estimate whether the location was favorable for Native American habitation, the environmental setting within the last 13,000 years, land uses within region, and any alterations to the physical setting within the project site that may have occurred from natural causes or Historic period developments and influenced the potential for preserving buried materials.

Where sites are fully paved or otherwise developed and directly testing through archaeological excavation for such buried materials is not feasible, indirect evidence is used. For this reason, the resulting sensitivity assessment is qualitative by nature—ranging along a spectrum of increasing probability—designated here as low, moderate, and high. Indicators of favorable habitability for Native American sites are proximity to certain natural features (e.g., perennial water source, plant or mineral resource, animal habitat), flat topography, and historically dry conditions (i.e., not directly within standing water). The assessment also considers whether the general location is described in ethnographic studies and oral histories, and whether the area of interest is similar to the physical setting in which other Native American archaeological sites have been identified. Next, the sensitivity assessment considers whether the location is capable of containing buried deposits, including whether there are natural or Historic period developments that have

eroded, displaced, or otherwise destroyed any potential materials that may have once been present. Areas with a favorable setting for habitation or temporary use, soil conditions capable of preserving buried material, and little to no disturbances are considered to have a high sensitivity. Areas lacking these traits are considered to have low sensitivity. Areas with a combination of these traits are considered as having moderate sensitivity.

Historical maps drawn to scale were georeferenced using Esri ArcMAP v.10.5 to show precise relationships to the project site. Sources consulted included the following publicly accessible data sources: City of Los Angeles Office of Historic Resources (OHR) (SurveyLA); City of Los Angeles Department of Building and Safety (building permits); David Rumsey Historical Map Collection; Huntington Library Digital Archives; Library of Congress; Los Angeles Public Library Map Collection; Sanborn Fire Insurance Company Maps (Sanborn maps); USGS historical topographic maps; University of California, Santa Barbara, Digital Library (aerial photographs); and University of Southern California Digital Library.

RESULTS

Archival Research

SWCA's archival research included a review of historical maps for the project site and vicinity and focused on documenting modifications to the physical setting and identifying any potential natural or artificial features with relevance to use by Native Americans (e.g., stream courses, vegetation, historical topography, roads, habitation markers) or use of the location by non–Native American people in the Historic period. Historical topographic maps show the project area appears to be used for agriculture or is vacant unused land from 1903 to 1944. A review of historical aerial photographs beginning in 1947, the earliest available year, shows the entire project site was being used as agricultural fields. This continued until 1959, as shown on an aerial photograph from that year. Sometime between 1959 and 1967, the area was graded for the construction of the Chaminade College Preparatory high school and shopping mall where the proposed North Campus will be developed. An aerial photograph from 1967 shows the high school and shopping mall fully built by then (Historic Aerials 2021). The original buildings are still present on the project site, though it appears to have been subject to several alterations. The multi-tenant mini shopping center within the proposed North Campus area that is slated for demolition was built between 1962 to 1964, and expanded in 1981 to its current size. Also between 1959 and 1967, residential development started on parcels immediately adjacent to the south and southwest boundaries of the project site, with residences showing in the parcels between Chaminade Avenue and Cohasset Street, between Cohasset Street and Valerio Street, and west of Platt Avenue. By 1977, the entire neighboring areas were developed with residences.

CHRIS Records Search

On August 23, 2021, SWCA submitted a CHRIS records search request at the SCCIC on the campus of California State University, Fullerton, to identify previously documented archaeological resources within a 0.8-km (0.5-mile) radius of the project site. The SCCIC maintains records of previously documented archaeological resources (including those that meet the definition of a tribal cultural resource) and technical studies; it also maintains copies of the California Office of Historic Preservation's (OHP's) portion of the Historic Resources Inventory. Confidential CHRIS results include specific information on the nature and location of sensitive archaeological sites, which should not be disclosed to the public or unauthorized persons and are exempt from the Freedom of Information Act. The information included in a confidential CHRIS records search is needed to assess the sensitivity for undocumented tribal cultural resources and inform the impact analysis. The search included any previously recorded archaeological

resources (i.e., excluding historic buildings) within the project site and surrounding 0.8-km (0.5-mile) area. Results of the CHRIS records search are included in Appendix B.

Results of the CHRIS records search indicate that six previous cultural resources investigations have been conducted within 0.5-mile of the project site. None of these studies were conducted directly within the project site or included an assessment of tribal cultural resource sensitivity relevant to the current study.

No archaeological sites, including any that could qualify as a tribal cultural resource, were identified within a 0.5-mile (0.8-km) radius of the project site.

Sacred Lands File Search

The NAHC is charged with identifying, cataloging, and protecting Native American cultural resources, which include ancient places of special religious or social significance to Native Americans, and known ancient graves and cemeteries of Native Americans on private and public lands in California. The NAHC's inventory of these resources is known as the SLF. In addition, the NAHC maintains a list of tribal contacts affiliated with various geographic regions of California. The contents of the SLF are strictly confidential and SLF search requests return positive or negative results, in addition to a list of tribal contacts affiliated with the specified location.

SWCA submitted an SLF search request for the project site to the NAHC on August 23, 2021. The NAHC emailed a response to SWCA's SLF search request on September 24, 2021, indicating that the results for the SLF search was positive. In addition, the NAHC provided a list of tribes affiliated with the area and requested that the associated tribal organizations should be contacted for more information. The NAHC provided a contact list of 14 Native American individuals or tribal organizations that may have knowledge of cultural resources in or near the study area (Table 1). SWCA provided the contact list to CAJA on October 11, 2021, since they were in coordination with the City. The SLF results letter and contact list are included in Attachment C.

Table 1. Summary of Native American Individuals and Groups Culturally Affiliated with the Project Area.

Name and Title	Affiliation
Andrew Salas, Chairperson	Gabrieleño Band of Mission Indians–Kizh Nation
Anthony Morales, Chairperson	Gabrieleño/Tongva San Gabriel Band of Mission Indians
Julie Tumamait-Stenslie, Chairperson	Barbareño/Ventureño Band of Mission Indians
Christina Conley, Tribal Consultant and Administrator	Gabrielino Tongva Indians of California Tribal Council
Charlez Alvarez	Gabrielino-Tongva Tribe
Jairo Avila, Tribal Historic Preservation Officer	Fernadeño Tataviam Band of Mission Indians
Sandonne Goad, Chairperson	Gabrielino Tongva Nation
Robert F. Dorame, Chairperson	Gabrielino Tongva Indians of California Tribal Council
Rudy Ortega, President	Fernadeño Tataviam Band of Mission Indians
Julio Quair, Chairperson	Chumash Council of Bakersfield
Mariza Sullivan, Chairperson	Coastal Band of the Chumash Nation
Fred Collins, Spokesperson	Northern Chumash Tribal Council
Mark Vigil, Chief	San Luis Obispo County Chumash Council
Kenneth Kahn, Chairperson	Santa Ynez Band of Chumash Indians

TRIBAL CULTURAL RESOURCES SENSITIVITY ANALYSIS

No resources that could qualify as tribal cultural resources were identified in a CHRIS records search within the project site or 0.5-mile radius. The results of the SLF search conducted by the NAHC indicated that there are known tribal cultural resources in the vicinity of the project site. The NAHC provided a contact list of tribal representatives who may have more information about these known resources. Review of ethnographic literature and historical maps document significant Native American villages and sites nearby. The Chumash village known as *Atavsanga* (also known as *Ataguama* or *Totongna*) is the closest ethnographically documented village to the project site, located approximately 3.2 km (2 miles) to the southwest. The Tatavian village known as *Momonga* is located 5.6 km (3.5 miles) to the north (near present-day Chatsworth), and the Gabrielino village known as *Siutcanga* is located approximately 8.4 miles to the southeast (near present-day Encino) of the project site. These villages are often correlated with the later Spanish and Mexican period ranchos, as ranchos developed around existing Native American settlements. *Atavsanga* and *Siutcanga* are both believed to have been located within the boundaries of Ranchos El Escorpion and Encino, respectively.

The project site is located approximately 1.1 km (0.7 mile) north of Rancho El Escorpion, which was one of the larger Native villages in the San Fernando Valley during the period of recruitment from the area by the San Fernando Mission. The El Escorpion land was granted to Odon Chijuya, Urbano, and Manual of the Fernandeño and Ventureño Chumash in 1845. Odon Chijuya's eldest daughter Espiritu Chijuya inherited the Rancho El Escorpion. Miguel Leonis, who was known as "The King of Calabasas", acquired the Rancho El Escorpion through his marriage to Espiritu Chijuya, thus increasing his land holdings in the west end of the San Fernando Valley. After his death in 1889, Leonis' relatives started selling portions of the land. Espiritu continued to live at the Leonis Adobe until she died in 1906, and the remains of the rancho—along with 44,000 additional acres of the Valley—was purchased by the Los Angeles Suburban Home Co. in anticipation of the coming of the Owens River Aqueduct. The Rancho El Escorpion was eventually renamed Canoga Park. The western edge of Canoga Park was slow to develop relative to the rest of San Fernando Valley. The project site, for example, appears to have been vacant unused land or land used for agriculture from 1903 to 1944. This continued until at least 1959 when the area was graded for development, with residential buildings increasingly being developed in the vicinity of the project site.

The project site (both the Main and proposed North Campuses) was developed in the early 1960s with the Main Campus buildings and sports field, and a multi-tenant mini shopping center and paved parking lot within the proposed North Campus. The shopping center was expanded in 1981 to its current size. The development of the project site and its prior use as agricultural fields is likely to have substantially compromised the integrity of the physical setting and likely destroyed or displaced any tribal cultural resources that may have been deposited on the surface or shallowly buried. Furthermore, the surficial geology of the site has been identified as late to middle Pleistocene old alluvial fan deposits, undivided (Qof) and late Miocene Modelo Formation, undivided (Tm). According to the paleontological resources study conducted for this project, the depth to the underlying, previously undisturbed sediments is unknown, but likely very shallow (e.g., 3 feet below ground surface) (Carson 2022). These types of sediments are naturally less likely to contain buried archaeological resources.

Archaeological remains that are tribal cultural resources can occur below paved surfaces within developed urban settings. While the CHRIS records search results did not identify any such archaeological resources within the project site or vicinity, most of the project site was not inspected for archaeological resources before being developed. SWCA considers the greater region of the project site as having moderate sensitivity for tribal cultural resources. However, the project site consists of a comparatively small area within the greater region and has been subject to multiple episodes of ground disturbances. As a result, archaeological materials once located on the surface or in shallow deposits are very unlikely to have been preserved within the project site, and though more deeply buried deposits

could exist, SWCA considers the sensitivity for archaeological resources to decrease within the project site. Based on the Historic period developments within the project site and SWCA's interpretation of the sediment profiles, across the entire project site, the sensitivity for tribal cultural resources within the near-surface is considered low.

While there are known significant Native American village sites located in the general vicinity of the project site, such as *Atavsanga* and *Momonga*, the project site is not located near or in a comparable environmental setting to suggest an increased likelihood for associated tribal cultural resources to be discovered within the project site. The project site is set within what has been a broad floodplain of the Los Angeles River for which there are only generalized indicators of former use by Native Americans such that substantial material deposits are likely to have occurred. These generalized indicators include a reasonable proximity to former stream courses and important natural resources that occur in higher densities near waterways. Two intermittent streams are located in the vicinity of the project site: Dayton Creek formed approximately 0.6 mile to the north, and Bell Creek is approximately 0.7 miles to the south. Dayton Creek connects to Chatsworth Creek, which is located approximately 0.7 miles east of the project site. Both Chatsworth and Bell Creeks connect to the south-flowing Los Angeles River, currently located approximately 2.1 miles southeast of the project site. The proximity to these streams could suggest the area was more intensively used by Native Americans, such that there would be a corresponding increase in the potential for a tribal cultural resource to be present.

Late to middle Pleistocene old alluvial fan deposits below the artificial fill within the project site are naturally less likely to contain buried archaeological resources. The depth to the depth to the underlying, previously undisturbed sediments is unknown, but likely very shallow (e.g., 3 feet below ground surface). Additionally, the impacts to the near-surface from Historic period agricultural use and developments further decreases the likelihood of encountering any buried archaeological resources due to the compromised integrity of the physical setting. **Based on these findings, the sensitivity for tribal cultural resources is considered low.**

RECOMMENDATIONS

There were no tribal cultural resources identified within the project area, and SWCA finds that the project area is not likely to contain undocumented tribal cultural resources beneath the surface obscured by pavement. Therefore, no mitigation measures are recommended for impacts to known tribal cultural resources. Standard mitigation measures related to the unanticipated discovery of archaeological resources and human remains are recommended for the project, as indicated below. SWCA recommends that the proposed project will have no impact to tribal cultural resources with the implementation of the following mitigation measures:

- If an archaeological resource is encountered, the City and Project Proponent shall be immediately notified and construction activities in the area of the discovery shall cease until a qualified archaeologist—one who meets the Secretary of the Interior's Professional Qualification Standards for archaeology (36 Code of Federal Regulations 61)—can be consulted to assess the discovery in accordance with CEQA. Should any prehistoric or ethnohistoric archaeological resources be identified within the Project Area, Native American consulting parties shall be contacted regarding the disposition and treatment of these resources. If the discovery proves to be significant under CEQA and avoidance is not possible, the qualified archaeologist shall coordinate with the City to develop and implement a data recovery plan data recovery to reduce potential impacts to less than significant.
- In the event of the unanticipated discovery of human remains, work in the immediate vicinity of the find shall stop and no further disturbance shall occur until the County Coroner has made a determination of origin and disposition pursuant to State of California Health and Safety Code

> Section 7050.5 and PRC Section 5097.98. The County Coroner shall be notified of the find immediately. If the human remains are determined to be Native American or "ancient," the Coroner shall notify the NAHC, which will designate and notify a Native American most likely descendant (MLD). The MLD shall complete the inspection of the site within 48 hours of notification and make recommendations regarding the treatment and disposition of human remains and items associated with Native American burials.

It should be noted that this study has not assessed impacts or sensitivity relevant to other types of (non-tribal) cultural resources, including built environment, historic archaeological resources, or paleontological resources. Additional mitigations measures may be appropriate related to these other types of resources.

STUDY CONSTRAINTS AND DISCLAIMER

In creating the category of tribal cultural resources, the legislative intent of AB 52 is expressly stated as seeking to consider "the tribal cultural values in addition to the scientific and archaeological values when determining impacts and mitigation" and "recognize that California Native American tribes may have expertise with regard to their tribal history and practices, which concern the tribal cultural resources with which they are traditionally and culturally affiliated" (Gatto 2014). Analysis of tribal cultural resources in the absence of information provided by local tribes, therefore, is considered to be constrained insofar as the evidence considered may be confined to published, academic, and archaeological sources, and the conclusions can only be considered as representing scientific and archaeological values. The analysis and conclusions stated herein are based on the expertise and professional judgement of SWCA's qualified archaeologists and are intended to present information that can be used in assessing the potential for tribal cultural resources under CEQA, and should not be considered a replacement for tribal expertise or assumed to represent tribal cultural values.

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APPENDIX A

Report Figures



Figure A-1. Project vicinity.

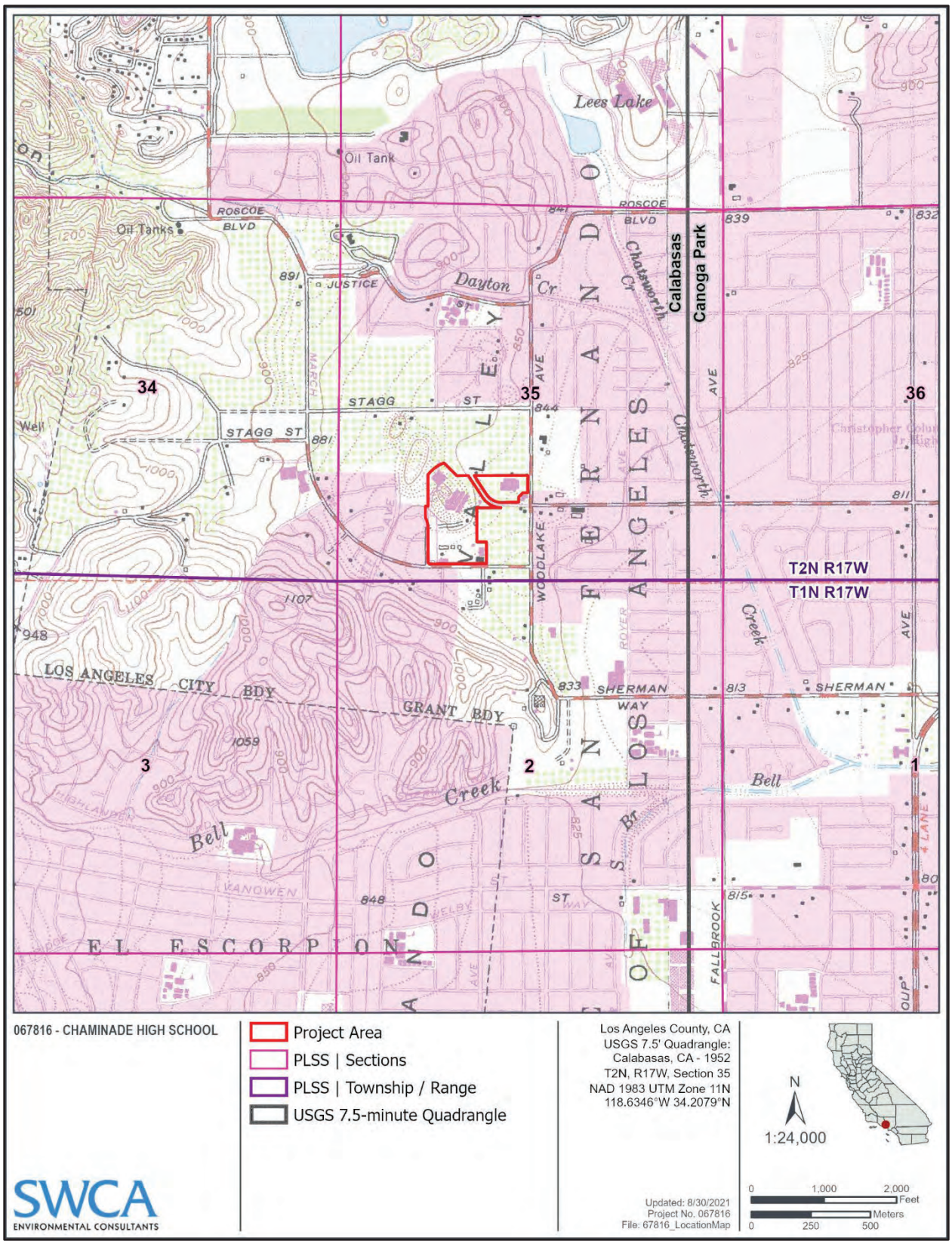


Figure A-2. Project site shown on the USGS Calabasas, California, 7.5-minute quadrangle.



Figure A-3. Project site shown on a 2021 aerial photograph.



Figure A-4. Native American territorial boundaries based on ethnographic and tribal sources.



Figure A-5. Native American villages and place names (based on Fernandeño Tataviam Band of Mission Indians [2022], Hackel et al. [2015], Johnson [1997], and King [2011]).

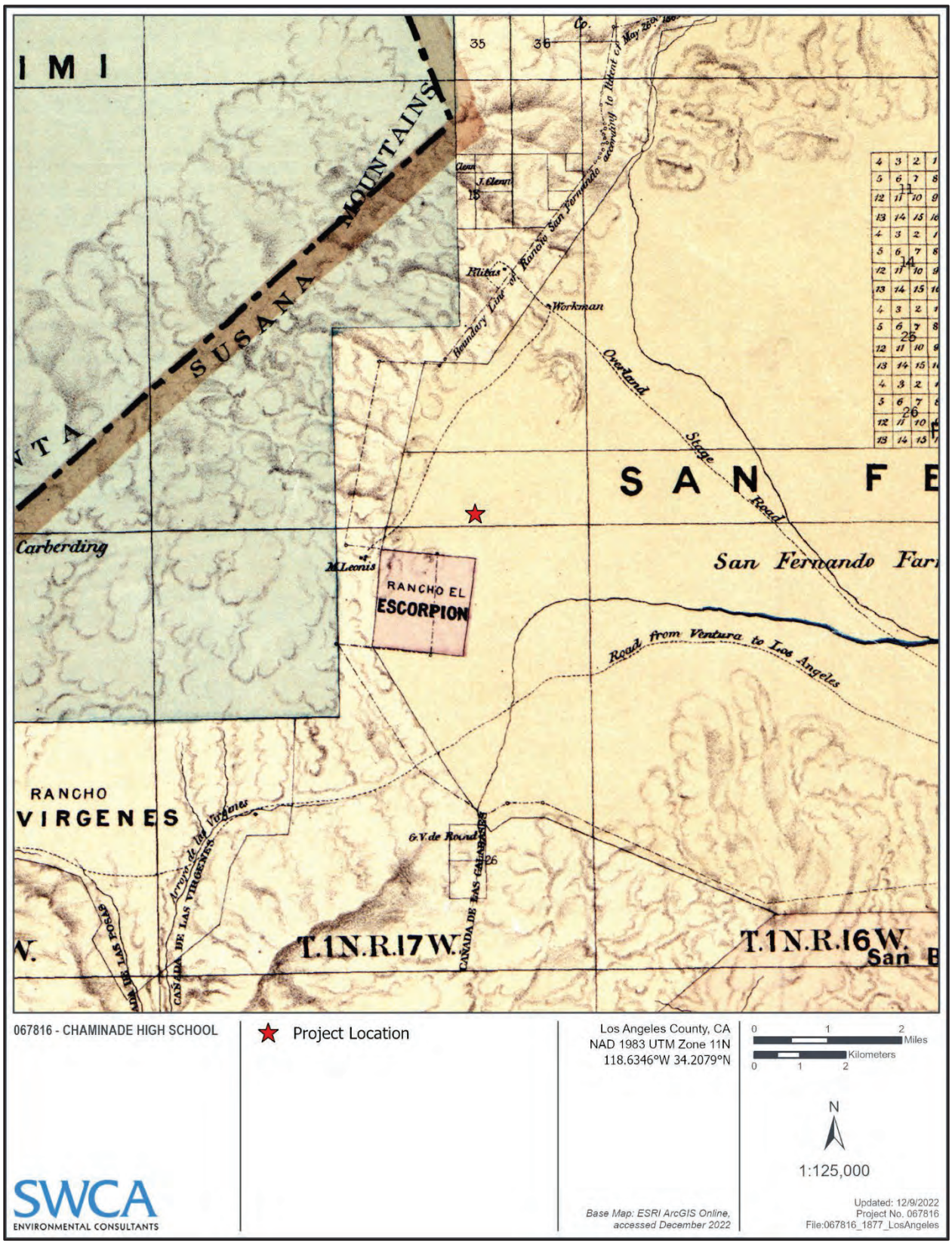


Figure A-6. Historical topographic maps showing the project site in 1877.

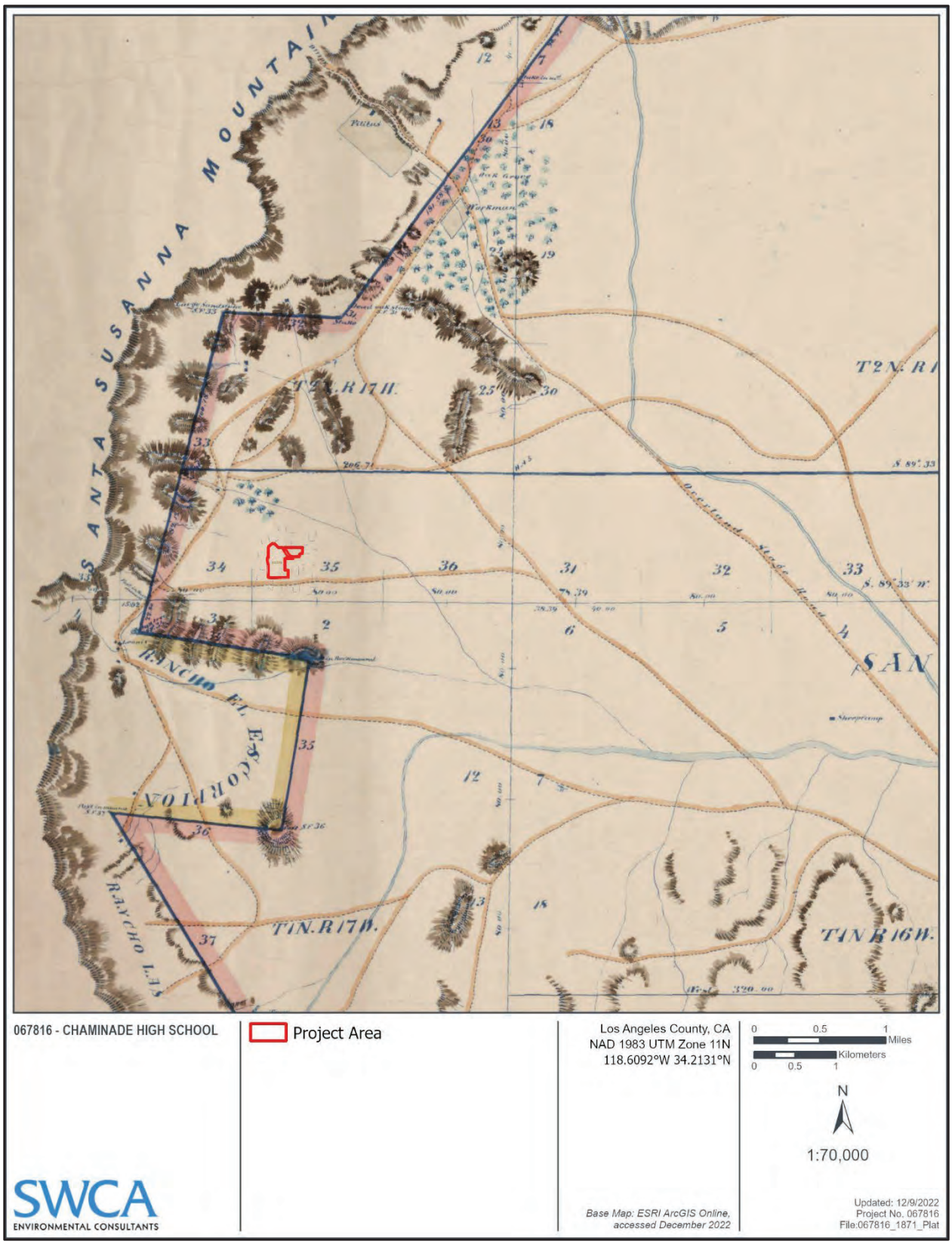


Figure A-7. Plat of the former Mission de San Fernando lands ca. 1871, annotated with the Historic period ranchos located nearest to the project site.

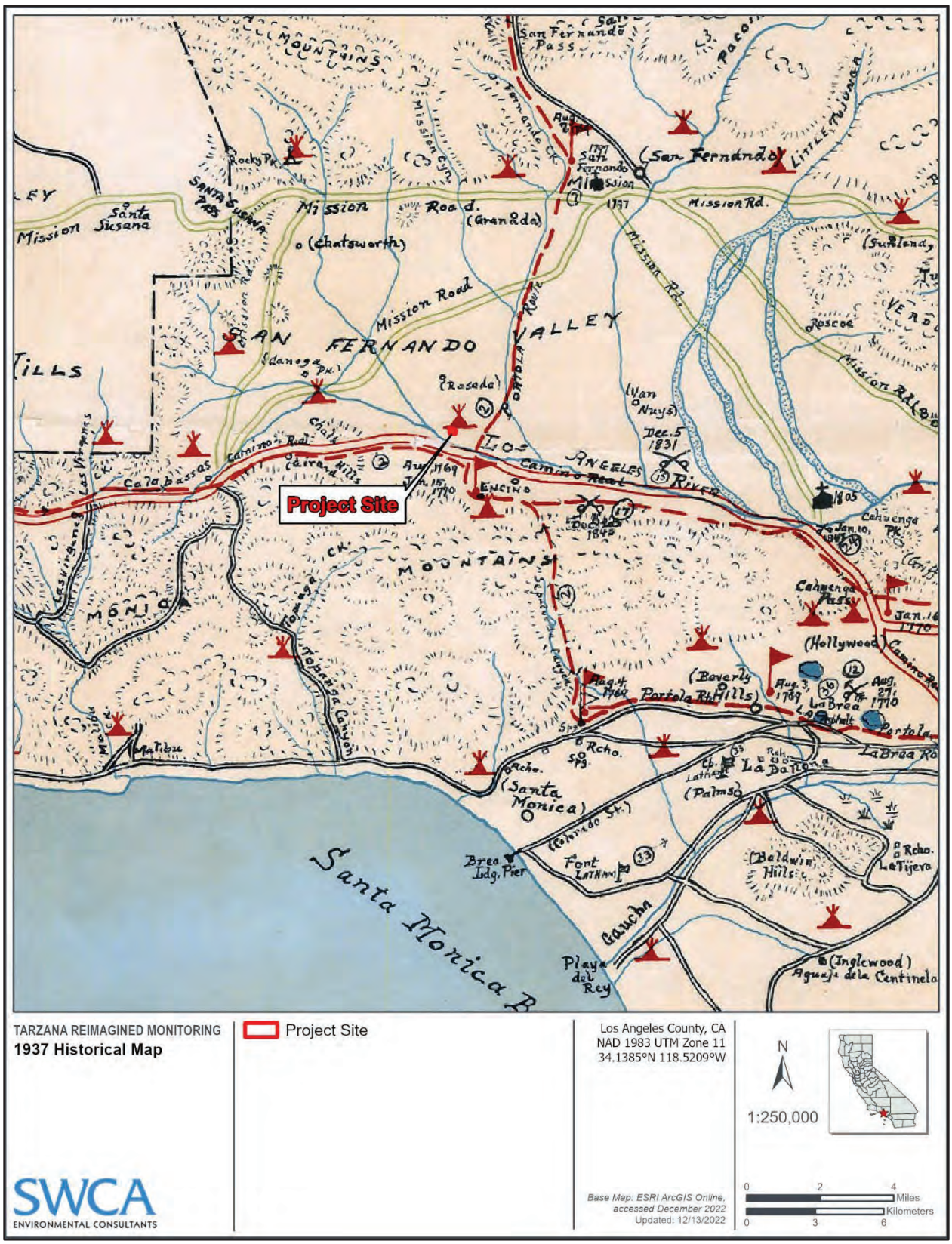


Figure A-8. Kirkman-Harriman's pictorial and historical map of Los Angeles County: 1860–1937.

APPENDIX B

South Central Coastal Information Center Records Search Results

Table B-1. Previous Cultural Resources Studies within 0.5 Mile of the Project Area

Report No.	Author (Affiliation)	Year	Study Title	Relationship to Project Area
LA-00475	Hector, Susan M. (University of California, Los Angeles Archaeological Survey)	1978	An Archaeological Resource Survey and Impact Assessment of Tract 34924 (sanger), Los Angeles County	Outside—within 0.5 mile
LA-01953	Singer, Clay A., and John E. Atwood (C.A. Singer & Associates, Inc.)	1989	Archaeological Monitoring at Tentative Tracts 34924, 41060, and 41062, Near Bell Canyon in the Community of West Hills, Los Angeles County, California	Outside—within 0.5 mile
LA-02011	McIntyre, Michael J. (Northridge Archaeological Research Center, CSUN)	1976	Assessment of the Archaeological Impact by the Development of Tentative Tract No. 27795	Outside—within 0.5 mile
LA-02014	McIntyre, Michael J. (Northridge Archaeological Research Center, CSUN)	1976	Assessment of the Archaeological Impact by the Development of Woodlake Avenue Between Leadwell Street to Bell Creek Channel (70 W.v)	Outside—within 0.5 mile
LA-03753	Anonymous (Department of Public Works)	1977	Historic Property Survey Woodlake Avenue and Bridge - Sherman Way to Bell Creek W.o. 61480 Woodlake Avenue - N/o Leadwell Street to Sherman Way W.o. 61825	Outside—within 0.5 mile
LA-09507	Bonner, Wayne H. and Sarah A. Williams (MBA)	2009	Cultural Resources Records Search and Site Visit Results for T. Mobile USA Candidate SV11662A (Fernando Monopalm), 7531 Fallbrook Ave, Los Angeles, Los Angeles County, California	Outside—within 0.5 mile

APPENDIX C

Sacred Lands File Search Results

DEPARTMENT OF CITY PLANNING

COMMISSION OFFICE
(213) 978-1300

CITY PLANNING COMMISSION

SAMANTHA MILLMAN
PRESIDENT

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MARIA CABILDO
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CALIFORNIA

KAREN BASS
MAYOR

EXECUTIVE OFFICES
200 N. SPRING STREET, ROOM 525
LOS ANGELES, CA 90012-4801
(213) 978-1271

VINCENT P. BERTONI, AICP
DIRECTOR

SHANA M.M. BONSTIN
DEPUTY DIRECTOR

ARTHI L. VARMA, AICP
DEPUTY DIRECTOR

LISA M. WEBBER, AICP
DEPUTY DIRECTOR

June 6, 2023

Fernandeño Tataviam Band of Mission Indians
Rudy Ortega, Tribal President
1019 Second Street, Ste. 1
San Fernando, CA 91340

Fernandeño Tataviam Band of Mission Indians
Miguel Luna, THCP Director
1019 Second Street, Ste. 1
San Fernando, CA 91340

Gabrieleño Band of Mission Indians – Kizh Nation
Andrew Salas, Chairperson
P.O. Box 393
Covina, CA 91723

Gabrielino/Tongva San Gabriel Band of Mission Indians
Anthony Morales, Chairperson
P.O. Box 693
San Gabriel, CA 91778

Gabrielino/Tongva Nation
Sandonne Goad, Chairperson
106 1/2 Judge John Aiso St., #231
Los Angeles, CA 90012

Gabrielino Tongva Indians of California Tribal Council
Robert F. Dorame, Chairperson
P.O. Box 490
Bellflower, CA 90707

Gabrielino-Tongva Tribe
Attn: Charles Alvarez
23454 Vanowen Street
West Hills, CA 91307

San Fernando Band of Mission Indians
Donna Yocum, Chairperson
P.O. Box 221838
Newhall, CA 91322

Soboba Band of Luiseño Indians
Isaiah Vivanco, Chairperson
P.O. Box 487
San Jacinto, CA 92581

Torres Martinez Desert Cahuilla Indians
Thomas Tortez, Chairperson
PO Box 1160
Thermal, CA 92274

RE: 7500 Chaminade Avenue; 23241 Cohasset Street; 23260 Saticoy Street; 23217-23255 Saticoy Street; 7619-7629 Woodlake Avenue

Canoga Park – Winnetka – Woodland Hills – West Hills Community Plan
CASE NOS.: CPC-2023-1254-VZC-HD-ZAD-ZAA, VTT-84101, CPC-2009-1477-CU-ZV-ZAA-SPR-PA1, ENV-2023-1255-EAF

Dear Tribal Representative:

In conformance with the tribal consultation requirements of Assembly Bill (AB) 52, this letter is to inform you that the Los Angeles Department of City Planning is reviewing the proposed project described below. Per AB 52, the tribe has the right to consult on a proposed public or private

project prior to the release of a negative declaration, mitigated negative declaration or environmental impact report. The project description is as follows:

Project Overview

The Owner and Applicant, Chaminade College Preparatory (the "Applicant" or "Chaminade"), proposes to update and expand the existing Chaminade College Preparatory, High School campus (the "High School"), approved and currently operating under a Conditional Use Permit ("CUP"), under City Planning Case No. CPC-2009-1477-CU-ZV-ZAA-SPR, with a revised campus plan located at 7500 Chaminade Avenue, 23241 Cohasset Street, 23260 Saticoy Street, 23217-23255 Saticoy Street and 7619-7629 Woodlake Avenue in West Hills (the "Subject Property"). The revised campus plan (the "Project") will include a total lot area of approximately 25.86 acres, inclusive of: 1) a new three-story school building ("Multistory Building"), updated parking areas, remodeled athletic fields, new student quads, and renovated classrooms, student service centers and offices on the existing campus located on approximately 21.03 acres in the A1-1 and RS-1 zones, at 7500 Chaminade Avenue, 23241 Cohasset Street and 23260 Saticoy Street ("Main Campus"), 2) an expanded school campus area of approximately 4.83 acres located across Saticoy Street, at 23217-23255 Saticoy Street and 7619-7629 Woodlake Avenue, proposed for new athletic fields, an aquatic center/outdoor swimming pool, and accessory facilities/structures and associated surface parking facilities, in the proposed C2-1 Zone (the new "North Campus"), and 3) a new pedestrian bridge across Saticoy Street ("pedestrian bridge"). No increase in the maximum permitted student enrollment (1,360 students) is proposed. Upon Project completion, the revised campus plan for the High School will include a total of approximately 193,818 square feet of Floor Area and approximately 501 on-site surface parking spaces. The Project involves the grading and export of a total of 18,520 cubic yards of soil from the Project Site including 17,800 cubic yards of soil from the Main Campus, and 720 cubic yards from the North Campus.

Background

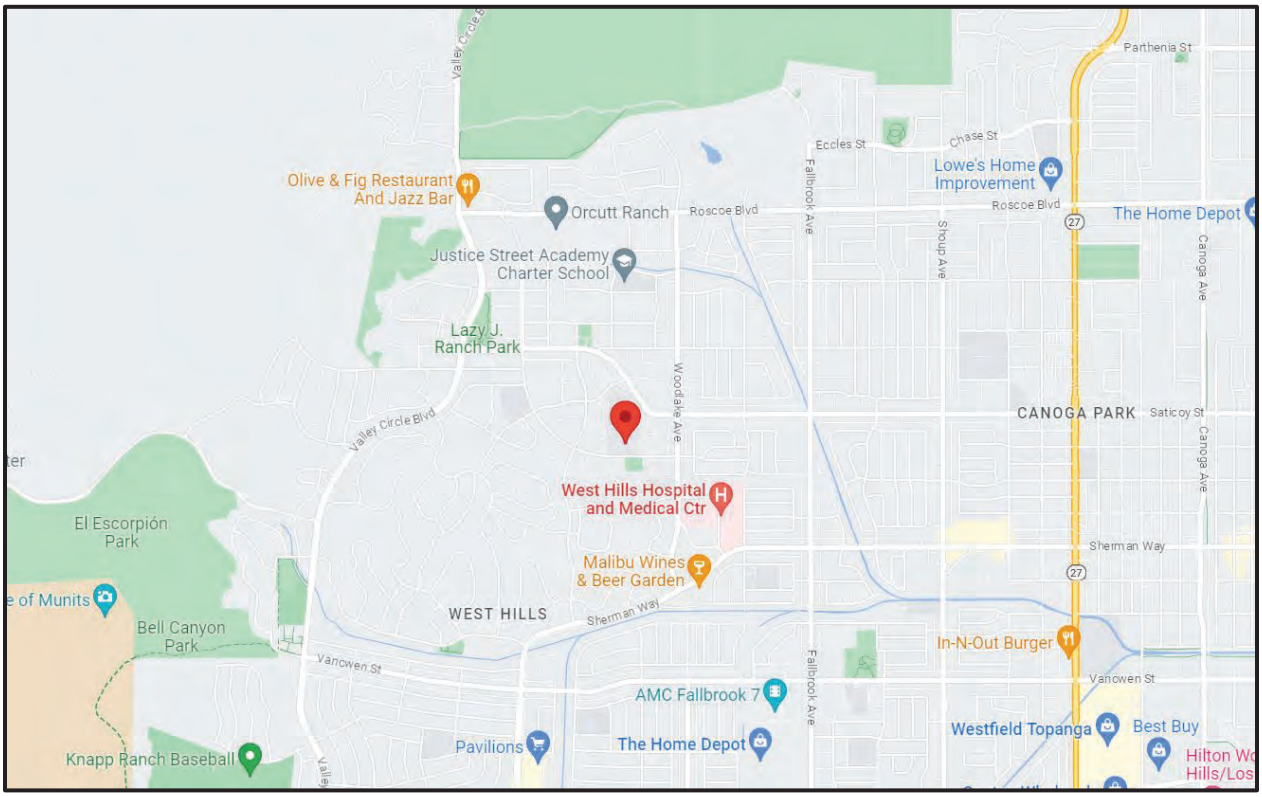
The Subject Property, which includes the Main Campus and North Campus as described above, is bifurcated by Saticoy Street and comprised of six parcels which total approximately 25.86 acres of lot area, as shown in **Figure 1** below. The Main Campus is approximately 21.03 gross acres in lot area and provides approximately 666 feet along the west/south side of Saticoy Street, approximately 273 feet of frontage along south side of Keswick Street; approximately 636 feet of frontage along east side of Chaminade Avenue, and approximately 808 feet of frontage along the north side of Cohasset Street. The North Campus is approximately 4.83 gross acres in lot area and provides approximately 788 feet along the east/north side of Saticoy Street and approximately 244 feet of frontage along the west side of Woodlake Avenue. The Main Campus is currently improved a range of single-story and multiple story buildings within the existing High School campus, inclusive of academic and administrative buildings, and sports fields and facilities. The proposed North Campus is currently improved with a one-story, multi-tenant commercial mini shopping center and surface parking lot, built between 1962 to 1964. The shopping center is currently occupied with retail, restaurant and grocery store tenants.

The Main Campus is legally described as FR Lot 1 of Tract 26072 and FR Lot 19 and FR Lot 35 of Tract 2500 [with Assessor Parcel Numbers (APNs) 2027-005-002 and -009], and the North Campus is legally described as Lot 1 (Arbs 2, 3 and 4) of Tract 25573 (with APNs 2027- 005-005, -006 and -007). The Main Campus is located within the A1-1 and RS-1 Zones, and the North Campus is currently located in the [Q]C1-1VL and P-1VL Zones.

FIGURE 1: SUBJECT PROPERTY



The following is a map showing the general location of the Proposed Project:



Source: Google Maps

You have 30 calendar days from receipt of this letter to notify us in writing that you want to consult on this project. Please provide the lead contact person's contact information. Please mail/email your request to:

Trevor Martin
Los Angeles Department of City Planning
Expedited Processing Section
200 N. Spring Street, Room 763
Los Angeles, CA 90012

213-978-1341
Trevor.Martin@lacity.org

Sincerely,



Trevor Martin
City Planning Associate

EXHIBIT C

Agency Reports

FORM GEN. 160 (Rev. 6-80)

CITY OF LOS ANGELES
INTER-DEPARTMENTAL CORRESPONDENCE

Date: 6/7/2023

To: Charlie Rausch, Senior City Planner
Department of City Planning
200 N. Spring St., 6th Floor MS-395

From: Gil De La Cruz, P.E.
Case Management Supervisor
Private Development Division
Bureau of Street Lighting

SUBJECT: STREET LIGHTING REQUIREMENTS FOR DISCRETIONARY ACTIONS

CITY PLANNING CASE No.: CPC 2023-1254 VZC HD ZAD
7500 N CHAMINADE AVE

The Bureau of Street Lighting's recommended condition of approval for the subject city planning case is as follows: (Improvement condition added to S-3 (c) where applicable.)

SPECIFIC CONDITION: Prior to the recordation of the final map or issuance of the Certificate of Occupancy (C of O), street lighting improvement plans shall be submitted for review and the owner shall provide a good faith effort via a ballot process for the formation or annexation of the property within the boundary of the development into a Street Lighting Maintenance Assessment District.
IMPROVEMENT CONDITION: Construct new street lights: one (1) on Cohasset St, and one (1) on Keswick St. If street widening per BOE improvement conditions, relocate and upgrade street lights: four (4) on Cohasset St, three (3) on Chaminade Ave, seven (7) on Saticoy St, two (2) on Woodlake Ave

NOTES:

The quantity of street lights identified may be modified slightly during the plan check process based on illumination calculations and equipment selection.

Conditions set: 1) in compliance with a Specific Plan, 2) by LADOT, or 3) by other legal instrument excluding the Bureau of Engineering conditions, requiring an improvement that will change the geometrics of the public roadway or driveway apron may require additional or the reconstruction of street lighting improvements as part of that condition.

CC: Land Development Group MS 901
Engineering District Office: VAL

CITY OF LOS ANGELES

INTER-DEPARTMENTAL MEMORANDUM

7500 N Chaminade Ave
LADOT Project ID No. 56231

Date: October 12, 2023

To: Deputy Advisory Agency
Department of City Planning

From: Miguel Crisostomo, Transportation Engineering Associate I
Department of Transportation

Subject: **Parcel Map No. CPC-2023-1254-VZC-HD-ZAD-ZAA**
VTT-84101

Reference is made to your request for review of this case regarding potential traffic access problems. Based upon this review, it is recommended that:

1. A minimum 20-foot reservoir space is required between any security gate or parking space and the property line, or to the satisfaction of LADOT.

2. A two-way driveway width of W=28 feet is required for all driveways, or to the satisfaction of LADOT.

3. A parking area and driveway plan should be submitted to the Citywide Planning Coordination Section of the Los Angeles Department of Transportation for approval prior to submittal of building permit plans for plan check by the Department of Building and Safety. Transportation approvals are conducted at 6262 Van Nuys Blvd., Room 320, Van Nuys, CA 91401.

4. The report fee and condition clearance fee be paid to the Los Angeles Department of Transportation as required per Ordinance No. 183270 and LAMC Section 19.15 prior to recordation of the final map. Note: The applicant may be required to comply with any other applicable fees per this new ordinance.

If you have any questions, you may contact me at Miguel.crisostomo@lacity.org or 818-374-4699.

FORM GEN. 160 (Rev. 8-12)

CITY OF LOS ANGELES
INTER-DEPARTMENTAL CORRESPONDENCE

DATE: June 29, 2023

TO: Heather Bleemers, Senior City Planner
Department of City Planning

FROM: Bryan Ramirez, Street Tree Superintendent I
Bureau of Street Services, Urban Forestry Division

SUBJECT: **CPC-2023-1254-VZC-HD - 7500 N Chaminade Ave**

In regard to your request for review of this case regarding Urban Forestry requirements, it is our recommendation that:

1. **STREET TREES**

a. Project shall preserve all healthy mature street trees whenever possible. All feasible alternatives in project design should be considered and implemented to retain healthy mature street trees. A permit is required for the removal of any street tree and shall be replaced 2:1 as approved by the Board of Public Works and Urban Forestry Division.

b. When street dedications are required and to the extent possible, the project shall provide larger planting areas for existing street trees to allow for growth and planting of larger stature street trees. This includes and is not limited to parkway installation and/or enlargement of tree wells and parkways.

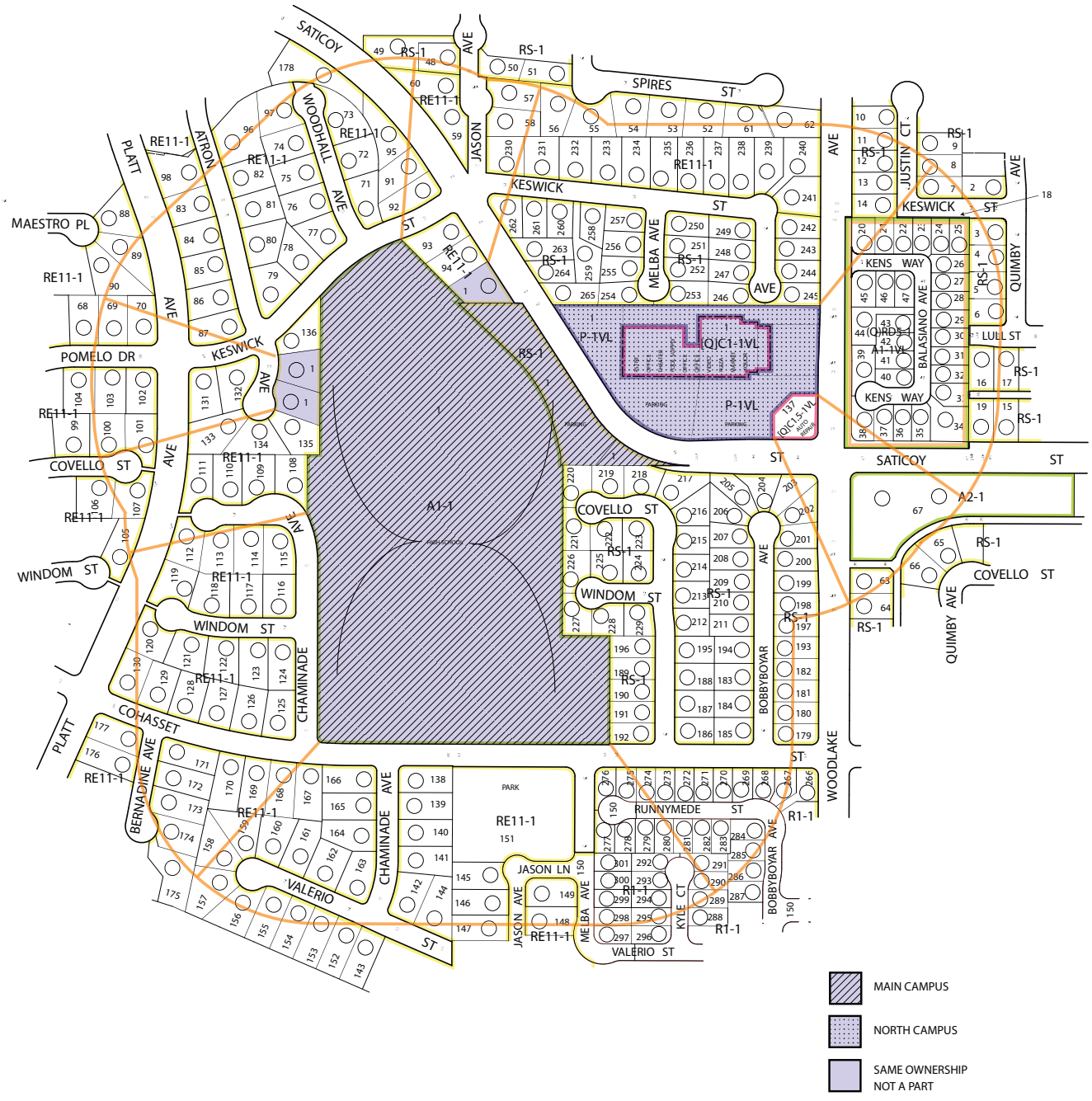
c. Plant street trees at all feasible planting locations within dedicated streets as directed and required by the Bureau of Street Services, Urban Forestry Division. All tree plantings shall be installed to current tree planting standards when the City has previously been paid for tree plantings. The sub divider or contractor shall notify the Urban Forestry Division at: (213) 847-3077 upon completion of construction for tree planting direction and instructions.

Note: Removal of street trees requires approval from the Board of Public Works. All projects must have environmental (CEQA) documents that appropriately address any removal and replacement of street trees. Contact Urban Forestry Division at: (213) 847-3077 for tree removal permit information.

BR:djm;df

EXHIBIT D

Maps and Site Photos



VESTING TENTATIVE TRACT NUMBER 84101 - VESTING ZONE CHANGE-HEIGHT DISTRICT CHANGE
CONDITIONAL USE PLAN APPROVAL - ZAA - ZAD - E.A.F.

Quality Mapping Service
14549 Archwood St. Suite 301
Van Nuys, California 91405
Phone (818) 997-7949 - Fax (818) 997-0351
qmapping@qesqms.com

THOMAS BROTHERS
Page: 529 **Grid:** F-4

LEGAL

" SEE APPLICATIONS"

CD: 12

CT: 1344.22

PA: CANOGA PARK-WINNETKA
WOODLAND HILLS WEST HILLS

USES: FIELD/RECORD

ASSESSOR PARCEL NUMBER: MAIN CAMPUS - 2027-005- (002,009)
NORTH CAMPUS - 2027-005-(005-007)

SITE ADDRESS: MAIN CAMPUS: 7500 CHAMINADE AVE
23241 COHASSET ST
23260 SATICOY ST
NORTH CAMPUS: 23217-23255 SATICOY ST
7619-7629 WOODLAKE AVE

CASE NO:

SCALE: 1" = 200'

D.M.: 186B093 , 186 097
189B093 , 198B097

CONTACT: ROSENHEIM & ASSOCIATES **PHONE:** 818-716-2797

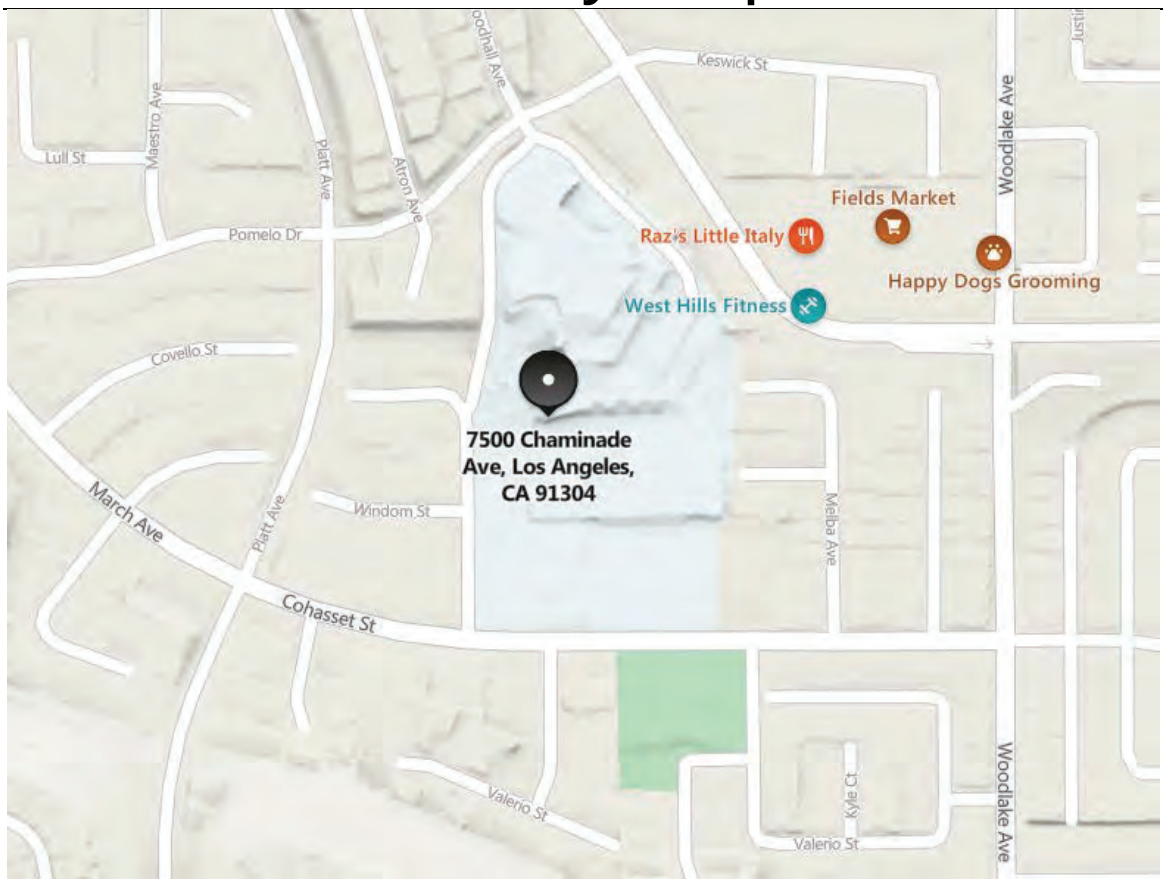
LA NORTH

DATE: 02-02-2023
Update:

NET AC:
MAIN = 21.188 / 24.232 +/-
NORTH: 4.831 +/-

QMS: 23-029

Vicinity Map



Address: MAIN CAMPUS: 7500 CHAMINADE AVE
NORTH CAMPUS: 23217-23255 SATICOY ST

QMS # 23-029

ZIMAS PUBLIC

LARIAC5 2017 Color-Ortho

02/13/2023

City of Los Angeles
Department of City Planning



Address: 7500 N CHAMINADE AVE
APN: 2027005009
PIN #: 186B093 52

Tract: TR 26072
Block: None
Lot: FR LT 1
Arb: None

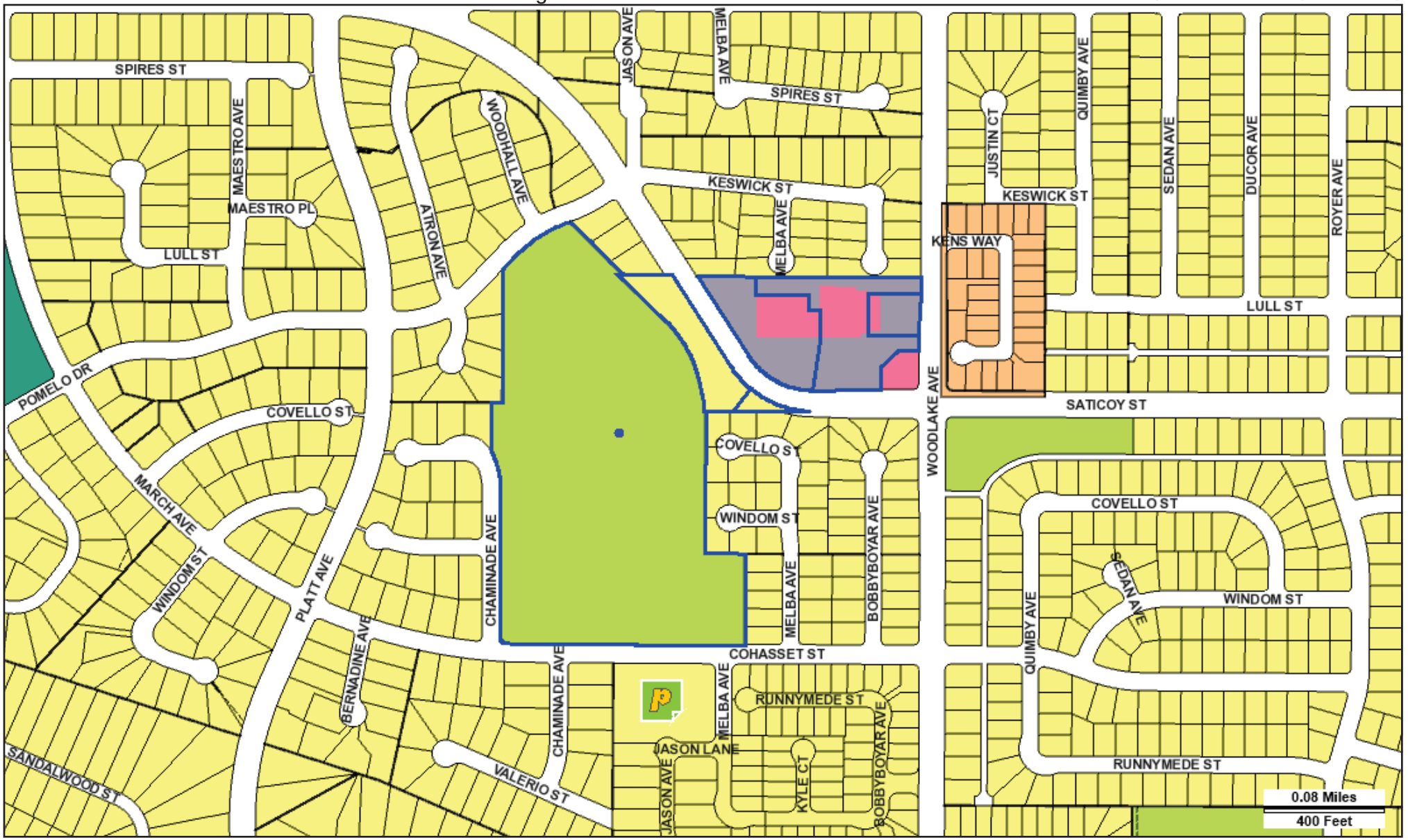
Zoning: A1-1
General Plan: Very Low Residential

ZIMAS PUBLIC

Generalized Zoning

02/13/2023

City of Los Angeles
Department of City Planning



Address: 7500 N CHAMINADE AVE
APN: 2027005009
PIN #: 186B093 52

Tract: TR 26072
Block: None
Lot: FR LT 1
Arb: None

Zoning: A1-1
General Plan: Very Low Residential

PHOTO EXHIBIT

Main Campus: 7500 Chaminade Avenue, 23241 Cohasset Street, 23260 Saticoy Street
North Campus: 23217-23255 Saticoy Street, 7619-7629 Woodlake Avenue
Applicant: Chaminade College Preparatory

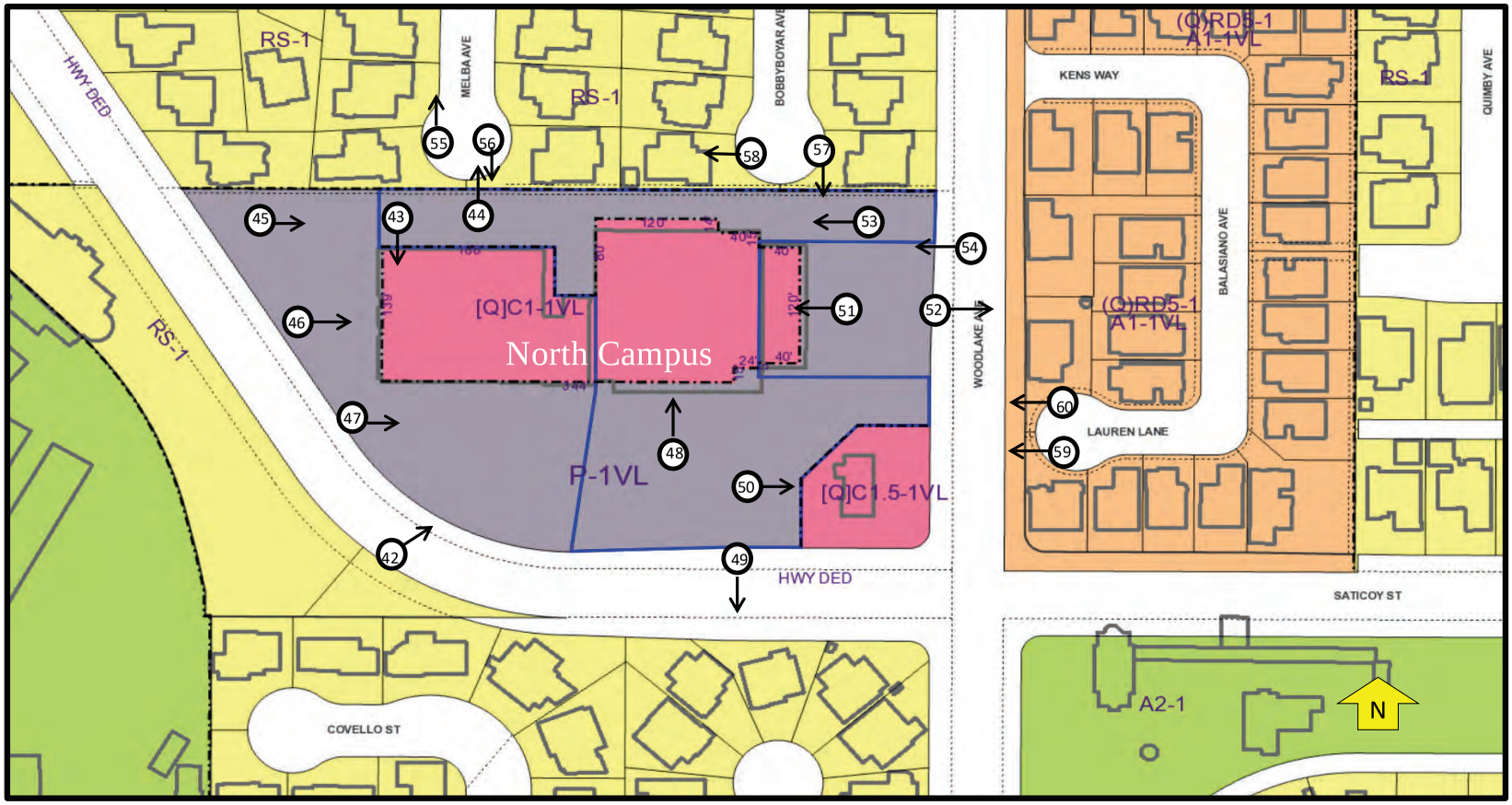


Aerial View of Subject Property

INDEX MAP 1
Main Campus: 7500 Chaminade Avenue, 23241 Cohasset Street, 23260 Saticoy Street



Index Map 2
North Campus: 23217-23255 Saticoy Street, 7619-7629 Woodlake Avenue





1) View of Subject Property, facing north from Cohasset Street.



2) View of existing parking lot, facing north from the Subject Property.



3) View of existing parking lot, facing south from the Subject Property.



4) View of existing security fence and gate, facing west from the Subject Property.



5) View of existing student pick up and drop off area, facing north from the Subject Property.



6) View of the Bob Hope Student Center, facing east from the Subject Property.



7) View of the Administration Building, facing south from the Subject Property.



8) View of existing security fence and gate, facing north from the Subject Property.



9) View of existing staff parking lot (proposed location of Pedestrian Bridge), facing east from the Subject Property.



10) View of existing classroom buildings (proposed location of new campus entry), facing west from the Subject Property.



11) View of existing security fence and gate, facing west from the Subject Property.



12) View of the Condon Family Center for Science and Technology and staff parking lot, facing north from the Subject Property.



13) View of existing student parking lot, facing southwest from the Subject Property.



14) View of existing student parking lot, facing northwest from the Subject Property.



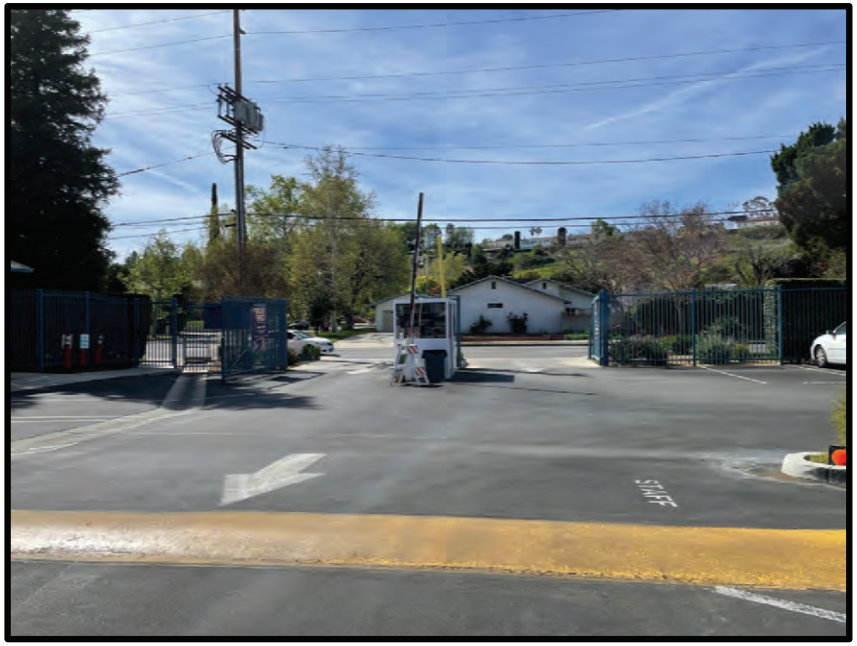
15) View of existing portable classrooms, facing south from the Subject Property.



16) View of track and football field, facing east from the Subject Property.



17) View of the Juan Uribe Sports center, facing east from the Subject Property.



18) View of the security kiosk and vehicular driveway on Cohasset Street, facing south from the Subject Property.



19) View of the security kiosk and vehicular driveway on Cohasset Street, facing north from Cohasset Street.



20) View of the adjacent properties to the west of the Subject Property, facing north from the Chaminade Avenue.



21) View of the existing security fence and student drop off and pick up entrance, facing east from Chaminade Avenue.



22) View of the Subject Property, facing east from Chaminade Avenue.



23) View of the adjacent properties to the west of the Subject Property, facing west from Chaminade Avenue.



24) View of the existing curb, gutter and sidewalk on the Subject Property, facing north from Chaminade Avenue.



25) View of the adjacent properties to the north of the Subject Property, facing northwest from Chaminade Avenue.



26) View of the existing curb, gutter and sidewalk on the Subject Property, facing east from Cohasset Street.



27) View of the adjacent properties to the south of the Subject Property, facing south from Cohasset Street.



28) View of the existing baseball field and bleachers, facing north from Cohasset Street.



29) View of the existing bleachers, facing west from Cohasset Street.



30) View of Four Oaks Park, facing south from Cohasset Street.



31) View of the adjacent properties to the east of the Subject Property, facing west from Melba Avenue.



32) View of the adjacent properties to the east of the Subject Property, facing west from Windom Street.



33) View of the adjacent properties to the east of the Subject Property, facing west from Windom Street.



34) View of the adjacent properties to the east of the Subject Property, facing south from Covello Street.



35) View of the adjacent properties to the east of the Subject Property, facing northwest from Covello Street.



36) View of the adjacent properties to the west of the Subject Property, facing east from Atron Avenue.



37) View of the adjacent properties to the west of the Subject Property, facing east from Atron Avenue.



38) View of the Subject Property, facing south from Keswick Street.



39) View of the adjacent properties to the north of the Subject Property, facing north from Keswick Street.



40) View of the Subject Property, facing west from Saticoy Street.



41) View of the existing curb, gutter and sidewalk, facing southeast from Saticoy Street.



42) View of the proposed North Campus, facing northeast from Saticoy Street.



43) View of the rear of the Subject Property, facing south from the Subject Property.



44) View of the adjacent properties to the north of the Subject Property, facing north from the Subject Property.



45) View of the rear of the Subject Property, facing east from the Subject Property.



46) View of the Subject Property, facing east from the Subject Property.



47) View of the Subject Property, facing east from the Subject Property.



48) View of the existing Fields Market, facing north from the Subject Property.



49) View of the adjacent properties to the south of the Subject Property, facing south from the Subject Property.



50) View of the existing to remain Woodlake Auto Center, facing east from the Subject Property.



51) View of the Subject Property, facing west from the Subject Property



52) View of the adjacent properties to the east of the Subject Property, facing east from the Subject Property



53) View of the rear of the Subject Property, facing west from the Subject Property.



54) View of the Subject Property, facing west from Woodlake Avenue.



55) View of the adjacent properties to the north of the Subject Property, facing west from Melba Avenue.



56) View of the Subject Property, facing south from Melba Avenue.



57) View of the Subject Property and adjacent properties, facing south from Bobbyboyar Avenue.



58) View of the adjacent properties to the north of the Subject Property, facing west from Bobbyboyar Avenue.



59) View of the adjacent properties to the east of the Subject Property, facing west from Lauren Lane.



60) View of the adjacent properties to the east of the Subject Property, facing west from Lauren Lane.

EXHIBIT E

Public Correspondence

April 11, 2024

Mr. Trevor Martin
Los Angeles City Planning
200 N. Spring Street, Room 763
Los Angeles, CA 90012
trevor.martin@lacity.org

Re:
Chaminade College Preparatory, High School Campus Plan Case Nos.: CPC-2009-1477-CU-ZV-ZAA-SPR-PA1, CPC-2023-1254-VZC-HD-ZAD-ZAA, VTT-84101
Project Address: 7500 Chaminade Avenue, 23241 Cohasset Street & 23260 Saticoy Street, 23217-23255 Saticoy Street & 7619-7629 Woodlake Avenue

Dear Mr. Martin,

I'm a parent (Jack '22 and Lila '25) at Chaminade College Preparatory School and I'm writing to you in support of the proposed High School Campus Plan referenced above. Chaminade has been an amazing school for my children, and, while they will not be there to enjoy the new campus proposed by this plan, I'm very enthusiastic about what this will do for the school and the community at large.

First and foremost, the proposed plan will make the school, and thus the surrounding community, safer. Safety is the number one priority of Chaminade's Board and Administration and it's clear that this was taken into great consideration when developing this plan.

The plan will also enhance the educational opportunities for all students and create an environment to better focus on overall health and wellness. And, as a parent of a student athlete who plays lacrosse, the new fields and athletic facilities will be a huge addition to the campus and the community at large. Chaminade sports teams are an integral part of the Chaminade school spirit experience, and a positive force throughout the West Hills community. My family and friends will definitely be returning to the school for lots of games in the future.

The Chaminade community – students, parents, alumni, and administrators – are so excited about this project. That is evidenced by the fact that so many people have contributed to the fundraising efforts to make this happen. This will be a big win for the school and the community!

Thank you,

Abigail Krasny

March 29, 2024

Mr. Trevor Martin
Los Angeles City Planning
200 N. Spring Street, Room 763
Los Angeles, CA 90012
Trevor.Martin@Lacity.org

RE: Chaminade College Preparatory, High School Campus Plan
Case Nos.: CPC-2009-1477-CU-ZV-ZAA-SPR-PA1, CPC-2023-1254-VZC-HD-ZAD-ZAA, VTT-84101
Project Address: 7500 Chaminade Avenue, 23241 Cohasset Street & 23260 Saticoy Street, 23217-23255 Saticoy Street, & 7619-7629 Woodlake Avenue

Mr. Martin,

Chaminade is my Alma Mater – 1981. The academic education I received at Chaminade was of inestimable value to me in the workplace. I owe the vast majority of my success in life to Chaminade. While college often opens doors, for me, Chaminade was the focus of every instance of my leaning back in a chair and recalling the teaching, or the teacher, that enabled me to succeed in any given endeavor.

Classrooms were crowded back then and supplies were minimal. By God's grace, that can now change. I recall the shopping center behind the school. It is a rare opportunity indeed to be able to purchase an adjacent property, be it next to your home or your business. Those opportunities do not come along a second time. Chaminade was fortunate to be able to take advantage of the opportunity and I know that they will expand in a responsible and considerate manner. I expect that the many neighbors will be pleased to see that old shopping center replaced with a well-designed, attractive, modern, and well-maintained property. Additionally, a second access point will be a boon to those who bore the brunt of living next to a school for many years. Chaminade was always a good neighbor to West Hills.

I have seen the plan created for the project and it clearly reflects a great improvement over the campus I remember from so long ago. It has been 43 years since I graduated. Having attended Chaminade from 7th grade, I can personally vouch for the benefits Chaminade provided in the education I received there. I am pleased to see that the commitment to West Hills and the San Fernando Valley remains.

I urge you to give favorable consideration to this project. Thank you for your time.

Sincerely,

Christopher T. Valvo
208-660-2429
Chrisvalvo1118@Gmil.com

Greg Hall
15852 Ludlow Street
Granada Hills, CA 91344

March 28, 2024

Mr. Trevor Martin
Los Angeles City Planning
200 N. Spring Street, Room 763
Los Angeles, CA 90012

trevor.martin@lacity.org

Re: Chaminade College Preparatory, High School Campus Plan
Case Numbers: CPC-2009-1477-CU-ZV-ZAA-SPR-PA1,
CPC-2023-1254-VZC-HD-ZAD-ZAA, VTT-84101
Project Address: 7500 Chaminade Avenue, 23241 Cohasset Street & 23260 Saticoy Street, 23217-23255 Saticoy Street & 7619-7629 Woodlake Avenue

Dear Sir,

I am a San Fernando Valley neighbor and parent of a student at Chaminade Middle School. My son absolutely loves Chaminade. And we are not practicing Catholics. This seems to make no difference to my son, or any of his many friends at Chaminade. I write to fully support Chaminade and the Chaminade College Preparatory High School Campus Plan. I have seen some of the plans and layouts for this project. This will be a significant, and modern, upgrade for this area of the San Fernando Valley. While I am not a construction engineer, it is plain to see that significant study, knowledge and effort went into the production of the plans for this project. The athletics upgrade alone is well worth this effort. High school athletics is an important part of the high school experience. This project will be a large step towards furthering the quality of that experience. Chaminade has a decades long track record of providing quality schooling at the West Hills location. Please lend your support to this project. Thank you for your consideration.

Sincerely yours,

Greg Hall

Greg Hall

Jennifer Yep
7353 Hillsview Court
West Hills, CA 91307
(818) 497-6235
jenniferyep@yahoo.com

March 29, 2024

Mr. Trevor Martin
Los Angeles City Planning
200 N. Spring Street, Room 763
Los Angeles, CA 90012
trevor.martin@lacity.org

Re: Chaminade College Preparatory, High School Campus Plan Case Nos.: CPC-2009-1477-CU-ZV-ZAA-SPR-PA1, CPC-2023-1254-VZC-HDZAD-ZAA, VTT-84101 Project Address: 7500 Chaminade Avenue, 23241 Cohasset Street & 23260 Saticoy Street, 23217-23255 Saticoy Street & 7619-7629 Woodlake Avenue

Dear Mr. Trevor Martin,

I am a neighborhood resident of West Hills for over 25 years. We have 3 children who were the main reason why we chose this neighborhood to live in. We currently have 1 adult child who graduated from Chaminade High School and currently have 2 children at Chaminade schools - one at the high school campus and one at the middle school campus.

We have reviewed the campus plan and believe that this plan will improve the neighborhood we currently live in. The plan provides for more parking which will help with school events. The additional facilities such as swimming pool & additional fields will also make this school an attractive option for those in the community as well as alleviate the need to go to outside facilities which would increase traffic and reduce student participation in these sports. We feel strongly that having these outlets for sports & extracurricular activities is vital to our young people for mental & physical health reasons.

Sincerely,

Jennifer Yep

March 30, 2024

Mr. Trevor Martin
Los Angeles City Planning
200 N. Spring Street, Room 763
Los Angeles, CA 90012
trevor.martin@lacity.org

Re: Chaminade College Preparatory, High School Campus Plan
Case Nos.: CPC-2009-1477-CU-ZV-ZAA-SPR-PA1, CPC-2023-1254-VZC-HD
ZAD-ZAA, VTT-84101
Project Address: 7500 Chaminade Avenue, 23241 Cohasset Street & 23260 Saticoy Street, 23217-23255 Saticoy Street & 7619-7629 Woodlake Avenue

Mr. Trevor Marin –

We are writing to you as long time West Hills residents, Chaminade Parents, and Chaminade Alumni. We would like to express our support for the proposed campus improvements to the West Hills campus.

We believe the proposed improvements will be beneficial to the overall West Hills community by enhancing the general area surrounding the West Hills campus as well providing more opportunities for our local high school students to receive the tools they need to succeed in this increasingly competitive world. With additional sports facilities, wellness opportunities, enhanced safety, and technology, Chaminade students will be well prepared for college and beyond.

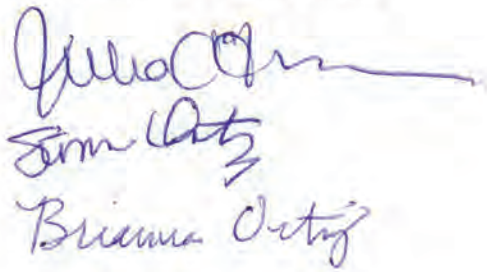
The proposal takes into consideration not only the interests of the Chaminade students, but the interests of the residents. With additional parking spots and moving the campus entry to Saticoy Street, there will be less parking and traffic on the residential streets. Furthermore, since the school operating hours are not changing, there is no impact on the residents from school activities and possibly less impact outside of school hours since the existing shopping center will be removed.

We enthusiastically support the proposal.

Thank you for your consideration,

The Ortiz Family

Julia, Steven, and Brianna Ortiz



LAW OFFICES OF PAMELA G. MEYER
A PROFESSIONAL CORPORATION
15303 VENTURA BOULEVARD, SUITE 900
SHERMAN OAKS, CALIFORNIA 91403

TELEPHONE: (818) 380-3005
EMAIL: MEYER@PGMEYER.NET
INTERNET: HTTP://WWW.PGMEYER.NET

April 2, 2024

Mr. Trevor Martin
Los Angeles City Planning
200 N. Spring Street, Room 763
Los Angeles, CA 90012
trevor.martin@lacity.org

Re: Chaminade College Preparatory , High School Campus Plan
Case Nos.: CPC-2009-1477-CU-ZV-ZAA-SPR-PA1, CPC-2023-1254-VZC-HD-ZAD-ZAA, VTT-84101
Project Address:
7500 Chaminade Avenue, 23241 Cohasset Street & 23260 Saticoy Street, 23217-23255 Saticoy Street & 7619-7629 Woodlake Avenue

Dear Mr. Martin/Los Angeles Planning,

I am an alumni, former parent, former Board Member and former Board Chairperson of Chaminade College Preparatory. I write this letter in support of Chaminade's School Campus Plan. I support this expansion and plan not only for the reasons that it will improve the quality of education and high school experience at Chaminade, which includes both academic and extracurricular activities but also because the plan is sensitive to the impact on the local community, seeking expansion of facilities but not increase in student body size. Further, Chaminade has been and is thoroughly committed to working with community as a *good neighbor* in this endeavor, for example, by instituting no parking zones during school hours, a community hotline for concerns, limiting athletic event hours and seeking approval to allow a portion of its campus to be open for public use.

While the plan seeks to add classrooms, a library and to expand athletic facilities, the plan also addresses traffic and safety with additional parking, pedestrian bridge, on site facilities (reducing commuting to offsite venues), additional fencing, safer street crossings and reduced local school traffic. The proposed zone change would protect the community from larger residential developments and by creating a more insulated and self contained campus, the local community will be less affected by day to day school activities.

I have been part of the Chaminade community for nearly 50 years and while Chaminade has added needed facilities on this campus over the years, this comprehensive plan is the result of a long period of thoughtful planning and will continue to raise the high school education reputation for the West Valley to the highest levels.

Sincerely,

Pamela G. Meyer

April 9, 2024

Mr. Trevor Martin
Los Angeles City Planning
200 N. Spring Street, Room 763
Los Angeles, CA 90012
trevor.martin@lacity.org

RE: Chaminade College Preparatory, High School Campus Plan
Case Nos.: CPC-2009-1477-CU-ZV-ZAA-SPR-PA1, CPC-2023-1254-VZC-HD-ZAD-ZAA, VTT-84101
Project Address: 7500 Chaminade Ave, 23241 Cohasset Street & 23260 Saticoy Street, 23217-23255 Saticoy Street & 7619-7629 Woodlake Avenue

Dear Mr. Martin,

We have been parents at Chaminade School for 11 years and we hope to continue for 4 years more. Two of our four children have graduated and are currently pursuing their studies in Business Administration having successful college years thanks to the preparation they received at Chaminade College Preparatory School. All four of our kids found a haven at Chaminade, a place where they could excel in their academics, athleticism and most importantly their faith. The support and guidance they received in such a family environment helped and is helping them blossom.

Chaminade has been a successful institution since it's inception and never have they allowed their premises to be nothing short of immaculate. This speaks of their pride in ownership and workplace. It was not surprising to me when I first heard of the schools plans to become even better. They teach pursuing excellence so it follows that they pursue excellence themselves. We as a family have already given our financial support to this cause that will surely help hundreds of students in the years to come. We now ask you to please support the plans of Chaminade's Projects so that more students could benefit from the haven it has already been and will continue to be. Communities are elevated by the presence of great schools like Chaminade, please support their community by supporting Chaminade College Preparatory School's Campus Plan. Thank you for your time.

Sincerely,

Victor and Gabriela Quiroz
Parents of Julia ('20), Gabriela ('23), Victor ('25), and Sophia ('28)

Form Name: North Campus Letter of Support
Submission Time: March 28, 2024 12:03 pm

Description Area

Mr. Trevor Martin
Los Angeles City Planning
200 N. Spring Street, Room 763
Los Angeles, CA 90012
trevor.martin@lacity.org

Re: Chaminade College Preparatory, High School Campus Plan
Case Nos.: CPC-2009-1477-CU-ZV-ZAA-SPR-PA1,
CPC-2023-1254-VZC-HD-ZAD-ZAA, VTT-84101
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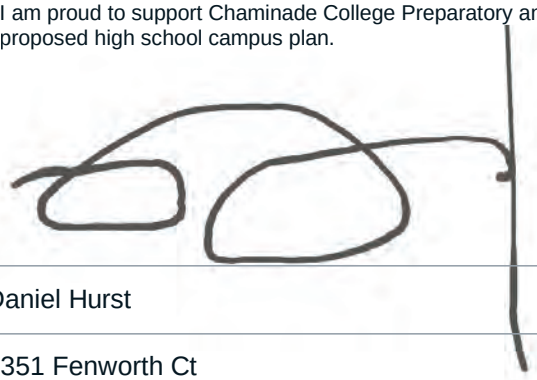
Dear Mr. Martin,

I support Chaminade College Preparatory's new high school campus plan which will modernize and upgrade the existing campus facilities with new administrative, counseling, library, multi-purpose, classroom and laboratory areas and a new student quad, and will create quality athletic and parking facilities on the new North Campus. I also strongly support the proposed pedestrian bridge, which will connect the Main Campus with the North Campus as an essential safety element of the campus.

Chaminade has been an important asset in the West Hills community for the past 60+ years. Allowing the school to proceed with the thoughtfully and sensitively designed campus plan that incorporates top quality educational and athletic facilities will bring great value to our community for years to come. The proposed campus plan will allow for the essential enhancement of the quality education currently offered and will expand upon the wide variety of curricular, co-curricular and extra-curricular programs.

I am proud to support Chaminade College Preparatory and urge you to approve their newly proposed high school campus plan.

Signature



Person signing above letter	Daniel Hurst
Address	6351 Fenworth Ct Agoura Hills, CA 91301
Email	dhurst@gmail.com

Date submitted	Mar 28, 2024 12:02:50 PM

Form Name: North Campus Letter of Support
Submission Time: March 28, 2024 12:06 pm

Description Area

Mr. Trevor Martin
Los Angeles City Planning
200 N. Spring Street, Room 763
Los Angeles, CA 90012
trevor.martin@lacity.org

Re: Chaminade College Preparatory, High School Campus Plan
Case Nos.: CPC-2009-1477-CU-ZV-ZAA-SPR-PA1,
CPC-2023-1254-VZC-HD-ZAD-ZAA, VTT-84101
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Dear Mr. Martin,

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I am proud to support Chaminade College Preparatory and urge you to approve their newly proposed high school campus plan.

Signature



Person signing above letter	Cheryl Gambetta
Address	1417 Pleasant Oaks Pl Thousand Oaks, CA 91362
Email	cgambetta@chaminade.org
Date submitted	Mar 28, 2024 12:04:33 PM

Form Name: North Campus Letter of Support
Submission Time: March 28, 2024 12:08 pm

Description Area

Mr. Trevor Martin
Los Angeles City Planning
200 N. Spring Street, Room 763
Los Angeles, CA 90012
trevor.martin@lacity.org

Re: Chaminade College Preparatory, High School Campus Plan
Case Nos.: CPC-2009-1477-CU-ZV-ZAA-SPR-PA1,
CPC-2023-1254-VZC-HD-ZAD-ZAA, VTT-84101
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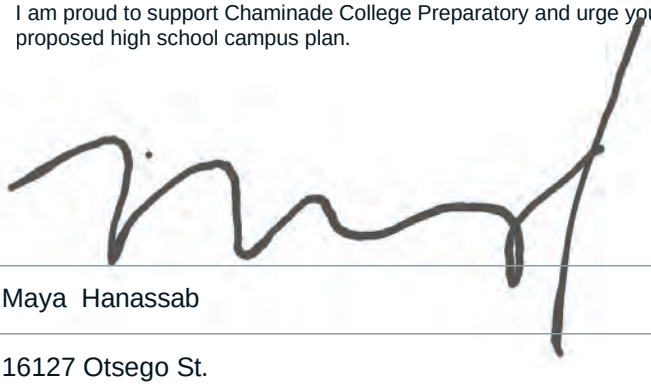
Dear Mr. Martin,

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I am proud to support Chaminade College Preparatory and urge you to approve their newly proposed high school campus plan.

Signature



Person signing above letter	Maya Hanassab
Address	16127 Otsego St. Encino, CA 91436
Email	mayahanassab@gmail.com

Date submitted	Mar 28, 2024 12:07:40 PM

Form Name: North Campus Letter of Support
Submission Time: March 28, 2024 12:11 pm

Description Area

Mr. Trevor Martin
Los Angeles City Planning
200 N. Spring Street, Room 763
Los Angeles, CA 90012
trevor.martin@lacity.org

Re: Chaminade College Preparatory, High School Campus Plan
Case Nos.: CPC-2009-1477-CU-ZV-ZAA-SPR-PA1,
CPC-2023-1254-VZC-HD-ZAD-ZAA, VTT-84101
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Dear Mr. Martin,

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I am proud to support Chaminade College Preparatory and urge you to approve their newly proposed high school campus plan.

Signature



Person signing above letter	Peppi Schwartz
Address	4569 De Celis Place Encino, CA 91436
Email	PEPPISCHWARTZ@ICLOUD.COM
Date submitted	Mar 28, 2024 12:10:15 PM

Form Name: North Campus Letter of Support
Submission Time: March 28, 2024 12:12 pm

Description Area

Mr. Trevor Martin
Los Angeles City Planning
200 N. Spring Street, Room 763
Los Angeles, CA 90012
trevor.martin@lacity.org

Re: Chaminade College Preparatory, High School Campus Plan
Case Nos.: CPC-2009-1477-CU-ZV-ZAA-SPR-PA1,
CPC-2023-1254-VZC-HD-ZAD-ZAA, VTT-84101
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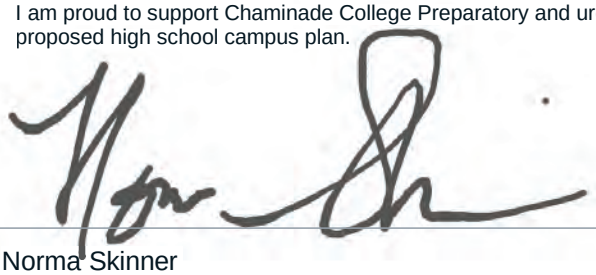
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I am proud to support Chaminade College Preparatory and urge you to approve their newly proposed high school campus plan.

Signature



Person signing above letter	Norma Skinner
Address	1728 Meander Dr Simi Valley, CA 93065
Email	caddos31@roadrunner.com

Date submitted	Mar 28, 2024 12:11:17 PM

Form Name: North Campus Letter of Support
Submission Time: March 28, 2024 12:16 pm

Description Area

Mr. Trevor Martin
Los Angeles City Planning
200 N. Spring Street, Room 763
Los Angeles, CA 90012
trevor.martin@lacity.org

Re: Chaminade College Preparatory, High School Campus Plan
Case Nos.: CPC-2009-1477-CU-ZV-ZAA-SPR-PA1,
CPC-2023-1254-VZC-HD-ZAD-ZAA, VTT-84101
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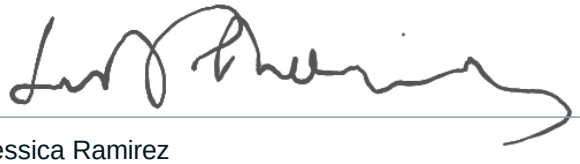
Dear Mr. Martin,

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I am proud to support Chaminade College Preparatory and urge you to approve their newly proposed high school campus plan.

Signature



Person signing above letter	Jessica Ramirez
Address	2596 Los Arcos Circle Thousand Oaks, CA 91360
Email	jessicar0727@icloud.com
Date submitted	Mar 28, 2024 12:14:59 PM

Form Name: North Campus Letter of Support
Submission Time: March 28, 2024 12:16 pm

Description Area

Mr. Trevor Martin
Los Angeles City Planning
200 N. Spring Street, Room 763
Los Angeles, CA 90012
trevor.martin@lacity.org

Re: Chaminade College Preparatory, High School Campus Plan
Case Nos.: CPC-2009-1477-CU-ZV-ZAA-SPR-PA1,
CPC-2023-1254-VZC-HD-ZAD-ZAA, VTT-84101
Project Address: 7500 Chaminade Avenue, 23241 Cohasset Street & 23260 Saticoy Street, 23217-23255 Saticoy Street & 7619-7629 Woodlake Avenue

Dear Mr. Martin,

I support Chaminade College Preparatory's new high school campus plan which will modernize and upgrade the existing campus facilities with new administrative, counseling, library, multi-purpose, classroom and laboratory areas and a new student quad, and will create quality athletic and parking facilities on the new North Campus. I also strongly support the proposed pedestrian bridge, which will connect the Main Campus with the North Campus as an essential safety element of the campus.

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I am proud to support Chaminade College Preparatory and urge you to approve their newly proposed high school campus plan.

Signature



Person signing above letter	Andrew Slavin
Address	3515 Washington Blvd Unit 315 Arlington, VA 22201
Email	andymslavin@gmail.com

Date submitted Mar 28, 2024 03:14:32 PM

Form Name: North Campus Letter of Support
Submission Time: March 28, 2024 12:21 pm

Description Area

Mr. Trevor Martin
Los Angeles City Planning
200 N. Spring Street, Room 763
Los Angeles, CA 90012
trevor.martin@lacity.org

Re: Chaminade College Preparatory, High School Campus Plan
Case Nos.: CPC-2009-1477-CU-ZV-ZAA-SPR-PA1,
CPC-2023-1254-VZC-HD-ZAD-ZAA, VTT-84101
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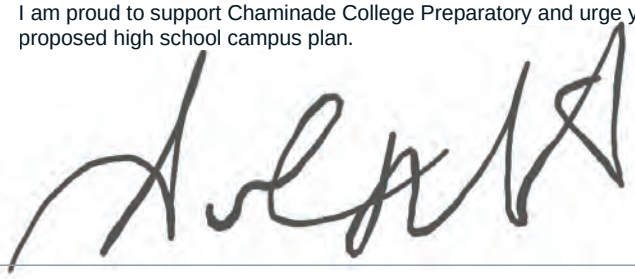
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Signature



Person signing above letter	Angel Sotelo
Address	12013 Youngdale Ave Sylmar, CA 91342
Email	aaanm45@gmail.com

Date submitted	Mar 28, 2024 12:19:43 PM

Form Name: North Campus Letter of Support
Submission Time: March 28, 2024 12:24 pm

Description Area

Mr. Trevor Martin
Los Angeles City Planning
200 N. Spring Street, Room 763
Los Angeles, CA 90012
trevor.martin@lacity.org

Re: Chaminade College Preparatory, High School Campus Plan
Case Nos.: CPC-2009-1477-CU-ZV-ZAA-SPR-PA1,
CPC-2023-1254-VZC-HD-ZAD-ZAA, VTT-84101
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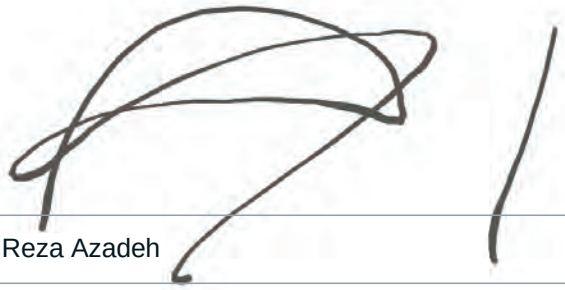
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Signature



Person signing above letter	Reza Azadeh
Address	10738 Baile Ave Chatsworth, CA 91311
Email	2124617@gmx.com

Date submitted	Mar 28, 2024 12:24:19 PM

Form Name: North Campus Letter of Support
Submission Time: March 28, 2024 12:26 pm

Description Area

Mr. Trevor Martin
Los Angeles City Planning
200 N. Spring Street, Room 763
Los Angeles, CA 90012
trevor.martin@lacity.org

Re: Chaminade College Preparatory, High School Campus Plan
Case Nos.: CPC-2009-1477-CU-ZV-ZAA-SPR-PA1,
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Signature



Person signing above letter	Gisel Loera
Address	19750 Vintage St Chatsworth , CA 91311
Email	giselloera1@yahoo.com
Date submitted	Mar 28, 2024 12:25:15 PM

Form Name: North Campus Letter of Support
Submission Time: March 28, 2024 12:27 pm

Description Area

Mr. Trevor Martin
Los Angeles City Planning
200 N. Spring Street, Room 763
Los Angeles, CA 90012
trevor.martin@lacity.org

Re: Chaminade College Preparatory, High School Campus Plan
Case Nos.: CPC-2009-1477-CU-ZV-ZAA-SPR-PA1,
CPC-2023-1254-VZC-HD-ZAD-ZAA, VTT-84101
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Signature



Person signing above letter	Roxana Todd
Address	22356 Gilmore Street Woodland Hills, CA 91303
Email	rpiaskowski83@gmail.com
Date submitted	Mar 28, 2024 12:26:58 PM

Form Name: North Campus Letter of Support
Submission Time: March 28, 2024 12:35 pm

Description Area

Mr. Trevor Martin
Los Angeles City Planning
200 N. Spring Street, Room 763
Los Angeles, CA 90012
trevor.martin@lacity.org

Re: Chaminade College Preparatory, High School Campus Plan
Case Nos.: CPC-2009-1477-CU-ZV-ZAA-SPR-PA1,
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Signature



Person signing above letter	Andrea Yolo
Address	19451 Mayall St Northridge, CA 91324
Email	andrea.yolo@gmail.com
Date submitted	Mar 28, 2024 12:34:16 PM

Form Name: North Campus Letter of Support
Submission Time: March 28, 2024 12:36 pm

Description Area

Mr. Trevor Martin
Los Angeles City Planning
200 N. Spring Street, Room 763
Los Angeles, CA 90012
trevor.martin@lacity.org

Re: Chaminade College Preparatory, High School Campus Plan
Case Nos.: CPC-2009-1477-CU-ZV-ZAA-SPR-PA1,
CPC-2023-1254-VZC-HD-ZAD-ZAA, VTT-84101
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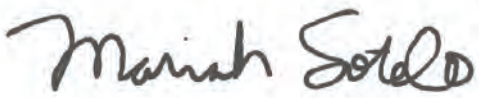
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Signature



Person signing above letter	Mariah Sotelo
Address	12013 Youngdale Ave Sylmar, CA 91342
Email	mariahsotelo55@gmail.com
Date submitted	Mar 28, 2024 12:35:42 PM

Form Name: North Campus Letter of Support
Submission Time: March 28, 2024 12:37 pm

Description Area

Mr. Trevor Martin
Los Angeles City Planning
200 N. Spring Street, Room 763
Los Angeles, CA 90012
trevor.martin@lacity.org

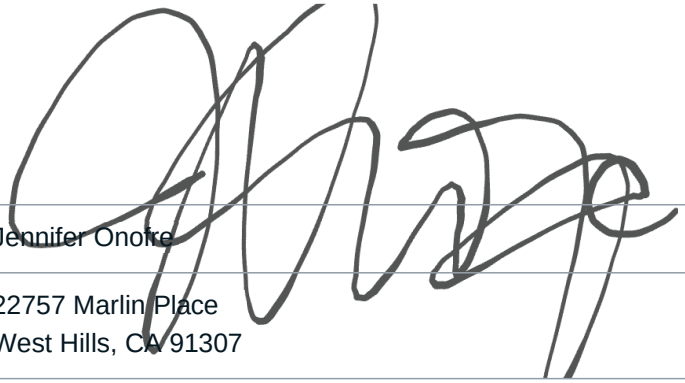
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Signature	
Person signing above letter	Jennifer Onofre
Address	22757 Marlin Place West Hills, CA 91307
Email	Jennifer@westcoastrush.com

Date submitted	Mar 28, 2024 12:36:58 PM

Form Name: North Campus Letter of Support
Submission Time: March 27, 2024 1:17 pm

Description Area

Mr. Trevor Martin
Los Angeles City Planning
200 N. Spring Street, Room 763
Los Angeles, CA 90012
trevor.martin@lacity.org

Re: Chaminade College Preparatory, High School Campus Plan
Case Nos.: CPC-2009-1477-CU-ZV-ZAA-SPR-PA1,
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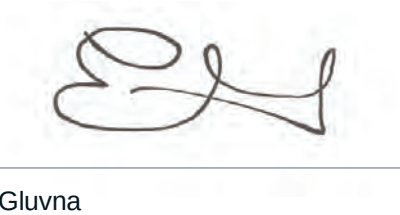
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Signature



Person signing above letter	Elizabeth Gluvna
Address	9255 Forbes Avenue Northridge, CA 91343
Email	egluvna@chaminade.org
Date submitted	Mar 27, 2024 01:16:43 PM

Form Name: North Campus Letter of Support
Submission Time: March 28, 2024 12:50 pm

Description Area

Mr. Trevor Martin
Los Angeles City Planning
200 N. Spring Street, Room 763
Los Angeles, CA 90012
trevor.martin@lacity.org

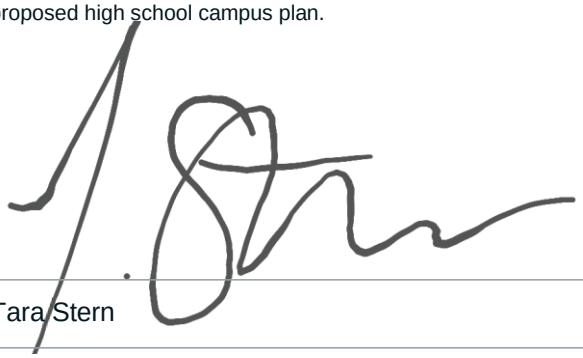
Re: Chaminade College Preparatory, High School Campus Plan
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Signature	
Person signing above letter	Tara Stern
Address	4294 Coldwater Canyon #1 Studio City, CA 91604
Email	chiefyelloweyes@gmail.com
Date submitted	Mar 28, 2024 12:49:58 PM

Form Name: North Campus Letter of Support
Submission Time: March 28, 2024 12:55 pm

Description Area

Mr. Trevor Martin
Los Angeles City Planning
200 N. Spring Street, Room 763
Los Angeles, CA 90012
trevor.martin@lacity.org

Re: Chaminade College Preparatory, High School Campus Plan
Case Nos.: CPC-2009-1477-CU-ZV-ZAA-SPR-PA1,
CPC-2023-1254-VZC-HD-ZAD-ZAA, VTT-84101
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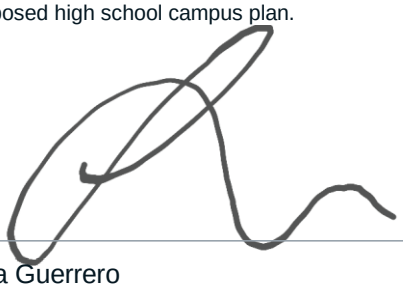
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Signature



Person signing above letter	Perla Guerrero
Address	4562 N ASHTREE ST MOORPARK, CA 93021
Email	perlallamas82@gmail.com
Date submitted	Mar 28, 2024 12:54:34 PM

Form Name: North Campus Letter of Support
Submission Time: March 28, 2024 12:56 pm

Description Area

Mr. Trevor Martin
Los Angeles City Planning
200 N. Spring Street, Room 763
Los Angeles, CA 90012
trevor.martin@lacity.org

Re: Chaminade College Preparatory, High School Campus Plan
Case Nos.: CPC-2009-1477-CU-ZV-ZAA-SPR-PA1,
CPC-2023-1254-VZC-HD-ZAD-ZAA, VTT-84101
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I am proud to support Chaminade College Preparatory and urge you to approve their newly proposed high school campus plan.

Signature



Person signing above letter	Julissa McBride
Address	20929 Ventura Blvd. Suite 47-462 Woodland Hills, CA 91364
Email	Julissanyc@ymail.com

Date submitted Mar 28, 2024 12:54:36 PM

Form Name: North Campus Letter of Support
Submission Time: March 28, 2024 1:07 pm

Description Area

Mr. Trevor Martin
Los Angeles City Planning
200 N. Spring Street, Room 763
Los Angeles, CA 90012
trevor.martin@lacity.org

Re: Chaminade College Preparatory, High School Campus Plan
Case Nos.: CPC-2009-1477-CU-ZV-ZAA-SPR-PA1,
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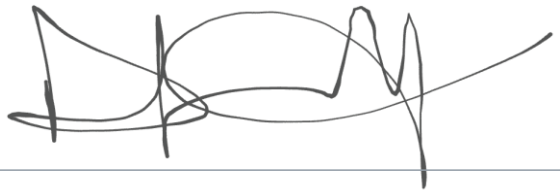
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I am proud to support Chaminade College Preparatory and urge you to approve their newly proposed high school campus plan.

Signature



Person signing above letter	David Hughes
Address	23900 Stagg St West Hills, CA 91304
Email	b_nelson11@hotmail.com
Date submitted	Mar 28, 2024 01:07:19 PM

Form Name: North Campus Letter of Support
Submission Time: March 28, 2024 1:09 pm

Description Area

Mr. Trevor Martin
Los Angeles City Planning
200 N. Spring Street, Room 763
Los Angeles, CA 90012
trevor.martin@lacity.org

Re: Chaminade College Preparatory, High School Campus Plan
Case Nos.: CPC-2009-1477-CU-ZV-ZAA-SPR-PA1,
CPC-2023-1254-VZC-HD-ZAD-ZAA, VTT-84101
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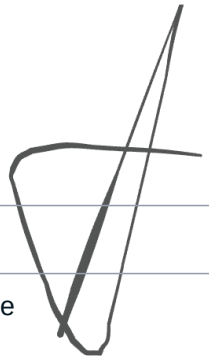
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I am proud to support Chaminade College Preparatory and urge you to approve their newly proposed high school campus plan.

Signature



Person signing above letter	Cesar Tejeda
Address	2655 Deerwood Avenue Simi Valley, CA 93065
Email	Ctejeda2413@gmail.com

Date submitted	Mar 28, 2024 01:07:54 PM

Form Name: North Campus Letter of Support
Submission Time: March 28, 2024 1:13 pm

Description Area

Mr. Trevor Martin
Los Angeles City Planning
200 N. Spring Street, Room 763
Los Angeles, CA 90012
trevor.martin@lacity.org

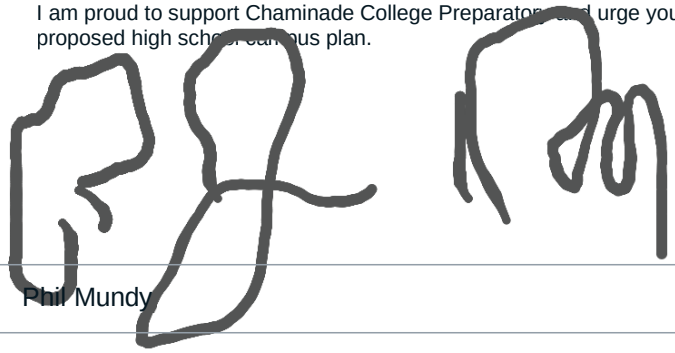
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I am proud to support Chaminade College Preparatory and urge you to approve their newly proposed high school campus plan.

Signature	
Person signing above letter	Phil Mundy
Address	24115 Saint Andrews Lane Calabasas, CA 91302
Email	Phil@mundymed.com
Date submitted	Mar 28, 2024 01:10:11 PM

Form Name: North Campus Letter of Support
Submission Time: March 28, 2024 1:34 pm

Description Area

Mr. Trevor Martin
Los Angeles City Planning
200 N. Spring Street, Room 763
Los Angeles, CA 90012
trevor.martin@lacity.org

Re: Chaminade College Preparatory, High School Campus Plan
Case Nos.: CPC-2009-1477-CU-ZV-ZAA-SPR-PA1,
CPC-2023-1254-VZC-HD-ZAD-ZAA, VTT-84101
Project Address: 7500 Chaminade Avenue, 23241 Cohasset Street & 23260 Saticoy Street, 23217-23255 Saticoy Street & 7619-7629 Woodlake Avenue

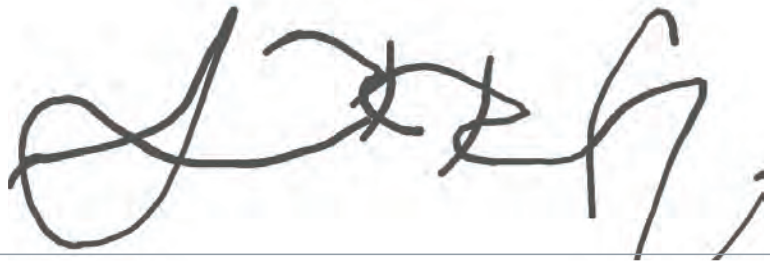
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Signature



Person signing above letter	April Risteff
Address	23251 Victory Blvd West Hills, CA 91307
Email	udbuddha@yahoo.com
Date submitted	Mar 28, 2024 01:33:29 PM

Form Name: North Campus Letter of Support
Submission Time: March 28, 2024 1:34 pm

Description Area

Mr. Trevor Martin
Los Angeles City Planning
200 N. Spring Street, Room 763
Los Angeles, CA 90012
trevor.martin@lacity.org

Re: Chaminade College Preparatory, High School Campus Plan
Case Nos.: CPC-2009-1477-CU-ZV-ZAA-SPR-PA1,
CPC-2023-1254-VZC-HD-ZAD-ZAA, VTT-84101
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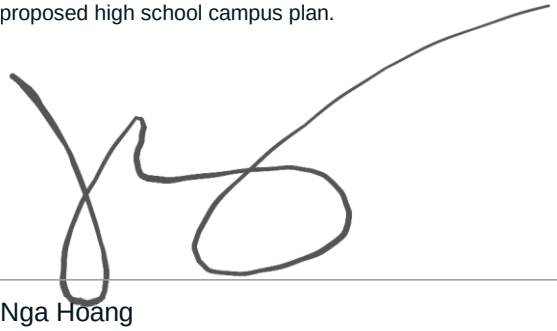
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Signature



Person signing above letter	Nga Hoang
Address	22433 N Summit Ridge Cir Chatsworth, CA 91311
Email	monet09@aol.com
Date submitted	Mar 28, 2024 01:33:49 PM

Form Name: North Campus Letter of Support
Submission Time: March 28, 2024 1:36 pm

Description Area

Mr. Trevor Martin
Los Angeles City Planning
200 N. Spring Street, Room 763
Los Angeles, CA 90012
trevor.martin@lacity.org

Re: Chaminade College Preparatory, High School Campus Plan
Case Nos.: CPC-2009-1477-CU-ZV-ZAA-SPR-PA1,
CPC-2023-1254-VZC-HD-ZAD-ZAA, VTT-84101
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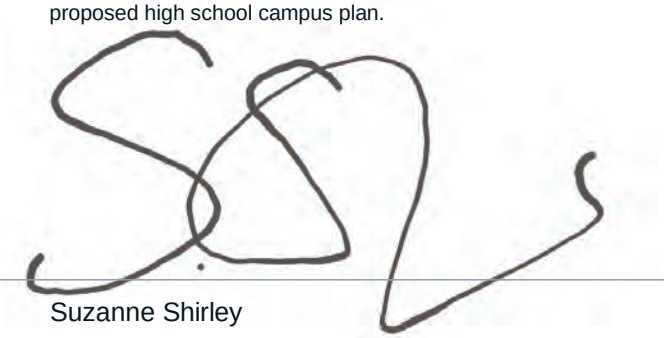
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Signature



Person signing above letter	Suzanne Shirley
Address	10341 Debra Ave Granada Hills, CA 91344
Email	stardiff223@yahoo.com
Date submitted	Mar 28, 2024 01:35:45 PM

Form Name: North Campus Letter of Support
Submission Time: March 28, 2024 1:59 pm

Description Area

Mr. Trevor Martin
Los Angeles City Planning
200 N. Spring Street, Room 763
Los Angeles, CA 90012
trevor.martin@lacity.org

Re: Chaminade College Preparatory, High School Campus Plan
Case Nos.: CPC-2009-1477-CU-ZV-ZAA-SPR-PA1,
CPC-2023-1254-VZC-HD-ZAD-ZAA, VTT-84101
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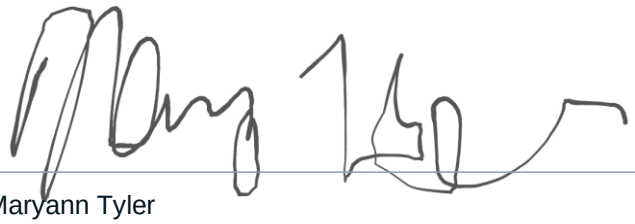
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Signature



Person signing above letter	Maryann Tyler
Address	1996 Glentana St Simi Valley, CA 93065
Email	maryann.tyler@compass.com
Date submitted	Mar 28, 2024 01:59:03 PM

Form Name: North Campus Letter of Support
Submission Time: March 28, 2024 2:03 pm

Description Area

Mr. Trevor Martin
Los Angeles City Planning
200 N. Spring Street, Room 763
Los Angeles, CA 90012
trevor.martin@lacity.org

Re: Chaminade College Preparatory, High School Campus Plan
Case Nos.: CPC-2009-1477-CU-ZV-ZAA-SPR-PA1,
CPC-2023-1254-VZC-HD-ZAD-ZAA, VTT-84101
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Signature



Person signing above letter Ashley Parisi

Address 73 Triangle St
Thousand Oaks, CA 91360

Email ashleyaparisi@yahoo.com

Date submitted Mar 28, 2024 02:02:47 PM

Form Name: North Campus Letter of Support
Submission Time: March 28, 2024 2:11 pm

Description Area

Mr. Trevor Martin
Los Angeles City Planning
200 N. Spring Street, Room 763
Los Angeles, CA 90012
trevor.martin@lacity.org

Re: Chaminade College Preparatory, High School Campus Plan
Case Nos.: CPC-2009-1477-CU-ZV-ZAA-SPR-PA1,
CPC-2023-1254-VZC-HD-ZAD-ZAA, VTT-84101
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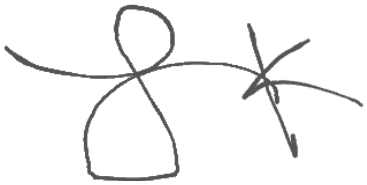
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Signature



Person signing above letter	Tracey Kavanagh
Address	12959 WOODBRIDGE ST STUDIO CITY, CA 91604-1455
Email	heytraceykavanagh@gmail.com
Date submitted	Mar 28, 2024 02:11:28 PM

Form Name: North Campus Letter of Support
Submission Time: March 28, 2024 2:22 pm

Description Area

Mr. Trevor Martin
Los Angeles City Planning
200 N. Spring Street, Room 763
Los Angeles, CA 90012
trevor.martin@lacity.org

Re: Chaminade College Preparatory, High School Campus Plan
Case Nos.: CPC-2009-1477-CU-ZV-ZAA-SPR-PA1,
CPC-2023-1254-VZC-HD-ZAD-ZAA, VTT-84101
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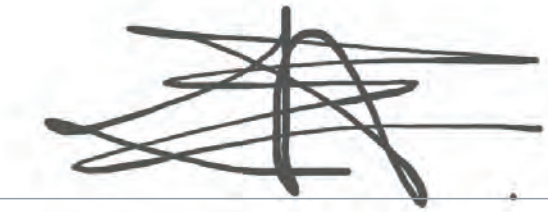
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Signature



Person signing above letter	Jennifer Kenna
Address	4542 Irvine Ave Studio City, CA 91602
Email	jennifer_kenna@hotmail.com

Date submitted	Mar 28, 2024 02:20:52 PM

Form Name: North Campus Letter of Support
Submission Time: March 28, 2024 2:50 pm

Description Area

Mr. Trevor Martin
Los Angeles City Planning
200 N. Spring Street, Room 763
Los Angeles, CA 90012
trevor.martin@lacity.org

Re: Chaminade College Preparatory, High School Campus Plan
Case Nos.: CPC-2009-1477-CU-ZV-ZAA-SPR-PA1,
CPC-2023-1254-VZC-HD-ZAD-ZAA, VTT-84101
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I am proud to support Chaminade College Preparatory and urge you to approve their newly proposed high school campus plan.

Signature



Person signing above letter	Michael Heard
Address	1703 Oak Drive Topanga, CA 90290
Email	Heardistheword@hotmail.com
Date submitted	Mar 28, 2024 02:50:14 PM

Form Name: North Campus Letter of Support
Submission Time: March 28, 2024 2:51 pm

Description Area

Mr. Trevor Martin
Los Angeles City Planning
200 N. Spring Street, Room 763
Los Angeles, CA 90012
trevor.martin@lacity.org

Re: Chaminade College Preparatory, High School Campus Plan
Case Nos.: CPC-2009-1477-CU-ZV-ZAA-SPR-PA1,
CPC-2023-1254-VZC-HD-ZAD-ZAA, VTT-84101
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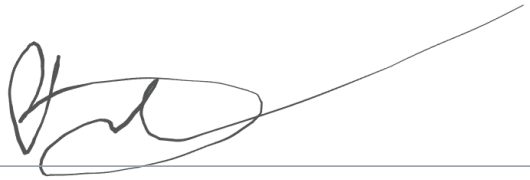
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Signature



Person signing above letter	Brandi Cirlin
Address	21311 CELTIC ST CHATSWORTH, CA 91311
Email	brandi.cirlin@att.net
Date submitted	Mar 28, 2024 02:50:38 PM

Form Name: North Campus Letter of Support
Submission Time: March 28, 2024 2:57 pm

Description Area

Mr. Trevor Martin
Los Angeles City Planning
200 N. Spring Street, Room 763
Los Angeles, CA 90012
trevor.martin@lacity.org

Re: Chaminade College Preparatory, High School Campus Plan
Case Nos.: CPC-2009-1477-CU-ZV-ZAA-SPR-PA1,
CPC-2023-1254-VZC-HD-ZAD-ZAA, VTT-84101
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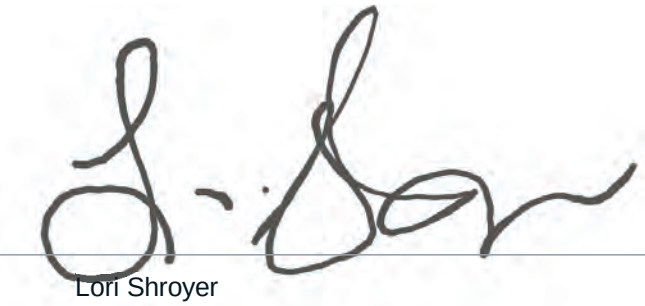
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Signature



Person signing above letter	Lori Shroyer
Address	23625 Arminta St West Hills, CA 91304
Email	4shroyers@gmail.com
Date submitted	Mar 28, 2024 02:56:13 PM

Form Name: North Campus Letter of Support
Submission Time: March 28, 2024 3:00 pm

Description Area

Mr. Trevor Martin
Los Angeles City Planning
200 N. Spring Street, Room 763
Los Angeles, CA 90012
trevor.martin@lacity.org

Re: Chaminade College Preparatory, High School Campus Plan
Case Nos.: CPC-2009-1477-CU-ZV-ZAA-SPR-PA1,
CPC-2023-1254-VZC-HD-ZAD-ZAA, VTT-84101
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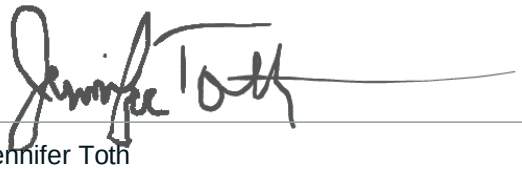
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Signature



Person signing above letter	Jennifer Toth
Address	9755 Kessler Ave Chatsworth, CA 91311
Email	jennifertoth22@gmail.com
Date submitted	Mar 28, 2024 02:58:59 PM

Form Name: North Campus Letter of Support
Submission Time: March 28, 2024 3:05 pm

Description Area

Mr. Trevor Martin
Los Angeles City Planning
200 N. Spring Street, Room 763
Los Angeles, CA 90012
trevor.martin@lacity.org

Re: Chaminade College Preparatory, High School Campus Plan
Case Nos.: CPC-2009-1477-CU-ZV-ZAA-SPR-PA1,
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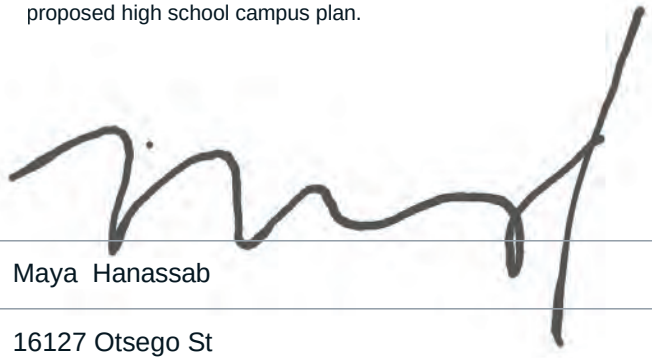
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Signature



Person signing above letter	Maya Hanassab
Address	16127 Otsego St Encino, CA 91436
Email	mayahanassab@gmail.com

Date submitted	Mar 28, 2024 12:07:40 PM

Form Name: North Campus Letter of Support
Submission Time: March 28, 2024 3:09 pm

Description Area

Mr. Trevor Martin
Los Angeles City Planning
200 N. Spring Street, Room 763
Los Angeles, CA 90012
trevor.martin@lacity.org

Re: Chaminade College Preparatory, High School Campus Plan
Case Nos.: CPC-2009-1477-CU-ZV-ZAA-SPR-PA1,
CPC-2023-1254-VZC-HD-ZAD-ZAA, VTT-84101
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I am proud to support Chaminade College Preparatory and urge you to approve their newly proposed high school campus plan.

Signature



Person signing above letter	Ashley Parisi
Address	73 Triangle St Thousand Oaks, CA 91360
Email	ashleyaparisi@yahoo.com
Date submitted	Mar 28, 2024 02:02:47 PM

Form Name: North Campus Letter of Support
Submission Time: March 28, 2024 3:19 pm

Description Area

Mr. Trevor Martin
Los Angeles City Planning
200 N. Spring Street, Room 763
Los Angeles, CA 90012
trevor.martin@lacity.org

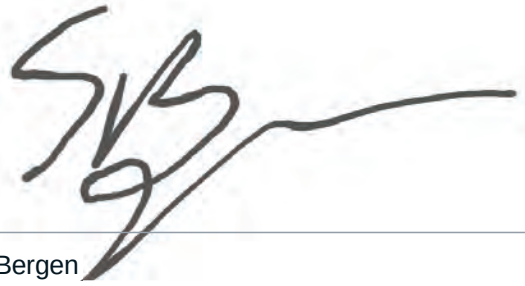
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I am proud to support Chaminade College Preparatory and urge you to approve their newly proposed high school campus plan.

Signature	
Person signing above letter	Scott Bergen
Address	26967 Calamine Dr. Calabasas, CA 91301
Email	scottbergen@yahoo.com
Date submitted	Mar 28, 2024 03:18:08 PM

Form Name: North Campus Letter of Support
Submission Time: March 28, 2024 3:23 pm

Description Area

Mr. Trevor Martin
Los Angeles City Planning
200 N. Spring Street, Room 763
Los Angeles, CA 90012
trevor.martin@lacity.org

Re: Chaminade College Preparatory, High School Campus Plan
Case Nos.: CPC-2009-1477-CU-ZV-ZAA-SPR-PA1,
CPC-2023-1254-VZC-HD-ZAD-ZAA, VTT-84101
Project Address: 7500 Chaminade Avenue, 23241 Cohasset Street & 23260 Saticoy Street, 23217-23255 Saticoy Street & 7619-7629 Woodlake Avenue

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Signature	
Person signing above letter	Tracy Samek
Address	4839 Oak Park Ave Encino, CA 91316
Email	tracysamek@gmail.com
Date submitted	Mar 28, 2024 03:22:14 PM

Form Name: North Campus Letter of Support
Submission Time: March 28, 2024 3:33 pm

Description Area

Mr. Trevor Martin
Los Angeles City Planning
200 N. Spring Street, Room 763
Los Angeles, CA 90012
trevor.martin@lacity.org

Re: Chaminade College Preparatory, High School Campus Plan
Case Nos.: CPC-2009-1477-CU-ZV-ZAA-SPR-PA1,
CPC-2023-1254-VZC-HD-ZAD-ZAA, VTT-84101
Project Address: 7500 Chaminade Avenue, 23241 Cohasset Street & 23260 Saticoy Street, 23217-23255 Saticoy Street & 7619-7629 Woodlake Avenue

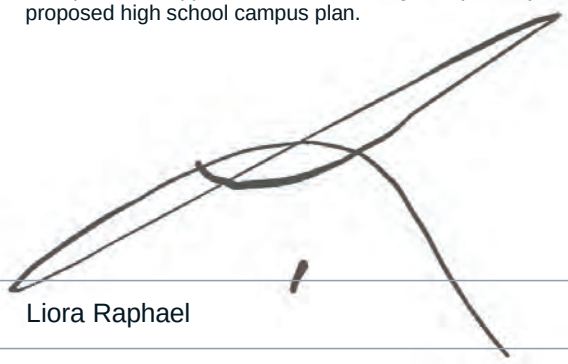
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Signature



Person signing above letter	Liora Raphael
Address	4456 Romero Dr Tarzana, CA 91356
Email	les1441@gmail.com

Date submitted Mar 28, 2024 03:33:18 PM

Form Name: North Campus Letter of Support
Submission Time: March 28, 2024 3:56 pm

Description Area

Mr. Trevor Martin
Los Angeles City Planning
200 N. Spring Street, Room 763
Los Angeles, CA 90012
trevor.martin@lacity.org

Re: Chaminade College Preparatory, High School Campus Plan
Case Nos.: CPC-2009-1477-CU-ZV-ZAA-SPR-PA1,
CPC-2023-1254-VZC-HD-ZAD-ZAA, VTT-84101
Project Address: 7500 Chaminade Avenue, 23241 Cohasset Street & 23260 Saticoy Street, 23217-23255 Saticoy Street & 7619-7629 Woodlake Avenue

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Signature



Person signing above letter	Charles Lee
Address	18744 Kenya Street Porter Ranch , CA 91326
Email	char3302002@yahoo.com
Date submitted	Mar 28, 2024 12:54:58 PM

Form Name: North Campus Letter of Support
Submission Time: March 28, 2024 5:08 pm

Description Area

Mr. Trevor Martin
Los Angeles City Planning
200 N. Spring Street, Room 763
Los Angeles, CA 90012
trevor.martin@lacity.org

Re: Chaminade College Preparatory, High School Campus Plan
Case Nos.: CPC-2009-1477-CU-ZV-ZAA-SPR-PA1,
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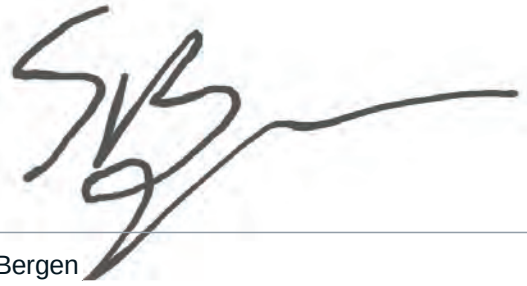
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Signature



Person signing above letter	Scott Bergen
Address	26967 Calamine Dr. Calabasas, CA 91301
Email	scottbergen@yahoo.com
Date submitted	Mar 28, 2024 03:18:08 PM

Form Name: North Campus Letter of Support
Submission Time: March 28, 2024 6:36 pm

Description Area

Mr. Trevor Martin
Los Angeles City Planning
200 N. Spring Street, Room 763
Los Angeles, CA 90012
trevor.martin@lacity.org

Re: Chaminade College Preparatory, High School Campus Plan
Case Nos.: CPC-2009-1477-CU-ZV-ZAA-SPR-PA1,
CPC-2023-1254-VZC-HD-ZAD-ZAA, VTT-84101
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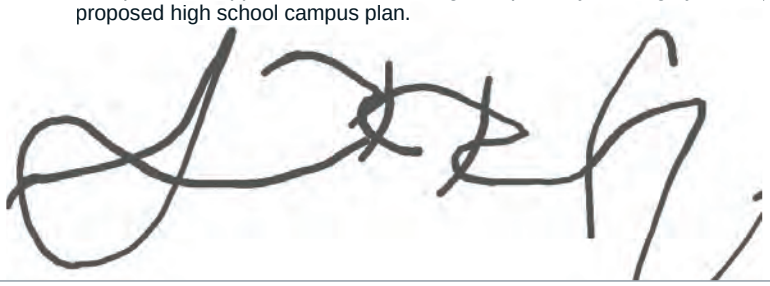
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Signature



Person signing above letter	April Risteff
Address	23251 Victory Blvd West Hills, CA 91307
Email	udbuddha@yahoo.com

Date submitted Mar 28, 2024 01:33:29 PM

Form Name: North Campus Letter of Support
Submission Time: March 28, 2024 6:36 pm

Description Area

Mr. Trevor Martin
Los Angeles City Planning
200 N. Spring Street, Room 763
Los Angeles, CA 90012
trevor.martin@lacity.org

Re: Chaminade College Preparatory, High School Campus Plan
Case Nos.: CPC-2009-1477-CU-ZV-ZAA-SPR-PA1,
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Signature



Person signing above letter	Adina Zaharescu
Address	4351 La Barca Dr Tarzana, CA 91356
Email	martafoi@sbcglobal.net

Date submitted Mar 28, 2024 06:35:28 PM

Form Name: North Campus Letter of Support
Submission Time: March 28, 2024 6:37 pm

Description Area

Mr. Trevor Martin
Los Angeles City Planning
200 N. Spring Street, Room 763
Los Angeles, CA 90012
trevor.martin@lacity.org

Re: Chaminade College Preparatory, High School Campus Plan
Case Nos.: CPC-2009-1477-CU-ZV-ZAA-SPR-PA1,
CPC-2023-1254-VZC-HD-ZAD-ZAA, VTT-84101
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Signature



Person signing above letter	Niki-Alexander Shetty
Address	20631 Ventura Blvd. Ste. 301 Woodland Hills , CA 91364
Email	chicoo@sbcglobal.net
Date submitted	Mar 28, 2024 06:36:58 PM

Form Name: North Campus Letter of Support
Submission Time: March 28, 2024 7:29 pm

Description Area

Mr. Trevor Martin
Los Angeles City Planning
200 N. Spring Street, Room 763
Los Angeles, CA 90012
trevor.martin@lacity.org

Re: Chaminade College Preparatory, High School Campus Plan
Case Nos.: CPC-2009-1477-CU-ZV-ZAA-SPR-PA1,
CPC-2023-1254-VZC-HD-ZAD-ZAA, VTT-84101
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Signature



Person signing above letter	Shelby Speer
Address	22230 Germain St Unit 7 Chatsworth, CA 91311
Email	mnms.mommy@sbcglobal.net

Date submitted Mar 28, 2024 07:28:17 PM

Form Name: North Campus Letter of Support
Submission Time: March 28, 2024 7:48 pm

Description Area

Mr. Trevor Martin
Los Angeles City Planning
200 N. Spring Street, Room 763
Los Angeles, CA 90012
trevor.martin@lacity.org

Re: Chaminade College Preparatory, High School Campus Plan
Case Nos.: CPC-2009-1477-CU-ZV-ZAA-SPR-PA1,
CPC-2023-1254-VZC-HD-ZAD-ZAA, VTT-84101
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Signature



Person signing above letter	David Toth
Address	9755 Kessler Ave Chatsworth, CA 91311
Email	davidtoth88@hotmail.com
Date submitted	Mar 28, 2024 07:47:15 PM

Form Name: North Campus Letter of Support
Submission Time: March 28, 2024 8:44 pm

Description Area

Mr. Trevor Martin
Los Angeles City Planning
200 N. Spring Street, Room 763
Los Angeles, CA 90012
trevor.martin@lacity.org

Re: Chaminade College Preparatory, High School Campus Plan
Case Nos.: CPC-2009-1477-CU-ZV-ZAA-SPR-PA1,
CPC-2023-1254-VZC-HD-ZAD-ZAA, VTT-84101
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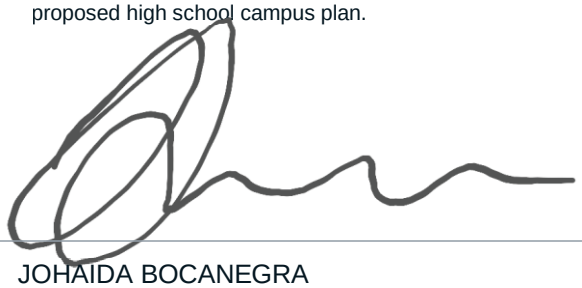
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Signature



Person signing above letter	JOHAIDA BOCANEGRA
Address	11458 Swinton Ave Granada Hills, CA 91344
Email	jobocanegra28@gmail.com
Date submitted	Mar 28, 2024 08:43:53 PM

Form Name: North Campus Letter of Support
Submission Time: March 29, 2024 10:25 am

Description Area

Mr. Trevor Martin
Los Angeles City Planning
200 N. Spring Street, Room 763
Los Angeles, CA 90012
trevor.martin@lacity.org

Re: Chaminade College Preparatory, High School Campus Plan
Case Nos.: CPC-2009-1477-CU-ZV-ZAA-SPR-PA1,
CPC-2023-1254-VZC-HD-ZAD-ZAA, VTT-84101
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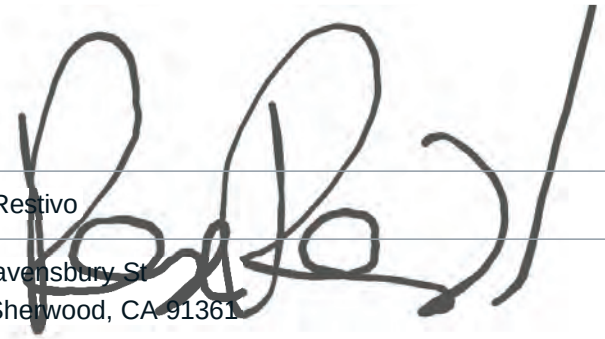
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Signature



Person signing above letter	Rose Restivo
Address	420 Ravensbury St Lake Sherwood, CA 91361
Email	roserestivore@gmail.com

Date submitted	Mar 29, 2024 10:24:28 AM

Form Name: North Campus Letter of Support
Submission Time: March 29, 2024 10:54 am

Description Area

Mr. Trevor Martin
Los Angeles City Planning
200 N. Spring Street, Room 763
Los Angeles, CA 90012
trevor.martin@lacity.org

Re: Chaminade College Preparatory, High School Campus Plan
Case Nos.: CPC-2009-1477-CU-ZV-ZAA-SPR-PA1,
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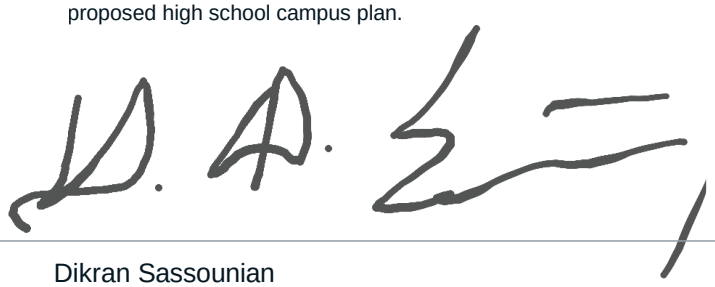
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Signature



Person signing above letter	Dikran Sassounian
Address	20224 Delita Drive W.H., CA 91364
Email	arsenalaw@aol.com

Date submitted Mar 30, 2024 02:53:44 AM

Form Name: North Campus Letter of Support
Submission Time: March 29, 2024 11:32 am

Description Area

Mr. Trevor Martin
Los Angeles City Planning
200 N. Spring Street, Room 763
Los Angeles, CA 90012
trevor.martin@lacity.org

Re: Chaminade College Preparatory, High School Campus Plan
Case Nos.: CPC-2009-1477-CU-ZV-ZAA-SPR-PA1,
CPC-2023-1254-VZC-HD-ZAD-ZAA, VTT-84101
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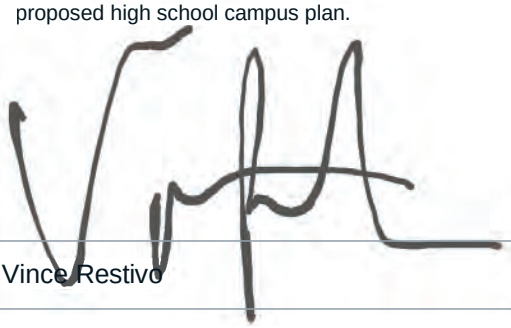
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Signature



Person signing above letter	Vince Restivo
Address	420 Ravensbury St. Lake Sherwood, CA 91361
Email	vrestivo1@aol.com

Date submitted	Mar 29, 2024 11:31:24 AM

Form Name: North Campus Letter of Support
Submission Time: March 29, 2024 12:15 pm

Description Area

Mr. Trevor Martin
Los Angeles City Planning
200 N. Spring Street, Room 763
Los Angeles, CA 90012
trevor.martin@lacity.org

Re: Chaminade College Preparatory, High School Campus Plan
Case Nos.: CPC-2009-1477-CU-ZV-ZAA-SPR-PA1,
CPC-2023-1254-VZC-HD-ZAD-ZAA, VTT-84101
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I am proud to support Chaminade College Preparatory and urge you to approve their newly proposed high school campus plan.

Signature



Person signing above letter	Grayson Meritt
Address	22725 Stagg St West Hills, CA 91304
Email	grayson@offleft.com
Date submitted	Mar 29, 2024 03:14:36 PM

Form Name: North Campus Letter of Support
Submission Time: March 29, 2024 12:53 pm

Description Area

Mr. Trevor Martin
Los Angeles City Planning
200 N. Spring Street, Room 763
Los Angeles, CA 90012
trevor.martin@lacity.org

Re: Chaminade College Preparatory, High School Campus Plan
Case Nos.: CPC-2009-1477-CU-ZV-ZAA-SPR-PA1,
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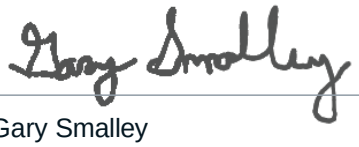
Dear Mr. Martin,

I support Chaminade College Preparatory's new high school campus plan which will modernize and upgrade the existing campus facilities with new administrative, counseling, library, multi-purpose, classroom and laboratory areas and a new student quad, and will create quality athletic and parking facilities on the new North Campus. I also strongly support the proposed pedestrian bridge, which will connect the Main Campus with the North Campus as an essential safety element of the campus.

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I am proud to support Chaminade College Preparatory and urge you to approve their newly proposed high school campus plan.

Signature



Person signing above letter	Gary Smalley
Address	25216 Prado de Rosado Calabasas, CA 91302
Email	ggsmalley1@gmail.com

Date submitted Mar 29, 2024 12:52:03 PM

Form Name: North Campus Letter of Support
Submission Time: March 29, 2024 12:55 pm

Description Area

Mr. Trevor Martin
Los Angeles City Planning
200 N. Spring Street, Room 763
Los Angeles, CA 90012
trevor.martin@lacity.org

Re: Chaminade College Preparatory, High School Campus Plan
Case Nos.: CPC-2009-1477-CU-ZV-ZAA-SPR-PA1,
CPC-2023-1254-VZC-HD-ZAD-ZAA, VTT-84101
Project Address: 7500 Chaminade Avenue, 23241 Cohasset Street & 23260 Saticoy Street, 23217-23255 Saticoy Street & 7619-7629 Woodlake Avenue

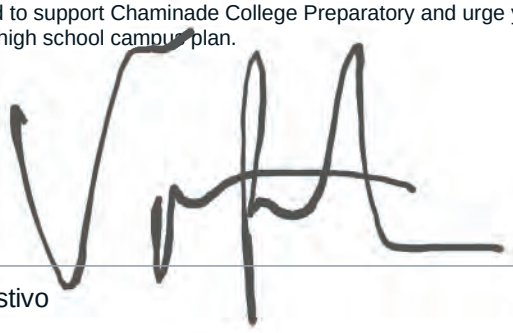
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Signature



Person signing above letter	Vince Restivo
Address	420 Ravensbury St. Lake Sherwood, CA 91361
Email	vrestivo1@aol.com

Date submitted	Mar 29, 2024 11:31:24 AM

Form Name: North Campus Letter of Support
Submission Time: March 29, 2024 1:51 pm

Description Area

Mr. Trevor Martin
Los Angeles City Planning
200 N. Spring Street, Room 763
Los Angeles, CA 90012
trevor.martin@lacity.org

Re: Chaminade College Preparatory, High School Campus Plan
Case Nos.: CPC-2009-1477-CU-ZV-ZAA-SPR-PA1,
CPC-2023-1254-VZC-HD-ZAD-ZAA, VTT-84101
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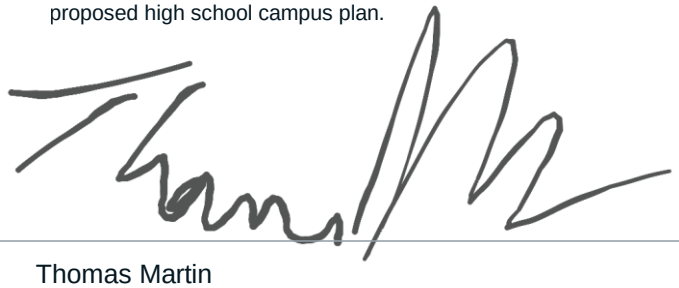
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Signature



Person signing above letter	Thomas Martin
Address	2213 O Street Sacramento, CA 95816
Email	tmmartin99@gmail.com
Date submitted	Mar 29, 2024 01:49:55 PM

Form Name: North Campus Letter of Support
Submission Time: March 29, 2024 3:01 pm

Description Area

Mr. Trevor Martin
Los Angeles City Planning
200 N. Spring Street, Room 763
Los Angeles, CA 90012
trevor.martin@lacity.org

Re: Chaminade College Preparatory, High School Campus Plan
Case Nos.: CPC-2009-1477-CU-ZV-ZAA-SPR-PA1,
CPC-2023-1254-VZC-HD-ZAD-ZAA, VTT-84101
Project Address: 7500 Chaminade Avenue, 23241 Cohasset Street & 23260 Saticoy Street, 23217-23255 Saticoy Street & 7619-7629 Woodlake Avenue

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Signature



Person signing above letter	Daniel Osztreicher
Address	23029 Strathern West Hills, CA 91304
Email	osztreicher.daniel@gmail.com
Date submitted	Mar 29, 2024 02:59:41 PM

Form Name: North Campus Letter of Support
Submission Time: March 29, 2024 5:35 pm

Description Area

Mr. Trevor Martin
Los Angeles City Planning
200 N. Spring Street, Room 763
Los Angeles, CA 90012
trevor.martin@lacity.org

Re: Chaminade College Preparatory, High School Campus Plan
Case Nos.: CPC-2009-1477-CU-ZV-ZAA-SPR-PA1,
CPC-2023-1254-VZC-HD-ZAD-ZAA, VTT-84101
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I am proud to support Chaminade College Preparatory and urge you to approve their newly proposed high school campus plan.

Signature



Person signing above letter	Rob Troy
Address	4833 Dunman Woodland Hills, CA 91364
Email	junkedmail@mac.com
Date submitted	Mar 29, 2024 05:34:31 PM

Form Name: North Campus Letter of Support
Submission Time: March 29, 2024 8:11 pm

Description Area

Mr. Trevor Martin
Los Angeles City Planning
200 N. Spring Street, Room 763
Los Angeles, CA 90012
trevor.martin@lacity.org

Re: Chaminade College Preparatory, High School Campus Plan
Case Nos.: CPC-2009-1477-CU-ZV-ZAA-SPR-PA1,
CPC-2023-1254-VZC-HD-ZAD-ZAA, VTT-84101
Project Address: 7500 Chaminade Avenue, 23241 Cohasset Street & 23260 Saticoy Street, 23217-23255 Saticoy Street & 7619-7629 Woodlake Avenue

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Signature	
Person signing above letter	Gigi Desai
Address	16891 Royal Pines Lane Santa Clarita , CA 91387
Email	gigi521@hotmail.com
Date submitted	Mar 29, 2024 08:09:15 PM

Form Name: North Campus Letter of Support
Submission Time: March 29, 2024 9:52 pm

Description Area

Mr. Trevor Martin
Los Angeles City Planning
200 N. Spring Street, Room 763
Los Angeles, CA 90012
trevor.martin@lacity.org

Re: Chaminade College Preparatory, High School Campus Plan
Case Nos.: CPC-2009-1477-CU-ZV-ZAA-SPR-PA1,
CPC-2023-1254-VZC-HD-ZAD-ZAA, VTT-84101
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Signature



Person signing above letter	Nicholas Collatos
Address	22625 Strathern St. West Hills , CA 91304
Email	niccollatos@yahoo.com
Date submitted	Mar 29, 2024 09:48:59 PM

Form Name: North Campus Letter of Support
Submission Time: March 30, 2024 7:35 am

Description Area

Mr. Trevor Martin
Los Angeles City Planning
200 N. Spring Street, Room 763
Los Angeles, CA 90012
trevor.martin@lacity.org

Re: Chaminade College Preparatory, High School Campus Plan
Case Nos.: CPC-2009-1477-CU-ZV-ZAA-SPR-PA1,
CPC-2023-1254-VZC-HD-ZAD-ZAA, VTT-84101
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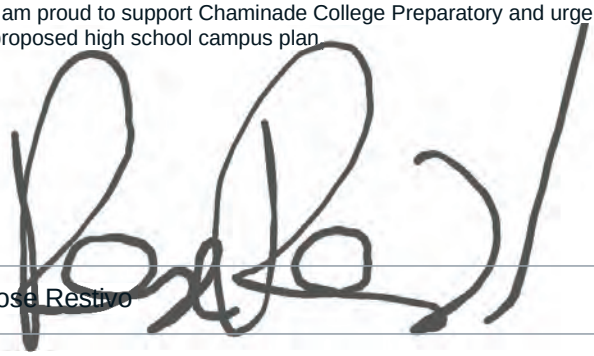
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Signature



Person signing above letter	Rose Restivo
Address	420 Ravensbury St Lake Sherwood, CA 91361
Email	roserestivore@gmail.com

Date submitted	Mar 29, 2024 10:24:28 AM

Form Name: North Campus Letter of Support
Submission Time: March 30, 2024 10:38 am

Description Area

Mr. Trevor Martin
Los Angeles City Planning
200 N. Spring Street, Room 763
Los Angeles, CA 90012
trevor.martin@lacity.org

Re: Chaminade College Preparatory, High School Campus Plan
Case Nos.: CPC-2009-1477-CU-ZV-ZAA-SPR-PA1,
CPC-2023-1254-VZC-HD-ZAD-ZAA, VTT-84101
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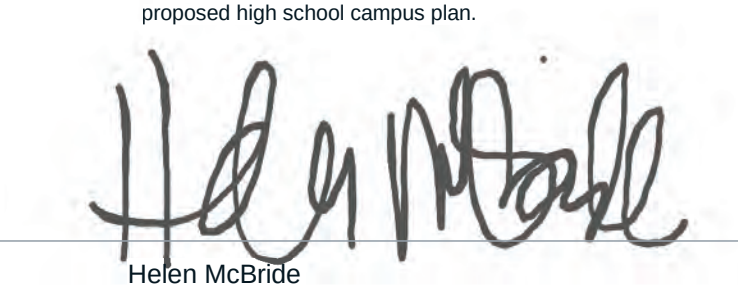
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Signature



Person signing above letter	Helen McBride
Address	4510 Santa Lucia Dr Woodland Hills, CA 91364
Email	hmcbride2000@gmail.com

Date submitted	Mar 30, 2024 07:37:14 AM

Form Name: North Campus Letter of Support
Submission Time: March 31, 2024 8:43 pm

Description Area

Mr. Trevor Martin
Los Angeles City Planning
200 N. Spring Street, Room 763
Los Angeles, CA 90012
trevor.martin@lacity.org

Re: Chaminade College Preparatory, High School Campus Plan
Case Nos.: CPC-2009-1477-CU-ZV-ZAA-SPR-PA1,
CPC-2023-1254-VZC-HD-ZAD-ZAA, VTT-84101
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Signature



Person signing above letter	Sarah Pallet
Address	4426 Canoga Drive Woodland Hills , CA 91364
Email	hellosarahpallett@gmail.com
Date submitted	Mar 31, 2024 08:42:09 PM

Form Name: North Campus Letter of Support
Submission Time: March 31, 2024 9:42 pm

Description Area

Mr. Trevor Martin
Los Angeles City Planning
200 N. Spring Street, Room 763
Los Angeles, CA 90012
trevor.martin@lacity.org

Re: Chaminade College Preparatory, High School Campus Plan
Case Nos.: CPC-2009-1477-CU-ZV-ZAA-SPR-PA1,
CPC-2023-1254-VZC-HD-ZAD-ZAA, VTT-84101
Project Address: 7500 Chaminade Avenue, 23241 Cohasset Street & 23260 Saticoy Street, 23217-23255 Saticoy Street & 7619-7629 Woodlake Avenue

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Signature



Person signing above letter	David Boito
Address	4510 Santa Lucia Drive Woodland Hills, CA 91364
Email	dbto@aol.com
Date submitted	Apr 01, 2024 09:40:13 AM

Form Name: North Campus Letter of Support
Submission Time: April 2, 2024 2:50 pm

Description Area

Mr. Trevor Martin
Los Angeles City Planning
200 N. Spring Street, Room 763
Los Angeles, CA 90012
trevor.martin@lacity.org

Re: Chaminade College Preparatory, High School Campus Plan
Case Nos.: CPC-2009-1477-CU-ZV-ZAA-SPR-PA1,
CPC-2023-1254-VZC-HD-ZAD-ZAA, VTT-84101
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Signature



Person signing above letter	April Ocampo
Address	21731 Rodax St Canoga Park, CA
Email	sonnybgood@gmail.com
Date submitted	Apr 02, 2024 02:48:56 PM

Form Name: North Campus Letter of Support
Submission Time: April 3, 2024 1:09 am

Description Area

Mr. Trevor Martin
Los Angeles City Planning
200 N. Spring Street, Room 763
Los Angeles, CA 90012
trevor.martin@lacity.org

Re: Chaminade College Preparatory, High School Campus Plan
Case Nos.: CPC-2009-1477-CU-ZV-ZAA-SPR-PA1,
CPC-2023-1254-VZC-HD-ZAD-ZAA, VTT-84101
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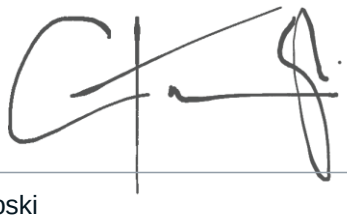
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Signature



Person signing above letter	Chad Tomasoski
Address	5036 San Feliciano Dr. Woodland Hills, CA 91364
Email	chadski4@gmail.com
Date submitted	Apr 03, 2024 10:08:42 AM

Form Name: North Campus Letter of Support
Submission Time: April 4, 2024 2:38 pm

Description Area

Mr. Trevor Martin
Los Angeles City Planning
200 N. Spring Street, Room 763
Los Angeles, CA 90012
trevor.martin@lacity.org

Re: Chaminade College Preparatory, High School Campus Plan
Case Nos.: CPC-2009-1477-CU-ZV-ZAA-SPR-PA1,
CPC-2023-1254-VZC-HD-ZAD-ZAA, VTT-84101
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I am proud to support Chaminade College Preparatory and urge you to approve their newly proposed high school campus plan.

Signature



Person signing above letter	Al Darroch
Address	16901 VOSE ST VAN NUYS, CA 91406
Email	djalvis@tastysounds.com
Date submitted	Apr 04, 2024 02:37:33 PM

Form Name: North Campus Letter of Support
Submission Time: April 6, 2024 9:02 am

Description Area

Mr. Trevor Martin
Los Angeles City Planning
200 N. Spring Street, Room 763
Los Angeles, CA 90012
trevor.martin@lacity.org

Re: Chaminade College Preparatory, High School Campus Plan
Case Nos.: CPC-2009-1477-CU-ZV-ZAA-SPR-PA1,
CPC-2023-1254-VZC-HD-ZAD-ZAA, VTT-84101
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I am proud to support Chaminade College Preparatory and urge you to approve their newly proposed high school campus plan.

Signature



Person signing above letter	Mark DiMuzio
Address	2031 South Bentley Ave. Unit 107 Los Angeles, CA 90025-5649
Email	markdimuzio@yahoo.com
Date submitted	Apr 06, 2024 09:01:52 AM

Form Name: North Campus Letter of Support
Submission Time: April 7, 2024 11:42 pm

Description Area

Mr. Trevor Martin
Los Angeles City Planning
200 N. Spring Street, Room 763
Los Angeles, CA 90012
trevor.martin@lacity.org

Re: Chaminade College Preparatory, High School Campus Plan
Case Nos.: CPC-2009-1477-CU-ZV-ZAA-SPR-PA1,
CPC-2023-1254-VZC-HD-ZAD-ZAA, VTT-84101
Project Address: 7500 Chaminade Avenue, 23241 Cohasset Street & 23260 Saticoy Street, 23217-23255 Saticoy Street & 7619-7629 Woodlake Avenue

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I am proud to support Chaminade College Preparatory and urge you to approve their newly proposed high school campus plan.

Signature



Person signing above letter	Kimberly Bertz
Address	344 DALKEITH AVE LOS ANGELES, CA 90049
Email	kbertz@hotmail.com

Date submitted Apr 07, 2024 11:42:28 PM

Form Name: North Campus Letter of Support
Submission Time: April 7, 2024 11:56 pm

Description Area

Mr. Trevor Martin
Los Angeles City Planning
200 N. Spring Street, Room 763
Los Angeles, CA 90012
trevor.martin@lacity.org

Re: Chaminade College Preparatory, High School Campus Plan
Case Nos.: CPC-2009-1477-CU-ZV-ZAA-SPR-PA1,
CPC-2023-1254-VZC-HD-ZAD-ZAA, VTT-84101
Project Address: 7500 Chaminade Avenue, 23241 Cohasset Street & 23260 Saticoy Street, 23217-23255 Saticoy Street & 7619-7629 Woodlake Avenue

Dear Mr. Martin,

I support Chaminade College Preparatory's new high school campus plan which will modernize and upgrade the existing campus facilities with new administrative, counseling, library, multi-purpose, classroom and laboratory areas and a new student quad, and will create quality athletic and parking facilities on the new North Campus. I also strongly support the proposed pedestrian bridge, which will connect the Main Campus with the North Campus as an essential safety element of the campus.

Chaminade has been an important asset in the West Hills community for the past 60+ years. Allowing the school to proceed with the thoughtfully and sensitively designed campus plan that incorporates top quality educational and athletic facilities will bring great value to our community for years to come. The proposed campus plan will allow for the essential enhancement of the quality education currently offered and will expand upon the wide variety of curricular, co-curricular and extra-curricular programs.

I am proud to support Chaminade College Preparatory and urge you to approve their newly proposed high school campus plan.

Signature



Person signing above letter	Nelly Bertz
Address	25418 Cariz Drive Valecia, CA 91355
Email	bertzees@gmail.com
Date submitted	Apr 07, 2024 11:53:30 PM

Form Name: North Campus Letter of Support
Submission Time: April 8, 2024 10:54 am

Description Area

Mr. Trevor Martin
Los Angeles City Planning
200 N. Spring Street, Room 763
Los Angeles, CA 90012
trevor.martin@lacity.org

Re: Chaminade College Preparatory, High School Campus Plan
Case Nos.: CPC-2009-1477-CU-ZV-ZAA-SPR-PA1,
CPC-2023-1254-VZC-HD-ZAD-ZAA, VTT-84101
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I am proud to support Chaminade College Preparatory and urge you to approve their newly proposed high school campus plan.

Signature	
Person signing above letter	Tiffany Chadderton
Address	7422 Cliffside Court West Hills, CA 91307
Email	barbieleggs@gmail.com
Date submitted	Apr 08, 2024 10:53:47 AM

Form Name: North Campus Letter of Support
Submission Time: April 8, 2024 10:56 am

Description Area

Mr. Trevor Martin
Los Angeles City Planning
200 N. Spring Street, Room 763
Los Angeles, CA 90012
trevor.martin@lacity.org

Re: Chaminade College Preparatory, High School Campus Plan
Case Nos.: CPC-2009-1477-CU-ZV-ZAA-SPR-PA1,
CPC-2023-1254-VZC-HD-ZAD-ZAA, VTT-84101
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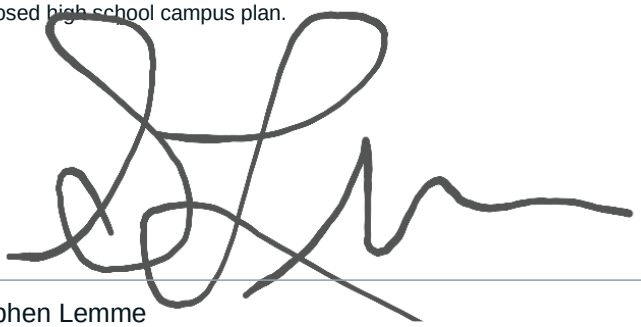
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Signature



Person signing above letter	Stephen Lemme
Address	7422 Cliffside Court West Hills, CA 91307
Email	joystink@aol.com
Date submitted	Apr 08, 2024 10:55:23 AM

Form Name: North Campus Letter of Support
Submission Time: April 14, 2024 5:28 pm

Description Area

Mr. Trevor Martin
Los Angeles City Planning
200 N. Spring Street, Room 763
Los Angeles, CA 90012
trevor.martin@lacity.org

Re: Chaminade College Preparatory, High School Campus Plan
Case Nos.: CPC-2009-1477-CU-ZV-ZAA-SPR-PA1,
CPC-2023-1254-VZC-HD-ZAD-ZAA, VTT-84101
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I am proud to support Chaminade College Preparatory and urge you to approve their newly proposed high school campus plan.

Signature



Person signing above letter	Darius Terani
Address	5242 Calatrana Dr Woodland Hills, CA 91364
Email	terani@alumni.usc.edu
Date submitted	Apr 14, 2024 05:27:38 PM

Date: 4-27-2024

Mr. Trevor Martin
Los Angeles City Planning
200 N. Spring Street, Room 763
Los Angeles, CA 90012
trevor.martin@lacity.org

Re: Chaminade College Preparatory, High School Campus Plan
Case Nos.: CPC-2009-1477-CU-ZV-ZAA-SPR-PA1, CPC-2023-1254-VZC-HD-ZAD-ZAA, VTT-84101
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I am proud to support Chaminade College Preparatory and urge you to approve their newly proposed high school campus plan.

Sincerely,

(Signature)

Dawn Manning
(Name)

6355 DeSoto Ave Apt A310 Woodland Hills CA 91367
(Street Address)

(City, State, Zip Code)

producerdawn@gmail.com
(Email Address)

Date: 4-24-24

Mr. Trevor Martin
Los Angeles City Planning
200 N. Spring Street, Room 763
Los Angeles, CA 90012
trevor.martin@lacity.org

Re: Chaminade College Preparatory, High School Campus Plan
Case Nos.: CPC-2009-1477-CU-ZV-ZAA-SPR-PA1, CPC-2023-1254-VZC-HD-ZAD-ZAA, VTT-84101
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Sincerely,

Latasha Castillo
(Signature)

Latasha Castillo
(Name)

21629 Ambar Dr.
(Street Address)

Woodland Hills, Ca 91364
(City, State, Zip Code)

latstyle@att.net
(Email Address)

Date: 4-27-2024

Mr. Trevor Martin
Los Angeles City Planning
200 N. Spring Street, Room 763
Los Angeles, CA 90012
trevor.martin@lacity.org

Re: Chaminade College Preparatory, High School Campus Plan
Case Nos.: CPC-2009-1477-CU-ZV-ZAA-SPR-PA1, CPC-2023-1254-VZC-HD-ZAD-ZAA, VTT-84101
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I am proud to support Chaminade College Preparatory and urge you to approve their newly proposed high school campus plan.

Sincerely,

(Signature)

Inman Yang
(Name)

5116 Shirley Ave.
(Street Address)

Tarzana, CA 91356
(City, State, Zip Code)

inmanyang@gmail.com
(Email Address)

Date: 4-27-24

Mr. Trevor Martin
Los Angeles City Planning
200 N. Spring Street, Room 763
Los Angeles, CA 90012
trevor.martin@lacity.org

Re: Chaminade College Preparatory, High School Campus Plan
Case Nos.: CPC-2009-1477-CU-ZV-ZAA-SPR-PA1, CPC-2023-1254-VZC-HD-ZAD-ZAA, VTT-84101
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I am proud to support Chaminade College Preparatory and urge you to approve their newly proposed high school campus plan.

Sincerely,

Carol Tucker
(Signature)

Carol Tucker
(Name)

19706 Winged Foot Way
(Street Address)

Porter Ranch CA 91326
(City, State, Zip Code)

tuckcar@msn.com
(Email Address)

Date: 4-27-2024

Mr. Trevor Martin
Los Angeles City Planning
200 N. Spring Street, Room 763
Los Angeles, CA 90012
trevor.martin@lacity.org

Re: Chaminade College Preparatory, High School Campus Plan
Case Nos.: CPC-2009-1477-CU-ZV-ZAA-SPR-PA1, CPC-2023-1254-VZC-HD-ZAD-ZAA, VTT-84101
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Sincerely,

(Signature)

TEVAN ONSEROYAN
(Name)

3944 Encino Hills Place
(Street Address)

Encino, CA 91436
(City, State, Zip Code)

tonserpyan@gmail.com
(Email Address)

Date: 4/27/24

Mr. Trevor Martin
Los Angeles City Planning
200 N. Spring Street, Room 763
Los Angeles, CA 90012
trevor.martin@lacity.org

Re: Chaminade College Preparatory, High School Campus Plan
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Sincerely,

Helen Orsepyan
(Signature)

Helen Orsepyan
(Name)

3946 Encino Hills Pl.
(Street Address)

Encino, CA 91436
(City, State, Zip Code)

Horsepyan@gmail.com
(Email Address)

Date: 4/27/24

Mr. Trevor Martin
Los Angeles City Planning
200 N. Spring Street, Room 763
Los Angeles, CA 90012
trevor.martin@lacity.org

Re: Chaminade College Preparatory, High School Campus Plan
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Sincerely,

(Signature)

Vartan Hovsepian
(Name)

24003 Laurel Pl
(Street Address)

Calabasas, CA 91302
(City, State, Zip Code)

(Email Address)

Date: 4/27/24

Mr. Trevor Martin
Los Angeles City Planning
200 N. Spring Street, Room 763
Los Angeles, CA 90012
trevor.martin@lacity.org

Re: Chaminade College Preparatory, High School Campus Plan
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Sincerely,

(Signature)

Jamison Selby
(Name)

5447 Burnt Ave
(Street Address)

Sherman Oaks, CA 91411
(City, State, Zip Code)

selbyguy@gmail.com
(Email Address)

Date: 4/27/24

Mr. Trevor Martin
Los Angeles City Planning
200 N. Spring Street, Room 763
Los Angeles, CA 90012
trevor.martin@lacity.org

Re: Chaminade College Preparatory, High School Campus Plan
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Sincerely,

(Signature)

Buddy Enright
(Name)

31900 Benchley
(Street Address)

WLV 91361
(City, State, Zip Code)

(Email Address)

Date: 4-27-2024

Mr. Trevor Martin
Los Angeles City Planning
200 N. Spring Street, Room 763
Los Angeles, CA 90012
trevor.martin@lacity.org

Re: Chaminade College Preparatory, High School Campus Plan
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Sincerely,

(Signature)

DENISE ROACH

(Name)

4929 CALVIN AVE.

(Street Address)

TARZANA, CA 91356

(City, State, Zip Code)

DENISE_ZACH@GENLER.COM

(Email Address)

Date: 4-27-2024

Mr. Trevor Martin
Los Angeles City Planning
200 N. Spring Street, Room 763
Los Angeles, CA 90012
trevor.martin@lacity.org

Re: Chaminade College Preparatory, High School Campus Plan
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I am proud to support Chaminade College Preparatory and urge you to approve their newly proposed high school campus plan.

Sincerely,

Jocelyn Patrick
(Signature)

Jocelyn Patrick
(Name)

27475 Kenfel Drive
(Street Address)

Saugus CA 91350
(City, State, Zip Code)

mrsjocelynpatrick@gmail.com
(Email Address)

Date: 4-27-24

Mr. Trevor Martin
Los Angeles City Planning
200 N. Spring Street, Room 763
Los Angeles, CA 90012
trevor.martin@lacity.org

Re: Chaminade College Preparatory, High School Campus Plan
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Sincerely,

Martha G Rivera
(Signature)

Martha A Rivera
(Name)

15207 Willard St
(Street Address)

Van Nuys, CA 91402
(City, State, Zip Code)

m.arivera07@yahoo.com
(Email Address)

Date: 4/27/24

Mr. Trevor Martin
Los Angeles City Planning
200 N. Spring Street, Room 763
Los Angeles, CA 90012
trevor.martin@lacity.org

Re: Chaminade College Preparatory, High School Campus Plan
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I am proud to support Chaminade College Preparatory and urge you to approve their newly proposed high school campus plan.

Sincerely,

(Signature)

Norm Toy
(Name)

5[illegible] Lane
(Street Address)

Bell Canyon Ca 91307
(City, State, Zip Code)

ntoy75@hotmail
(Email Address)

Date: 4-27-2024

Mr. Trevor Martin
Los Angeles City Planning
200 N. Spring Street, Room 763
Los Angeles, CA 90012
trevor.martin@lacity.org

Re: Chaminade College Preparatory, High School Campus Plan
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I am proud to support Chaminade College Preparatory and urge you to approve their newly proposed high school campus plan.

Sincerely,

(Signature)

Keren Nadel
(Name)

22954 Hatteras St
(Street Address)

Woodland Hills 91367
(City, State, Zip Code)

bahar_keren@hotmail.com
(Email Address)

Date: 4/27/2024

Mr. Trevor Martin
Los Angeles City Planning
200 N. Spring Street, Room 763
Los Angeles, CA 90012
trevor.martin@lacity.org

Re: Chaminade College Preparatory, High School Campus Plan
Case Nos.: CPC-2009-1477-CU-ZV-ZAA-SPR-PA1, CPC-2023-1254-VZC-HD-ZAD-ZAA, VTT-84101
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I am proud to support Chaminade College Preparatory and urge you to approve their newly proposed high school campus plan.

Sincerely,

(Signature)

Patricia Fernandez
(Name)

8386 Maynard Ave
(Street Address)

West Hills CA 91304
(City, State, Zip Code)

PATKA25@gmail.com.
(Email Address)

Date: 4/07/24

Mr. Trevor Martin
Los Angeles City Planning
200 N. Spring Street, Room 763
Los Angeles, CA 90012
trevor.martin@lacity.org

Re: Chaminade College Preparatory, High School Campus Plan
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Sincerely,

(Signature)

Mike Raven

(Name)

23903 Sarno St

(Street Address)

Woodland Hills CA 91367

(City, State, Zip Code)

Mike.Raven@gmail.com

(Email Address)

Date: 4/27/24

Mr. Trevor Martin
Los Angeles City Planning
200 N. Spring Street, Room 763
Los Angeles, CA 90012
trevor.martin@lacity.org

Re: Chaminade College Preparatory, High School Campus Plan
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Sincerely,

(Signature)

NICOLE BERGEN

(Name)

26967 Calamine Drive

(Street Address)

Calabasas, CA 91301

(City, State, Zip Code)

nbergen@gmail.com

(Email Address)

Date: 4-27-2024

Mr. Trevor Martin
Los Angeles City Planning
200 N. Spring Street, Room 763
Los Angeles, CA 90012
trevor.martin@lacity.org

Re: Chaminade College Preparatory, High School Campus Plan
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Sincerely,

Karla Kulesza
(Signature)

KARLA KULESZA
(Name)

23041 GALVEZ ST.
(Street Address)

WOODLAND HILLS CA 91364
(City, State, Zip Code)

murrmama@yahoo.com
(Email Address)

Date: 4/27/2024

Mr. Trevor Martin
Los Angeles City Planning
200 N. Spring Street, Room 763
Los Angeles, CA 90012
trevor.martin@lacity.org

Re: Chaminade College Preparatory, High School Campus Plan
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Sincerely,

David Thomsen
(Signature)

David Thomsen
(Name)

5801 Rolling Road
(Street Address)

Woodland Hills, CA 91367
(City, State, Zip Code)

davidthomsen1969@gmail.com
(Email Address)

Date: 4/27/24

Mr. Trevor Martin
Los Angeles City Planning
200 N. Spring Street, Room 763
Los Angeles, CA 90012
trevor.martin@lacity.org

Re: Chaminade College Preparatory, High School Campus Plan
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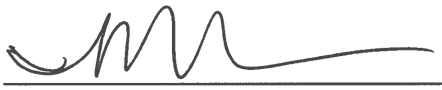
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Sincerely,



(Signature)

Nicole Minkow

(Name)

21611 Canyon Cove

(Street Address)

Chatsworth, CA 91311

(City, State, Zip Code)

nicole.minkow@socal.rr.com

(Email Address)

Date: 4/27/2024

Mr. Trevor Martin
Los Angeles City Planning
200 N. Spring Street, Room 763
Los Angeles, CA 90012
trevor.martin@lacity.org

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Sincerely,

(Signature)

TAYLOR SEARS

(Name)

5780 OWENSMOUTH AVE 105

(Street Address)

WOODLAND HILLS CA 91367

(City, State, Zip Code)

TAYLORSEARS1@GMAIL.COM

(Email Address)

Date: 4/27/2024

Mr. Trevor Martin
Los Angeles City Planning
200 N. Spring Street, Room 763
Los Angeles, CA 90012
trevor.martin@lacity.org

Re: Chaminade College Preparatory, High School Campus Plan
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Sincerely,

(Signature)

Marisa Morgan
(Name)

1025 Hillview Cir
(Street Address)

S.V. CA 93065
(City, State, Zip Code)

Marisamorgan4@gmail.com
(Email Address)

Date: 4/27/24

Mr. Trevor Martin
Los Angeles City Planning
200 N. Spring Street, Room 763
Los Angeles, CA 90012
trevor.martin@lacity.org

Re: Chaminade College Preparatory, High School Campus Plan
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Sincerely,

(Signature)

STEVE CARRILLO
(Name)

5512 LAS VIRGENES RD
(Street Address)

CALABASAS, CA. 91302
(City, State, Zip Code)

scarrgo17@yahoo.com
(Email Address)

Date: 4/27/2024

Mr. Trevor Martin
Los Angeles City Planning
200 N. Spring Street, Room 763
Los Angeles, CA 90012
trevor.martin@lacity.org

Re: Chaminade College Preparatory, High School Campus Plan
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Sincerely,

Scott Yi
(Signature)

Scott Yi
(Name)

12466 Jessica Pl.
(Street Address)

91344
(City, State, Zip Code)

Scottyi1@live.com
(Email Address)

Date: 4-27-24

Mr. Trevor Martin
Los Angeles City Planning
200 N. Spring Street, Room 763
Los Angeles, CA 90012
trevor.martin@lacity.org

Re: Chaminade College Preparatory, High School Campus Plan
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Sincerely,

(Signature)

Danielle Flowers
(Name)

20814 Sienna Lane
(Street Address)

Porter Ranch, CA 91326
(City, State, Zip Code)

flowersdre@gmail.com
(Email Address)

Date: 4-27-24

Mr. Trevor Martin
Los Angeles City Planning
200 N. Spring Street, Room 763
Los Angeles, CA 90012
trevor.martin@lacity.org

Re: Chaminade College Preparatory, High School Campus Plan
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I am proud to support Chaminade College Preparatory and urge you to approve their newly proposed high school campus plan.

Sincerely,

PAS

(Signature)

Priya Sodhi

(Name)

11809 Cedra Way

(Street Address)

PR, CA 91326

(City, State, Zip Code)

priyabcba@gmail.com.

(Email Address)

Date: 4/27/2024

Mr. Trevor Martin
Los Angeles City Planning
200 N. Spring Street, Room 763
Los Angeles, CA 90012
trevor.martin@lacity.org

Re: Chaminade College Preparatory, High School Campus Plan
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I am proud to support Chaminade College Preparatory and urge you to approve their newly proposed high school campus plan.

Sincerely,

Tim Wainwright
(Signature)

Tim Wainwright
(Name)

1521 Heather Oaks Lane
(Street Address)

West Lake Village CA 91361
(City, State, Zip Code)

timwainwright1@yahoo.com
(Email Address)

Date: 4/27/24

Mr. Trevor Martin
Los Angeles City Planning
200 N. Spring Street, Room 763
Los Angeles, CA 90012
trevor.martin@lacity.org

Re: Chaminade College Preparatory, High School Campus Plan
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I am proud to support Chaminade College Preparatory and urge you to approve their newly proposed high school campus plan.

Sincerely,

EBarnes
(Signature)

Elodie Barnes
(Name)

7605 Bayer Ave
(Street Address)

West Hills CA 91304
(City, State, Zip Code)

elodiebarnes@gmail.com
(Email Address)

Date: 4-27-24

Mr. Trevor Martin
Los Angeles City Planning
200 N. Spring Street, Room 763
Los Angeles, CA 90012
trevor.martin@lacity.org

Re: Chaminade College Preparatory, High School Campus Plan
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I am proud to support Chaminade College Preparatory and urge you to approve their newly proposed high school campus plan.

Sincerely,

(Signature)

JEFFREY EVANS

(Name)

6032 Corbin Ave.

(Street Address)

Tarzana CA 91356

(City, State, Zip Code)

jeffrey@evanscyphoo.com.

(Email Address)

Date: 4/27/24

Mr. Trevor Martin
Los Angeles City Planning
200 N. Spring Street, Room 763
Los Angeles, CA 90012
trevor.martin@lacity.org

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Sincerely,

(Signature)

Mitch Tucker
(Name)

19706 Winged Foot Way
(Street Address)

Porter Ranch CA 91326
(City, State, Zip Code)

Tuckcar@MSN.com
(Email Address)

Date: 4-27-2024

Mr. Trevor Martin
Los Angeles City Planning
200 N. Spring Street, Room 763
Los Angeles, CA 90012
trevor.martin@lacity.org

Re: Chaminade College Preparatory, High School Campus Plan
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Sincerely,

K Mark P

(Signature)

Kevin Moore

(Name)

22954 Hatteras St

(Street Address)

Woodland Hills 91367

(City, State, Zip Code)

tim1931@hotmail.com

(Email Address)

Date: 4.27.24

Mr. Trevor Martin
Los Angeles City Planning
200 N. Spring Street, Room 763
Los Angeles, CA 90012
trevor.martin@lacity.org

Re: Chaminade College Preparatory, High School Campus Plan
Case Nos.: CPC-2009-1477-CU-ZV-ZAA-SPR-PA1, CPC-2023-1254-VZC-HD-ZAD-ZAA, VTT-84101
Project Address: 7500 Chaminade Avenue, 23241 Cohasset Street & 23260 Saticoy Street, 23217-23255 Saticoy Street & 7619-7629 Woodlake Avenue

Dear Mr. Martin,

I support Chaminade College Preparatory's new high school campus plan which will modernize and upgrade the existing campus facilities with new administrative, counseling, library, multi-purpose, classroom and laboratory areas and a new student quad, and will create quality athletic and parking facilities on the new North Campus. I also strongly support the proposed pedestrian bridge, which will connect the Main Campus with the North Campus as an essential safety element of the campus.

Chaminade has been an important asset in the West Hills community for the past 60+ years. Allowing the school to proceed with the thoughtfully and sensitively designed campus plan that incorporates top quality educational and athletic facilities will bring great value to our community for years to come. The proposed campus plan will allow for the essential enhancement of the quality education currently offered and will expand upon the wide variety of curricular, co-curricular and extra-curricular programs.

I am proud to support Chaminade College Preparatory and urge you to approve their newly proposed high school campus plan.

Sincerely,

Cathryn Sadler
(Signature)

Cathryn Sadler
(Name)

6032 Corbin Ave
(Street Address)

Tarzana, CA 91356
(City, State, Zip Code)

cathy-sadler@yahoo.com
(Email Address)

Date: 4-27-24

Mr. Trevor Martin
Los Angeles City Planning
200 N. Spring Street, Room 763
Los Angeles, CA 90012
trevor.martin@lacity.org

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I am proud to support Chaminade College Preparatory and urge you to approve their newly proposed high school campus plan.

Sincerely,

(Signature)

Darren Turbow
(Name)

4852 Ben Ave
(Street Address)

Valley Village CA 91607
(City, State, Zip Code)

DarrenTurbow@gmail.com
(Email Address)

Date: 4-27-2024

Mr. Trevor Martin
Los Angeles City Planning
200 N. Spring Street, Room 763
Los Angeles, CA 90012
trevor.martin@lacity.org

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I am proud to support Chaminade College Preparatory and urge you to approve their newly proposed high school campus plan.

Sincerely,

(Signature)

STEPHEN MEREDITH
(Name)

[illegible]
(Street Address)

T.O. 91360
(City, State, Zip Code)

(Email Address)

Date: 4-27-24

Mr. Trevor Martin
Los Angeles City Planning
200 N. Spring Street, Room 763
Los Angeles, CA 90012
trevor.martin@lacity.org

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Sincerely,

(Signature)

Gary Smann

(Name)

17401 Sunnya Dr

(Street Address)

Encino CA 9316

(City, State, Zip Code)

gasmann1@gmail

(Email Address)

Date: 4/27/24

Mr. Trevor Martin
Los Angeles City Planning
200 N. Spring Street, Room 763
Los Angeles, CA 90012
trevor.martin@lacity.org

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Sincerely,

Rachelle Tenggardjaja
(Signature)

Rachelle Tenggardjaja
(Name)

9936 Wystone Ave
(Street Address)

Northridge CA 91324
(City, State, Zip Code)

tingson@hotmail.com
(Email Address)

Date: 4.27.2024

Mr. Trevor Martin
Los Angeles City Planning
200 N. Spring Street, Room 763
Los Angeles, CA 90012
trevor.martin@lacity.org

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Sincerely,

Ellen Celaya Thomas R. Celaya
(Signature)

Ellen Celaya THOMAS R. CELAYA
(Name)

11439 Petit Avenue
(Street Address)

Granada Hills, CA 91344
(City, State, Zip Code)

ellen.celaya@gmail.com
(Email Address)

Date: 4/27/24

Mr. Trevor Martin
Los Angeles City Planning
200 N. Spring Street, Room 763
Los Angeles, CA 90012
trevor.martin@lacity.org

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Sincerely,

(Signature)

John Patterson
(Name)

20252 Via Galileo
(Street Address)

Porter Ranch, CA 91326
(City, State, Zip Code)

patterberg@aol.com
(Email Address)

Date: 4-27-2024

Mr. Trevor Martin
Los Angeles City Planning
200 N. Spring Street, Room 763
Los Angeles, CA 90012
trevor.martin@lacity.org

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I am proud to support Chaminade College Preparatory and urge you to approve their newly proposed high school campus plan.

Sincerely,

Susan Lopez
(Signature)

Susan Lopez
(Name)

10850 Dale Ave
(Street Address)

Chatsworth CA 91311
(City, State, Zip Code)

Sue Lopez@hotmail.com
(Email Address)

Date: 4-27-24

Mr. Trevor Martin
Los Angeles City Planning
200 N. Spring Street, Room 763
Los Angeles, CA 90012
trevor.martin@lacity.org

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Sincerely,

Shannon Pennington
(Signature)

Shannon Pennington
(Name)

20752 Haynes St.
(Street Address)

Winnetka, CA 91306
(City, State, Zip Code)

LITLP14@yahoo.com
(Email Address)

Date: 4/27/24

Mr. Trevor Martin
Los Angeles City Planning
200 N. Spring Street, Room 763
Los Angeles, CA 90012
trevor.martin@lacity.org

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Sincerely,

(Signature)

Keith Amantia
(Name)

5951 Maury Ave
(Street Address)

Woodland Hills, CA 91367
(City, State, Zip Code)

KAMANTIA@gmail.com
(Email Address)

Date: 4/27/24

Mr. Trevor Martin
Los Angeles City Planning
200 N. Spring Street, Room 763
Los Angeles, CA 90012
trevor.martin@lacity.org

Re: Chaminade College Preparatory, High School Campus Plan
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I am proud to support Chaminade College Preparatory and urge you to approve their newly proposed high school campus plan.

Sincerely,

(Signature)

Kimberly A Frailey
(Name)

6351 Fenwarth Ct
(Street Address)

Agoura Hills CA 91301
(City, State, Zip Code)

kafrailey@yahoo.com
(Email Address)

Date: 4-27-24

Mr. Trevor Martin
Los Angeles City Planning
200 N. Spring Street, Room 763
Los Angeles, CA 90012
trevor.martin@lacity.org

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Sincerely,

Monica Amantia
(Signature)

Monica Amantia
(Name)

5951 Maury Ave
(Street Address)

Woodland Hills, CA 91367
(City, State, Zip Code)

dr.amantia@gmail.com
(Email Address)

Date: 4-27-24

Mr. Trevor Martin
Los Angeles City Planning
200 N. Spring Street, Room 763
Los Angeles, CA 90012
trevor.martin@lacity.org

Re: Chaminade College Preparatory, High School Campus Plan
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I am proud to support Chaminade College Preparatory and urge you to approve their newly proposed high school campus plan.

Sincerely,

Melissa Wiener
(Signature)

Melissa Wiener
(Name)

13547 Contour Drive
(Street Address)

Sherman Oaks, CA 91423
(City, State, Zip Code)

wiener.melissa@gmail.com
(Email Address)

Date: 4.27.2024

Mr. Trevor Martin
Los Angeles City Planning
200 N. Spring Street, Room 763
Los Angeles, CA 90012
trevor.martin@lacity.org

Re: Chaminade College Preparatory, High School Campus Plan
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I am proud to support Chaminade College Preparatory and urge you to approve their newly proposed high school campus plan.

Sincerely,

Sonja Young
(Signature)

Sonja Young
(Name)

5116 Shirley Avenue
(Street Address)

Tarzana, CA 91356
(City, State, Zip Code)

Sonja Young – gusandluke@gmail.com
(Email Address)

Date: 4-27-24

Mr. Trevor Martin
Los Angeles City Planning
200 N. Spring Street, Room 763
Los Angeles, CA 90012
trevor.martin@lacity.org

Re: Chaminade College Preparatory, High School Campus Plan
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I am proud to support Chaminade College Preparatory and urge you to approve their newly proposed high school campus plan.

Sincerely,

(Signature)

Clifford Fong

(Name)

1817 S Fremont Ave Alhambra CA 91803

(Street Address)

(City, State, Zip Code)

cliff@cliffwillim.com

(Email Address)

Date: 4-27-24

Mr. Trevor Martin
Los Angeles City Planning
200 N. Spring Street, Room 763
Los Angeles, CA 90012
trevor.martin@lacity.org

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I am proud to support Chaminade College Preparatory and urge you to approve their newly proposed high school campus plan.

Sincerely,

Elizabeth Lee
(Signature)

Elizabeth Lee
(Name)

7830 Genesta Ave Lake Balboa, CA
(Street Address)

91406
(City, State, Zip Code)

nelsonelizabethlee@gmail.com
(Email Address)

Date: 4.27.24

Mr. Trevor Martin
Los Angeles City Planning
200 N. Spring Street, Room 763
Los Angeles, CA 90012
trevor.martin@lacity.org

Re: Chaminade College Preparatory, High School Campus Plan
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I am proud to support Chaminade College Preparatory and urge you to approve their newly proposed high school campus plan.

Sincerely,

Kim Ulrich
(Signature)

Kim Ulrich
(Name)

8750 Jed Smith Rd
(Street Address)

Hidden Hills CA 91302
(City, State, Zip Code)

KIMWUCRICH@gmail.com
(Email Address)

Date: 4.27.24

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Los Angeles City Planning
200 N. Spring Street, Room 763
Los Angeles, CA 90012
trevor.martin@lacity.org

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Chaminade has been an important asset in the West Hills community for the past 60+ years. Allowing the school to proceed with the thoughtfully and sensitively designed campus plan that incorporates top quality educational and athletic facilities will bring great value to our community for years to come. The proposed campus plan will allow for the essential enhancement of the quality education currently offered and will expand upon the wide variety of curricular, co-curricular and extra-curricular programs.

I am proud to support Chaminade College Preparatory and urge you to approve their newly proposed high school campus plan.

Sincerely,

(Signature)

Jeanne Turbow

(Name)

4852 Ben Ave.

(Street Address)

Valley Village, CA 91607

(City, State, Zip Code)

turbow@sbcglobal.net

(Email Address)

Date: 4.27.24

Mr. Trevor Martin
Los Angeles City Planning
200 N. Spring Street, Room 763
Los Angeles, CA 90012
trevor.martin@lacity.org

Re: Chaminade College Preparatory, High School Campus Plan
Case Nos.: CPC-2009-1477-CU-ZV-ZAA-SPR-PA1, CPC-2023-1254-VZC-HD-ZAD-ZAA, VTT-84101
Project Address: 7500 Chaminade Avenue, 23241 Cohasset Street & 23260 Saticoy Street, 23217-23255 Saticoy Street & 7619-7629 Woodlake Avenue

Dear Mr. Martin,

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I am proud to support Chaminade College Preparatory and urge you to approve their newly proposed high school campus plan.

Sincerely,

(Signature)

Todd Freshman
(Name)

22721 Kosiusko St.
(Street Address)

West Hill 91304
(City, State, Zip Code)

Todd@freshmanemail.com
(Email Address)

Date: 4-27-24

Mr. Trevor Martin
Los Angeles City Planning
200 N. Spring Street, Room 763
Los Angeles, CA 90012
trevor.martin@lacity.org

Re: Chaminade College Preparatory, High School Campus Plan
Case Nos.: CPC-2009-1477-CU-ZV-ZAA-SPR-PA1, CPC-2023-1254-VZC-HD-ZAD-ZAA, VTT-84101
Project Address: 7500 Chaminade Avenue, 23241 Cohasset Street & 23260 Saticoy Street, 23217-23255 Saticoy Street & 7619-7629 Woodlake Avenue

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I am proud to support Chaminade College Preparatory and urge you to approve their newly proposed high school campus plan.

Sincerely,

(Signature)

Kevin G Lohman

(Name)

11647 Florencia Ln.

(Street Address)

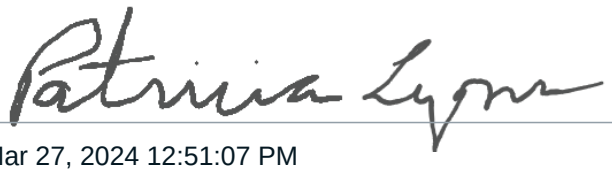
Porter Ranch, CA 91326

(City, State, Zip Code)

KLohman@Reedsmith.com

(Email Address)

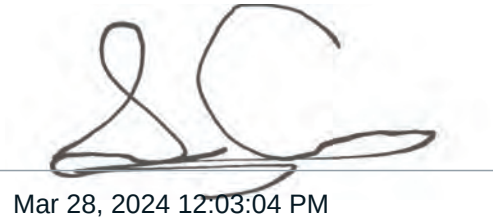
Form Name:	North Campus Petition
Submission Time:	March 27, 2024 12:51 pm
Browser:	Chrome 123.0.0.0 / Windows
IP Address:	64.183.100.242
Unique ID:	1209240124
Location:	34.169, -118.3713

Description Area	Petition In Support of Chaminade College Preparatory's New High School Campus PlanI have reviewed and support Chaminade College Preparatory's new high school campus plan which will modernize and upgrade the existing campus facilities with new academic, library, counseling and administrative areas and a new student quad, will expand athletic and parking facilities to the new North Campus, and will include the construction of a pedestrian bridge to safely connect the existing and new campuses. I support Chaminade because they have been an important asset in the West Hills community for the past 60+ years, and the campus plan will allow them to provide additional quality educational programs and a wide variety of essential curricular, co-curricular and extra-curricular programs.
Person signing above petition	Patricia Lyons
Address	17109 Bircher Street Granada Hills, CA 91344
Email	tlyons0102@gmail.com
Signature	
Date submitted	Mar 27, 2024 12:51:07 PM

Form Name:	North Campus Petition
Submission Time:	March 28, 2024 12:02 pm
Browser:	Mobile Safari 17.4.1 / iOS
IP Address:	107.115.41.139
Unique ID:	1209561485
Location:	36.115, -115.2165

Description Area	Petition In Support of Chaminade College Preparatory's New High School Campus PlanI have reviewed and support Chaminade College Preparatory's new high school campus plan which will modernize and upgrade the existing campus facilities with new academic, library, counseling and administrative areas and a new student quad, will expand athletic and parking facilities to the new North Campus, and will include the construction of a pedestrian bridge to safely connect the existing and new campuses. I support Chaminade because they have been an important asset in the West Hills community for the past 60+ years, and the campus plan will allow them to provide additional quality educational programs and a wide variety of essential curricular, co-curricular and extra-curricular programs.
Person signing above petition	Daniel Hurst
Address	6351 Fenworth Ct Agoura Hills, CA 91301
Email	dhurst@gmail.com
Signature	
Date submitted	Mar 28, 2024 12:02:27 PM

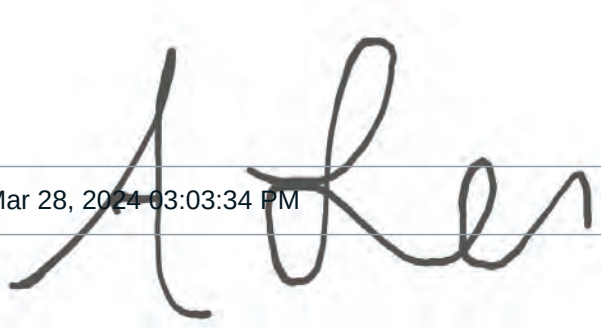
Form Name:	North Campus Petition
Submission Time:	March 28, 2024 12:03 pm
Browser:	Safari 17.1.2 / OS X
IP Address:	23.242.22.188
Unique ID:	1209561872
Location:	34.2166, -118.6028

Description Area	Petition In Support of Chaminade College Preparatory's New High School Campus PlanI have reviewed and support Chaminade College Preparatory's new high school campus plan which will modernize and upgrade the existing campus facilities with new academic, library, counseling and administrative areas and a new student quad, will expand athletic and parking facilities to the new North Campus, and will include the construction of a pedestrian bridge to safely connect the existing and new campuses. I support Chaminade because they have been an important asset in the West Hills community for the past 60+ years, and the campus plan will allow them to provide additional quality educational programs and a wide variety of essential curricular, co-curricular and extra-curricular programs.
Person signing above petition	Sean Casey
Address	7262 Pomelo Dr. West Hills, CA 91307
Email	seancaseyprod@gmail.com
Signature	
Date submitted	Mar 28, 2024 12:03:04 PM

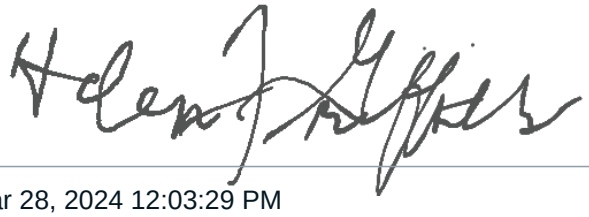
Form Name:	North Campus Petition
Submission Time:	March 28, 2024 12:04 pm
Browser:	Chrome 123.0.0.0 / Windows
IP Address:	64.183.100.242
Unique ID:	1209562110
Location:	34.169, -118.3713

Description Area	Petition In Support of Chaminade College Preparatory's New High School Campus PlanI have reviewed and support Chaminade College Preparatory's new high school campus plan which will modernize and upgrade the existing campus facilities with new academic, library, counseling and administrative areas and a new student quad, will expand athletic and parking facilities to the new North Campus, and will include the construction of a pedestrian bridge to safely connect the existing and new campuses. I support Chaminade because they have been an important asset in the West Hills community for the past 60+ years, and the campus plan will allow them to provide additional quality educational programs and a wide variety of essential curricular, co-curricular and extra-curricular programs.
Person signing above petition	Cheryl Gambetta
Address	1417 Pleasant Oaks Place Thousand Oaks, CA 91362
Email	cgambetta@chaminade.org
Signature	
Date submitted	Mar 28, 2024 12:03:06 PM

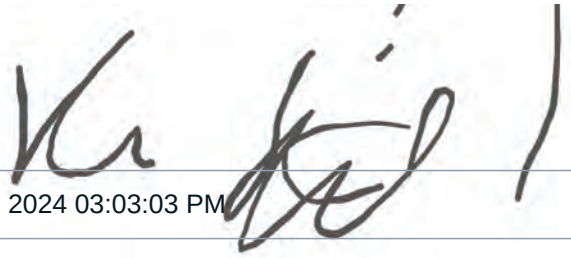
Form Name:	North Campus Petition
Submission Time:	March 28, 2024 12:04 pm
Browser:	Mobile Safari 17.3.1 / iOS
IP Address:	174.192.12.105
Unique ID:	1209562136
Location:	41.749, -72.6904

Description Area	Petition In Support of Chaminade College Preparatory's New High School Campus PlanI have reviewed and support Chaminade College Preparatory's new high school campus plan which will modernize and upgrade the existing campus facilities with new academic, library, counseling and administrative areas and a new student quad, will expand athletic and parking facilities to the new North Campus, and will include the construction of a pedestrian bridge to safely connect the existing and new campuses. I support Chaminade because they have been an important asset in the West Hills community for the past 60+ years, and the campus plan will allow them to provide additional quality educational programs and a wide variety of essential curricular, co-curricular and extra-curricular programs.
Person signing above petition	Allison Lee
Address	5810 Melissa Lane Woodland Hills, CA 91366
Email	alcorylee@hotmail.com
Signature	
Date submitted	Mar 28, 2024 03:03:34 PM

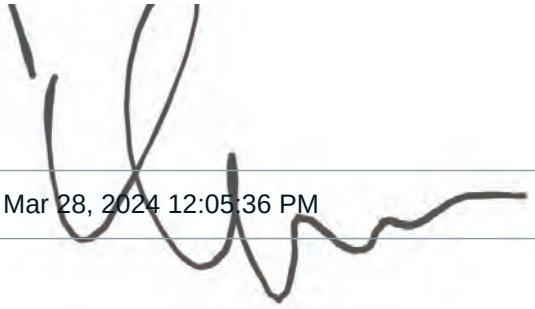
Form Name:	North Campus Petition
Submission Time:	March 28, 2024 12:04 pm
Browser:	Chrome 123.0.0.0 / Windows
IP Address:	74.62.241.69
Unique ID:	1209562198
Location:	34.106, -118.3607

Description Area	Petition In Support of Chaminade College Preparatory's New High School Campus PlanI have reviewed and support Chaminade College Preparatory's new high school campus plan which will modernize and upgrade the existing campus facilities with new academic, library, counseling and administrative areas and a new student quad, will expand athletic and parking facilities to the new North Campus, and will include the construction of a pedestrian bridge to safely connect the existing and new campuses. I support Chaminade because they have been an important asset in the West Hills community for the past 60+ years, and the campus plan will allow them to provide additional quality educational programs and a wide variety of essential curricular, co-curricular and extra-curricular programs.
Person signing above petition	Helen Griffiths
Address	23778 Burton Street West Hills, CA 91304
Email	helengriffiths3@hotmail.com
Signature	
Date submitted	Mar 28, 2024 12:03:29 PM

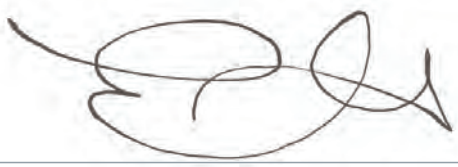
Form Name:	North Campus Petition
Submission Time:	March 28, 2024 12:05 pm
Browser:	Mobile Safari 17.3.1 / iOS
IP Address:	174.204.128.209
Unique ID:	1209562754
Location:	40.7961, -73.9513

Description Area	Petition In Support of Chaminade College Preparatory's New High School Campus PlanI have reviewed and support Chaminade College Preparatory's new high school campus plan which will modernize and upgrade the existing campus facilities with new academic, library, counseling and administrative areas and a new student quad, will expand athletic and parking facilities to the new North Campus, and will include the construction of a pedestrian bridge to safely connect the existing and new campuses. I support Chaminade because they have been an important asset in the West Hills community for the past 60+ years, and the campus plan will allow them to provide additional quality educational programs and a wide variety of essential curricular, co-curricular and extra-curricular programs.
Person signing above petition	William White
Address	2759 big bear drive Sedalia, CO 80135
Email	drwilliamwhite@yahoo.com
Signature	
Date submitted	Mar 28, 2024 03:03:03 PM

Form Name:	North Campus Petition
Submission Time:	March 28, 2024 12:06 pm
Browser:	Chrome Mobile 108.0.0.0 / Android
IP Address:	104.173.18.99
Unique ID:	1209563074
Location:	34.1979, -118.5371

Description Area	Petition In Support of Chaminade College Preparatory's New High School Campus PlanI have reviewed and support Chaminade College Preparatory's new high school campus plan which will modernize and upgrade the existing campus facilities with new academic, library, counseling and administrative areas and a new student quad, will expand athletic and parking facilities to the new North Campus, and will include the construction of a pedestrian bridge to safely connect the existing and new campuses. I support Chaminade because they have been an important asset in the West Hills community for the past 60+ years, and the campus plan will allow them to provide additional quality educational programs and a wide variety of essential curricular, co-curricular and extra-curricular programs.
Person signing above petition	Timothy Sullivan
Address	7429 White Oak Ave RESEDA, CA 91335
Email	Sullivanov77@gmail.com
Signature	
Date submitted	Mar 28, 2024 12:05:36 PM

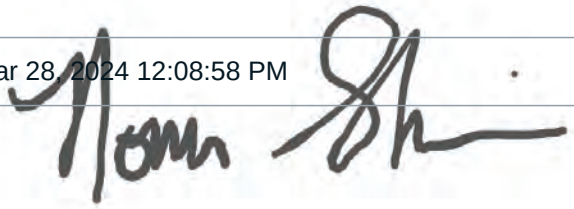
Form Name:	North Campus Petition
Submission Time:	March 27, 2024 1:05 pm
Browser:	Chrome 123.0.0.0 / Windows
IP Address:	64.183.100.242
Unique ID:	1209245771
Location:	34.169, -118.3713

Description Area	Petition In Support of Chaminade College Preparatory's New High School Campus PlanI have reviewed and support Chaminade College Preparatory's new high school campus plan which will modernize and upgrade the existing campus facilities with new academic, library, counseling and administrative areas and a new student quad, will expand athletic and parking facilities to the new North Campus, and will include the construction of a pedestrian bridge to safely connect the existing and new campuses. I support Chaminade because they have been an important asset in the West Hills community for the past 60+ years, and the campus plan will allow them to provide additional quality educational programs and a wide variety of essential curricular, co-curricular and extra-curricular programs.
Person signing above petition	Elizabeth Gluvna
Address	9255 Forbes Avenue Northridge, CA 91343
Email	egluvna@chaminade.org
Signature	
Date submitted	Mar 27, 2024 01:05:18 PM

Form Name:	North Campus Petition
Submission Time:	March 28, 2024 12:08 pm
Browser:	Chrome 123.0.0.0 / Windows
IP Address:	47.157.155.151
Unique ID:	1209563679
Location:	34.2106, -118.8716

Description Area	Petition In Support of Chaminade College Preparatory's New High School Campus PlanI have reviewed and support Chaminade College Preparatory's new high school campus plan which will modernize and upgrade the existing campus facilities with new academic, library, counseling and administrative areas and a new student quad, will expand athletic and parking facilities to the new North Campus, and will include the construction of a pedestrian bridge to safely connect the existing and new campuses. I support Chaminade because they have been an important asset in the West Hills community for the past 60+ years, and the campus plan will allow them to provide additional quality educational programs and a wide variety of essential curricular, co-curricular and extra-curricular programs.
Person signing above petition	Andrew Prechtl
Address	3230 Bayshore Dr. Westlake Village, CA 91361
Email	amprechtl@gmail.com
Signature	
Date submitted	Mar 28, 2024 12:07:05 PM

Form Name:	North Campus Petition
Submission Time:	March 28, 2024 12:10 pm
Browser:	Mobile Safari 17.3.1 / iOS
IP Address:	107.184.96.128
Unique ID:	1209564863
Location:	34.2666, -118.7643

Description Area	Petition In Support of Chaminade College Preparatory's New High School Campus PlanI have reviewed and support Chaminade College Preparatory's new high school campus plan which will modernize and upgrade the existing campus facilities with new academic, library, counseling and administrative areas and a new student quad, will expand athletic and parking facilities to the new North Campus, and will include the construction of a pedestrian bridge to safely connect the existing and new campuses. I support Chaminade because they have been an important asset in the West Hills community for the past 60+ years, and the campus plan will allow them to provide additional quality educational programs and a wide variety of essential curricular, co-curricular and extra-curricular programs.
Person signing above petition	Norma Skinner
Address	1728 Meander Dr Simi Valley, CA 93065
Email	caddos31@roadrunner.com
Signature	
Date submitted	Mar 28, 2024 12:08:58 PM

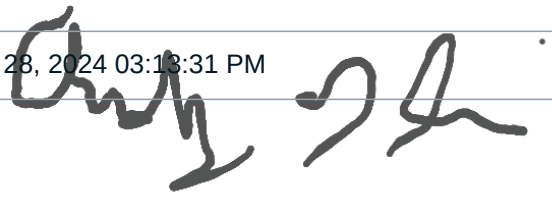
Form Name:	North Campus Petition
Submission Time:	March 28, 2024 12:11 pm
Browser:	Chrome 121.0.0.0 / OS X
IP Address:	75.225.75.230
Unique ID:	1209564978
Location:	34.1718, -118.32

Description Area	Petition In Support of Chaminade College Preparatory's New High School Campus PlanI have reviewed and support Chaminade College Preparatory's new high school campus plan which will modernize and upgrade the existing campus facilities with new academic, library, counseling and administrative areas and a new student quad, will expand athletic and parking facilities to the new North Campus, and will include the construction of a pedestrian bridge to safely connect the existing and new campuses. I support Chaminade because they have been an important asset in the West Hills community for the past 60+ years, and the campus plan will allow them to provide additional quality educational programs and a wide variety of essential curricular, co-curricular and extra-curricular programs.
Person signing above petition	Peppi Schwartz
Address	4569 De Celis Place Encino, CA 91436
Email	PEPPISCHWARTZ@ICLOUD.COM
Signature	
Date submitted	Mar 28, 2024 12:09:35 PM

Form Name:	North Campus Petition
Submission Time:	March 28, 2024 12:12 pm
Browser:	Chrome 122.0.0.0 / Windows
IP Address:	12.145.110.6
Unique ID:	1209565567
Location:	34.0544, -118.2441

Description Area	Petition In Support of Chaminade College Preparatory's New High School Campus PlanI have reviewed and support Chaminade College Preparatory's new high school campus plan which will modernize and upgrade the existing campus facilities with new academic, library, counseling and administrative areas and a new student quad, will expand athletic and parking facilities to the new North Campus, and will include the construction of a pedestrian bridge to safely connect the existing and new campuses. I support Chaminade because they have been an important asset in the West Hills community for the past 60+ years, and the campus plan will allow them to provide additional quality educational programs and a wide variety of essential curricular, co-curricular and extra-curricular programs.
Person signing above petition	Rick Koff
Address	3277 Sunset Hills Blvd Thousand Oaks, CA 91362
Email	rick.h.koff@ampf.com
Signature	
Date submitted	Mar 28, 2024 12:11:38 PM

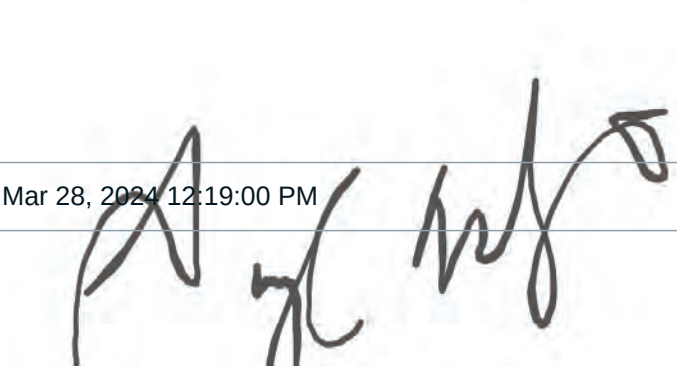
Form Name:	North Campus Petition
Submission Time:	March 28, 2024 12:14 pm
Browser:	Mobile Safari 16.6 / iOS
IP Address:	73.172.178.104
Unique ID:	1209566347
Location:	38.8865, -77.0911

Description Area	Petition In Support of Chaminade College Preparatory's New High School Campus PlanI have reviewed and support Chaminade College Preparatory's new high school campus plan which will modernize and upgrade the existing campus facilities with new academic, library, counseling and administrative areas and a new student quad, will expand athletic and parking facilities to the new North Campus, and will include the construction of a pedestrian bridge to safely connect the existing and new campuses. I support Chaminade because they have been an important asset in the West Hills community for the past 60+ years, and the campus plan will allow them to provide additional quality educational programs and a wide variety of essential curricular, co-curricular and extra-curricular programs.
Person signing above petition	Andrew Slavin
Address	3515 Washington Blvd Unit 315 Arlington, VA 22201
Email	andymslavin@gmail.com
Signature	
Date submitted	Mar 28, 2024 03:13:31 PM

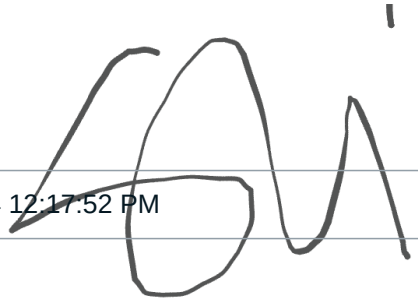
Form Name:	North Campus Petition
Submission Time:	March 28, 2024 12:14 pm
Browser:	Chrome 123.0.0.0 / Windows
IP Address:	99.30.235.217
Unique ID:	1209566544
Location:	34.2773, -118.5001

Description Area	Petition In Support of Chaminade College Preparatory's New High School Campus PlanI have reviewed and support Chaminade College Preparatory's new high school campus plan which will modernize and upgrade the existing campus facilities with new academic, library, counseling and administrative areas and a new student quad, will expand athletic and parking facilities to the new North Campus, and will include the construction of a pedestrian bridge to safely connect the existing and new campuses. I support Chaminade because they have been an important asset in the West Hills community for the past 60+ years, and the campus plan will allow them to provide additional quality educational programs and a wide variety of essential curricular, co-curricular and extra-curricular programs.
Person signing above petition	Jessica Ramirez
Address	2596 Los Arcos Circle Thousand Oaks, CA 91360
Email	jramirez@newmarkmerrill.com
Signature	
Date submitted	Mar 28, 2024 12:13:38 PM

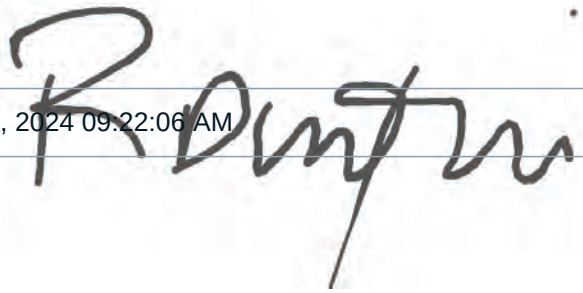
Form Name:	North Campus Petition
Submission Time:	March 28, 2024 12:19 pm
Browser:	Chrome Mobile 123.0.6312.52 / iOS
IP Address:	76.170.71.196
Unique ID:	1209568347
Location:	34.2529, -118.418

Description Area	Petition In Support of Chaminade College Preparatory's New High School Campus PlanI have reviewed and support Chaminade College Preparatory's new high school campus plan which will modernize and upgrade the existing campus facilities with new academic, library, counseling and administrative areas and a new student quad, will expand athletic and parking facilities to the new North Campus, and will include the construction of a pedestrian bridge to safely connect the existing and new campuses. I support Chaminade because they have been an important asset in the West Hills community for the past 60+ years, and the campus plan will allow them to provide additional quality educational programs and a wide variety of essential curricular, co-curricular and extra-curricular programs.
Person signing above petition	Angel Sotelo
Address	12013 Youngdale Ave Sylmar, CA 91342
Email	aaanm45@gmail.com
Signature	
Date submitted	Mar 28, 2024 12:19:00 PM

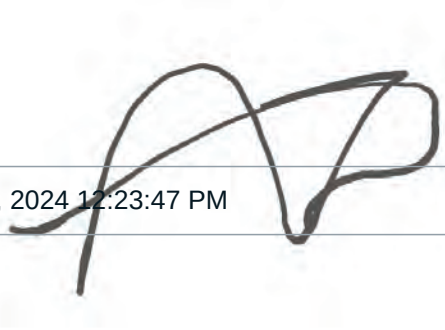
Form Name:	North Campus Petition
Submission Time:	March 28, 2024 12:20 pm
Browser:	Chrome Mobile 123.0.0.0 / Android
IP Address:	172.56.120.28
Unique ID:	1209568681
Location:	34.195, -118.445

Description Area	Petition In Support of Chaminade College Preparatory's New High School Campus PlanI have reviewed and support Chaminade College Preparatory's new high school campus plan which will modernize and upgrade the existing campus facilities with new academic, library, counseling and administrative areas and a new student quad, will expand athletic and parking facilities to the new North Campus, and will include the construction of a pedestrian bridge to safely connect the existing and new campuses. I support Chaminade because they have been an important asset in the West Hills community for the past 60+ years, and the campus plan will allow them to provide additional quality educational programs and a wide variety of essential curricular, co-curricular and extra-curricular programs.
Person signing above petition	Susan Molliy
Address	22612 Covello West Hills, CA 91306
Email	susiemolloy@protonmail.com
Signature	
Date submitted	Mar 28, 2024 12:17:52 PM

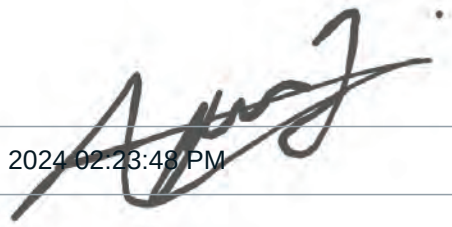
Form Name:	North Campus Petition
Submission Time:	March 28, 2024 12:23 pm
Browser:	Mobile Safari 17.3.1 / iOS
IP Address:	72.130.25.205
Unique ID:	1209570570
Location:	20.8817, -156.4783

Description Area	Petition In Support of Chaminade College Preparatory's New High School Campus PlanI have reviewed and support Chaminade College Preparatory's new high school campus plan which will modernize and upgrade the existing campus facilities with new academic, library, counseling and administrative areas and a new student quad, will expand athletic and parking facilities to the new North Campus, and will include the construction of a pedestrian bridge to safely connect the existing and new campuses. I support Chaminade because they have been an important asset in the West Hills community for the past 60+ years, and the campus plan will allow them to provide additional quality educational programs and a wide variety of essential curricular, co-curricular and extra-curricular programs.
Person signing above petition	Rachel Dworkin
Address	3721 Meadville dr Sherman oaks, CA 91403
Email	rrachel.dworkin1@gmail.com
Signature	
Date submitted	Mar 28, 2024 09:22:06 AM

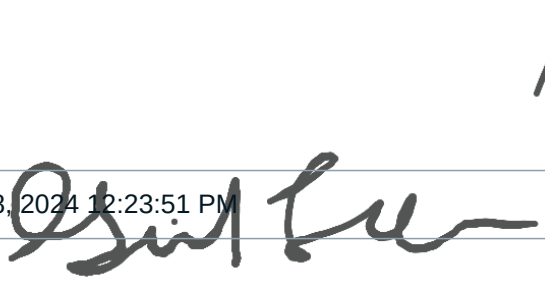
Form Name:	North Campus Petition
Submission Time:	March 28, 2024 12:24 pm
Browser:	Mobile Safari 17.1 / iOS
IP Address:	172.56.208.203
Unique ID:	1209571497
Location:	36.1685, -115.1164

Description Area	Petition In Support of Chaminade College Preparatory's New High School Campus PlanI have reviewed and support Chaminade College Preparatory's new high school campus plan which will modernize and upgrade the existing campus facilities with new academic, library, counseling and administrative areas and a new student quad, will expand athletic and parking facilities to the new North Campus, and will include the construction of a pedestrian bridge to safely connect the existing and new campuses. I support Chaminade because they have been an important asset in the West Hills community for the past 60+ years, and the campus plan will allow them to provide additional quality educational programs and a wide variety of essential curricular, co-curricular and extra-curricular programs.
Person signing above petition	Reza Azadeh
Address	10738 Baile Ave Chatsworth , CA 91311
Email	2124617@gmx.com
Signature	
Date submitted	Mar 28, 2024 12:23:47 PM

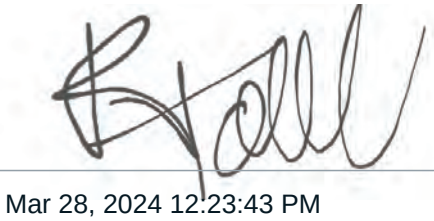
Form Name:	North Campus Petition
Submission Time:	March 28, 2024 12:24 pm
Browser:	Mobile Safari 17.3.1 / iOS
IP Address:	204.137.236.25
Unique ID:	1209572342
Location:	39.7534, -94.8191

Description Area	Petition In Support of Chaminade College Preparatory's New High School Campus PlanI have reviewed and support Chaminade College Preparatory's new high school campus plan which will modernize and upgrade the existing campus facilities with new academic, library, counseling and administrative areas and a new student quad, will expand athletic and parking facilities to the new North Campus, and will include the construction of a pedestrian bridge to safely connect the existing and new campuses. I support Chaminade because they have been an important asset in the West Hills community for the past 60+ years, and the campus plan will allow them to provide additional quality educational programs and a wide variety of essential curricular, co-curricular and extra-curricular programs.
Person signing above petition	Adam Sotelo
Address	12013 Youngdale Ave Sylmar, CA 91342
Email	cheme155@gmail.com
Signature	
Date submitted	Mar 28, 2024 02:23:48 PM

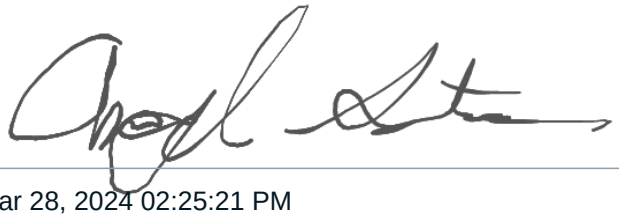
Form Name:	North Campus Petition
Submission Time:	March 28, 2024 12:25 pm
Browser:	Mobile Safari 17.4.1 / iOS
IP Address:	198.72.230.164
Unique ID:	1209572908
Location:	34.2601, -118.5789

Description Area	Petition In Support of Chaminade College Preparatory's New High School Campus PlanI have reviewed and support Chaminade College Preparatory's new high school campus plan which will modernize and upgrade the existing campus facilities with new academic, library, counseling and administrative areas and a new student quad, will expand athletic and parking facilities to the new North Campus, and will include the construction of a pedestrian bridge to safely connect the existing and new campuses. I support Chaminade because they have been an important asset in the West Hills community for the past 60+ years, and the campus plan will allow them to provide additional quality educational programs and a wide variety of essential curricular, co-curricular and extra-curricular programs.
Person signing above petition	Gisel Loera
Address	19750 Vintage St Chatsworth, CA 91311
Email	giselloera1@yahoo.com
Signature	
Date submitted	Mar 28, 2024 12:23:51 PM

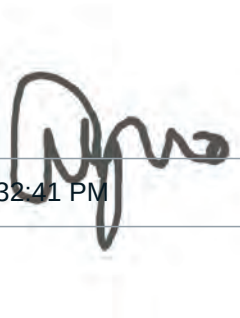
Form Name:	North Campus Petition
Submission Time:	March 28, 2024 12:25 pm
Browser:	Chrome 123.0.0.0 / Windows
IP Address:	64.183.100.186
Unique ID:	1209573118
Location:	34.169, -118.3713

Description Area	Petition In Support of Chaminade College Preparatory's New High School Campus PlanI have reviewed and support Chaminade College Preparatory's new high school campus plan which will modernize and upgrade the existing campus facilities with new academic, library, counseling and administrative areas and a new student quad, will expand athletic and parking facilities to the new North Campus, and will include the construction of a pedestrian bridge to safely connect the existing and new campuses. I support Chaminade because they have been an important asset in the West Hills community for the past 60+ years, and the campus plan will allow them to provide additional quality educational programs and a wide variety of essential curricular, co-curricular and extra-curricular programs.
Person signing above petition	Roxana Todd
Address	22356 Gilmore Street Woodland Hills, CA 91303
Email	rpiaskowski83@gmail.com
Signature	
Date submitted	Mar 28, 2024 12:23:43 PM

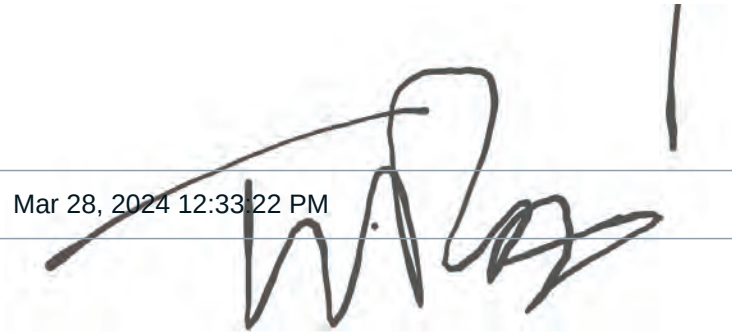
Form Name:	North Campus Petition
Submission Time:	March 28, 2024 12:27 pm
Browser:	Chrome 122.0.0.0 / Windows
IP Address:	164.68.41.81
Unique ID:	1209574996
Location:	42.2299, -87.8426

Description Area	Petition In Support of Chaminade College Preparatory's New High School Campus PlanI have reviewed and support Chaminade College Preparatory's new high school campus plan which will modernize and upgrade the existing campus facilities with new academic, library, counseling and administrative areas and a new student quad, will expand athletic and parking facilities to the new North Campus, and will include the construction of a pedestrian bridge to safely connect the existing and new campuses. I support Chaminade because they have been an important asset in the West Hills community for the past 60+ years, and the campus plan will allow them to provide additional quality educational programs and a wide variety of essential curricular, co-curricular and extra-curricular programs.
Person signing above petition	Angel Sotelo
Address	13 Echo Ct. Apt 3 Vernon Hills, IL 60061
Email	theams64@gmail.com
Signature	
Date submitted	Mar 28, 2024 02:25:21 PM

Form Name:	North Campus Petition
Submission Time:	March 28, 2024 12:34 pm
Browser:	Mobile Safari 17.3.1 / iOS
IP Address:	162.196.178.193
Unique ID:	1209577516
Location:	34.236, -118.5235

Description Area	Petition In Support of Chaminade College Preparatory's New High School Campus PlanI have reviewed and support Chaminade College Preparatory's new high school campus plan which will modernize and upgrade the existing campus facilities with new academic, library, counseling and administrative areas and a new student quad, will expand athletic and parking facilities to the new North Campus, and will include the construction of a pedestrian bridge to safely connect the existing and new campuses. I support Chaminade because they have been an important asset in the West Hills community for the past 60+ years, and the campus plan will allow them to provide additional quality educational programs and a wide variety of essential curricular, co-curricular and extra-curricular programs.
Person signing above petition	Andrea Yolo
Address	19451 Mayall St Northridge, CA 91324
Email	andrea.yolo@gmail.com
Signature	
Date submitted	Mar 28, 2024 12:32:41 PM

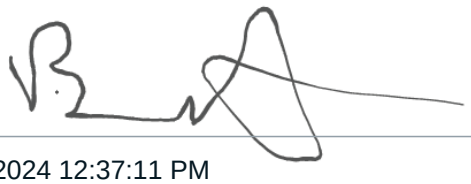
Form Name:	North Campus Petition
Submission Time:	March 28, 2024 12:34 pm
Browser:	Mobile Safari 17.4.1 / iOS
IP Address:	108.185.234.6
Unique ID:	1209577539
Location:	34.413, -118.4269

Description Area	Petition In Support of Chaminade College Preparatory's New High School Campus PlanI have reviewed and support Chaminade College Preparatory's new high school campus plan which will modernize and upgrade the existing campus facilities with new academic, library, counseling and administrative areas and a new student quad, will expand athletic and parking facilities to the new North Campus, and will include the construction of a pedestrian bridge to safely connect the existing and new campuses. I support Chaminade because they have been an important asset in the West Hills community for the past 60+ years, and the campus plan will allow them to provide additional quality educational programs and a wide variety of essential curricular, co-curricular and extra-curricular programs.
Person signing above petition	Trevor Pooley
Address	26837 Alcott Court. Stevenson Ranch, CA 91381
Email	trevor.pooley7@gmail.com
Signature	
Date submitted	Mar 28, 2024 12:33:22 PM

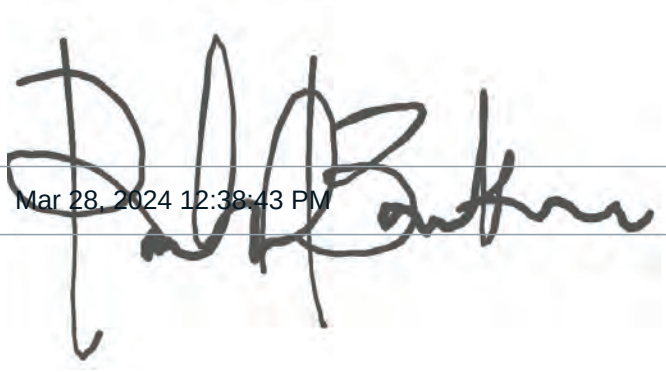
Form Name:	North Campus Petition
Submission Time:	March 28, 2024 12:35 pm
Browser:	Chrome 122.0.0.0 / Windows
IP Address:	12.6.228.18
Unique ID:	1209578149
Location:	34.1452, -118.4581

Description Area	Petition In Support of Chaminade College Preparatory's New High School Campus PlanI have reviewed and support Chaminade College Preparatory's new high school campus plan which will modernize and upgrade the existing campus facilities with new academic, library, counseling and administrative areas and a new student quad, will expand athletic and parking facilities to the new North Campus, and will include the construction of a pedestrian bridge to safely connect the existing and new campuses. I support Chaminade because they have been an important asset in the West Hills community for the past 60+ years, and the campus plan will allow them to provide additional quality educational programs and a wide variety of essential curricular, co-curricular and extra-curricular programs.
Person signing above petition	Mariah Sotelo
Address	12013 Youngdale Ave Sylmar, CA 91342
Email	mariahsotelo55@gmail.com
Signature	
Date submitted	Mar 28, 2024 12:34:33 PM

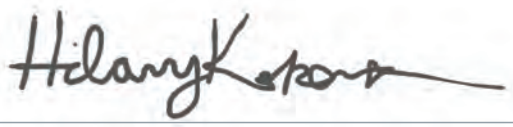
Form Name:	North Campus Petition
Submission Time:	March 28, 2024 12:37 pm
Browser:	Chrome 122.0.0.0 / Windows
IP Address:	64.183.100.186
Unique ID:	1209579086
Location:	34.169, -118.3713

Description Area	Petition In Support of Chaminade College Preparatory's New High School Campus PlanI have reviewed and support Chaminade College Preparatory's new high school campus plan which will modernize and upgrade the existing campus facilities with new academic, library, counseling and administrative areas and a new student quad, will expand athletic and parking facilities to the new North Campus, and will include the construction of a pedestrian bridge to safely connect the existing and new campuses. I support Chaminade because they have been an important asset in the West Hills community for the past 60+ years, and the campus plan will allow them to provide additional quality educational programs and a wide variety of essential curricular, co-curricular and extra-curricular programs.
Person signing above petition	Bryan Cantwell
Address	23321 Hartland West Hills, CA 91307
Email	bcantwell@chaminade.org
Signature	
Date submitted	Mar 28, 2024 12:37:11 PM

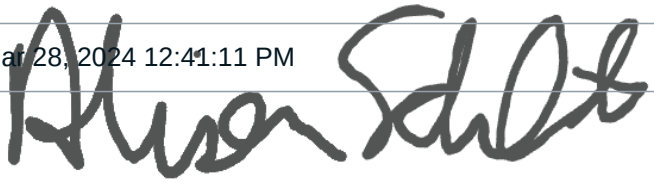
Form Name:	North Campus Petition
Submission Time:	March 28, 2024 12:39 pm
Browser:	Mobile Safari 17.3.1 / iOS
IP Address:	174.195.128.116
Unique ID:	1209579783
Location:	34.1211, -117.4362

Description Area	Petition In Support of Chaminade College Preparatory's New High School Campus PlanI have reviewed and support Chaminade College Preparatory's new high school campus plan which will modernize and upgrade the existing campus facilities with new academic, library, counseling and administrative areas and a new student quad, will expand athletic and parking facilities to the new North Campus, and will include the construction of a pedestrian bridge to safely connect the existing and new campuses. I support Chaminade because they have been an important asset in the West Hills community for the past 60+ years, and the campus plan will allow them to provide additional quality educational programs and a wide variety of essential curricular, co-curricular and extra-curricular programs.
Person signing above petition	Rachel Barker
Address	8473 Valley Circle Blvd. West Hills, CA 91304
Email	rachelleebarker@gmail.com
Signature	
Date submitted	Mar 28, 2024 12:38:43 PM

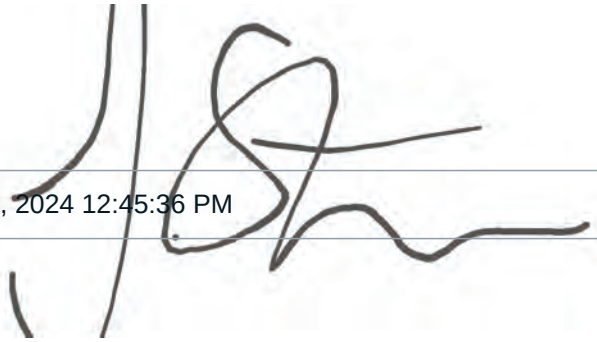
Form Name:	North Campus Petition
Submission Time:	March 28, 2024 12:40 pm
Browser:	Chrome 122.0.0.0 / OS X
IP Address:	99.99.61.120
Unique ID:	1209580186
Location:	34.1957, -118.6466

Description Area	Petition In Support of Chaminade College Preparatory's New High School Campus PlanI have reviewed and support Chaminade College Preparatory's new high school campus plan which will modernize and upgrade the existing campus facilities with new academic, library, counseling and administrative areas and a new student quad, will expand athletic and parking facilities to the new North Campus, and will include the construction of a pedestrian bridge to safely connect the existing and new campuses. I support Chaminade because they have been an important asset in the West Hills community for the past 60+ years, and the campus plan will allow them to provide additional quality educational programs and a wide variety of essential curricular, co-curricular and extra-curricular programs.
Person signing above petition	Hilary Kokenda
Address	23030 Burton Street West Hills, CA 91304
Email	hilary.kokenda@sbcglobal.net
Signature	
Date submitted	Mar 28, 2024 12:39:47 PM

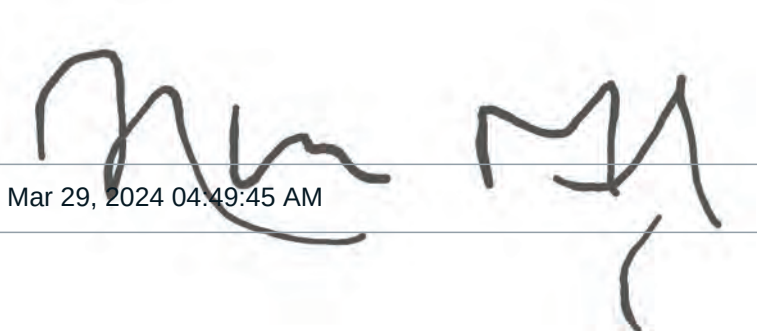
Form Name:	North Campus Petition
Submission Time:	March 28, 2024 12:43 pm
Browser:	Chrome Mobile 123.0.0.0 / Android
IP Address:	107.77.228.204
Unique ID:	1209581181
Location:	34.0544, -118.244

Description Area	Petition In Support of Chaminade College Preparatory's New High School Campus PlanI have reviewed and support Chaminade College Preparatory's new high school campus plan which will modernize and upgrade the existing campus facilities with new academic, library, counseling and administrative areas and a new student quad, will expand athletic and parking facilities to the new North Campus, and will include the construction of a pedestrian bridge to safely connect the existing and new campuses. I support Chaminade because they have been an important asset in the West Hills community for the past 60+ years, and the campus plan will allow them to provide additional quality educational programs and a wide variety of essential curricular, co-curricular and extra-curricular programs.
Person signing above petition	Alison Schlecht
Address	23358 Park Sorrento Calabasas, CA 91302
Signature	
Date submitted	Mar 28, 2024 12:41:11 PM

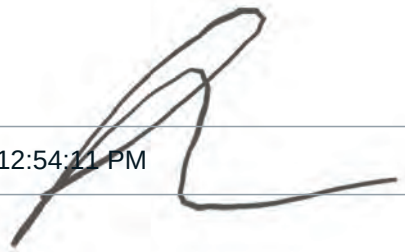
Form Name:	North Campus Petition
Submission Time:	March 28, 2024 12:46 pm
Browser:	Mobile Safari 17.4.1 / iOS
IP Address:	162.224.159.67
Unique ID:	1209582246
Location:	34.1449, -118.3887

Description Area	Petition In Support of Chaminade College Preparatory's New High School Campus PlanI have reviewed and support Chaminade College Preparatory's new high school campus plan which will modernize and upgrade the existing campus facilities with new academic, library, counseling and administrative areas and a new student quad, will expand athletic and parking facilities to the new North Campus, and will include the construction of a pedestrian bridge to safely connect the existing and new campuses. I support Chaminade because they have been an important asset in the West Hills community for the past 60+ years, and the campus plan will allow them to provide additional quality educational programs and a wide variety of essential curricular, co-curricular and extra-curricular programs.
Person signing above petition	Tara Stern
Address	4294 Coldwater Canyon #1 Studio City, CA 91604
Email	chiefyelloweyes@gmail.com
Signature	
Date submitted	Mar 28, 2024 12:45:36 PM

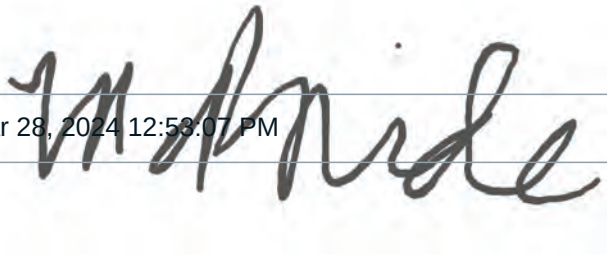
Form Name:	North Campus Petition
Submission Time:	March 28, 2024 12:50 pm
Browser:	Chrome Mobile 123.0.6312.52 / iOS
IP Address:	211.131.99.239
Unique ID:	1209583942
Location:	34.6892, 135.4899

Description Area	Petition In Support of Chaminade College Preparatory's New High School Campus PlanI have reviewed and support Chaminade College Preparatory's new high school campus plan which will modernize and upgrade the existing campus facilities with new academic, library, counseling and administrative areas and a new student quad, will expand athletic and parking facilities to the new North Campus, and will include the construction of a pedestrian bridge to safely connect the existing and new campuses. I support Chaminade because they have been an important asset in the West Hills community for the past 60+ years, and the campus plan will allow them to provide additional quality educational programs and a wide variety of essential curricular, co-curricular and extra-curricular programs.
Person signing above petition	Nhora Mosquera
Address	18528 MAYALL ST UNIT D NORTHRIDGE, CA 91324
Email	nhoramos@hotmail.com
Signature	
Date submitted	Mar 29, 2024 04:49:45 AM

Form Name:	North Campus Petition
Submission Time:	March 28, 2024 12:54 pm
Browser:	Chrome Mobile 123.0.6312.52 / iOS
IP Address:	107.185.193.51
Unique ID:	1209585454
Location:	34.2106, -118.8716

Description Area	Petition In Support of Chaminade College Preparatory's New High School Campus PlanI have reviewed and support Chaminade College Preparatory's new high school campus plan which will modernize and upgrade the existing campus facilities with new academic, library, counseling and administrative areas and a new student quad, will expand athletic and parking facilities to the new North Campus, and will include the construction of a pedestrian bridge to safely connect the existing and new campuses. I support Chaminade because they have been an important asset in the West Hills community for the past 60+ years, and the campus plan will allow them to provide additional quality educational programs and a wide variety of essential curricular, co-curricular and extra-curricular programs.
Person signing above petition	Perla Guerrero
Address	4562 N ASHTREE ST MOORPARK, CA 93021
Email	perlallamas82@gmail.com
Signature	
Date submitted	Mar 28, 2024 12:54:11 PM

Form Name:	North Campus Petition
Submission Time:	March 28, 2024 12:54 pm
Browser:	Mobile Safari 17.3.1 / iOS
IP Address:	104.182.56.95
Unique ID:	1209585455
Location:	34.1569, -118.488

Description Area	Petition In Support of Chaminade College Preparatory's New High School Campus PlanI have reviewed and support Chaminade College Preparatory's new high school campus plan which will modernize and upgrade the existing campus facilities with new academic, library, counseling and administrative areas and a new student quad, will expand athletic and parking facilities to the new North Campus, and will include the construction of a pedestrian bridge to safely connect the existing and new campuses. I support Chaminade because they have been an important asset in the West Hills community for the past 60+ years, and the campus plan will allow them to provide additional quality educational programs and a wide variety of essential curricular, co-curricular and extra-curricular programs.
Person signing above petition	Julissa McBride
Address	20929 Ventura Blvd. Suite 47-462 Woodland Hills, CA 91364
Email	Julissanyc@ymail.com
Signature	
Date submitted	Mar 28, 2024 12:53:07 PM

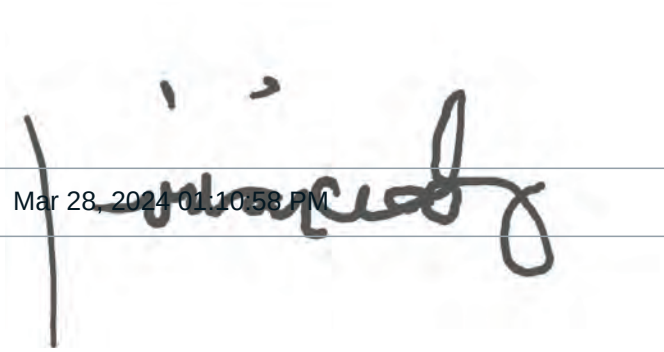
Form Name:	North Campus Petition
Submission Time:	March 28, 2024 1:07 pm
Browser:	Chrome 122.0.0.0 / OS X
IP Address:	98.148.230.165
Unique ID:	1209590528
Location:	34.2047, -118.573

Description Area	Petition In Support of Chaminade College Preparatory's New High School Campus PlanI have reviewed and support Chaminade College Preparatory's new high school campus plan which will modernize and upgrade the existing campus facilities with new academic, library, counseling and administrative areas and a new student quad, will expand athletic and parking facilities to the new North Campus, and will include the construction of a pedestrian bridge to safely connect the existing and new campuses. I support Chaminade because they have been an important asset in the West Hills community for the past 60+ years, and the campus plan will allow them to provide additional quality educational programs and a wide variety of essential curricular, co-curricular and extra-curricular programs.
Person signing above petition	David Hughes
Address	23900 Stagg St West Hills, CA 91304
Email	dlhughes77@hotmail.com
Signature	
Date submitted	Mar 28, 2024 01:06:49 PM

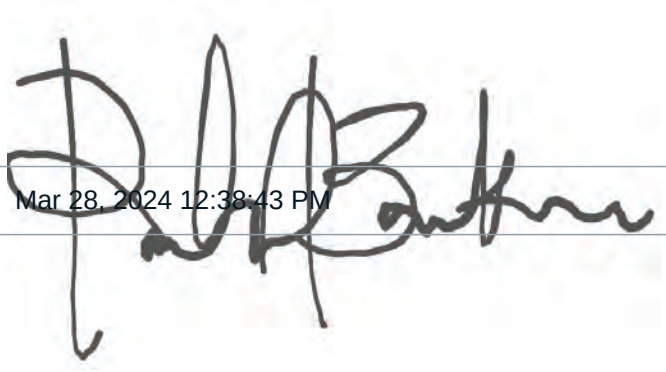
Form Name:	North Campus Petition
Submission Time:	March 28, 2024 1:10 pm
Browser:	Chrome 123.0.0.0 / Windows
IP Address:	76.79.242.194
Unique ID:	1209592017
Location:	34.0264, -117.936

Description Area	Petition In Support of Chaminade College Preparatory's New High School Campus PlanI have reviewed and support Chaminade College Preparatory's new high school campus plan which will modernize and upgrade the existing campus facilities with new academic, library, counseling and administrative areas and a new student quad, will expand athletic and parking facilities to the new North Campus, and will include the construction of a pedestrian bridge to safely connect the existing and new campuses. I support Chaminade because they have been an important asset in the West Hills community for the past 60+ years, and the campus plan will allow them to provide additional quality educational programs and a wide variety of essential curricular, co-curricular and extra-curricular programs.
Person signing above petition	Martha Tenn
Address	2735 Edgeview Court Thousand Oaks, CA 91320
Email	mastenn@yahoo.com
Signature	
Date submitted	Mar 28, 2024 01:09:58 PM

Form Name:	North Campus Petition
Submission Time:	March 28, 2024 1:11 pm
Browser:	Mobile Safari 17.3.1 / iOS
IP Address:	107.77.228.126
Unique ID:	1209592416
Location:	34.0544, -118.244

Description Area	Petition In Support of Chaminade College Preparatory's New High School Campus PlanI have reviewed and support Chaminade College Preparatory's new high school campus plan which will modernize and upgrade the existing campus facilities with new academic, library, counseling and administrative areas and a new student quad, will expand athletic and parking facilities to the new North Campus, and will include the construction of a pedestrian bridge to safely connect the existing and new campuses. I support Chaminade because they have been an important asset in the West Hills community for the past 60+ years, and the campus plan will allow them to provide additional quality educational programs and a wide variety of essential curricular, co-curricular and extra-curricular programs.
Person signing above petition	Vivian Cuaderno
Address	16858 Weddington Street Encino, CA 91436
Signature	
Date submitted	Mar 28, 2024 01:10:58 PM

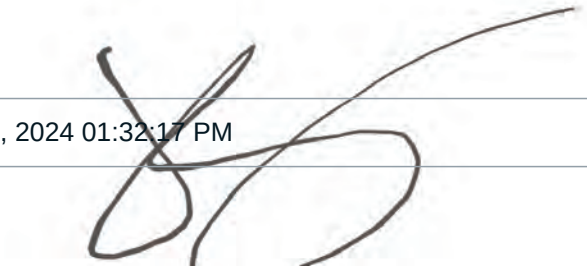
Form Name:	North Campus Petition
Submission Time:	March 28, 2024 1:16 pm
Browser:	Mobile Safari 17.3.1 / iOS
IP Address:	108.80.17.30
Unique ID:	1209594263
Location:	33.7871, -117.8821

Description Area	Petition In Support of Chaminade College Preparatory's New High School Campus PlanI have reviewed and support Chaminade College Preparatory's new high school campus plan which will modernize and upgrade the existing campus facilities with new academic, library, counseling and administrative areas and a new student quad, will expand athletic and parking facilities to the new North Campus, and will include the construction of a pedestrian bridge to safely connect the existing and new campuses. I support Chaminade because they have been an important asset in the West Hills community for the past 60+ years, and the campus plan will allow them to provide additional quality educational programs and a wide variety of essential curricular, co-curricular and extra-curricular programs.
Person signing above petition	Rachel Barker
Address	8473 Valley Circle Blvd. West Hills, CA 91304
Email	rachelleebarker@gmail.com
Signature	
Date submitted	Mar 28, 2024 12:38:43 PM

Form Name:	North Campus Petition
Submission Time:	March 28, 2024 1:24 pm
Browser:	Chrome 121.0.0.0 / OS X
IP Address:	75.82.101.21
Unique ID:	1209597327
Location:	34.1413, -118.6599

Description Area	Petition In Support of Chaminade College Preparatory's New High School Campus PlanI have reviewed and support Chaminade College Preparatory's new high school campus plan which will modernize and upgrade the existing campus facilities with new academic, library, counseling and administrative areas and a new student quad, will expand athletic and parking facilities to the new North Campus, and will include the construction of a pedestrian bridge to safely connect the existing and new campuses. I support Chaminade because they have been an important asset in the West Hills community for the past 60+ years, and the campus plan will allow them to provide additional quality educational programs and a wide variety of essential curricular, co-curricular and extra-curricular programs.
Person signing above petition	Danielle Vorzimer
Address	11 APPALOOSA LN Bell Canyon, CA 91307
Email	daniellevorzimer@gmail.com
Signature	
Date submitted	Mar 28, 2024 01:24:11 PM

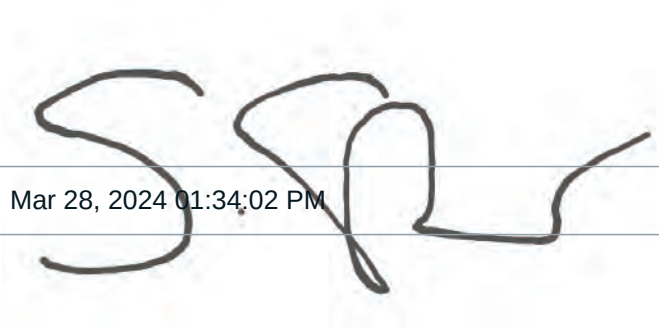
Form Name:	North Campus Petition
Submission Time:	March 28, 2024 1:32 pm
Browser:	Mobile Safari 17.3.1 / iOS
IP Address:	98.153.6.86
Unique ID:	1209600449
Location:	33.9555, -118.2863

Description Area	Petition In Support of Chaminade College Preparatory's New High School Campus PlanI have reviewed and support Chaminade College Preparatory's new high school campus plan which will modernize and upgrade the existing campus facilities with new academic, library, counseling and administrative areas and a new student quad, will expand athletic and parking facilities to the new North Campus, and will include the construction of a pedestrian bridge to safely connect the existing and new campuses. I support Chaminade because they have been an important asset in the West Hills community for the past 60+ years, and the campus plan will allow them to provide additional quality educational programs and a wide variety of essential curricular, co-curricular and extra-curricular programs.
Person signing above petition	Nga Hoang
Address	22433 N Summit Ridge Cir Chatsworth, CA 91311
Email	monet09@aol.com
Signature	
Date submitted	Mar 28, 2024 01:32:17 PM

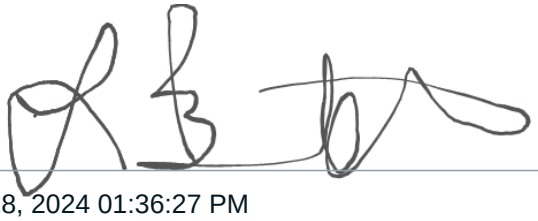
Form Name:	North Campus Petition
Submission Time:	March 28, 2024 1:33 pm
Browser:	Mobile Safari 17.3.1 / iOS
IP Address:	104.35.132.58
Unique ID:	1209600697
Location:	34.1765, -118.614

Description Area	Petition In Support of Chaminade College Preparatory's New High School Campus PlanI have reviewed and support Chaminade College Preparatory's new high school campus plan which will modernize and upgrade the existing campus facilities with new academic, library, counseling and administrative areas and a new student quad, will expand athletic and parking facilities to the new North Campus, and will include the construction of a pedestrian bridge to safely connect the existing and new campuses. I support Chaminade because they have been an important asset in the West Hills community for the past 60+ years, and the campus plan will allow them to provide additional quality educational programs and a wide variety of essential curricular, co-curricular and extra-curricular programs.
Person signing above petition	April Risteff
Address	23251 Victory Blvd West Hills, CA 91307
Email	udbuddha@yahoo.com
Signature	
Date submitted	Mar 28, 2024 01:32:57 PM

Form Name:	North Campus Petition
Submission Time:	March 28, 2024 1:34 pm
Browser:	Mobile Safari 17.3.1 / iOS
IP Address:	174.193.133.186
Unique ID:	1209601089
Location:	34.0068, -118.256

Description Area	Petition In Support of Chaminade College Preparatory's New High School Campus PlanI have reviewed and support Chaminade College Preparatory's new high school campus plan which will modernize and upgrade the existing campus facilities with new academic, library, counseling and administrative areas and a new student quad, will expand athletic and parking facilities to the new North Campus, and will include the construction of a pedestrian bridge to safely connect the existing and new campuses. I support Chaminade because they have been an important asset in the West Hills community for the past 60+ years, and the campus plan will allow them to provide additional quality educational programs and a wide variety of essential curricular, co-curricular and extra-curricular programs.
Person signing above petition	Suzanne Shirley
Address	10341 Debra Ave Granada Hills, CA 91344
Email	stardiff223@yahoo.com
Signature	
Date submitted	Mar 28, 2024 01:34:02 PM

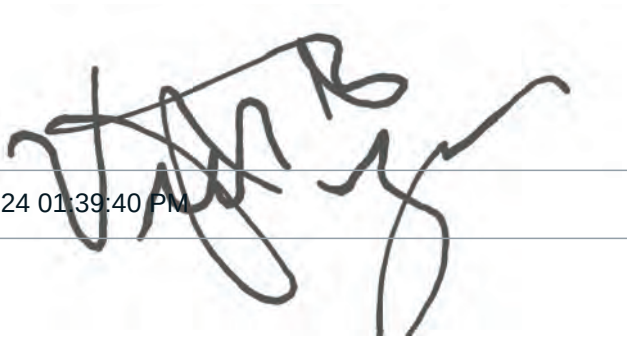
Form Name:	North Campus Petition
Submission Time:	March 28, 2024 1:37 pm
Browser:	Chrome 123.0.0.0 / Windows
IP Address:	99.48.37.177
Unique ID:	1209602070
Location:	33.7903, -118.1215

Description Area	Petition In Support of Chaminade College Preparatory's New High School Campus PlanI have reviewed and support Chaminade College Preparatory's new high school campus plan which will modernize and upgrade the existing campus facilities with new academic, library, counseling and administrative areas and a new student quad, will expand athletic and parking facilities to the new North Campus, and will include the construction of a pedestrian bridge to safely connect the existing and new campuses. I support Chaminade because they have been an important asset in the West Hills community for the past 60+ years, and the campus plan will allow them to provide additional quality educational programs and a wide variety of essential curricular, co-curricular and extra-curricular programs.
Person signing above petition	LESLIE BOLDT
Address	22737 STAGG STREET WEST HILLS, CA 91304
Email	BOLDTLESLIE@YAHOO.COM
Signature	
Date submitted	Mar 28, 2024 01:36:27 PM

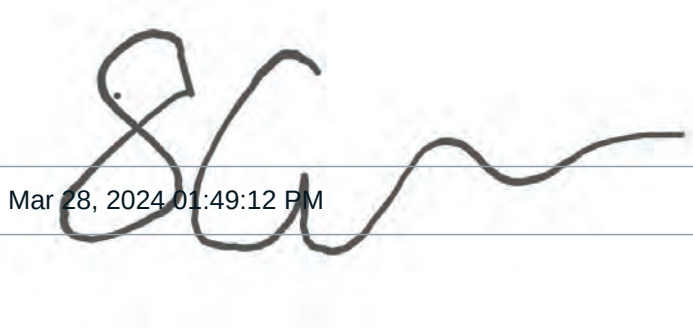
Form Name:	North Campus Petition
Submission Time:	March 28, 2024 1:38 pm
Browser:	Safari 17.4.1 / OS X
IP Address:	75.82.101.21
Unique ID:	1209602705
Location:	34.1413, -118.6599

Description Area	Petition In Support of Chaminade College Preparatory's New High School Campus PlanI have reviewed and support Chaminade College Preparatory's new high school campus plan which will modernize and upgrade the existing campus facilities with new academic, library, counseling and administrative areas and a new student quad, will expand athletic and parking facilities to the new North Campus, and will include the construction of a pedestrian bridge to safely connect the existing and new campuses. I support Chaminade because they have been an important asset in the West Hills community for the past 60+ years, and the campus plan will allow them to provide additional quality educational programs and a wide variety of essential curricular, co-curricular and extra-curricular programs.
Person signing above petition	Andy Vorzimer
Address	11 Appaloosa Ln Bell Canyon, CA 91307
Email	andyvorzimer@gmail.com
Signature	
Date submitted	Mar 28, 2024 01:38:12 PM

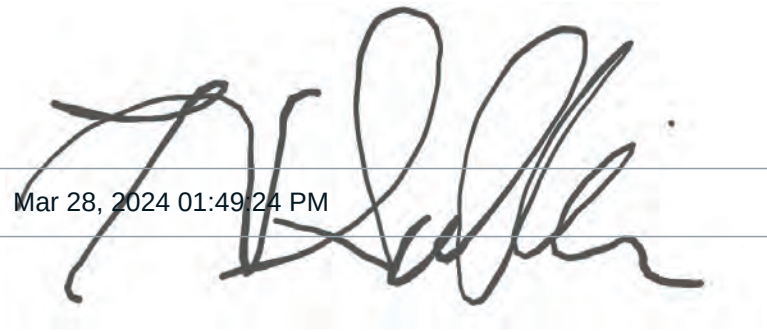
Form Name:	North Campus Petition
Submission Time:	March 28, 2024 1:40 pm
Browser:	Mobile Safari 17.4.1 / iOS
IP Address:	198.72.228.176
Unique ID:	1209603236
Location:	34.2601, -118.5789

Description Area	Petition In Support of Chaminade College Preparatory's New High School Campus PlanI have reviewed and support Chaminade College Preparatory's new high school campus plan which will modernize and upgrade the existing campus facilities with new academic, library, counseling and administrative areas and a new student quad, will expand athletic and parking facilities to the new North Campus, and will include the construction of a pedestrian bridge to safely connect the existing and new campuses. I support Chaminade because they have been an important asset in the West Hills community for the past 60+ years, and the campus plan will allow them to provide additional quality educational programs and a wide variety of essential curricular, co-curricular and extra-curricular programs.
Person signing above petition	Vinta Jhingan
Address	11536 Baird Ave Porter Ranch, CA 91326
Email	vintajhingan@yahoo.com
Signature	
Date submitted	Mar 28, 2024 01:39:40 PM

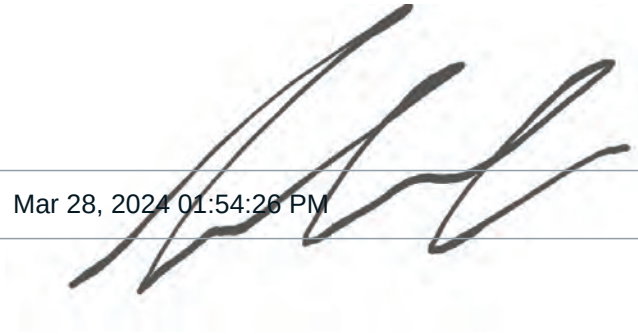
Form Name:	North Campus Petition
Submission Time:	March 28, 2024 1:49 pm
Browser:	Mobile Safari 16.3 / iOS
IP Address:	99.160.61.137
Unique ID:	1209606605
Location:	33.9549, -117.6414

Description Area	Petition In Support of Chaminade College Preparatory's New High School Campus PlanI have reviewed and support Chaminade College Preparatory's new high school campus plan which will modernize and upgrade the existing campus facilities with new academic, library, counseling and administrative areas and a new student quad, will expand athletic and parking facilities to the new North Campus, and will include the construction of a pedestrian bridge to safely connect the existing and new campuses. I support Chaminade because they have been an important asset in the West Hills community for the past 60+ years, and the campus plan will allow them to provide additional quality educational programs and a wide variety of essential curricular, co-curricular and extra-curricular programs.
Person signing above petition	Susan Green
Address	22279 Sunmit Vue Lane Woodland Hills , CA 91367
Email	shmooz17@aol.com
Signature	
Date submitted	Mar 28, 2024 01:49:12 PM

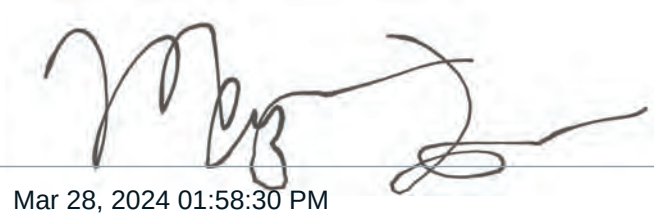
Form Name:	North Campus Petition
Submission Time:	March 28, 2024 1:50 pm
Browser:	Mobile Safari / iOS
IP Address:	104.173.18.99
Unique ID:	1209606855
Location:	34.1979, -118.5371

Description Area	Petition In Support of Chaminade College Preparatory's New High School Campus PlanI have reviewed and support Chaminade College Preparatory's new high school campus plan which will modernize and upgrade the existing campus facilities with new academic, library, counseling and administrative areas and a new student quad, will expand athletic and parking facilities to the new North Campus, and will include the construction of a pedestrian bridge to safely connect the existing and new campuses. I support Chaminade because they have been an important asset in the West Hills community for the past 60+ years, and the campus plan will allow them to provide additional quality educational programs and a wide variety of essential curricular, co-curricular and extra-curricular programs.
Person signing above petition	Heather Sullivan
Address	7429 White Oak Ave Reseda, CA 91335
Email	heatherandtim@gmail.com
Signature	
Date submitted	Mar 28, 2024 01:49:24 PM

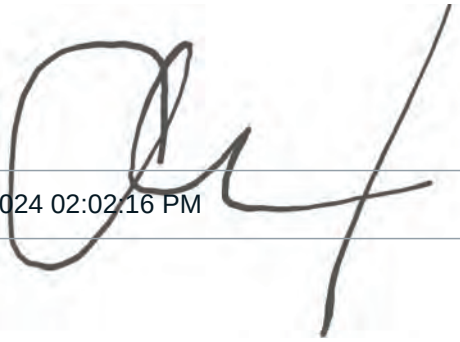
Form Name:	North Campus Petition
Submission Time:	March 28, 2024 1:55 pm
Browser:	Chrome Mobile 123.0.6312.52 / iOS
IP Address:	73.235.123.225
Unique ID:	1209608383
Location:	38.5755, -121.4883

Description Area	Petition In Support of Chaminade College Preparatory's New High School Campus PlanI have reviewed and support Chaminade College Preparatory's new high school campus plan which will modernize and upgrade the existing campus facilities with new academic, library, counseling and administrative areas and a new student quad, will expand athletic and parking facilities to the new North Campus, and will include the construction of a pedestrian bridge to safely connect the existing and new campuses. I support Chaminade because they have been an important asset in the West Hills community for the past 60+ years, and the campus plan will allow them to provide additional quality educational programs and a wide variety of essential curricular, co-curricular and extra-curricular programs.
Person signing above petition	Alicia Arceo
Address	2288 Hightail Way Roseville, CA 95747
Email	myaarceo@gmail.com
Signature	
Date submitted	Mar 28, 2024 01:54:26 PM

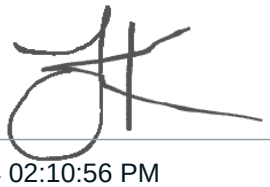
Form Name:	North Campus Petition
Submission Time:	March 28, 2024 1:58 pm
Browser:	Chrome 123.0.0.0 / OS X
IP Address:	107.115.41.13
Unique ID:	1209609465
Location:	36.115, -115.2165

Description Area	Petition In Support of Chaminade College Preparatory's New High School Campus PlanI have reviewed and support Chaminade College Preparatory's new high school campus plan which will modernize and upgrade the existing campus facilities with new academic, library, counseling and administrative areas and a new student quad, will expand athletic and parking facilities to the new North Campus, and will include the construction of a pedestrian bridge to safely connect the existing and new campuses. I support Chaminade because they have been an important asset in the West Hills community for the past 60+ years, and the campus plan will allow them to provide additional quality educational programs and a wide variety of essential curricular, co-curricular and extra-curricular programs.
Person signing above petition	Maryann Tyler
Address	1996 Glentana St Simi Valley, CA 93065
Email	maryann.tyler@compass.com
Signature	
Date submitted	Mar 28, 2024 01:58:30 PM

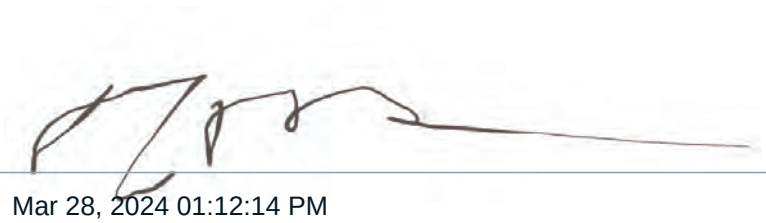
Form Name:	North Campus Petition
Submission Time:	March 28, 2024 2:02 pm
Browser:	Mobile Safari 17.3.1 / iOS
IP Address:	47.147.108.131
Unique ID:	1209610670
Location:	34.2106, -118.8716

Description Area	Petition In Support of Chaminade College Preparatory's New High School Campus PlanI have reviewed and support Chaminade College Preparatory's new high school campus plan which will modernize and upgrade the existing campus facilities with new academic, library, counseling and administrative areas and a new student quad, will expand athletic and parking facilities to the new North Campus, and will include the construction of a pedestrian bridge to safely connect the existing and new campuses. I support Chaminade because they have been an important asset in the West Hills community for the past 60+ years, and the campus plan will allow them to provide additional quality educational programs and a wide variety of essential curricular, co-curricular and extra-curricular programs.
Person signing above petition	Ashley Parisi
Address	73 Triangle St Thousand Oaks, CA 91360
Email	aashleyaparisi@yahoo.com
Signature	
Date submitted	Mar 28, 2024 02:02:16 PM

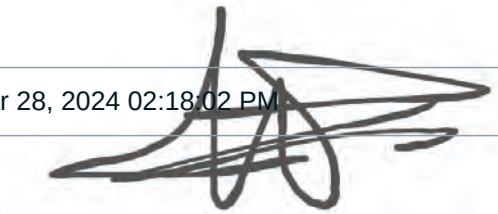
Form Name:	North Campus Petition
Submission Time:	March 28, 2024 2:11 pm
Browser:	Chrome 121.0.0.0 / OS X
IP Address:	172.90.229.44
Unique ID:	1209613307
Location:	34.0626, -118.3946

Description Area	Petition In Support of Chaminade College Preparatory's New High School Campus PlanI have reviewed and support Chaminade College Preparatory's new high school campus plan which will modernize and upgrade the existing campus facilities with new academic, library, counseling and administrative areas and a new student quad, will expand athletic and parking facilities to the new North Campus, and will include the construction of a pedestrian bridge to safely connect the existing and new campuses. I support Chaminade because they have been an important asset in the West Hills community for the past 60+ years, and the campus plan will allow them to provide additional quality educational programs and a wide variety of essential curricular, co-curricular and extra-curricular programs.
Person signing above petition	Tracey Kavanagh
Address	12959 WOODBRIDGE ST STUDIO CITY, CA 91604-1455
Email	heytraceykavanagh@gmail.com
Signature	
Date submitted	Mar 28, 2024 02:10:56 PM

Form Name:	North Campus Petition
Submission Time:	March 28, 2024 2:11 pm
Browser:	Chrome 123.0.0.0 / Windows
IP Address:	107.181.178.68
Unique ID:	1209613371
Location:	34.0726, -118.261

Description Area	Petition In Support of Chaminade College Preparatory's New High School Campus PlanI have reviewed and support Chaminade College Preparatory's new high school campus plan which will modernize and upgrade the existing campus facilities with new academic, library, counseling and administrative areas and a new student quad, will expand athletic and parking facilities to the new North Campus, and will include the construction of a pedestrian bridge to safely connect the existing and new campuses. I support Chaminade because they have been an important asset in the West Hills community for the past 60+ years, and the campus plan will allow them to provide additional quality educational programs and a wide variety of essential curricular, co-curricular and extra-curricular programs.
Person signing above petition	Messiah Dimacali
Address	10636 Louise Ave. Granada Hills, CA 91344
Email	mjdim@yahoo.com
Signature	
Date submitted	Mar 28, 2024 01:12:14 PM

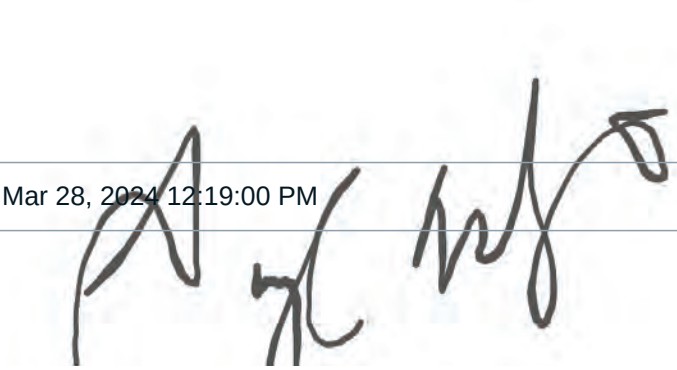
Form Name:	North Campus Petition
Submission Time:	March 28, 2024 2:19 pm
Browser:	Mobile Safari 17.3.1 / iOS
IP Address:	107.77.230.27
Unique ID:	1209615860
Location:	34.0544, -118.244

Description Area	Petition In Support of Chaminade College Preparatory's New High School Campus PlanI have reviewed and support Chaminade College Preparatory's new high school campus plan which will modernize and upgrade the existing campus facilities with new academic, library, counseling and administrative areas and a new student quad, will expand athletic and parking facilities to the new North Campus, and will include the construction of a pedestrian bridge to safely connect the existing and new campuses. I support Chaminade because they have been an important asset in the West Hills community for the past 60+ years, and the campus plan will allow them to provide additional quality educational programs and a wide variety of essential curricular, co-curricular and extra-curricular programs.
Person signing above petition	Jennifer Kenna
Address	4542 Irvine Ave Studio City, CA 91602
Email	jennifer_kenna@hotmail.com
Signature	
Date submitted	Mar 28, 2024 02:18:02 PM

Form Name:	North Campus Petition
Submission Time:	March 28, 2024 2:21 pm
Browser:	Chrome 122.0.0.0 / OS X
IP Address:	76.82.246.148
Unique ID:	1209616352
Location:	34.1765, -118.614

Description Area	Petition In Support of Chaminade College Preparatory's New High School Campus PlanI have reviewed and support Chaminade College Preparatory's new high school campus plan which will modernize and upgrade the existing campus facilities with new academic, library, counseling and administrative areas and a new student quad, will expand athletic and parking facilities to the new North Campus, and will include the construction of a pedestrian bridge to safely connect the existing and new campuses. I support Chaminade because they have been an important asset in the West Hills community for the past 60+ years, and the campus plan will allow them to provide additional quality educational programs and a wide variety of essential curricular, co-curricular and extra-curricular programs.
Person signing above petition	marc levin
Address	6623 topanga canyon blvd 620 woodland hills, CA 91367
Email	marc.levin@gmail.com
Signature	
Date submitted	Mar 28, 2024 02:20:40 PM

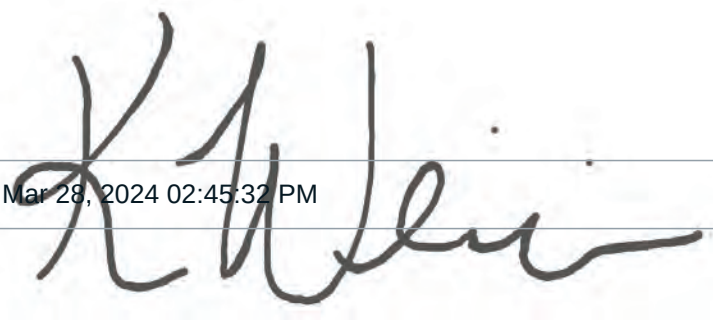
Form Name:	North Campus Petition
Submission Time:	March 28, 2024 2:29 pm
Browser:	Chrome Mobile 123.0.6312.52 / iOS
IP Address:	76.170.71.196
Unique ID:	1209619088
Location:	34.2529, -118.418

Description Area	Petition In Support of Chaminade College Preparatory's New High School Campus PlanI have reviewed and support Chaminade College Preparatory's new high school campus plan which will modernize and upgrade the existing campus facilities with new academic, library, counseling and administrative areas and a new student quad, will expand athletic and parking facilities to the new North Campus, and will include the construction of a pedestrian bridge to safely connect the existing and new campuses. I support Chaminade because they have been an important asset in the West Hills community for the past 60+ years, and the campus plan will allow them to provide additional quality educational programs and a wide variety of essential curricular, co-curricular and extra-curricular programs.
Person signing above petition	Angel Sotelo
Address	12013 Youngdale Ave Sylmar, CA 91342
Email	aaanm45@gmail.com
Signature	
Date submitted	Mar 28, 2024 12:19:00 PM

Form Name:	North Campus Petition
Submission Time:	March 28, 2024 2:33 pm
Browser:	Chrome 123.0.0.0 / Windows
IP Address:	70.93.172.246
Unique ID:	1209620417
Location:	34.1413, -118.6599

Description Area	Petition In Support of Chaminade College Preparatory's New High School Campus PlanI have reviewed and support Chaminade College Preparatory's new high school campus plan which will modernize and upgrade the existing campus facilities with new academic, library, counseling and administrative areas and a new student quad, will expand athletic and parking facilities to the new North Campus, and will include the construction of a pedestrian bridge to safely connect the existing and new campuses. I support Chaminade because they have been an important asset in the West Hills community for the past 60+ years, and the campus plan will allow them to provide additional quality educational programs and a wide variety of essential curricular, co-curricular and extra-curricular programs.
Person signing above petition	Adam Hand
Address	22610 Liberty Bell Road Calabasas, CA 91302
Email	azhand@ahandconsulting.com
Signature	
Date submitted	Mar 28, 2024 02:33:05 PM

Form Name:	North Campus Petition
Submission Time:	March 28, 2024 2:46 pm
Browser:	Mobile Safari 17.3.1 / iOS
IP Address:	99.67.159.15
Unique ID:	1209624446
Location:	34.2047, -118.573

Description Area	Petition In Support of Chaminade College Preparatory's New High School Campus PlanI have reviewed and support Chaminade College Preparatory's new high school campus plan which will modernize and upgrade the existing campus facilities with new academic, library, counseling and administrative areas and a new student quad, will expand athletic and parking facilities to the new North Campus, and will include the construction of a pedestrian bridge to safely connect the existing and new campuses. I support Chaminade because they have been an important asset in the West Hills community for the past 60+ years, and the campus plan will allow them to provide additional quality educational programs and a wide variety of essential curricular, co-curricular and extra-curricular programs.
Person signing above petition	Kristen Weirich
Address	12520 N Saddle Ct Porter Ranch, CA 91326
Email	kristen.weirich@gmail.com
Signature	
Date submitted	Mar 28, 2024 02:45:32 PM

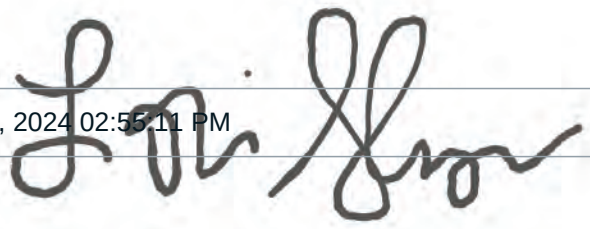
Form Name:	North Campus Petition
Submission Time:	March 28, 2024 2:50 pm
Browser:	Chrome 123.0.0.0 / Windows
IP Address:	47.154.203.67
Unique ID:	1209625681
Location:	34.2106, -118.8716

Description Area	Petition In Support of Chaminade College Preparatory's New High School Campus PlanI have reviewed and support Chaminade College Preparatory's new high school campus plan which will modernize and upgrade the existing campus facilities with new academic, library, counseling and administrative areas and a new student quad, will expand athletic and parking facilities to the new North Campus, and will include the construction of a pedestrian bridge to safely connect the existing and new campuses. I support Chaminade because they have been an important asset in the West Hills community for the past 60+ years, and the campus plan will allow them to provide additional quality educational programs and a wide variety of essential curricular, co-curricular and extra-curricular programs.
Person signing above petition	michael heard
Address	1703 Oak Drive Topanga, CA 90290
Email	michaelcliffheard@gmail.com
Signature	
Date submitted	Mar 28, 2024 02:49:45 PM

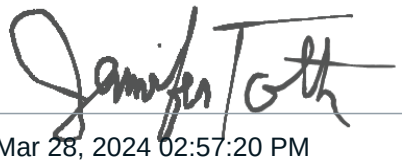
Form Name:	North Campus Petition
Submission Time:	March 28, 2024 2:50 pm
Browser:	Chrome 123.0.0.0 / Windows
IP Address:	76.50.201.3
Unique ID:	1209625938
Location:	34.2548, -118.588

Description Area	Petition In Support of Chaminade College Preparatory's New High School Campus PlanI have reviewed and support Chaminade College Preparatory's new high school campus plan which will modernize and upgrade the existing campus facilities with new academic, library, counseling and administrative areas and a new student quad, will expand athletic and parking facilities to the new North Campus, and will include the construction of a pedestrian bridge to safely connect the existing and new campuses. I support Chaminade because they have been an important asset in the West Hills community for the past 60+ years, and the campus plan will allow them to provide additional quality educational programs and a wide variety of essential curricular, co-curricular and extra-curricular programs.
Person signing above petition	Brandi Cirlin
Address	21311 CELTIC ST CHATSWORTH, CA 91311
Email	brandi.cirlin@att.net
Signature	
Date submitted	Mar 28, 2024 02:49:58 PM

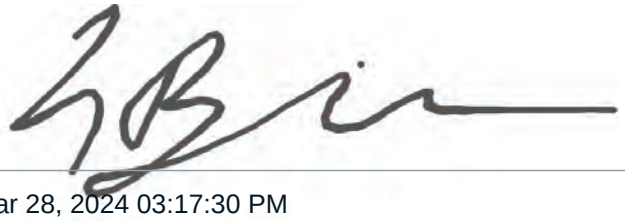
Form Name:	North Campus Petition
Submission Time:	March 28, 2024 2:55 pm
Browser:	Mobile Safari 17.3.1 / iOS
IP Address:	104.28.85.219
Unique ID:	1209627786
Location:	37.751, -97.822

Description Area	Petition In Support of Chaminade College Preparatory's New High School Campus PlanI have reviewed and support Chaminade College Preparatory's new high school campus plan which will modernize and upgrade the existing campus facilities with new academic, library, counseling and administrative areas and a new student quad, will expand athletic and parking facilities to the new North Campus, and will include the construction of a pedestrian bridge to safely connect the existing and new campuses. I support Chaminade because they have been an important asset in the West Hills community for the past 60+ years, and the campus plan will allow them to provide additional quality educational programs and a wide variety of essential curricular, co-curricular and extra-curricular programs.
Person signing above petition	Lori Shroyer
Address	23625 Arminta st West Hills, CA 91304
Email	4shroyers@gmail.com
Signature	
Date submitted	Mar 28, 2024 02:55:11 PM

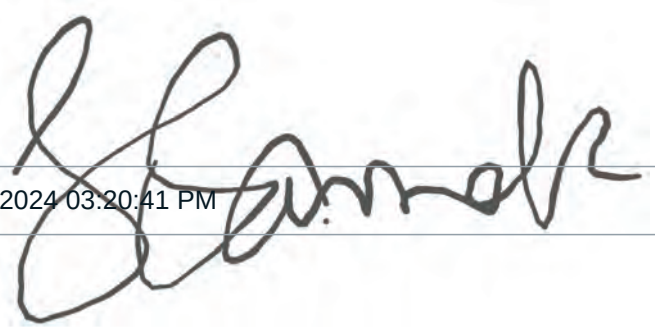
Form Name:	North Campus Petition
Submission Time:	March 28, 2024 2:58 pm
Browser:	Chrome 122.0.0.0 / Windows
IP Address:	50.230.149.27
Unique ID:	1209628676
Location:	34.1379, -118.3619

Description Area	Petition In Support of Chaminade College Preparatory's New High School Campus PlanI have reviewed and support Chaminade College Preparatory's new high school campus plan which will modernize and upgrade the existing campus facilities with new academic, library, counseling and administrative areas and a new student quad, will expand athletic and parking facilities to the new North Campus, and will include the construction of a pedestrian bridge to safely connect the existing and new campuses. I support Chaminade because they have been an important asset in the West Hills community for the past 60+ years, and the campus plan will allow them to provide additional quality educational programs and a wide variety of essential curricular, co-curricular and extra-curricular programs.
Person signing above petition	Jennifer Toth
Address	9755 Kessler Ave Chatsworth, CA 91311
Email	jennifertoth22@gmail.com
Signature	
Date submitted	Mar 28, 2024 02:57:20 PM

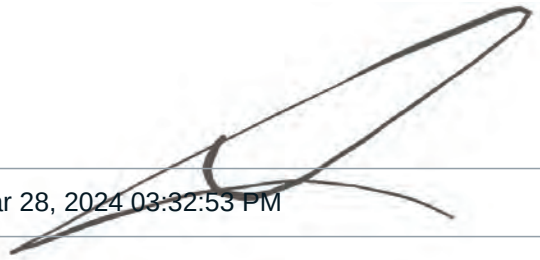
Form Name:	North Campus Petition
Submission Time:	March 28, 2024 3:17 pm
Browser:	Mobile Safari 17.3.1 / iOS
IP Address:	166.199.97.99
Unique ID:	1209634024
Location:	33.9199, -118.2641

Description Area	Petition In Support of Chaminade College Preparatory's New High School Campus PlanI have reviewed and support Chaminade College Preparatory's new high school campus plan which will modernize and upgrade the existing campus facilities with new academic, library, counseling and administrative areas and a new student quad, will expand athletic and parking facilities to the new North Campus, and will include the construction of a pedestrian bridge to safely connect the existing and new campuses. I support Chaminade because they have been an important asset in the West Hills community for the past 60+ years, and the campus plan will allow them to provide additional quality educational programs and a wide variety of essential curricular, co-curricular and extra-curricular programs.
Person signing above petition	Scott Bergen
Address	26967 Calamine Dr. Calabasas, CA 91301
Email	scottbergen@yahoo.com
Signature	
Date submitted	Mar 28, 2024 03:17:30 PM

Form Name:	North Campus Petition
Submission Time:	March 28, 2024 3:21 pm
Browser:	Mobile Safari 17.3.1 / iOS
IP Address:	104.28.85.125
Unique ID:	1209634997
Location:	37.751, -97.822

Description Area	Petition In Support of Chaminade College Preparatory's New High School Campus PlanI have reviewed and support Chaminade College Preparatory's new high school campus plan which will modernize and upgrade the existing campus facilities with new academic, library, counseling and administrative areas and a new student quad, will expand athletic and parking facilities to the new North Campus, and will include the construction of a pedestrian bridge to safely connect the existing and new campuses. I support Chaminade because they have been an important asset in the West Hills community for the past 60+ years, and the campus plan will allow them to provide additional quality educational programs and a wide variety of essential curricular, co-curricular and extra-curricular programs.
Person signing above petition	Tracy Samek
Address	4839 Oak Park Ave Encino, CA 91316
Email	tracysamek@gmail.com
Signature	
Date submitted	Mar 28, 2024 03:20:41 PM

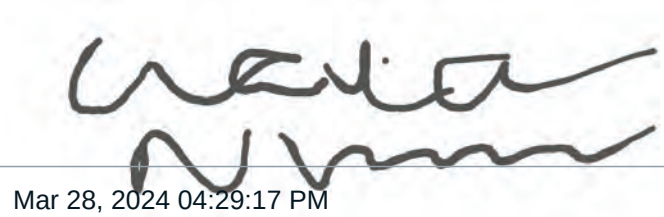
Form Name:	North Campus Petition
Submission Time:	March 28, 2024 3:33 pm
Browser:	Mobile Safari 17.3.1 / iOS
IP Address:	198.252.201.3
Unique ID:	1209638150
Location:	34.1449, -118.3887

Description Area	Petition In Support of Chaminade College Preparatory's New High School Campus PlanI have reviewed and support Chaminade College Preparatory's new high school campus plan which will modernize and upgrade the existing campus facilities with new academic, library, counseling and administrative areas and a new student quad, will expand athletic and parking facilities to the new North Campus, and will include the construction of a pedestrian bridge to safely connect the existing and new campuses. I support Chaminade because they have been an important asset in the West Hills community for the past 60+ years, and the campus plan will allow them to provide additional quality educational programs and a wide variety of essential curricular, co-curricular and extra-curricular programs.
Person signing above petition	Liora Raphael
Address	4456 Romero Dr Tarzana, CA 91356
Email	les1441@gmail.com
Signature	
Date submitted	Mar 28, 2024 03:32:53 PM

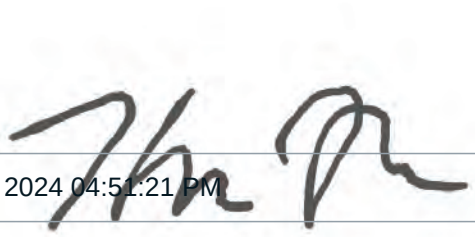
Form Name:	North Campus Petition
Submission Time:	March 28, 2024 3:54 pm
Browser:	Mobile Safari 16.6 / iOS
IP Address:	172.56.44.238
Unique ID:	1209643833
Location:	21.3266, -157.8621

Description Area	Petition In Support of Chaminade College Preparatory's New High School Campus PlanI have reviewed and support Chaminade College Preparatory's new high school campus plan which will modernize and upgrade the existing campus facilities with new academic, library, counseling and administrative areas and a new student quad, will expand athletic and parking facilities to the new North Campus, and will include the construction of a pedestrian bridge to safely connect the existing and new campuses. I support Chaminade because they have been an important asset in the West Hills community for the past 60+ years, and the campus plan will allow them to provide additional quality educational programs and a wide variety of essential curricular, co-curricular and extra-curricular programs.
Person signing above petition	Charles Lee
Address	18744 Kenya Street Porter Ranch , CA 91326
Email	char3302002@yahoo.com
Signature	
Date submitted	Mar 28, 2024 12:52:42 PM

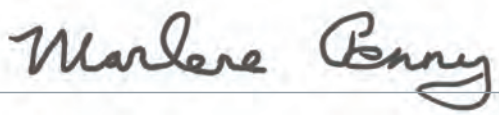
Form Name:	North Campus Petition
Submission Time:	March 28, 2024 4:31 pm
Browser:	Mobile Safari 17.0 / iOS
IP Address:	172.251.8.248
Unique ID:	1209652434
Location:	34.2773, -118.5001

Description Area	Petition In Support of Chaminade College Preparatory's New High School Campus PlanI have reviewed and support Chaminade College Preparatory's new high school campus plan which will modernize and upgrade the existing campus facilities with new academic, library, counseling and administrative areas and a new student quad, will expand athletic and parking facilities to the new North Campus, and will include the construction of a pedestrian bridge to safely connect the existing and new campuses. I support Chaminade because they have been an important asset in the West Hills community for the past 60+ years, and the campus plan will allow them to provide additional quality educational programs and a wide variety of essential curricular, co-curricular and extra-curricular programs.
Person signing above petition	Carla Nunneri
Address	17249 Daemas Pl Granada Hills, CA 91344
Email	pc5965@yahoo.com
Signature	
Date submitted	Mar 28, 2024 04:29:17 PM

Form Name:	North Campus Petition
Submission Time:	March 28, 2024 4:52 pm
Browser:	Mobile Safari 17.3.1 / iOS
IP Address:	174.243.146.48
Unique ID:	1209657685
Location:	34.0515, -118.2707

Description Area	Petition In Support of Chaminade College Preparatory's New High School Campus PlanI have reviewed and support Chaminade College Preparatory's new high school campus plan which will modernize and upgrade the existing campus facilities with new academic, library, counseling and administrative areas and a new student quad, will expand athletic and parking facilities to the new North Campus, and will include the construction of a pedestrian bridge to safely connect the existing and new campuses. I support Chaminade because they have been an important asset in the West Hills community for the past 60+ years, and the campus plan will allow them to provide additional quality educational programs and a wide variety of essential curricular, co-curricular and extra-curricular programs.
Person signing above petition	Tom Molnar
Address	21221 Celtic Street Chatsworth , CA 91311
Email	Uclatom123@gmail.com
Signature	
Date submitted	Mar 28, 2024 04:51:21 PM

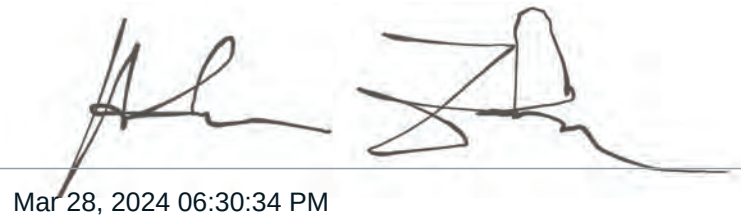
Form Name:	North Campus Petition
Submission Time:	March 28, 2024 5:54 pm
Browser:	Chrome 123.0.0.0 / OS X
IP Address:	172.119.54.64
Unique ID:	1209669981
Location:	34.2601, -118.5789

Description Area	Petition In Support of Chaminade College Preparatory's New High School Campus PlanI have reviewed and support Chaminade College Preparatory's new high school campus plan which will modernize and upgrade the existing campus facilities with new academic, library, counseling and administrative areas and a new student quad, will expand athletic and parking facilities to the new North Campus, and will include the construction of a pedestrian bridge to safely connect the existing and new campuses. I support Chaminade because they have been an important asset in the West Hills community for the past 60+ years, and the campus plan will allow them to provide additional quality educational programs and a wide variety of essential curricular, co-curricular and extra-curricular programs.
Person signing above petition	Marlene Penny
Address	8941 Zelzah Ave Sherwood Forest, CA 91325
Email	marlenepenny@gmail.com
Signature	
Date submitted	Mar 28, 2024 05:53:47 PM

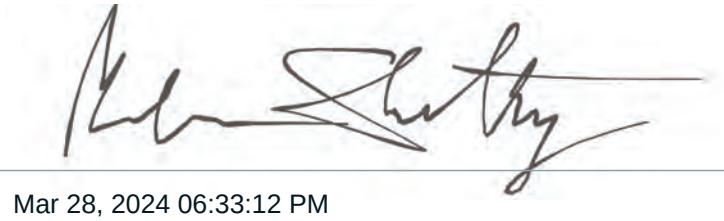
Form Name:	North Campus Petition
Submission Time:	March 28, 2024 6:06 pm
Browser:	Chrome 123.0.0.0 / OS X
IP Address:	104.172.97.160
Unique ID:	1209672048
Location:	34.2773, -118.5001

Description Area	Petition In Support of Chaminade College Preparatory's New High School Campus PlanI have reviewed and support Chaminade College Preparatory's new high school campus plan which will modernize and upgrade the existing campus facilities with new academic, library, counseling and administrative areas and a new student quad, will expand athletic and parking facilities to the new North Campus, and will include the construction of a pedestrian bridge to safely connect the existing and new campuses. I support Chaminade because they have been an important asset in the West Hills community for the past 60+ years, and the campus plan will allow them to provide additional quality educational programs and a wide variety of essential curricular, co-curricular and extra-curricular programs.
Person signing above petition	Betul Engel
Address	12380 Longacre Avenue Granada Hills, CA 91344
Email	betulbengel@gmail.com
Signature	
Date submitted	Mar 28, 2024 06:05:54 PM

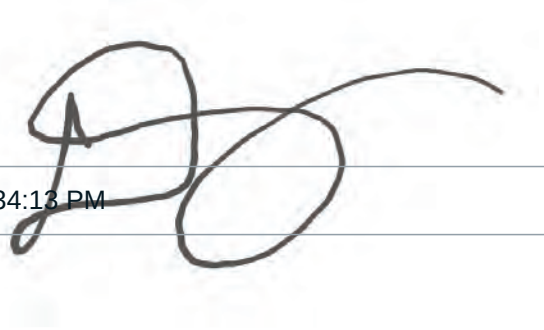
Form Name:	North Campus Petition
Submission Time:	March 28, 2024 6:31 pm
Browser:	Chrome 123.0.0.0 / OS X
IP Address:	104.33.196.83
Unique ID:	1209676450
Location:	34.1554, -118.5957

Description Area	Petition In Support of Chaminade College Preparatory's New High School Campus PlanI have reviewed and support Chaminade College Preparatory's new high school campus plan which will modernize and upgrade the existing campus facilities with new academic, library, counseling and administrative areas and a new student quad, will expand athletic and parking facilities to the new North Campus, and will include the construction of a pedestrian bridge to safely connect the existing and new campuses. I support Chaminade because they have been an important asset in the West Hills community for the past 60+ years, and the campus plan will allow them to provide additional quality educational programs and a wide variety of essential curricular, co-curricular and extra-curricular programs.
Person signing above petition	Adina Zaharescu
Address	4351 la barca drive Tarzana, CA 91356
Email	martafoi@sbcglobal.net
Signature	
Date submitted	Mar 28, 2024 06:30:34 PM

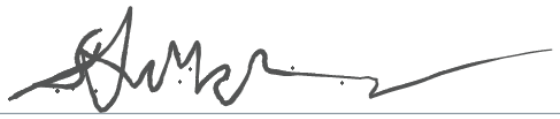
Form Name:	North Campus Petition
Submission Time:	March 28, 2024 6:34 pm
Browser:	Chrome 123.0.0.0 / OS X
IP Address:	104.33.196.83
Unique ID:	1209677015
Location:	34.1554, -118.5957

Description Area	Petition In Support of Chaminade College Preparatory's New High School Campus PlanI have reviewed and support Chaminade College Preparatory's new high school campus plan which will modernize and upgrade the existing campus facilities with new academic, library, counseling and administrative areas and a new student quad, will expand athletic and parking facilities to the new North Campus, and will include the construction of a pedestrian bridge to safely connect the existing and new campuses. I support Chaminade because they have been an important asset in the West Hills community for the past 60+ years, and the campus plan will allow them to provide additional quality educational programs and a wide variety of essential curricular, co-curricular and extra-curricular programs.
Person signing above petition	Niki Alexander Shetty
Address	20631 Ventura Blvd Ste 301 Woodland Hills, CA 91364
Email	chicoo@sbcglobal.net
Signature	
Date submitted	Mar 28, 2024 06:33:12 PM

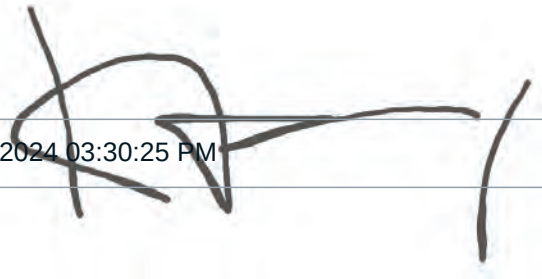
Form Name:	North Campus Petition
Submission Time:	March 28, 2024 6:35 pm
Browser:	Mobile Safari 16.5 / iOS
IP Address:	166.199.97.140
Unique ID:	1209677237
Location:	33.9199, -118.2641

Description Area	Petition In Support of Chaminade College Preparatory's New High School Campus PlanI have reviewed and support Chaminade College Preparatory's new high school campus plan which will modernize and upgrade the existing campus facilities with new academic, library, counseling and administrative areas and a new student quad, will expand athletic and parking facilities to the new North Campus, and will include the construction of a pedestrian bridge to safely connect the existing and new campuses. I support Chaminade because they have been an important asset in the West Hills community for the past 60+ years, and the campus plan will allow them to provide additional quality educational programs and a wide variety of essential curricular, co-curricular and extra-curricular programs.
Person signing above petition	Denise Popoch
Address	4929 Calvin Ave Tarzana , CA 91356
Email	denise_zacky@gensler.com
Signature	
Date submitted	Mar 28, 2024 06:34:13 PM

Form Name:	North Campus Petition
Submission Time:	March 28, 2024 7:28 pm
Browser:	Chrome 123.0.0.0 / Windows
IP Address:	107.141.116.119
Unique ID:	1209686298
Location:	34.2326, -118.5481

Description Area	Petition In Support of Chaminade College Preparatory's New High School Campus PlanI have reviewed and support Chaminade College Preparatory's new high school campus plan which will modernize and upgrade the existing campus facilities with new academic, library, counseling and administrative areas and a new student quad, will expand athletic and parking facilities to the new North Campus, and will include the construction of a pedestrian bridge to safely connect the existing and new campuses. I support Chaminade because they have been an important asset in the West Hills community for the past 60+ years, and the campus plan will allow them to provide additional quality educational programs and a wide variety of essential curricular, co-curricular and extra-curricular programs.
Person signing above petition	Shelby Speer
Address	22230 Germain St Unit 7 Chatsworth, CA 91311
Email	mnms.mommy@sbcglobal.net
Signature	
Date submitted	Mar 28, 2024 07:26:09 PM

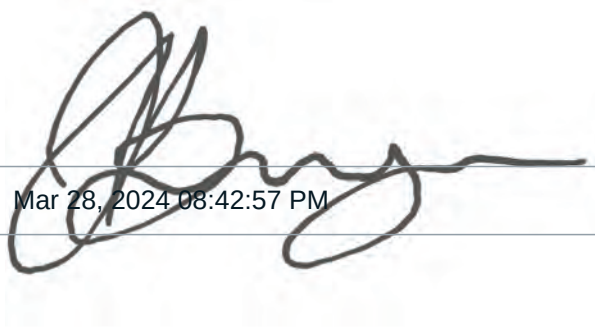
Form Name:	North Campus Petition
Submission Time:	March 28, 2024 7:31 pm
Browser:	Mobile Safari 17.3.1 / iOS
IP Address:	202.36.75.245
Unique ID:	1209686714
Location:	-37.7515, 175.214

Description Area	Petition In Support of Chaminade College Preparatory's New High School Campus PlanI have reviewed and support Chaminade College Preparatory's new high school campus plan which will modernize and upgrade the existing campus facilities with new academic, library, counseling and administrative areas and a new student quad, will expand athletic and parking facilities to the new North Campus, and will include the construction of a pedestrian bridge to safely connect the existing and new campuses. I support Chaminade because they have been an important asset in the West Hills community for the past 60+ years, and the campus plan will allow them to provide additional quality educational programs and a wide variety of essential curricular, co-curricular and extra-curricular programs.
Person signing above petition	Jill Stewart
Address	8381 Maynard Ave West Hills, CA 91304
Email	jstewart8381@gmail.com
Signature	
Date submitted	Mar 29, 2024 03:30:25 PM

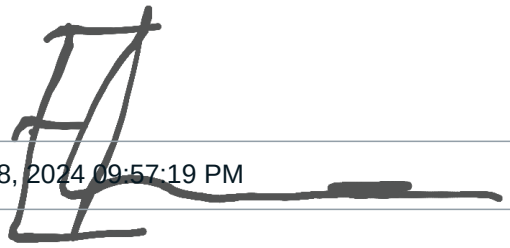
Form Name:	North Campus Petition
Submission Time:	March 28, 2024 7:46 pm
Browser:	Chrome 123.0.0.0 / OS X
IP Address:	76.32.36.16
Unique ID:	1209689017
Location:	34.2548, -118.588

Description Area	Petition In Support of Chaminade College Preparatory's New High School Campus PlanI have reviewed and support Chaminade College Preparatory's new high school campus plan which will modernize and upgrade the existing campus facilities with new academic, library, counseling and administrative areas and a new student quad, will expand athletic and parking facilities to the new North Campus, and will include the construction of a pedestrian bridge to safely connect the existing and new campuses. I support Chaminade because they have been an important asset in the West Hills community for the past 60+ years, and the campus plan will allow them to provide additional quality educational programs and a wide variety of essential curricular, co-curricular and extra-curricular programs.
Person signing above petition	David Toth
Address	9755 Kessler Ave Chatsworth, CA 91311
Email	davidtoth88@hotmail.com
Signature	
Date submitted	Mar 28, 2024 07:44:52 PM

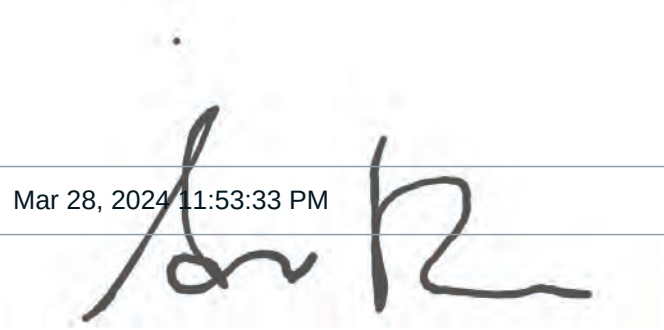
Form Name:	North Campus Petition
Submission Time:	March 28, 2024 8:43 pm
Browser:	Mobile Safari 17.3.1 / iOS
IP Address:	104.172.119.168
Unique ID:	1209696438
Location:	34.2773, -118.5001

Description Area	Petition In Support of Chaminade College Preparatory's New High School Campus PlanI have reviewed and support Chaminade College Preparatory's new high school campus plan which will modernize and upgrade the existing campus facilities with new academic, library, counseling and administrative areas and a new student quad, will expand athletic and parking facilities to the new North Campus, and will include the construction of a pedestrian bridge to safely connect the existing and new campuses. I support Chaminade because they have been an important asset in the West Hills community for the past 60+ years, and the campus plan will allow them to provide additional quality educational programs and a wide variety of essential curricular, co-curricular and extra-curricular programs.
Person signing above petition	JOHAIDA BOCANEGRA
Address	11458 Swinton ave Granada Hills, CA 91344
Email	jobocanegra28@gmail.com
Signature	
Date submitted	Mar 28, 2024 08:42:57 PM

Form Name:	North Campus Petition
Submission Time:	March 28, 2024 9:58 pm
Browser:	Mobile Safari 17.3.1 / iOS
IP Address:	174.218.103.38
Unique ID:	1209703627
Location:	34.0068, -118.256

Description Area	Petition In Support of Chaminade College Preparatory's New High School Campus PlanI have reviewed and support Chaminade College Preparatory's new high school campus plan which will modernize and upgrade the existing campus facilities with new academic, library, counseling and administrative areas and a new student quad, will expand athletic and parking facilities to the new North Campus, and will include the construction of a pedestrian bridge to safely connect the existing and new campuses. I support Chaminade because they have been an important asset in the West Hills community for the past 60+ years, and the campus plan will allow them to provide additional quality educational programs and a wide variety of essential curricular, co-curricular and extra-curricular programs.
Person signing above petition	Elanna Arceo
Address	4140 Arch Drive #121 Studio City, CA 91604
Email	elanna.arceo@gmail.com
Signature	
Date submitted	Mar 28, 2024 09:57:19 PM

Form Name:	North Campus Petition
Submission Time:	March 28, 2024 11:56 pm
Browser:	Mobile Safari 17.3.1 / iOS
IP Address:	99.150.200.88
Unique ID:	1209711754
Location:	34.2601, -118.5789

Description Area	Petition In Support of Chaminade College Preparatory's New High School Campus PlanI have reviewed and support Chaminade College Preparatory's new high school campus plan which will modernize and upgrade the existing campus facilities with new academic, library, counseling and administrative areas and a new student quad, will expand athletic and parking facilities to the new North Campus, and will include the construction of a pedestrian bridge to safely connect the existing and new campuses. I support Chaminade because they have been an important asset in the West Hills community for the past 60+ years, and the campus plan will allow them to provide additional quality educational programs and a wide variety of essential curricular, co-curricular and extra-curricular programs.
Person signing above petition	Silva Reyes
Address	9665 Keokuk Ave Chatsworth , CA 91311
Email	silva-reyes@sbcglobal.net
Signature	
Date submitted	Mar 28, 2024 11:53:33 PM

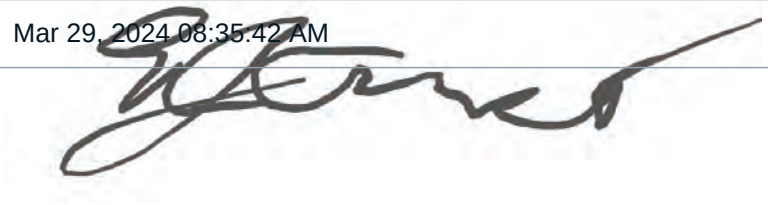
Form Name:	North Campus Petition
Submission Time:	March 29, 2024 7:11 am
Browser:	Safari 17.2.1 / OS X
IP Address:	172.119.54.64
Unique ID:	1209790215
Location:	34.2601, -118.5789

Description Area	Petition In Support of Chaminade College Preparatory's New High School Campus PlanI have reviewed and support Chaminade College Preparatory's new high school campus plan which will modernize and upgrade the existing campus facilities with new academic, library, counseling and administrative areas and a new student quad, will expand athletic and parking facilities to the new North Campus, and will include the construction of a pedestrian bridge to safely connect the existing and new campuses. I support Chaminade because they have been an important asset in the West Hills community for the past 60+ years, and the campus plan will allow them to provide additional quality educational programs and a wide variety of essential curricular, co-curricular and extra-curricular programs.
Person signing above petition	Ted Penny
Address	8941 Zelzah Ave. Sherwood Forest, CA 91325
Email	tpenny203@gmail.com
Date submitted	Mar 29, 2024 07:10:35 AM

Form Name:	North Campus Petition
Submission Time:	March 29, 2024 7:48 am
Browser:	Chrome 123.0.0.0 / Windows
IP Address:	66.27.10.131
Unique ID:	1209802110
Location:	47.7282, -116.9389

Description Area	Petition In Support of Chaminade College Preparatory's New High School Campus PlanI have reviewed and support Chaminade College Preparatory's new high school campus plan which will modernize and upgrade the existing campus facilities with new academic, library, counseling and administrative areas and a new student quad, will expand athletic and parking facilities to the new North Campus, and will include the construction of a pedestrian bridge to safely connect the existing and new campuses. I support Chaminade because they have been an important asset in the West Hills community for the past 60+ years, and the campus plan will allow them to provide additional quality educational programs and a wide variety of essential curricular, co-curricular and extra-curricular programs.
Person signing above petition	Christopher Valvo
Address	503 W. Musket Avenue Post Falls, ID 83854
Email	chrisvalvo1118@gmail.com
Signature	
Date submitted	Mar 29, 2024 07:47:44 AM

Form Name:	North Campus Petition
Submission Time:	March 29, 2024 8:38 am
Browser:	Mobile Safari 17.3.1 / iOS
IP Address:	174.231.119.2
Unique ID:	1209818890
Location:	38.6645, -121.487

Description Area	Petition In Support of Chaminade College Preparatory's New High School Campus PlanI have reviewed and support Chaminade College Preparatory's new high school campus plan which will modernize and upgrade the existing campus facilities with new academic, library, counseling and administrative areas and a new student quad, will expand athletic and parking facilities to the new North Campus, and will include the construction of a pedestrian bridge to safely connect the existing and new campuses. I support Chaminade because they have been an important asset in the West Hills community for the past 60+ years, and the campus plan will allow them to provide additional quality educational programs and a wide variety of essential curricular, co-curricular and extra-curricular programs.
Person signing above petition	Edsel Arceo
Address	1900 Blue Oaks Blvd. #411 Roseville, CA 95747
Email	arceo321@aol.com
Signature	
Date submitted	Mar 29, 2024 08:35:42 AM

Form Name:	North Campus Petition
Submission Time:	March 29, 2024 9:41 am
Browser:	Chrome 123.0.0.0 / Windows
IP Address:	104.34.95.166
Unique ID:	1209840771
Location:	34.1765, -118.614

Description Area	Petition In Support of Chaminade College Preparatory's New High School Campus PlanI have reviewed and support Chaminade College Preparatory's new high school campus plan which will modernize and upgrade the existing campus facilities with new academic, library, counseling and administrative areas and a new student quad, will expand athletic and parking facilities to the new North Campus, and will include the construction of a pedestrian bridge to safely connect the existing and new campuses. I support Chaminade because they have been an important asset in the West Hills community for the past 60+ years, and the campus plan will allow them to provide additional quality educational programs and a wide variety of essential curricular, co-curricular and extra-curricular programs.
Person signing above petition	Julia Ortiz
Address	24609 Stagg Street Canoga Park, CA 91304
Email	jortiz3812@outlook.com
Signature	
Date submitted	Mar 29, 2024 09:40:44 AM

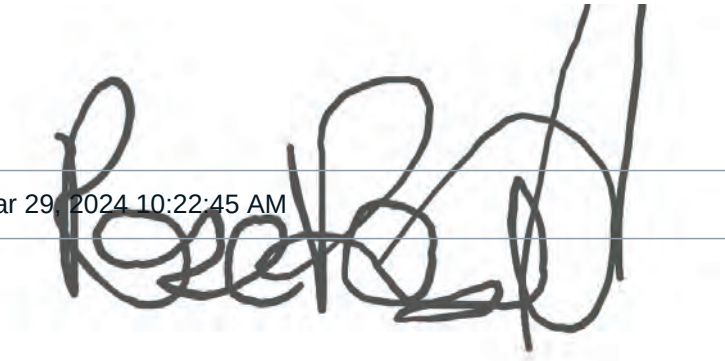
Form Name:	North Campus Petition
Submission Time:	March 29, 2024 9:41 am
Browser:	Chrome 123.0.0.0 / Windows
IP Address:	104.34.95.166
Unique ID:	1209840955
Location:	34.1765, -118.614

Description Area	Petition In Support of Chaminade College Preparatory's New High School Campus PlanI have reviewed and support Chaminade College Preparatory's new high school campus plan which will modernize and upgrade the existing campus facilities with new academic, library, counseling and administrative areas and a new student quad, will expand athletic and parking facilities to the new North Campus, and will include the construction of a pedestrian bridge to safely connect the existing and new campuses. I support Chaminade because they have been an important asset in the West Hills community for the past 60+ years, and the campus plan will allow them to provide additional quality educational programs and a wide variety of essential curricular, co-curricular and extra-curricular programs.
Person signing above petition	Steven Ortiz
Address	24609 Stagg Street Suite 340 Canoga Park, CA 91304
Email	stortiz205@outlook.com
Signature	
Date submitted	Mar 29, 2024 09:41:39 AM

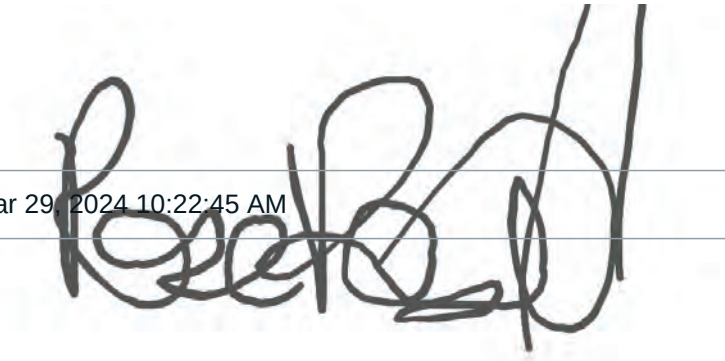
Form Name:	North Campus Petition
Submission Time:	March 29, 2024 9:42 am
Browser:	Chrome 123.0.0.0 / Windows
IP Address:	104.34.95.166
Unique ID:	1209841113
Location:	34.1765, -118.614

Description Area	Petition In Support of Chaminade College Preparatory's New High School Campus PlanI have reviewed and support Chaminade College Preparatory's new high school campus plan which will modernize and upgrade the existing campus facilities with new academic, library, counseling and administrative areas and a new student quad, will expand athletic and parking facilities to the new North Campus, and will include the construction of a pedestrian bridge to safely connect the existing and new campuses. I support Chaminade because they have been an important asset in the West Hills community for the past 60+ years, and the campus plan will allow them to provide additional quality educational programs and a wide variety of essential curricular, co-curricular and extra-curricular programs.
Person signing above petition	Brianna Ortiz
Address	24609 Stagg Street Canoga Park, CA 91304
Email	bortiz2214@outlook.com
Signature	
Date submitted	Mar 29, 2024 09:42:02 AM

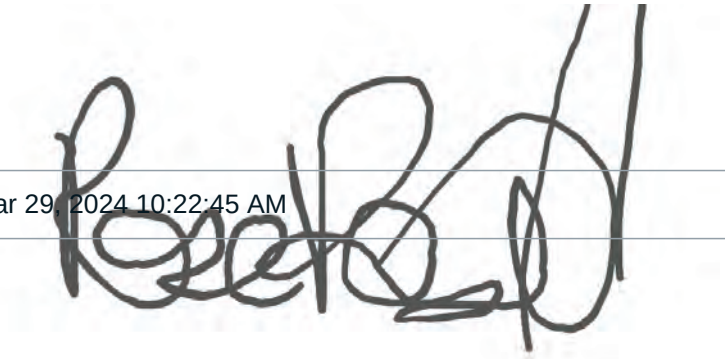
Form Name:	North Campus Petition
Submission Time:	March 29, 2024 10:23 am
Browser:	Chrome Mobile 120.0.6099.119 / iOS
IP Address:	47.156.157.155
Unique ID:	1209854581
Location:	34.197, -118.8199

Description Area	Petition In Support of Chaminade College Preparatory's New High School Campus PlanI have reviewed and support Chaminade College Preparatory's new high school campus plan which will modernize and upgrade the existing campus facilities with new academic, library, counseling and administrative areas and a new student quad, will expand athletic and parking facilities to the new North Campus, and will include the construction of a pedestrian bridge to safely connect the existing and new campuses. I support Chaminade because they have been an important asset in the West Hills community for the past 60+ years, and the campus plan will allow them to provide additional quality educational programs and a wide variety of essential curricular, co-curricular and extra-curricular programs.
Person signing above petition	Rose Restivo
Address	420 Ravensbury St Lake Sherwood , CA 91361
Email	roserestivore@gmail.com
Signature	
Date submitted	Mar 29, 2024 10:22:45 AM

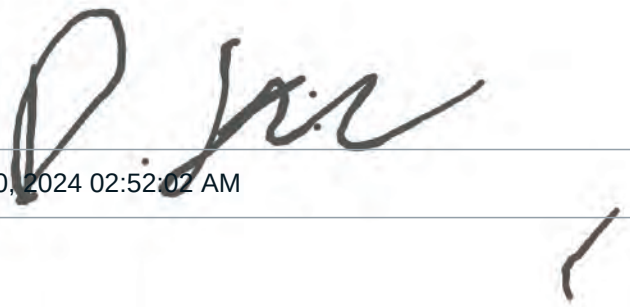
Form Name:	North Campus Petition
Submission Time:	March 29, 2024 10:24 am
Browser:	Chrome Mobile 120.0.6099.119 / iOS
IP Address:	47.156.157.155
Unique ID:	1209854734
Location:	34.197, -118.8199

Description Area	Petition In Support of Chaminade College Preparatory's New High School Campus PlanI have reviewed and support Chaminade College Preparatory's new high school campus plan which will modernize and upgrade the existing campus facilities with new academic, library, counseling and administrative areas and a new student quad, will expand athletic and parking facilities to the new North Campus, and will include the construction of a pedestrian bridge to safely connect the existing and new campuses. I support Chaminade because they have been an important asset in the West Hills community for the past 60+ years, and the campus plan will allow them to provide additional quality educational programs and a wide variety of essential curricular, co-curricular and extra-curricular programs.
Person signing above petition	Rose Restivo
Address	420 Ravensbury St Lake Sherwood , CA 91361
Email	roserestivore@gmail.com
Signature	
Date submitted	Mar 29, 2024 10:22:45 AM

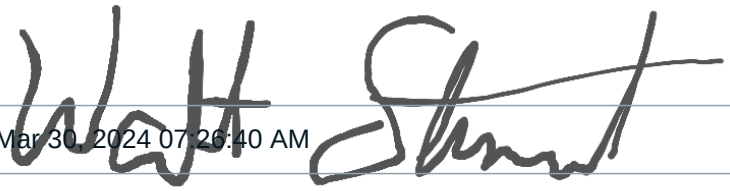
Form Name:	North Campus Petition
Submission Time:	March 29, 2024 10:24 am
Browser:	Chrome Mobile 120.0.6099.119 / iOS
IP Address:	47.156.157.155
Unique ID:	1209854789
Location:	34.197, -118.8199

Description Area	Petition In Support of Chaminade College Preparatory's New High School Campus PlanI have reviewed and support Chaminade College Preparatory's new high school campus plan which will modernize and upgrade the existing campus facilities with new academic, library, counseling and administrative areas and a new student quad, will expand athletic and parking facilities to the new North Campus, and will include the construction of a pedestrian bridge to safely connect the existing and new campuses. I support Chaminade because they have been an important asset in the West Hills community for the past 60+ years, and the campus plan will allow them to provide additional quality educational programs and a wide variety of essential curricular, co-curricular and extra-curricular programs.
Person signing above petition	Rose Restivo
Address	420 Ravensbury St Lake Sherwood , CA 91361
Email	roserestivore@gmail.com
Signature	
Date submitted	Mar 29, 2024 10:22:45 AM

Form Name:	North Campus Petition
Submission Time:	March 29, 2024 10:53 am
Browser:	Mobile Safari 17.3.1 / iOS
IP Address:	107.77.213.77
Unique ID:	1209863932
Location:	37.6403, -122.0667

Description Area	Petition In Support of Chaminade College Preparatory's New High School Campus PlanI have reviewed and support Chaminade College Preparatory's new high school campus plan which will modernize and upgrade the existing campus facilities with new academic, library, counseling and administrative areas and a new student quad, will expand athletic and parking facilities to the new North Campus, and will include the construction of a pedestrian bridge to safely connect the existing and new campuses. I support Chaminade because they have been an important asset in the West Hills community for the past 60+ years, and the campus plan will allow them to provide additional quality educational programs and a wide variety of essential curricular, co-curricular and extra-curricular programs.
Person signing above petition	Dikran Sassounian
Address	20224 Delita Drive CA 91364
Email	arsenalaw@aol.com
Signature	
Date submitted	Mar 30, 2024 02:52:02 AM

Form Name:	North Campus Petition
Submission Time:	March 29, 2024 11:28 am
Browser:	Mobile Safari 17.3.1 / iOS
IP Address:	104.28.29.66
Unique ID:	1209875943
Location:	-36.8506, 174.7679

Description Area	Petition In Support of Chaminade College Preparatory's New High School Campus PlanI have reviewed and support Chaminade College Preparatory's new high school campus plan which will modernize and upgrade the existing campus facilities with new academic, library, counseling and administrative areas and a new student quad, will expand athletic and parking facilities to the new North Campus, and will include the construction of a pedestrian bridge to safely connect the existing and new campuses. I support Chaminade because they have been an important asset in the West Hills community for the past 60+ years, and the campus plan will allow them to provide additional quality educational programs and a wide variety of essential curricular, co-curricular and extra-curricular programs.
Person signing above petition	Walt Stewart
Address	8381 Maynard Ave West Hills, CA 91304
Email	wstewart@chaminade.org
Signature	
Date submitted	Mar 30, 2024 07:26:40 AM

Form Name:	North Campus Petition
Submission Time:	March 29, 2024 11:31 am
Browser:	Mobile Safari 17.3.1 / iOS
IP Address:	47.156.157.155
Unique ID:	1209876937
Location:	34.197, -118.8199

Description Area	Petition In Support of Chaminade College Preparatory's New High School Campus PlanI have reviewed and support Chaminade College Preparatory's new high school campus plan which will modernize and upgrade the existing campus facilities with new academic, library, counseling and administrative areas and a new student quad, will expand athletic and parking facilities to the new North Campus, and will include the construction of a pedestrian bridge to safely connect the existing and new campuses. I support Chaminade because they have been an important asset in the West Hills community for the past 60+ years, and the campus plan will allow them to provide additional quality educational programs and a wide variety of essential curricular, co-curricular and extra-curricular programs.
Person signing above petition	Vince Restivo
Address	420 Ravensbury St. Lake Sherwood, CA 91361
Email	VRestivo1@aol.com
Signature	
Date submitted	Mar 29, 2024 11:29:43 AM

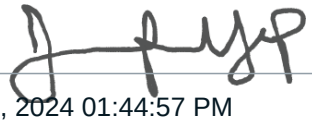
Form Name:	North Campus Petition
Submission Time:	March 29, 2024 12:14 pm
Browser:	Chrome 123.0.0.0 / OS X
IP Address:	99.5.70.165
Unique ID:	1209891128
Location:	30.1918, -81.6028

Description Area	Petition In Support of Chaminade College Preparatory's New High School Campus PlanI have reviewed and support Chaminade College Preparatory's new high school campus plan which will modernize and upgrade the existing campus facilities with new academic, library, counseling and administrative areas and a new student quad, will expand athletic and parking facilities to the new North Campus, and will include the construction of a pedestrian bridge to safely connect the existing and new campuses. I support Chaminade because they have been an important asset in the West Hills community for the past 60+ years, and the campus plan will allow them to provide additional quality educational programs and a wide variety of essential curricular, co-curricular and extra-curricular programs.
Person signing above petition	Grayson Meritt
Address	22725 Stagg St West Hills, CA 91304
Email	grayson@offleft.com
Signature	
Date submitted	Mar 29, 2024 03:13:32 PM

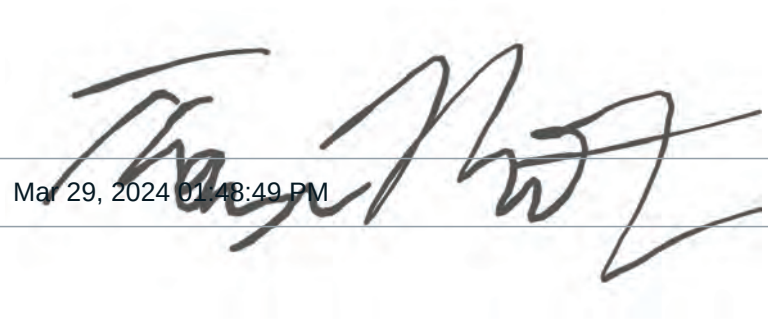
Form Name:	North Campus Petition
Submission Time:	March 29, 2024 12:51 pm
Browser:	Chrome 123.0.0.0 / Windows
IP Address:	208.95.76.242
Unique ID:	1209905077
Location:	34.0648, -118.4414

Description Area	Petition In Support of Chaminade College Preparatory's New High School Campus PlanI have reviewed and support Chaminade College Preparatory's new high school campus plan which will modernize and upgrade the existing campus facilities with new academic, library, counseling and administrative areas and a new student quad, will expand athletic and parking facilities to the new North Campus, and will include the construction of a pedestrian bridge to safely connect the existing and new campuses. I support Chaminade because they have been an important asset in the West Hills community for the past 60+ years, and the campus plan will allow them to provide additional quality educational programs and a wide variety of essential curricular, co-curricular and extra-curricular programs.
Person signing above petition	Gary Smalley
Address	25216 Prado de Rosado Calabasas, CA 91302
Email	ggsmalley1@gmail.com
Signature	
Date submitted	Mar 29, 2024 12:50:56 PM

Form Name:	North Campus Petition
Submission Time:	March 29, 2024 1:45 pm
Browser:	Chrome 123.0.0.0 / Windows
IP Address:	54.193.156.146
Unique ID:	1209921003
Location:	37.1835, -121.7714

Description Area	Petition In Support of Chaminade College Preparatory's New High School Campus PlanI have reviewed and support Chaminade College Preparatory's new high school campus plan which will modernize and upgrade the existing campus facilities with new academic, library, counseling and administrative areas and a new student quad, will expand athletic and parking facilities to the new North Campus, and will include the construction of a pedestrian bridge to safely connect the existing and new campuses. I support Chaminade because they have been an important asset in the West Hills community for the past 60+ years, and the campus plan will allow them to provide additional quality educational programs and a wide variety of essential curricular, co-curricular and extra-curricular programs.
Person signing above petition	Jennifer Yep
Address	7353 Hillsview Court West Hills, CA 91307
Email	jenniferyep@yahoo.com
Signature	
Date submitted	Mar 29, 2024 01:44:57 PM

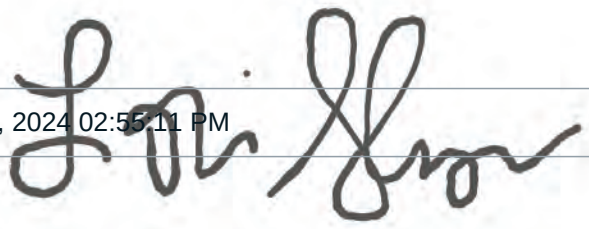
Form Name:	North Campus Petition
Submission Time:	March 29, 2024 1:49 pm
Browser:	Mobile Safari 17.3.1 / iOS
IP Address:	104.28.85.132
Unique ID:	1209922076
Location:	37.751, -97.822

Description Area	Petition In Support of Chaminade College Preparatory's New High School Campus PlanI have reviewed and support Chaminade College Preparatory's new high school campus plan which will modernize and upgrade the existing campus facilities with new academic, library, counseling and administrative areas and a new student quad, will expand athletic and parking facilities to the new North Campus, and will include the construction of a pedestrian bridge to safely connect the existing and new campuses. I support Chaminade because they have been an important asset in the West Hills community for the past 60+ years, and the campus plan will allow them to provide additional quality educational programs and a wide variety of essential curricular, co-curricular and extra-curricular programs.
Person signing above petition	Thomas Martin
Address	6036 Crape Myrtle Court Los Angeles, CA 91367
Email	tmmartin99@gmail.com
Signature	
Date submitted	Mar 29, 2024 01:48:49 PM

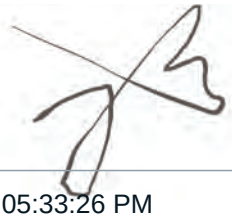
Form Name:	North Campus Petition
Submission Time:	March 29, 2024 3:01 pm
Browser:	Chrome 122.0.0.0 / Windows
IP Address:	99.129.216.169
Unique ID:	1209940123
Location:	34.1765, -118.614

Description Area	Petition In Support of Chaminade College Preparatory's New High School Campus PlanI have reviewed and support Chaminade College Preparatory's new high school campus plan which will modernize and upgrade the existing campus facilities with new academic, library, counseling and administrative areas and a new student quad, will expand athletic and parking facilities to the new North Campus, and will include the construction of a pedestrian bridge to safely connect the existing and new campuses. I support Chaminade because they have been an important asset in the West Hills community for the past 60+ years, and the campus plan will allow them to provide additional quality educational programs and a wide variety of essential curricular, co-curricular and extra-curricular programs.
Person signing above petition	Daniel Osztreicher
Address	23029 starthern West Hills, CA 91304
Email	osztreicher.daniel@gmail.com
Signature	
Date submitted	Mar 29, 2024 02:59:39 PM

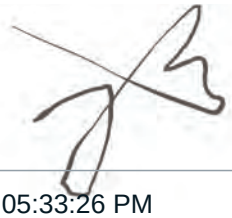
Form Name:	North Campus Petition
Submission Time:	March 29, 2024 4:12 pm
Browser:	Mobile Safari 17.3.1 / iOS
IP Address:	104.28.85.108
Unique ID:	1209955355
Location:	37.751, -97.822

Description Area	Petition In Support of Chaminade College Preparatory's New High School Campus PlanI have reviewed and support Chaminade College Preparatory's new high school campus plan which will modernize and upgrade the existing campus facilities with new academic, library, counseling and administrative areas and a new student quad, will expand athletic and parking facilities to the new North Campus, and will include the construction of a pedestrian bridge to safely connect the existing and new campuses. I support Chaminade because they have been an important asset in the West Hills community for the past 60+ years, and the campus plan will allow them to provide additional quality educational programs and a wide variety of essential curricular, co-curricular and extra-curricular programs.
Person signing above petition	Lori Shroyer
Address	23625 Arminta st West Hills, CA 91304
Email	4shroyers@gmail.com
Signature	
Date submitted	Mar 28, 2024 02:55:11 PM

Form Name:	North Campus Petition
Submission Time:	March 29, 2024 5:34 pm
Browser:	Safari 17.2.1 / OS X
IP Address:	104.28.85.220
Unique ID:	1209968859
Location:	37.751, -97.822

Description Area	Petition In Support of Chaminade College Preparatory's New High School Campus PlanI have reviewed and support Chaminade College Preparatory's new high school campus plan which will modernize and upgrade the existing campus facilities with new academic, library, counseling and administrative areas and a new student quad, will expand athletic and parking facilities to the new North Campus, and will include the construction of a pedestrian bridge to safely connect the existing and new campuses. I support Chaminade because they have been an important asset in the West Hills community for the past 60+ years, and the campus plan will allow them to provide additional quality educational programs and a wide variety of essential curricular, co-curricular and extra-curricular programs.
Person signing above petition	ROb Troy
Address	4833 Dunman Woodland Hills, CA 91364
Email	junkedmail@mac.com
Signature	
Date submitted	Mar 29, 2024 05:33:26 PM

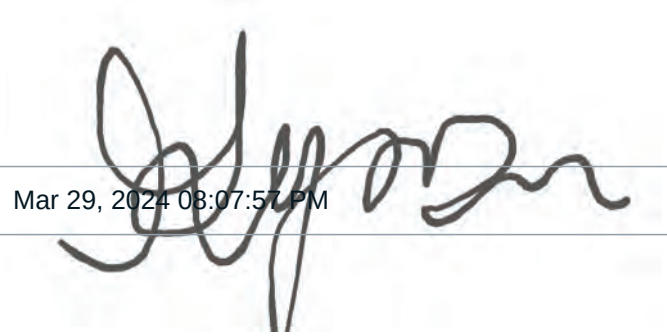
Form Name:	North Campus Petition
Submission Time:	March 29, 2024 6:10 pm
Browser:	Safari 17.2.1 / OS X
IP Address:	146.75.146.29
Unique ID:	1209973949
Location:	34.1952, -118.6006

Description Area	Petition In Support of Chaminade College Preparatory's New High School Campus PlanI have reviewed and support Chaminade College Preparatory's new high school campus plan which will modernize and upgrade the existing campus facilities with new academic, library, counseling and administrative areas and a new student quad, will expand athletic and parking facilities to the new North Campus, and will include the construction of a pedestrian bridge to safely connect the existing and new campuses. I support Chaminade because they have been an important asset in the West Hills community for the past 60+ years, and the campus plan will allow them to provide additional quality educational programs and a wide variety of essential curricular, co-curricular and extra-curricular programs.
Person signing above petition	ROb Troy
Address	4833 Dunman Woodland Hills, CA 91364
Email	junkedmail@mac.com
Signature	
Date submitted	Mar 29, 2024 05:33:26 PM

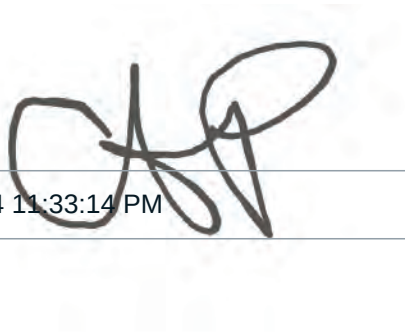
Form Name:	North Campus Petition
Submission Time:	March 29, 2024 8:02 pm
Browser:	Safari 17.3.1 / OS X
IP Address:	47.157.130.187
Unique ID:	1209989169
Location:	34.2773, -118.5001

Description Area	Petition In Support of Chaminade College Preparatory's New High School Campus PlanI have reviewed and support Chaminade College Preparatory's new high school campus plan which will modernize and upgrade the existing campus facilities with new academic, library, counseling and administrative areas and a new student quad, will expand athletic and parking facilities to the new North Campus, and will include the construction of a pedestrian bridge to safely connect the existing and new campuses. I support Chaminade because they have been an important asset in the West Hills community for the past 60+ years, and the campus plan will allow them to provide additional quality educational programs and a wide variety of essential curricular, co-curricular and extra-curricular programs.
Person signing above petition	Karen Jacobson
Address	10410 Jellico Ave Granada Hills, CA 91344
Email	klmpt53282@gmail.com
Signature	
Date submitted	Mar 29, 2024 08:01:25 PM

Form Name:	North Campus Petition
Submission Time:	March 29, 2024 8:09 pm
Browser:	Mobile Safari 17.3.1 / iOS
IP Address:	89.40.206.133
Unique ID:	1209989836
Location:	40.7157, -74

Description Area	Petition In Support of Chaminade College Preparatory's New High School Campus PlanI have reviewed and support Chaminade College Preparatory's new high school campus plan which will modernize and upgrade the existing campus facilities with new academic, library, counseling and administrative areas and a new student quad, will expand athletic and parking facilities to the new North Campus, and will include the construction of a pedestrian bridge to safely connect the existing and new campuses. I support Chaminade because they have been an important asset in the West Hills community for the past 60+ years, and the campus plan will allow them to provide additional quality educational programs and a wide variety of essential curricular, co-curricular and extra-curricular programs.
Person signing above petition	Gigi Desai
Address	16891 Royal pines lane Santa Clarita , CA 91387
Email	gigi521@hotmail.com
Signature	
Date submitted	Mar 29, 2024 08:07:57 PM

Form Name:	North Campus Petition
Submission Time:	March 29, 2024 8:35 pm
Browser:	Mobile Safari 17.3.1 / iOS
IP Address:	74.101.16.37
Unique ID:	1209992601
Location:	40.7429, -73.9392

Description Area	Petition In Support of Chaminade College Preparatory's New High School Campus PlanI have reviewed and support Chaminade College Preparatory's new high school campus plan which will modernize and upgrade the existing campus facilities with new academic, library, counseling and administrative areas and a new student quad, will expand athletic and parking facilities to the new North Campus, and will include the construction of a pedestrian bridge to safely connect the existing and new campuses. I support Chaminade because they have been an important asset in the West Hills community for the past 60+ years, and the campus plan will allow them to provide additional quality educational programs and a wide variety of essential curricular, co-curricular and extra-curricular programs.
Person signing above petition	Cristina Arceo Parada
Email	cristina.arceo@gmail.com
Signature	
Date submitted	Mar 29, 2024 11:33:14 PM

Form Name:	North Campus Petition
Submission Time:	March 30, 2024 12:30 am
Browser:	Mobile Safari 17.3.1 / iOS
IP Address:	104.28.111.147
Unique ID:	1210011178
Location:	37.7353, -121.4403

Description Area	Petition In Support of Chaminade College Preparatory's New High School Campus PlanI have reviewed and support Chaminade College Preparatory's new high school campus plan which will modernize and upgrade the existing campus facilities with new academic, library, counseling and administrative areas and a new student quad, will expand athletic and parking facilities to the new North Campus, and will include the construction of a pedestrian bridge to safely connect the existing and new campuses. I support Chaminade because they have been an important asset in the West Hills community for the past 60+ years, and the campus plan will allow them to provide additional quality educational programs and a wide variety of essential curricular, co-curricular and extra-curricular programs.
Person signing above petition	Miguel Fernandez
Address	24040 Arminta St West Hills, CA 91304
Email	mimfernandezz@socal.rr.com
Signature	
Date submitted	Mar 30, 2024 12:25:55 AM

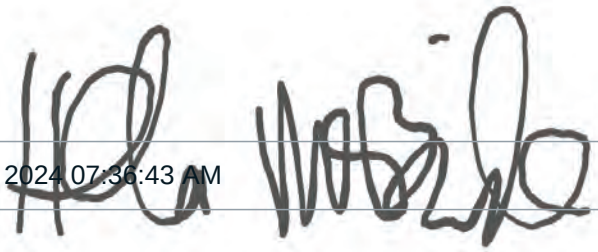
Form Name:	North Campus Petition
Submission Time:	March 30, 2024 7:47 am
Browser:	Chrome 115.0.0.0 / OS X
IP Address:	47.156.157.203
Unique ID:	1210052737
Location:	34.197, -118.8199

Description Area	Petition In Support of Chaminade College Preparatory's New High School Campus PlanI have reviewed and support Chaminade College Preparatory's new high school campus plan which will modernize and upgrade the existing campus facilities with new academic, library, counseling and administrative areas and a new student quad, will expand athletic and parking facilities to the new North Campus, and will include the construction of a pedestrian bridge to safely connect the existing and new campuses. I support Chaminade because they have been an important asset in the West Hills community for the past 60+ years, and the campus plan will allow them to provide additional quality educational programs and a wide variety of essential curricular, co-curricular and extra-curricular programs.
Person signing above petition	Jennifer Vercillo
Address	275 Lake Sherwood Drive Westlake Village, CA 91361
Email	joc_ny@hotmail.com
Signature	
Date submitted	Mar 30, 2024 07:46:23 AM

Form Name:	North Campus Petition
Submission Time:	March 30, 2024 9:49 am
Browser:	Chrome Mobile 123.0.6312.52 / iOS
IP Address:	4.37.226.226
Unique ID:	1210073902
Location:	47.6987, -117.4397

Description Area	Petition In Support of Chaminade College Preparatory's New High School Campus PlanI have reviewed and support Chaminade College Preparatory's new high school campus plan which will modernize and upgrade the existing campus facilities with new academic, library, counseling and administrative areas and a new student quad, will expand athletic and parking facilities to the new North Campus, and will include the construction of a pedestrian bridge to safely connect the existing and new campuses. I support Chaminade because they have been an important asset in the West Hills community for the past 60+ years, and the campus plan will allow them to provide additional quality educational programs and a wide variety of essential curricular, co-curricular and extra-curricular programs.
Person signing above petition	Michael Vercillo
Address	275 Lake Sherwood Drive Westlake Village, CA 91361
Email	mtvercillo@gmail.com
Signature	
Date submitted	Mar 30, 2024 09:48:33 AM

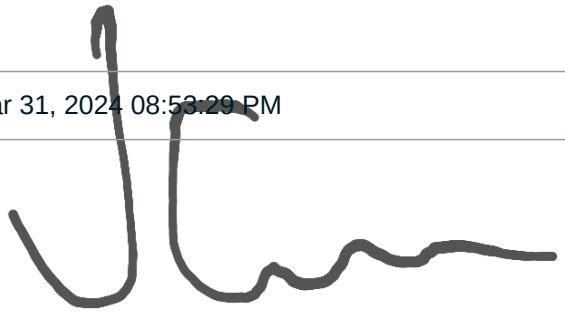
Form Name:	North Campus Petition
Submission Time:	March 30, 2024 10:37 am
Browser:	Mobile Safari 17.3.1 / iOS
IP Address:	98.147.122.222
Unique ID:	1210082210
Location:	20.909, -156.6893

Description Area	Petition In Support of Chaminade College Preparatory's New High School Campus PlanI have reviewed and support Chaminade College Preparatory's new high school campus plan which will modernize and upgrade the existing campus facilities with new academic, library, counseling and administrative areas and a new student quad, will expand athletic and parking facilities to the new North Campus, and will include the construction of a pedestrian bridge to safely connect the existing and new campuses. I support Chaminade because they have been an important asset in the West Hills community for the past 60+ years, and the campus plan will allow them to provide additional quality educational programs and a wide variety of essential curricular, co-curricular and extra-curricular programs.
Person signing above petition	Helen McBride
Address	4510 Santa lucia Dr Woodland Hills, CA 91364
Email	hmcbride2000@gmail.com
Signature	
Date submitted	Mar 30, 2024 07:36:43 AM

Form Name:	North Campus Petition
Submission Time:	March 31, 2024 8:19 am
Browser:	Firefox 124.0 / Windows
IP Address:	47.157.128.131
Unique ID:	1210219783
Location:	34.2773, -118.5001

Description Area	Petition In Support of Chaminade College Preparatory's New High School Campus PlanI have reviewed and support Chaminade College Preparatory's new high school campus plan which will modernize and upgrade the existing campus facilities with new academic, library, counseling and administrative areas and a new student quad, will expand athletic and parking facilities to the new North Campus, and will include the construction of a pedestrian bridge to safely connect the existing and new campuses. I support Chaminade because they have been an important asset in the West Hills community for the past 60+ years, and the campus plan will allow them to provide additional quality educational programs and a wide variety of essential curricular, co-curricular and extra-curricular programs.
Person signing above petition	Greg Hall
Address	15852 Ludlow Street Granada Hills, CA 91344
Email	baywatch@aaahawk.com
Signature	
Date submitted	Mar 31, 2024 08:17:38 AM

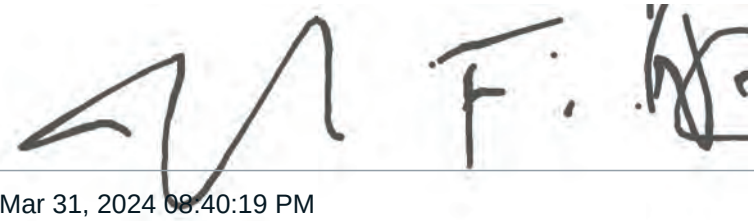
Form Name:	North Campus Petition
Submission Time:	March 31, 2024 5:54 pm
Browser:	Mobile Safari 17.3.1 / iOS
IP Address:	107.115.239.75
Unique ID:	1210296032
Location:	32.7797, -96.8022

Description Area	Petition In Support of Chaminade College Preparatory's New High School Campus PlanI have reviewed and support Chaminade College Preparatory's new high school campus plan which will modernize and upgrade the existing campus facilities with new academic, library, counseling and administrative areas and a new student quad, will expand athletic and parking facilities to the new North Campus, and will include the construction of a pedestrian bridge to safely connect the existing and new campuses. I support Chaminade because they have been an important asset in the West Hills community for the past 60+ years, and the campus plan will allow them to provide additional quality educational programs and a wide variety of essential curricular, co-curricular and extra-curricular programs.
Person signing above petition	Jeannette Crawshaw
Address	1068 Sailors Reef Fort Collins, CO 80525
Email	jeannette@willallan.com
Signature	
Date submitted	Mar 31, 2024 08:53:29 PM

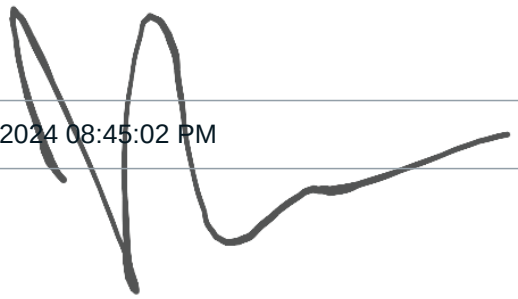
Form Name:	North Campus Petition
Submission Time:	March 31, 2024 8:41 pm
Browser:	Chrome Mobile 123.0.6312.52 / iOS
IP Address:	172.56.105.140
Unique ID:	1210318083
Location:	47.4902, -122.3004

Description Area	Petition In Support of Chaminade College Preparatory's New High School Campus PlanI have reviewed and support Chaminade College Preparatory's new high school campus plan which will modernize and upgrade the existing campus facilities with new academic, library, counseling and administrative areas and a new student quad, will expand athletic and parking facilities to the new North Campus, and will include the construction of a pedestrian bridge to safely connect the existing and new campuses. I support Chaminade because they have been an important asset in the West Hills community for the past 60+ years, and the campus plan will allow them to provide additional quality educational programs and a wide variety of essential curricular, co-curricular and extra-curricular programs.
Person signing above petition	Sarah Pallett
Address	4426 Canoga drive Woodland Hills , CA 91364
Email	hellosarahpallett@gmail.com
Signature	
Date submitted	Mar 31, 2024 08:40:38 PM

Form Name:	North Campus Petition
Submission Time:	March 31, 2024 8:41 pm
Browser:	Mobile Safari 17.3.1 / iOS
IP Address:	104.28.85.111
Unique ID:	1210318122
Location:	37.751, -97.822

Description Area	Petition In Support of Chaminade College Preparatory's New High School Campus PlanI have reviewed and support Chaminade College Preparatory's new high school campus plan which will modernize and upgrade the existing campus facilities with new academic, library, counseling and administrative areas and a new student quad, will expand athletic and parking facilities to the new North Campus, and will include the construction of a pedestrian bridge to safely connect the existing and new campuses. I support Chaminade because they have been an important asset in the West Hills community for the past 60+ years, and the campus plan will allow them to provide additional quality educational programs and a wide variety of essential curricular, co-curricular and extra-curricular programs.
Person signing above petition	Alli Fine
Address	22526 Mobile Street West Hills , CA 91307
Email	finedds@gmail.com
Signature	
Date submitted	Mar 31, 2024 08:40:19 PM

Form Name:	North Campus Petition
Submission Time:	March 31, 2024 8:45 pm
Browser:	Mobile Safari 17.3.1 / iOS
IP Address:	174.231.135.204
Unique ID:	1210318510
Location:	47.3957, -122.3036

Description Area	Petition In Support of Chaminade College Preparatory's New High School Campus PlanI have reviewed and support Chaminade College Preparatory's new high school campus plan which will modernize and upgrade the existing campus facilities with new academic, library, counseling and administrative areas and a new student quad, will expand athletic and parking facilities to the new North Campus, and will include the construction of a pedestrian bridge to safely connect the existing and new campuses. I support Chaminade because they have been an important asset in the West Hills community for the past 60+ years, and the campus plan will allow them to provide additional quality educational programs and a wide variety of essential curricular, co-curricular and extra-curricular programs.
Person signing above petition	Joe Churchill
Address	4426 Canoga Dr Woodland Hills, CA 91364
Email	jbchurchill@gmail.com
Signature	
Date submitted	Mar 31, 2024 08:45:02 PM

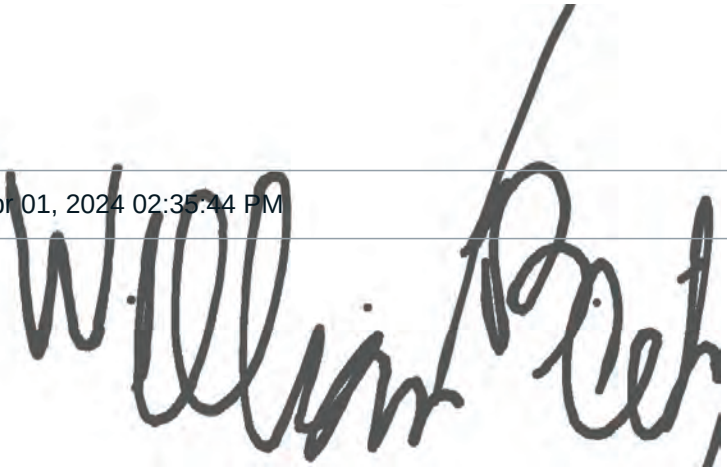
Form Name:	North Campus Petition
Submission Time:	March 31, 2024 9:39 pm
Browser:	Chrome 122.0.0.0 / Chrome OS
IP Address:	67.52.95.213
Unique ID:	1210324048
Location:	20.0809, -155.4884

Description Area	Petition In Support of Chaminade College Preparatory's New High School Campus PlanI have reviewed and support Chaminade College Preparatory's new high school campus plan which will modernize and upgrade the existing campus facilities with new academic, library, counseling and administrative areas and a new student quad, will expand athletic and parking facilities to the new North Campus, and will include the construction of a pedestrian bridge to safely connect the existing and new campuses. I support Chaminade because they have been an important asset in the West Hills community for the past 60+ years, and the campus plan will allow them to provide additional quality educational programs and a wide variety of essential curricular, co-curricular and extra-curricular programs.
Person signing above petition	David Boito
Address	4510 Santa Lucia Drive Woodland Hills, CA 91364
Date submitted	Mar 31, 2024 06:39:19 PM

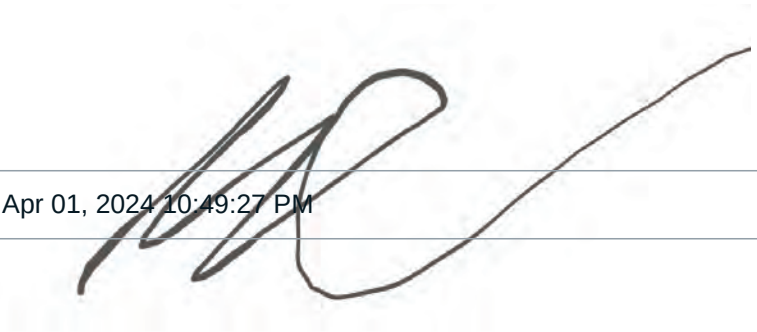
Form Name:	North Campus Petition
Submission Time:	April 1, 2024 10:12 am
Browser:	Safari 17.4.1 / OS X
IP Address:	75.82.101.21
Unique ID:	1210497409
Location:	34.1413, -118.6599

Description Area	Petition In Support of Chaminade College Preparatory's New High School Campus PlanI have reviewed and support Chaminade College Preparatory's new high school campus plan which will modernize and upgrade the existing campus facilities with new academic, library, counseling and administrative areas and a new student quad, will expand athletic and parking facilities to the new North Campus, and will include the construction of a pedestrian bridge to safely connect the existing and new campuses. I support Chaminade because they have been an important asset in the West Hills community for the past 60+ years, and the campus plan will allow them to provide additional quality educational programs and a wide variety of essential curricular, co-curricular and extra-curricular programs.
Person signing above petition	Andy Vorzimer
Address	11 Appaloosa Ln Bell Canyon, CA 91307
Email	andyvorzimer@gmail.com
Signature	
Date submitted	Mar 28, 2024 01:38:12 PM

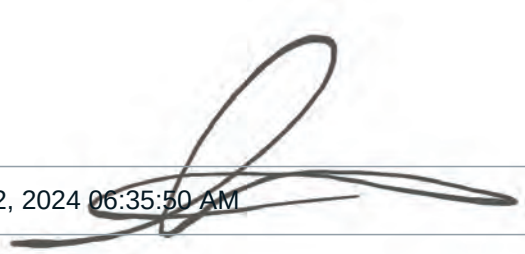
Form Name:	North Campus Petition
Submission Time:	April 1, 2024 1:40 pm
Browser:	Chrome Mobile 117.0.0.0 / Android
IP Address:	76.25.35.247
Unique ID:	1210593587
Location:	40.5377, -105.0546

Description Area	Petition In Support of Chaminade College Preparatory's New High School Campus PlanI have reviewed and support Chaminade College Preparatory's new high school campus plan which will modernize and upgrade the existing campus facilities with new academic, library, counseling and administrative areas and a new student quad, will expand athletic and parking facilities to the new North Campus, and will include the construction of a pedestrian bridge to safely connect the existing and new campuses. I support Chaminade because they have been an important asset in the West Hills community for the past 60+ years, and the campus plan will allow them to provide additional quality educational programs and a wide variety of essential curricular, co-curricular and extra-curricular programs.
Person signing above petition	William Beitz
Address	1501 Front Nine Drive Fort Collins, CO 80525
Email	bbeitz@aol.com
Signature	
Date submitted	Apr 01, 2024 02:35:44 PM

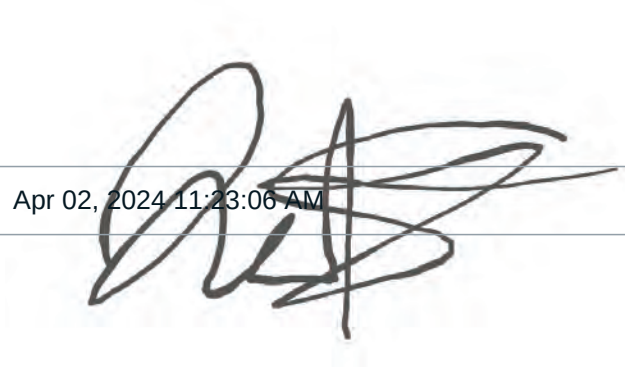
Form Name:	North Campus Petition
Submission Time:	April 1, 2024 1:49 pm
Browser:	Mobile Safari 17.4.1 / iOS
IP Address:	172.225.27.69
Unique ID:	1210597640
Location:	47.3682, 8.5671

Description Area	Petition In Support of Chaminade College Preparatory's New High School Campus PlanI have reviewed and support Chaminade College Preparatory's new high school campus plan which will modernize and upgrade the existing campus facilities with new academic, library, counseling and administrative areas and a new student quad, will expand athletic and parking facilities to the new North Campus, and will include the construction of a pedestrian bridge to safely connect the existing and new campuses. I support Chaminade because they have been an important asset in the West Hills community for the past 60+ years, and the campus plan will allow them to provide additional quality educational programs and a wide variety of essential curricular, co-curricular and extra-curricular programs.
Person signing above petition	Maximilian Cathcart
Email	maxcathcart@gmail.com
Signature	
Date submitted	Apr 01, 2024 10:49:27 PM

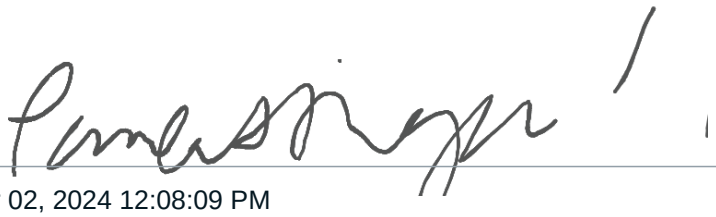
Form Name:	North Campus Petition
Submission Time:	April 2, 2024 6:38 am
Browser:	Mobile Safari 17.3.1 / iOS
IP Address:	166.205.190.125
Unique ID:	1210803209
Location:	38.2539, -85.76

Description Area	Petition In Support of Chaminade College Preparatory's New High School Campus PlanI have reviewed and support Chaminade College Preparatory's new high school campus plan which will modernize and upgrade the existing campus facilities with new academic, library, counseling and administrative areas and a new student quad, will expand athletic and parking facilities to the new North Campus, and will include the construction of a pedestrian bridge to safely connect the existing and new campuses. I support Chaminade because they have been an important asset in the West Hills community for the past 60+ years, and the campus plan will allow them to provide additional quality educational programs and a wide variety of essential curricular, co-curricular and extra-curricular programs.
Person signing above petition	Argelia Velasco
Address	20608 Quedo Dr. Woodland Hills, CA 91364
Email	aatilano@outlook.com
Signature	
Date submitted	Apr 02, 2024 06:35:50 AM

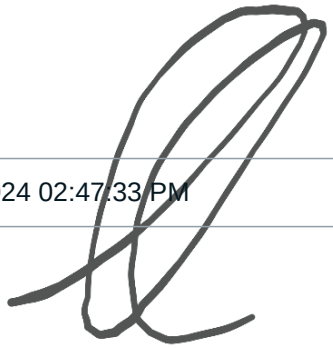
Form Name:	North Campus Petition
Submission Time:	April 2, 2024 11:23 am
Browser:	Mobile Safari 17.3.1 / iOS
IP Address:	24.205.174.95
Unique ID:	1210938274
Location:	34.1648, -118.1515

Description Area	Petition In Support of Chaminade College Preparatory's New High School Campus PlanI have reviewed and support Chaminade College Preparatory's new high school campus plan which will modernize and upgrade the existing campus facilities with new academic, library, counseling and administrative areas and a new student quad, will expand athletic and parking facilities to the new North Campus, and will include the construction of a pedestrian bridge to safely connect the existing and new campuses. I support Chaminade because they have been an important asset in the West Hills community for the past 60+ years, and the campus plan will allow them to provide additional quality educational programs and a wide variety of essential curricular, co-curricular and extra-curricular programs.
Person signing above petition	Joe Sciuto
Address	298 Pleasant St Pasadena, CA 91101
Email	joe.sciuto85@gmail.com
Signature	
Date submitted	Apr 02, 2024 11:23:06 AM

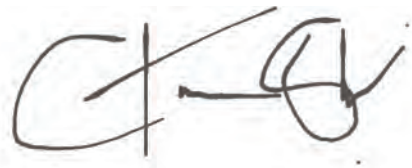
Form Name:	North Campus Petition
Submission Time:	April 2, 2024 12:08 pm
Browser:	Chrome 123.0.0.0 / Windows
IP Address:	76.240.112.76
Unique ID:	1210959697
Location:	34.1979, -118.5371

Description Area	Petition In Support of Chaminade College Preparatory's New High School Campus PlanI have reviewed and support Chaminade College Preparatory's new high school campus plan which will modernize and upgrade the existing campus facilities with new academic, library, counseling and administrative areas and a new student quad, will expand athletic and parking facilities to the new North Campus, and will include the construction of a pedestrian bridge to safely connect the existing and new campuses. I support Chaminade because they have been an important asset in the West Hills community for the past 60+ years, and the campus plan will allow them to provide additional quality educational programs and a wide variety of essential curricular, co-curricular and extra-curricular programs.
Person signing above petition	Pamela Meyer
Address	17513 Califa Street Encino, CA 91316
Email	meyer@pgmeyer.net
Signature	
Date submitted	Apr 02, 2024 12:08:09 PM

Form Name:	North Campus Petition
Submission Time:	April 2, 2024 2:48 pm
Browser:	Mobile Safari 17.3.1 / iOS
IP Address:	97.133.144.108
Unique ID:	1211028762
Location:	33.9955, -118.4644

Description Area	Petition In Support of Chaminade College Preparatory's New High School Campus PlanI have reviewed and support Chaminade College Preparatory's new high school campus plan which will modernize and upgrade the existing campus facilities with new academic, library, counseling and administrative areas and a new student quad, will expand athletic and parking facilities to the new North Campus, and will include the construction of a pedestrian bridge to safely connect the existing and new campuses. I support Chaminade because they have been an important asset in the West Hills community for the past 60+ years, and the campus plan will allow them to provide additional quality educational programs and a wide variety of essential curricular, co-curricular and extra-curricular programs.
Person signing above petition	Ocampo Family
Address	21731 Rodax St CA 91304
Email	sonnybgood@gmail.com
Signature	
Date submitted	Apr 02, 2024 02:47:33 PM

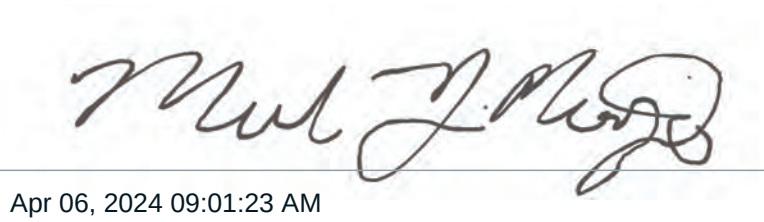
Form Name:	North Campus Petition
Submission Time:	April 3, 2024 1:08 am
Browser:	Chrome 123.0.0.0 / OS X
IP Address:	93.146.117.165
Unique ID:	1211149185
Location:	43.7891, 11.2356

Description Area	Petition In Support of Chaminade College Preparatory's New High School Campus PlanI have reviewed and support Chaminade College Preparatory's new high school campus plan which will modernize and upgrade the existing campus facilities with new academic, library, counseling and administrative areas and a new student quad, will expand athletic and parking facilities to the new North Campus, and will include the construction of a pedestrian bridge to safely connect the existing and new campuses. I support Chaminade because they have been an important asset in the West Hills community for the past 60+ years, and the campus plan will allow them to provide additional quality educational programs and a wide variety of essential curricular, co-curricular and extra-curricular programs.
Person signing above petition	Chad Tomasoski
Address	5036 San Feliciano Dr. Woodland Hills, CA 91364
Email	chadski4@gmail.com
Signature	
Date submitted	Apr 03, 2024 10:07:48 AM

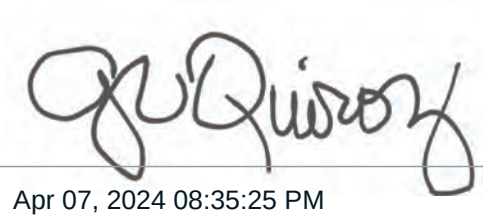
Form Name:	North Campus Petition
Submission Time:	April 4, 2024 2:37 pm
Browser:	Chrome 123.0.0.0 / Windows
IP Address:	23.242.213.191
Unique ID:	1211829725
Location:	34.1928, -118.4886

Description Area	Petition In Support of Chaminade College Preparatory's New High School Campus PlanI have reviewed and support Chaminade College Preparatory's new high school campus plan which will modernize and upgrade the existing campus facilities with new academic, library, counseling and administrative areas and a new student quad, will expand athletic and parking facilities to the new North Campus, and will include the construction of a pedestrian bridge to safely connect the existing and new campuses. I support Chaminade because they have been an important asset in the West Hills community for the past 60+ years, and the campus plan will allow them to provide additional quality educational programs and a wide variety of essential curricular, co-curricular and extra-curricular programs.
Person signing above petition	Al Darroch
Address	16901 VOSE ST VAN NUYS, CA 91406
Email	djalvis@tastysounds.com
Signature	
Date submitted	Apr 04, 2024 02:37:03 PM

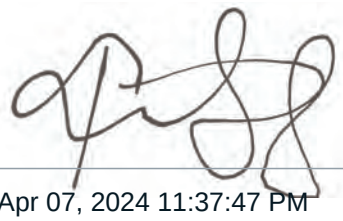
Form Name:	North Campus Petition
Submission Time:	April 6, 2024 9:01 am
Browser:	Safari 17.3.1 / OS X
IP Address:	146.75.146.182
Unique ID:	1212366184
Location:	34.1482, -118.8071

Description Area	Petition In Support of Chaminade College Preparatory's New High School Campus PlanI have reviewed and support Chaminade College Preparatory's new high school campus plan which will modernize and upgrade the existing campus facilities with new academic, library, counseling and administrative areas and a new student quad, will expand athletic and parking facilities to the new North Campus, and will include the construction of a pedestrian bridge to safely connect the existing and new campuses. I support Chaminade because they have been an important asset in the West Hills community for the past 60+ years, and the campus plan will allow them to provide additional quality educational programs and a wide variety of essential curricular, co-curricular and extra-curricular programs.
Person signing above petition	Mark DiMuzio
Address	2031 South Bentley Ave. Unit 107 Los Angeles, CA 90025-5649
Email	markdimuzio@yahoo.com
Signature	
Date submitted	Apr 06, 2024 09:01:23 AM

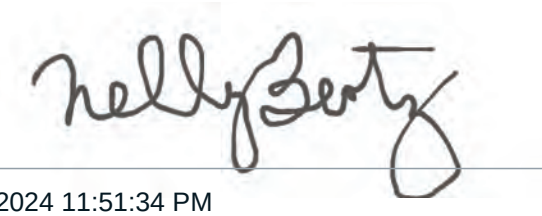
Form Name:	North Campus Petition
Submission Time:	April 7, 2024 8:35 pm
Browser:	Chrome 121.0.0.0 / OS X
IP Address:	75.82.230.125
Unique ID:	1212664721
Location:	34.2773, -118.5001

Description Area	Petition In Support of Chaminade College Preparatory's New High School Campus PlanI have reviewed and support Chaminade College Preparatory's new high school campus plan which will modernize and upgrade the existing campus facilities with new academic, library, counseling and administrative areas and a new student quad, will expand athletic and parking facilities to the new North Campus, and will include the construction of a pedestrian bridge to safely connect the existing and new campuses. I support Chaminade because they have been an important asset in the West Hills community for the past 60+ years, and the campus plan will allow them to provide additional quality educational programs and a wide variety of essential curricular, co-curricular and extra-curricular programs.
Person signing above petition	Gabriela Quiroz
Address	18587 Caspian Ct GRANADA HILLS, CA 91344
Email	vquiroz@socal.rr.com
Signature	
Date submitted	Apr 07, 2024 08:35:25 PM

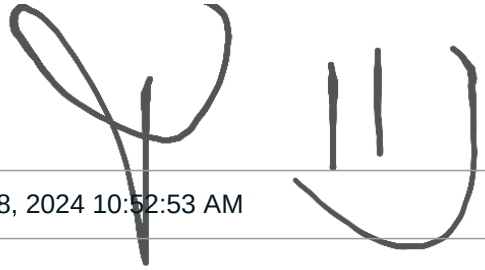
Form Name:	North Campus Petition
Submission Time:	April 7, 2024 11:38 pm
Browser:	Chrome 123.0.0.0 / OS X
IP Address:	47.155.236.192
Unique ID:	1212683346
Location:	34.0385, -118.5051

Description Area	Petition In Support of Chaminade College Preparatory's New High School Campus PlanI have reviewed and support Chaminade College Preparatory's new high school campus plan which will modernize and upgrade the existing campus facilities with new academic, library, counseling and administrative areas and a new student quad, will expand athletic and parking facilities to the new North Campus, and will include the construction of a pedestrian bridge to safely connect the existing and new campuses. I support Chaminade because they have been an important asset in the West Hills community for the past 60+ years, and the campus plan will allow them to provide additional quality educational programs and a wide variety of essential curricular, co-curricular and extra-curricular programs.
Person signing above petition	Kimberly Bertz
Address	34 DALKEITH AVE4 LOS ANGELES, CA 90049
Email	kbertz@hotmail.com
Signature	
Date submitted	Apr 07, 2024 11:37:47 PM

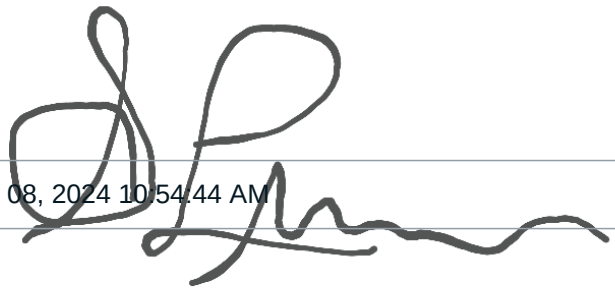
Form Name:	North Campus Petition
Submission Time:	April 7, 2024 11:53 pm
Browser:	Safari 17.2.1 / OS X
IP Address:	172.91.192.141
Unique ID:	1212684943
Location:	34.3975, -118.5568

Description Area	Petition In Support of Chaminade College Preparatory's New High School Campus PlanI have reviewed and support Chaminade College Preparatory's new high school campus plan which will modernize and upgrade the existing campus facilities with new academic, library, counseling and administrative areas and a new student quad, will expand athletic and parking facilities to the new North Campus, and will include the construction of a pedestrian bridge to safely connect the existing and new campuses. I support Chaminade because they have been an important asset in the West Hills community for the past 60+ years, and the campus plan will allow them to provide additional quality educational programs and a wide variety of essential curricular, co-curricular and extra-curricular programs.
Person signing above petition	Nelly Bertz
Address	25418 Cariz Drive Valencia, CA 91355
Email	bertzees@gmail.com
Signature	
Date submitted	Apr 07, 2024 11:51:34 PM

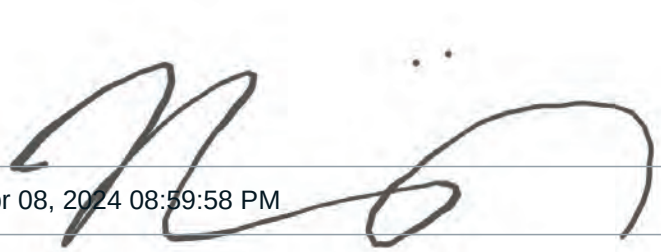
Form Name:	North Campus Petition
Submission Time:	April 8, 2024 10:53 am
Browser:	Mobile Safari 17.0 / iOS
IP Address:	76.50.15.60
Unique ID:	1212866105
Location:	34.1765, -118.614

Description Area	Petition In Support of Chaminade College Preparatory's New High School Campus PlanI have reviewed and support Chaminade College Preparatory's new high school campus plan which will modernize and upgrade the existing campus facilities with new academic, library, counseling and administrative areas and a new student quad, will expand athletic and parking facilities to the new North Campus, and will include the construction of a pedestrian bridge to safely connect the existing and new campuses. I support Chaminade because they have been an important asset in the West Hills community for the past 60+ years, and the campus plan will allow them to provide additional quality educational programs and a wide variety of essential curricular, co-curricular and extra-curricular programs.
Person signing above petition	Tiffany Chadderton
Address	7422 Cliffside Court West Hills, CA 91307
Email	barbieleggs@gmail.com
Signature	
Date submitted	Apr 08, 2024 10:52:53 AM

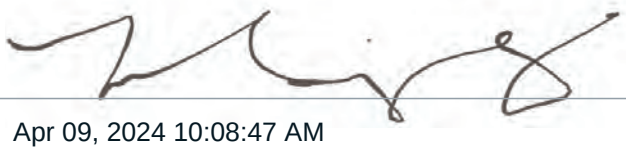
Form Name:	North Campus Petition
Submission Time:	April 8, 2024 10:55 am
Browser:	Mobile Safari 17.0 / iOS
IP Address:	76.50.15.60
Unique ID:	1212866758
Location:	34.1765, -118.614

Description Area	Petition In Support of Chaminade College Preparatory's New High School Campus PlanI have reviewed and support Chaminade College Preparatory's new high school campus plan which will modernize and upgrade the existing campus facilities with new academic, library, counseling and administrative areas and a new student quad, will expand athletic and parking facilities to the new North Campus, and will include the construction of a pedestrian bridge to safely connect the existing and new campuses. I support Chaminade because they have been an important asset in the West Hills community for the past 60+ years, and the campus plan will allow them to provide additional quality educational programs and a wide variety of essential curricular, co-curricular and extra-curricular programs.
Person signing above petition	Stephen Lemme
Address	7422 Cliffside Court West Hills, CA 91307
Email	joystink@aol.com
Signature	
Date submitted	Apr 08, 2024 10:54:44 AM

Form Name:	North Campus Petition
Submission Time:	April 8, 2024 9:00 pm
Browser:	Mobile Safari 17.4.1 / iOS
IP Address:	47.157.129.157
Unique ID:	1213048428
Location:	34.2773, -118.5001

Description Area	Petition In Support of Chaminade College Preparatory's New High School Campus PlanI have reviewed and support Chaminade College Preparatory's new high school campus plan which will modernize and upgrade the existing campus facilities with new academic, library, counseling and administrative areas and a new student quad, will expand athletic and parking facilities to the new North Campus, and will include the construction of a pedestrian bridge to safely connect the existing and new campuses. I support Chaminade because they have been an important asset in the West Hills community for the past 60+ years, and the campus plan will allow them to provide additional quality educational programs and a wide variety of essential curricular, co-curricular and extra-curricular programs.
Person signing above petition	Nicki Skinner
Address	17929 Tribune Place Granada Hills, CA 91344
Email	nicolejeanskinner@gmail.com
Signature	
Date submitted	Apr 08, 2024 08:59:58 PM

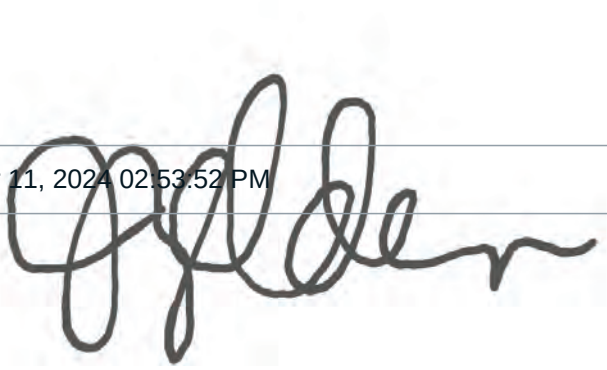
Form Name:	North Campus Petition
Submission Time:	April 9, 2024 10:09 am
Browser:	Chrome 123.0.0.0 / Windows
IP Address:	64.183.100.242
Unique ID:	1213231127
Location:	34.169, -118.3713

Description Area	Petition In Support of Chaminade College Preparatory's New High School Campus PlanI have reviewed and support Chaminade College Preparatory's new high school campus plan which will modernize and upgrade the existing campus facilities with new academic, library, counseling and administrative areas and a new student quad, will expand athletic and parking facilities to the new North Campus, and will include the construction of a pedestrian bridge to safely connect the existing and new campuses. I support Chaminade because they have been an important asset in the West Hills community for the past 60+ years, and the campus plan will allow them to provide additional quality educational programs and a wide variety of essential curricular, co-curricular and extra-curricular programs.
Person signing above petition	Martha Siping
Address	1578 Mellow Lane Simi Valley, CA 93065
Email	smilintita@yahoo.com
Signature	
Date submitted	Apr 09, 2024 10:08:47 AM

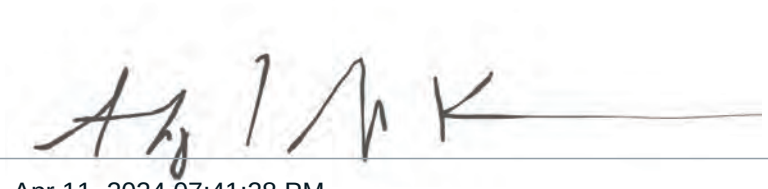
Form Name:	North Campus Petition
Submission Time:	April 9, 2024 4:12 pm
Browser:	Chrome 123.0.0.0 / Windows
IP Address:	38.175.175.153
Unique ID:	1213381783
Location:	40.5815, -105.1042

Description Area	Petition In Support of Chaminade College Preparatory's New High School Campus PlanI have reviewed and support Chaminade College Preparatory's new high school campus plan which will modernize and upgrade the existing campus facilities with new academic, library, counseling and administrative areas and a new student quad, will expand athletic and parking facilities to the new North Campus, and will include the construction of a pedestrian bridge to safely connect the existing and new campuses. I support Chaminade because they have been an important asset in the West Hills community for the past 60+ years, and the campus plan will allow them to provide additional quality educational programs and a wide variety of essential curricular, co-curricular and extra-curricular programs.
Person signing above petition	Jason Crawshaw
Address	1068 Sailors Reef Fort Collins, CO 80525
Email	jvcrawshaw@me.com
Signature	
Date submitted	Apr 09, 2024 05:08:47 PM

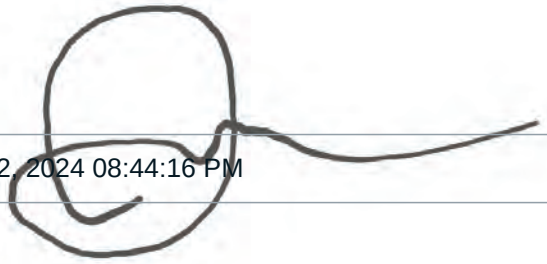
Form Name:	North Campus Petition
Submission Time:	April 11, 2024 2:54 pm
Browser:	Mobile Safari 17.4.1 / iOS
IP Address:	172.56.121.168
Unique ID:	1214194728
Location:	34.195, -118.445

Description Area	Petition In Support of Chaminade College Preparatory's New High School Campus PlanI have reviewed and support Chaminade College Preparatory's new high school campus plan which will modernize and upgrade the existing campus facilities with new academic, library, counseling and administrative areas and a new student quad, will expand athletic and parking facilities to the new North Campus, and will include the construction of a pedestrian bridge to safely connect the existing and new campuses. I support Chaminade because they have been an important asset in the West Hills community for the past 60+ years, and the campus plan will allow them to provide additional quality educational programs and a wide variety of essential curricular, co-curricular and extra-curricular programs.
Person signing above petition	Julie Zelden
Address	7315 Rutherford Hill Dr West Hills, CA 91307
Email	juliezelden@gmail.com
Signature	
Date submitted	Apr 11, 2024 02:53:52 PM

Form Name:	North Campus Petition
Submission Time:	April 11, 2024 7:42 pm
Browser:	Chrome 123.0.0.0 / Windows
IP Address:	76.86.241.44
Unique ID:	1214270754
Location:	34.1554, -118.5957

Description Area	Petition In Support of Chaminade College Preparatory's New High School Campus PlanI have reviewed and support Chaminade College Preparatory's new high school campus plan which will modernize and upgrade the existing campus facilities with new academic, library, counseling and administrative areas and a new student quad, will expand athletic and parking facilities to the new North Campus, and will include the construction of a pedestrian bridge to safely connect the existing and new campuses. I support Chaminade because they have been an important asset in the West Hills community for the past 60+ years, and the campus plan will allow them to provide additional quality educational programs and a wide variety of essential curricular, co-curricular and extra-curricular programs.
Person signing above petition	Abigail Krasny
Address	20511 Dumont Street Woodland Hills, CA 91364
Email	abbykrasny@gmail.com
Signature	
Date submitted	Apr 11, 2024 07:41:28 PM

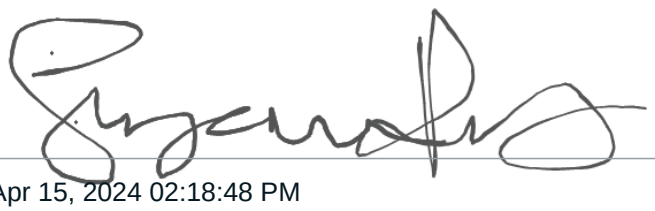
Form Name:	North Campus Petition
Submission Time:	April 12, 2024 8:44 pm
Browser:	Chrome Mobile 123.0.6312.52 / iOS
IP Address:	23.240.146.240
Unique ID:	1214664033
Location:	34.2827, -118.8875

Description Area	Petition In Support of Chaminade College Preparatory's New High School Campus PlanI have reviewed and support Chaminade College Preparatory's new high school campus plan which will modernize and upgrade the existing campus facilities with new academic, library, counseling and administrative areas and a new student quad, will expand athletic and parking facilities to the new North Campus, and will include the construction of a pedestrian bridge to safely connect the existing and new campuses. I support Chaminade because they have been an important asset in the West Hills community for the past 60+ years, and the campus plan will allow them to provide additional quality educational programs and a wide variety of essential curricular, co-curricular and extra-curricular programs.
Person signing above petition	Jay Greenlinger
Address	4380 Clearwood Rd Moorpark, CA 93021
Email	jgreenlinger@gmail.com
Signature	
Date submitted	Apr 12, 2024 08:44:16 PM

Form Name:	North Campus Petition
Submission Time:	April 14, 2024 5:27 pm
Browser:	Chrome 121.0.0.0 / OS X
IP Address:	216.102.6.120
Unique ID:	1215026799
Location:	34.0251, -118.1556

Description Area	Petition In Support of Chaminade College Preparatory's New High School Campus PlanI have reviewed and support Chaminade College Preparatory's new high school campus plan which will modernize and upgrade the existing campus facilities with new academic, library, counseling and administrative areas and a new student quad, will expand athletic and parking facilities to the new North Campus, and will include the construction of a pedestrian bridge to safely connect the existing and new campuses. I support Chaminade because they have been an important asset in the West Hills community for the past 60+ years, and the campus plan will allow them to provide additional quality educational programs and a wide variety of essential curricular, co-curricular and extra-curricular programs.
Person signing above petition	Darius Terani
Address	5242 Calatrana Dr Woodland Hills, CA 91364
Email	terani@alumni.usc.edu
Signature	
Date submitted	Apr 14, 2024 05:26:21 PM

Form Name:	North Campus Petition
Submission Time:	April 15, 2024 2:19 pm
Browser:	Chrome 123.0.0.0 / Windows
IP Address:	64.183.100.242
Unique ID:	1215371423
Location:	34.169, -118.3713

Description Area	Petition In Support of Chaminade College Preparatory's New High School Campus PlanI have reviewed and support Chaminade College Preparatory's new high school campus plan which will modernize and upgrade the existing campus facilities with new academic, library, counseling and administrative areas and a new student quad, will expand athletic and parking facilities to the new North Campus, and will include the construction of a pedestrian bridge to safely connect the existing and new campuses. I support Chaminade because they have been an important asset in the West Hills community for the past 60+ years, and the campus plan will allow them to provide additional quality educational programs and a wide variety of essential curricular, co-curricular and extra-curricular programs.
Person signing above petition	Suzanne Dumas
Address	7019 Quakertown Ave. Winnetka, CA 91306
Email	suzdumas@gmail.com
Signature	
Date submitted	Apr 15, 2024 02:18:48 PM

Chaminade College Preparatory, High School Campus Plan Support Petition

I have reviewed and support Chaminade College Preparatory's new high school campus plan which will modernize and upgrade the existing campus facilities with new academic, library, counseling and administrative areas and a new student quad, will expand athletic and parking facilities to the new North Campus, and will include the construction of a pedestrian bridge to safely connect the existing and new campuses. I support Chaminade because they have been an important asset in the West Hills community for the past 60+ years, and the campus plan will allow them to provide additional quality educational programs and a wide variety of essential curricular, co-curricular and extra-curricular programs.

Name	Address	Signature
NELSON LEE	7830 GENESTA AVE, LAKE BALBOA, CA 91406	
ELIZABETH LEE	7830 GENESTA AVE, LAKE BALBOA, CA 91406	
CLIVE Fong	1817 S Fremont Ave Alhambra CA 91803	
TC Mattes	21917 Smberwood Dr Diamond Bar CA 9188	
Scott Lopez		
Sid Lopez	10850 Delco Avenue Chatsworth 91304	
MONESH MELWANI	20545 Bergamo Way Porter Ranch CA	
Jeanne Turbow	4852 Ben Ave. Valley Village 91607	
CHERYL C. BOWMAN	21301 Tulsa St. Chatsworth, CA 91311	Cheryl C. Bowman
Darren Iwamoto	4852 Ben Ave Valley Village CA 91607	
BRAD BOWMAN	21301 TULSA ST. CHATSWORTH CA 91311	
KIM ULRICH	8750 Jed Smith Rd Hidden Hills 91302	
John Patterson	20252 Via Galileo Porter Ranch 91326	
DAVID WIENER	13547 CONTOUR DR. SHERMAN OAKS, CA 91423	

Chaminade College Preparatory, High School Campus Plan Support Petition

I have reviewed and support Chaminade College Preparatory's new high school campus plan which will modernize and upgrade the existing campus facilities with new academic, library, counseling and administrative areas and a new student quad, will expand athletic and parking facilities to the new North Campus, and will include the construction of a pedestrian bridge to safely connect the existing and new campuses. I support Chaminade because they have been an important asset in the West Hills community for the past 60+ years, and the campus plan will allow them to provide additional quality educational programs and a wide variety of essential curricular, co-curricular and extra-curricular programs.

Name	Address	Signature
CHRISTIAN ORANSTAYE	20562 W. Deer Grass Ct, Porter Ranch, CA 91326	
Steve Carillo		
Greg Flowers	20814 Sierra Ct 91326	
Priya Sodhi	11809 Cetma Way 91326	
Traci Meyer	4143 Shadygladе Ave Studio City	
Steve Radelet	29355 Queens Way Agora Hills	
Patricia Fernandez	8538 Maynard Ave West Hills	
Sean Perez	11748 Ricasoli Way	
A.T. Perez		
Denise Jackson	4441 Gayle Drive Tarzana	
Chris Jackson	4441 Gayle Drive Tarzana	
Armene Horsepian	24003 Laurel Place Calabasas	
Vartan Horsepian	24003 Laurel Place Calabasas	
PAIGE SELBY	5447 BURNET AVE SHERMAN OAKS 91411	

Chaminade College Preparatory, High School Campus Plan Support Petition

I have reviewed and support Chaminade College Preparatory's new high school campus plan which will modernize and upgrade the existing campus facilities with new academic, library, counseling and administrative areas and a new student quad, will expand athletic and parking facilities to the new North Campus, and will include the construction of a pedestrian bridge to safely connect the existing and new campuses. I support Chaminade because they have been an important asset in the West Hills community for the past 60+ years, and the campus plan will allow them to provide additional quality educational programs and a wide variety of essential curricular, co-curricular and extra-curricular programs.

Name	Address	Signature
DENISE PORCH	4929 CALVIN AVE, TARZANA 91356	
Jocelyn Patrick	21475 Kenfel Drive, Saugus	
Martha Rivera	15207 Willard St. Van Nuys, CA 91402	
Dante Lorenzana	6027 Fenwood Ave WH. 91367	
Buddy Enright	31900 Benchley WLV 91361	
Catherine Leon	3049 Moonstone Ave Simi Valley 93065	
GEORGE LEVIN	2212 Oman CT T/O	
GINA GOLDMAN	7211 BALLBROOK AVE 91306	

Trevor Martin <trevor.martin@lacity.org>

West Hills/Chaminade Expansion/Case No. CPC-2023-1254-VZC-HD-ZAD-ZAA

6 messages

Daniel Osztreicher <osztreicher.daniel@gmail.com> Thu, Jan 11, 2024 at 10:57 AM
To: trevor.martin@lacity.org

Hi!

I live at 23029 Strathern St in West Hills. right down the street from this project.
I fully support it and do not agree with anything the Neighborhood Council has sent. If it isnt this project they should just do 100% affordable housing.

Thank you!

Danny

Trevor Martin <trevor.martin@lacity.org> Thu, Jan 11, 2024 at 11:01 AM
To: Daniel Osztreicher <osztreicher.daniel@gmail.com>

Good morning Danny,

Thank you for your email. Your comments will be filed for public record and added to the case file. Please feel free to reach out if you have any questions.

Thanks, and have a great day.

- Trevor

Trevor Martin
Pronouns: He, His, Him
City Planning Associate
Los Angeles City Planning
200 N. Spring St., Room 763
Los Angeles, CA 90012
T: (213) 978-1341 | Planning4LA.org
E-NEWS

[Quoted text hidden]

Daniel Osztreicher <osztreicher.daniel@gmail.com> Thu, Jan 11, 2024 at 11:08 AM
To: Trevor Martin <trevor.martin@lacity.org>

Thank you!

Is it possible to redact my email address?

Sent from my iPhone

> On Jan 11, 2024, at 11:01 AM, Trevor Martin <trevor.martin@lacity.org> wrote:
>
> [Quoted text hidden]

Trevor Martin <trevor.martin@lacity.org> Thu, Jan 11, 2024 at 11:57 AM
To: Daniel Osztreicher <osztreicher.daniel@gmail.com>

I can remove your email from the public record if you'd like.

Trevor Martin
Pronouns: He, His, Him
City Planning Associate
Los Angeles City Planning
200 N. Spring St., Room 763
Los Angeles, CA 90012
T: (213) 978-1341 | Planning4LA.org
E-NEWS

[Quoted text hidden]

Daniel Osztreicher <osztreicher.daniel@gmail.com> Thu, Jan 11, 2024 at 12:29 PM
To: Trevor Martin <trevor.martin@lacity.org>

Yes thank you!
Sent from my iPhone

> On Jan 11, 2024, at 11:57 AM, Trevor Martin <trevor.martin@lacity.org> wrote:
>
> [Quoted text hidden]

Trevor Martin <trevor.martin@lacity.org> Thu, Jan 11, 2024 at 12:33 PM
To: Daniel Osztreicher <osztreicher.daniel@gmail.com>

No problem!

Trevor Martin
Pronouns: He, His, Him
City Planning Associate
Los Angeles City Planning
200 N. Spring St., Room 763
Los Angeles, CA 90012
T: (213) 978-1341 | Planning4LA.org
E-NEWS

[Quoted text hidden]

Trevor Martin <trevor.martin@lacity.org>

Chaminade

2 messages

aidakippy <aidakippy@aol.com> Mon, Jul 15, 2024 at 11:15 AM
To: trevor.martin@lacity.org

Dear Trevor,
My main issue is the pool.
Please reconsider in making it covered.
It will protect everyone from tragedies.
Also consider the traffic if those apartments three hundred plus are built right at the corner.
Neighbors are all worried about the noise.
Thank you.
Have a great day,
Aida Abkarians
West Hills Neighborhood Council
Sent from my iPhone

Trevor Martin <trevor.martin@lacity.org> Mon, Jul 15, 2024 at 11:20 AM
To: aidakippy <aidakippy@aol.com>

Hi Aida,

Thank you for your comments. Your email will be added to the case file and filed for public record.

- Trevor

Trevor Martin
Pronouns: He, His, Him
City Planner, Expedited Processing Section
Los Angeles City Planning
200 N. Spring St., Room 763
Los Angeles, CA 90012
T: (213) 978-1341 | Planning4LA.org
E-NEWS

[Quoted text hidden]

Trevor Martin <trevor.martin@lacity.org>

West Hills/Chaminade Expansion /Case No. CPC-2023-1254-VZC-HD-ZAD-ZAA

2 messages

Anthony Brosamle <tonybwhnc@gmail.com> Wed, Jan 3, 2024 at 3:50 PM
To: trevor.martin@lacity.org

I am a resident of West Hills interested in Chaminade's expansion plans. Please send me a copy of the MND-Mitigated Negative Declaration as soon as it is available. Email address: TonyBWHNC@gmail.com
Please reply to confirm receipt of this request and to confirm your intent to send the document to me when it comes available.
Thank you, Anthony Brosamle - Neighbor, former Chaminade employee and parent & former member of West Hills Neighborhood Counsel.

Thank you. Tony

Sent from my iPhone

Trevor Martin <trevor.martin@lacity.org> Wed, Jan 3, 2024 at 3:57 PM
To: Anthony Brosamle <tonybwhnc@gmail.com>

Hi Tony,

I have added your name and contact info to the interested parties list for the Chaminade High School Project (Case No. CPC-2023-1254-VZC-HD-ZAD-ZAA). I will send you a copy of the MND Report once it is finalized.

Best,

Trevor

Trevor Martin
Pronouns: He, His, Him
City Planning Associate
Los Angeles City Planning
200 N. Spring St., Room 763
Los Angeles, CA 90012
T: (213) 978-1341 | Planning4LA.org
E-NEWS

[Quoted text hidden]

CHAMINADE
COLLEGE PREPARATORY

OFFICE OF THE PRESIDENT

June 7, 2024

Ms. Charlene Rothstein
Mr. Bill Rose
West Hills Neighborhood Council
Zoning & Planning Committee
charwhnc@gmail.com
billrose@parkregency.com

Re: Response to WHNC Letter dated April 19, 2024, Chaminade College Preparatory, High School, Proposed North Campus Athletic Facilities
Project Address: 7500 Chaminade Avenue, 23241 Cohasset Street, 23260 Saticoy Street, 23217-23255 Saticoy Street and 7619-7629 Woodlake Avenue, West Hills
Case Nos.: CPC-2023-1254-VZC-HD-ZAD-ZAA, CPC-2009-1477-CU-ZV-ZAA-SPR-PA1, VTT-84101

Dear Ms. Rothstein and Mr. Rose:

Thank you for your comment letter dated April 19, 2024, regarding the athletic facilities proposed by Chaminade College Preparatory on the North Campus property, located across the street from the existing high school campus. Please know that consistent with your goal to preserve the character of the neighborhood surrounding the proposed campus, high on our list of goals and objectives for the new facilities is to operate with the utmost sensitivity and regard to our neighbors while fulfilling the mission of our school. We understand the importance of quality of life and in the continued interest of our neighbors' and their interest. This is evidenced by our hosting of two community open houses prior to submitting our entitlement applications as well as engaging with the West Hills Neighborhood Council (WHNC) Zoning & Planning Committee and Streets & Transportation Committee very early in our planning process. We appreciate the time, effort, and care that you and other members of the Chaminade Subcommittee have put into reviewing Chaminade's proposal and engaging the community to provide comments.

Not to go unnoticed, based on discussions we held with the Chaminade Subcommittee in the office of Councilmember John Lee (Council District Office 12), we scaled back many of the operational aspects that we originally proposed for the North Campus. We established operational restrictions to address the concerns expressed, as relayed in the "Proposed Modified and New Conditions in Response to WHNC Comments" document dated March 7, 2024. Nonetheless, we do acknowledge the additional comments detailed in your April 19, 2024th letter and would like to take

10210 OAKDALE AVENUE | CHATSWORTH | CALIFORNIA 91311-3533
PHONE: 818.360.4211 | FAX: 818.363.0127 | CHAMINADE.ORG

this opportunity to address them and, where possible, agree to the additional changes, as discussed below by topic.

Environmental Hazards and Potential Health Exposures

Regarding your request to be informed immediately of all environmental hazards and potential health exposures currently known for the Project construction and operation, the draft Mitigated Negative Declaration (MND), which is near completion, details proposed remediation, demolition, and construction activities associated with the Project, including any foreseeable environmental hazards and potential health exposures. For example, the draft MND addresses the removal of asbestos and lead based paint during demolition of the existing shopping center. It notes that the Project would comply with existing regulations from OSHA, the US EPA, and the SCAQMD, and addresses mitigation regarding the remediation of impacted soil. For construction, the Project would comply with all applicable regulations governing the use of hazardous materials. It also discloses the hazardous materials which are those typical for a school operation, such as paints, cleaning materials, etc., similar to existing operations, and again would be subject to compliance with applicable statutory regulations regarding the use of such materials. We understand that Los Angeles City Planning will publish the draft MND soon, after which time it will be available for your review.

Zone Change

In response to your request for Chaminade to record a covenant and agreement to agree that no variances will be incorporated in the Los Angeles City Planning application for the North Campus, please know that no variances are currently requested, and we have no plans to incorporate such request. There are, however, other requests including Zoning Administrator Determinations to allow for the proposed heights of the structures that are ancillary to the athletic field and facilities, including the scoreboard, netting and netting poles, lights, and the pedestrian bridge. We will notify the WHNC of any changes that might trigger a Variance but at this time none are expected. To address your concern, however, Los Angeles City Planning will require that a covenant and agreement be recorded as a condition of the requested grants, binding the property to the requests approved and the associated conditions of approval. The covenant that the City will require would serve the same purpose as the covenant you are requesting as it will effectively bind the North Campus to the plans and requests submitted, effectively not allowing any other deviations as part of the application that is being considered.

Noise, Lighting & Setbacks

As for the requests for project design and operational features that address noise, lighting and setbacks, we are unable to provide the level of detail requested at this conceptual stage. However, we are committed to considering and implementing additional features, as needed and as required to comply with requirements set forth in the MND, when we are in the construction and operation design phase of the North Campus. In the meantime, we have given careful thought to your concerns and propose the following as conditions which would regulate noise and lighting:

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- *Noise levels including, but not limited to, activities such as the use of outdoor public address system or speakers and announcements during sporting events, use of batting cages, and other activities will be subject to the local noise ordinance. All amplified noise must comply with LAMC Section 112.01, referenced below.*

  SEC. 112.01. RADIOS, TELEVISION SETS, AND SIMILAR DEVICES. (Amended by Ord. No. 156,363, Eff. 3/29/82.)

  (a) It shall be unlawful for any person within any zone of the City to use or operate any radio, musical instrument, phonograph, television receiver, or other machine or device for the producing, reproducing or amplification of the human voice, music, or any other sound, in such a manner, as to disturb the peace, quiet, and comfort of neighbor occupants or any reasonable person residing or working in the area.
  (b) Any noise level caused by such use or operation which is audible to the human ear at a distance in excess of 150 feet from the property line of the noise source, within any residential zone of the City or within 500 feet thereof, shall be a violation of the provisions of this section.
  (c) Any noise level caused by such use or operation which exceeds the ambient noise level on the premises of any other occupied property, or if a condominium, apartment house, duplex, or attached business, within any adjoining unit, by more than five (5) decibels shall be a violation of the provisions of this section.

- *All lighting shall be directed onto the site. Floodlighting shall be designed and installed to preclude glare to adjoining and adjacent properties. Outdoor lighting shall be designed and installed with shielding such that the light source is directed on-site, away from adjacent properties.*

- *On the North Campus: The athletic facility lights shall be turned off no later than 9:00 p.m. on practice and contest nights, with an exception for overtime/extra inning play on contest nights. On nights when the athletic facility is not in use, only low-level security lighting shall be permitted.*

At this time, landscaping unfortunately cannot be added on-site along the north side of the athletic field due to limited area to accommodate the necessary field dimension standards. Relocation of the scoreboard anywhere further to the east is unfortunately also not feasible. Due to the positioning of the sun in the afternoon hours and the location of the bleachers serving the athletic field, relocating the scoreboard further to the east would compromise its visibility. However, there is existing mature landscaping on the adjoining home properties to the north as well as an existing masonry block wall along the northern property line which varies in height, but is a minimum of 6-feet tall, with additional fencing on top. The wall and fences will remain, which will provide both visual screening and achieve the desire for additional sound attenuation. The proposed 10-foot-tall wrought iron security fence will be constructed in front of the existing wall to remain. In addition, the 19-foot-tall pool house proposed between the proposed pool and parking lot fronting on Woodlake Avenue provides sound attenuation. As such, adding a soundproof wall along the north property line would not be effective in further reducing noise levels. However, if abutting neighbors to the north have concerns, they are welcome

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to contract Chaminade and we would be happy to address possible additional landscaping measures with them. In the meantime, as we understand that the main concern is amplified noise, we will propose the following mitigation measure.

- *Amplified sound systems for the Project's baseball field/bleachers and outdoor aquatics facility/bleachers shall be acoustically engineered with the following design and performance standards:*
  - *Amplified sound levels, as measured at the northern property line of the North Campus, shall not exceed 50 dBA.*
  - *Amplified sound systems shall not be operated outside the operational hours established for the North Campus facilities.*
  - *Speakers shall be directional and oriented away from the northern property line of the North Campus.*
  - *Non-Chaminade users of the facilities shall not be permitted to utilize amplified sound systems.*

To further address noise concerns, we have also in good faith volunteered to restrict the use of the batting cages for Chaminade only. We also volunteered to reduce the batting cage hours by two hours on the North Campus, to be limited to 9:00 a.m. to 7:00 p.m., Monday through Saturday, instead of 8:00 a.m. to 8:00 p.m. as originally proposed consistent with the CUP conditions of approval currently on the Main Campus. We are also exploring noise baffling measures for the batting cages, such as sound-limiting acoustic fencing and/or other appropriate features. Should any noise complaints be raised by neighbors after operations begin on the North Campus, Chaminade will work on resolving them as quickly as possible. We encourage all complaints to be placed on our 24-hour Complaint Line: (818) 588-4CCP (4227).

Regarding minimum setbacks for the pool lights along the Woodlake Avenue frontage, in response to your request, we agree to propose the following as a condition of approval:

- *Along the Woodlake Avenue frontage, pool lights shall be set back a minimum of 12 inches from the property line.*

Rental or Lease of Facilities/Use Restrictions

In response to the request for additional details about the proposed outside use of the North Campus, please know this is an aspect in our proposal which, if approved by Los Angeles City Planning, we feel would benefit the community, not only in response to interest expressed by some community residents to open campus facilities to the community, but due to the lack of outdoor pools available in the West Valley. With that, we previously scaled back the hours and imposed restrictions, in an effort to be sensitive to concerns shared by neighbors. For example, we reduced the originally proposed hours for outside use of the aquatic complex/pool and we volunteered to require outside organizations, such as local schools and youth groups, to arrive and depart by bus only. With your most recent comments in mind, we have further refined our proposal for outside use and offer the following language which we would propose to Los Angeles City Planning for consideration as conditions of approval:

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- *North Campus Only: The rental or lease of the athletic and parking facilities, and associated structures, for non-Chaminade activities are restricted to the following:*
    - *Athletic Fields. Use by community-based organizations shall be limited to 36 days, Monday through Saturday, from 8 a.m. to 6 p.m. Use is not permitted on Sundays and national holidays. The rental or lease of the batting cages is not permitted at any time.*
    - *Aquatic Complex/Pool. Use by community-based organizations, which shall travel to and from the North Campus by bus, shall be limited to daylight hours only, and to end no later than 7:00 p.m., Monday through Friday, and no later than 5:00 p.m. on Saturdays, with no use of outdoor lighting other than low-level security lighting. For community member swim activities, use hours shall be limited to Monday-Saturday, 8:00 a.m. to 6:00 p.m. Use is not permitted on Sundays and national holidays. A lifeguard must be on duty any time the pool is in use.*
    - *For purposes of the above conditions, "community-based organization" shall mean any educational or athletic institution, group or league. "Daylight hours" shall mean hours illuminated by the natural light of day, or from dawn to dusk, year-round, but further limited by the times noted herein.*

In addition, as reflected in the mitigation measure related to amplified sound, as noted above, Non-Chaminade users of the athletics facilities will not be permitted to utilize amplified sound systems, which we believe further addresses concerns over outside use of the athletic facilities.

Hours of Operation (for Chaminade Use of North Campus)

Thank you for your comments about the hours of operation. For the Aquatic Complex/Pool use, we are proposing to implement the same hours of operation on the North Campus that are established in our current CUP for the existing campus, as follows:

- *For Aquatic Complex/Pool use: Shall have hours of 8:00 a.m. to 8:00 p.m., Monday through Friday. Saturday use is limited to 10 a.m. to 7 p.m. Athletic use is not permitted on Sundays or national holidays.*

We understand your request is to revise the hours to 8:00 a.m. to 7:00 p.m. In previous years leading to the approval of our current CUP, we agreed to reduce the original pool hours we proposed, resulting in the above-noted hours/condition. Further reducing the operational hours will negatively affect access to our programs, services and activities, and will further limit access to the facilities by outside community organizations, so it is important that we retain the needed flexibility. As for the requested schedule of set hours and days by month for the proposed pool, we are unable to provide this level of detail at this early stage. However, the schedule will be limited to the hours established above and will also be based, in part, on annual league schedules published by California Interscholastic Federation – Southern Section. Additionally, we feel that the noise mitigation pertaining to amplification, as noted above, will address concerns expressed by neighbors.

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At this early stage, we are also unable to provide a detailed schedule for the use of the athletic fields, which will also be based in part on annual league schedules published by California Interscholastic Federation – Southern Section. However, after our initial meeting with the WHNC Chaminade Subcommittee, we proposed more restrictive hours of operation than the hours permitted on the existing campus, as follows:

- *For Athletic Field/Stadium use: Main Campus: Shall have hours of 7:00 a.m. to 10:00 p.m., Monday through Friday; Saturday use is limited to 8:00 a.m. to 9 p.m., and; 9:00 a.m. to 8:00 p.m. on Sunday. No more than 15 Sundays per year will be allowed. North Campus: Shall have the same hours as the Main Campus, except the end time shall be 9:00 p.m. (instead of 10:00 p.m.) on Monday through Friday, with an exception for overtime/extra inning play. Both Campuses: Athletic use is not permitted on national holidays. No congregating on the site for the purpose of these activities shall occur before the permitted hours. An instructor/school staff member shall be present at the subject site at least one-half hour prior to the designated start times to monitor student activities/arrivals to assure that noise impacts on the adjacent neighbors are minimized.*

Complaints

We very much appreciate your additional comments and suggestions pertaining to neighbor complaints. As we have shared previously, based on the comments expressed to date, we have implemented a new and improved 24-hour complaint line. The complaint line is posted at the bottom of our website homepage (Chaminade.org), as the **West Hills Neighbor Complaints Line (818) 588-4CCP (4227)**. We previously provided you with information about the complaint line, which was also mailed to our campus neighbors within a 500-foot radius of the existing campus, and shared our compliant line procedures. Complaints are logged and responded to as they are received. Accordingly, we agree to responding to complaints within 48 hours of receiving them, and propose to maintain and apply the following condition:

- *Complaint Log. The school shall maintain a complaint log associated with any concerns, written or verbal, expressed to the school by area residents, staff, students, or visitors regarding the operation of the school. The complaint log shall be made available to the Director of Planning in conjunction with the review of conditions set forth under Condition No. 28. The school administration shall make the complaint log available for review by any member of the public upon request.*

Any complaints related to construction, parking, noise and operations can be filed using this same complaint line. We remain committed to working with our neighbors to address any complaints we receive. As per our previous commitment, we would be happy to share the compliant log with the WHNC upon request, but do not agree to weekly or regular reporting.

Construction

Regarding the request that nearby residents be informed about construction activities and routes as they are scheduled to take place on the Main Campus and North Campus, including the

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construction of the pedestrian bridge over Saticoy Street, we will adhere to standard noticing requirements for demolition and construction activities as required by the Los Angeles Department of Building and Safety. In addition, as required under our current CUP, a notice of construction activities will be posted on the construction sites as required by Condition No. 35, included below:

> ***35. Posting of Construction Activities.*** *The adjacent residents shall be given regular notification of major construction activities and their duration. A visible and readable sign (at a distance of 50 feet) shall be posted on the construction site identifying a telephone number for inquiring about the construction process and to register complaints.*

Parking

We understand there is concern over vehicles parking in adjoining residential streets on game days on the North Campus. As we shared previously, the level of attendance and parking needs for baseball games are not nearly as high as they are for football games. As such, the on-campus parking lots (on the Main and North Campuses) will adequately accommodate the parking demands for baseball games. Nevertheless, in an effort to address your concern, we volunteer to post signs at the North Campus driveway entrances along Saticoy Street and Woodlake Avenue, directing attendees to park on the North Campus or across the street on the Main Campus, and indicating that parking is not permitted on Keswick Street, Saticoy Street, Woodlake Avenue or other residential streets, per the following proposed (updated) condition:

- *For all games, competitions and swim meets on the North Campus:*
  - *All Chaminade students, faculty and staff shall be directed to park on the Main Campus.*
  - *In advance of each game day, written notice shall be provided to all visiting teams to indicate that vehicles must park on campus (either on the North Campus or across the street on the Main Campus), and that street parking on Keswick Street and other residential streets is not permitted.*
  - *A permanent sign shall be placed or posted at each driveway entry along Saticoy Street and Woodlake Avenue serving the North Campus, directing attendees to park on the North Campus or across the street on the Main Campus, and indicating that parking is not permitted on Keswick Street, Saticoy Street, Woodlake Avenue or other streets.*

After operations commence on the North Campus and games take place, should any neighbors have complaints related to game attendees parking in the street, we encourage them to reach out to us through our 24-hour Complaint Line so we can make adjustments and consider additional preventative measures accordingly.

Traffic Management Plan

We are happy to hold further discussions with the WHNC Streets & Transportation Committee, in concert with Council District Office 12, about the Woodlake and Saticoy intersection

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and concern over traffic speeds. However, as LADOT has expressed, a traffic signal is not warranted at the street intersection, and as our traffic consultant has shared, the 4-way stop signs that currently exist at the intersection slows traffic more than a traffic signal would.

Safety and Security Monitoring

Safety and security plans that detail the arrival and department times of security guards on the school campuses cannot be made public, as this would be absolutely contrary to best security practices. However, a condition of our existing CUP, noted below, requires a security plan in consultation with the Police Department. We expect that this condition or a similar condition will be applied to the new North Campus as part of the currently requested entitlements. As such, Chaminade's agreement to such requirement will be recorded on the North Campus through the covenant and agreement that will be required for the requested entitlements. Evidence of compliance will also need to be provided to Los Angeles City Planning as part of condition clearances. We can provide evidence of compliance with respect to the proposed North Campus at the appropriate time in the future, when requested by the WHNC.

- *A security plan shall be developed in consultation with the Police Department, outlining security features of each new structure to prior to the issuance of a certificate of occupancy for each new structure. In addition, the property owner shall provide to the Topanga Commanding Officer a diagram of the site indicating access routes and any additional information that might facilitate police response. The applicant shall submit evidence of compliance to the City Planning Department.*

We are hopeful that our responses largely address the concerns you have relayed from stakeholders. Again, we appreciate the thought, time and effort you have put into gathering them and communicating them to us. We look forward to meeting with the WHNC Zoning & Planning Committee again soon, after publication of the draft MND, and answering any additional questions that you may still have.

Thank you,

Robert S. Webb
President
Chaminade College Preparatory

cc. Hannah Lee, Council District 12
Dan Rosales, Council District 12
Heather Bleemers, Los Angeles City Planning
Trevor Martin, Los Angeles City Planning
Vicente Cordero, LADOT

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Trevor Martin <trevor.martin@lacity.org>

West Hills Chaminade Expansion CPC-2023-1254-VZC-HD-ZAD-ZAA

5 messages

Heidi <onefuddyduddy@yahoo.com> Sun, Jan 7, 2024 at 7:31 PM
To: trevor.martin@lacity.org

Hello Mr. Martin -

I have lived in West Hills for almost forty years, and I am very interested in what is happening in my community. Therefore, I would very much like to read the Mitigated Negative Declaration for the proposed expansion project of Chaminade College Preparatory High School.

Would it be possible for your office to send the MND to me, via email? I would appreciate that very much!

Thank you for your assistance in making me more familiar with the details of this proposed project.

Heidi Manning
onefuddyduddy@yahoo..com

Sent from my iPhone

Trevor Martin <trevor.martin@lacity.org> Mon, Jan 8, 2024 at 9:19 AM
To: Heidi <onefuddyduddy@yahoo.com>

Hi Heidi,

I have added your name and contact to the interested parties list for the Chaminade High School Project (Case No. CPC-2023-1254-VZC-HD-ZAD-ZAA). I will send you a copy of the MND Report once it is finalized.

Best,

Trevor

Trevor Martin
Pronouns: He, His, Him
City Planning Associate
Los Angeles City Planning
200 N. Spring St., Room 763
Los Angeles, CA 90012
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Heidi <onefuddyduddy@yahoo.com> Sat, Jan 20, 2024 at 8:17 AM
To: trevor.martin@lacity.org

Hello Mr. Martin -

So far, I have only received emails regarding the Harbor LA Draft EIR, from Los Angeles City Planning, but nothing about the West Hills Chaminade Expansion MND.

Is the Chaminade MND available yet?

Heidi Manning

Sent from my iPhone

> On Jan 7, 2024, at 7:31 PM, Heidi <onefuddyduddy@yahoo.com> wrote:
>
> Hello Mr. Martin -
[Quoted text hidden]

Trevor Martin <trevor.martin@lacity.org> Sun, Jan 21, 2024 at 2:57 PM
To: Heidi <onefuddyduddy@yahoo.com>

Hi Heidi,

The MND is still undergoing the final stages of review. I will be sure to email you a copy of the report once it is finalized.

Best,

Trevor

Trevor Martin
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City Planner
Los Angeles City Planning
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Heidi <onefuddyduddy@yahoo.com> Sun, Jan 21, 2024 at 3:33 PM
To: Trevor Martin <trevor.martin@lacity.org>

Thank you, Trevor!

Heidi Manning

Sent from my iPhone

> On Jan 21, 2024, at 2:58 PM, Trevor Martin <trevor.martin@lacity.org> wrote:
>
> [Quoted text hidden]

Trevor Martin <trevor.martin@lacity.org>

Comment: VTT-84101; CPC-2023-1254-VZC–H D-ZAD-ZAA; CPC-2009-1477-CU-ZV-Z AA-SPR-PA1 ENV-2023-1255-MND

Jeff Bornstein <powcp@aol.com> Wed, Aug 28, 2024 at 5:23 AM
To: "trevor.martin@lacity.org" <trevor.martin@lacity.org>, JEFF BORNSTEIN <powcp@aol.com>, Elizabeth Ene <elizabeth.ene@lacity.org>

Hi Trevor and Elizabeth,

Please include this comment below in the record for Aug 28 meeting for case(s) VTT-84101;
CPC-2023-1254-VZC–H D-ZAD-ZAA CPC-2009-1477-CU-ZV-Z AA-SPR-PA1 ENV-2023-1255-MND

(*Please confirm receipt*)

Dear Sirs and Madams,

Please deny approval concerning the case of Chaminade High School expansion.

Case Numbers VTT-84101;
CPC-2023-1254-VZC–H D-ZAD-ZAA CPC-2009-1477-CU-ZV-Z AA-SPR-PA1 ENV-2023-1255-MND.

A current EIR needs to be required

to study the effects of the expansion on the surrounding community. Studies and information on the project need to be updated as

the information used by applicant is outdated. In some cases, extremely outdated. This is a large project and will undoubtedly have a major impact on

not only the surrounding community. But also, the community as a whole.

Beyond the need for current information on impacts with a current Environmental Impact report, the project

needs offsets for the community in the manner of access to the school when not utilized by the school.

Providing value to the community in the manner of access to the athletic facilities for open recreation.

Open recreation to promote the health, safety and welfare for the community from its neighbor

Chaminade High School. In exchange for the expansion there should be hours of use available to the

residents/citizens of the surrounding community. I understand for safety concerns, a form of registration

maybe needed. Beyond, that public-open recreation needs to be free as part of the offset to the impact of the expansion.

Chaminade High School should be open to the public for free recreational use as

compensation for the impacts of the community which are undefined without a current

Environmental Impact Report.

Traffic, congestion, noise, light reflection and shade will all be affected by this expansion project.

Chaminade needs to be open a minimum of 20 hours a week to open recreation using outdoor and indoor athletic facilities

with no cost to the public to offset impacts of the project.

Without a dedicated and coordinated effort to serve the public in some legitimate manner

the City of Los Angeles is authorizing a project with heavy impact on the community, allowing

for their discretion of what is defined as a mitigated negative impact. With no offset for the community.

This project does not add housing stock to our community. This is an exclusive private school.

It is a private educational environment. We must not allow a private entity to expand and impact the public,

be allowed variances that again further effect the public without any offset for the community from said private entity.

Please deny this project and require an EIR going further. Please deny variances until more is done for the community.

And please deny approval for the Mitigated Negative Declaration until such time that community inclusion is taken into account.

Please confirm receipt of this comment and inclusion in the record for the August 28. 2024 DEPARTMENT OF CITY PLANNING SUBDIVISIONS (AND HEARING OFFICER) hearing.

Sincerely,
Jeff Bornstein
West Valley Alliance for Optimal Living.

Trevor Martin <trevor.martin@lacity.org>

FW: West Hills/Chaminade Expansion/Case No. CPC-2023-1254-VZC-HD-ZAD-ZAA

4 messages

Jeff Sacher <jsacher@kona.net> Sat, Jan 6, 2024 at 5:04 AM
To: Trevor Martin <trevor.martin@lacity.org>

Hi Trevor,

I just saw this. Nothing ever came back to me as "undeliverable", so if there's a Travis at lacity.org., he's probably wondering what the hell this is. Sorry 'bout that.

So to be sure, please send me a copy of the MND as soon as it's available, and send me a return email confirming receipt of this request and that the MND will be sent to me.

If this is a duplicate, please forgive that as well. Sometimes "auto-correct" can be a pain.

Thanks for your understanding,

Jeff

From: Jeff Sacher <jsacher@kona.net>
Sent: Thursday, January 4, 2024 10:08 AM
To: 'Travis.Martin@lacity.org' <Travis.Martin@lacity.org>
Subject: West Hills/Chaminade Expansion/Case No. CPC-2023-1254-VZC-HD-ZAD-ZAA

Good morning, Travis ~

Happy New Year! I hope you were able to enjoy a New Year Celebration.

Please send me a copy of the Mitigated Negative Declaration (MND) as soon as available.

My email address is: jsacher@kona.net

Please send me a return email confirming receipt of this request and that the MND will be sent to me.

Thanks much!

Take care,

Jeff Sacher

Trevor Martin <trevor.martin@lacity.org> Mon, Jan 8, 2024 at 9:05 AM
To: Jeff Sacher <jsacher@kona.net>

Good morning Jeff,

Happy New Year!

No worries. Your name has been added to the Interested Parties List. I will be sure to send you a copy of the MND Report as soon as it's been finalized.

Have a great week.

- Trevor

Trevor Martin
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Jeff Sacher <jsacher@kona.net> Mon, Jan 8, 2024 at 1:42 PM
To: Trevor Martin <trevor.martin@lacity.org>

Thanks!

I hope this New Year is good to you.

Aloha,

Jeff

From: Trevor Martin <trevor.martin@lacity.org>
Sent: Monday, January 8, 2024 9:06 AM
To: Jeff Sacher <jsacher@kona.net>
Subject: Re: FW: West Hills/Chaminade Expansion/Case No. CPC-2023-1254-VZC-HD-ZAD-ZAA

Good morning Jeff,

Happy New Year!

No worries. Your name has been added to the Interested Parties List. I will be sure to send you a copy of the MND Report as soon as it's been finalized.

Have a great week.

- Trevor

Trevor Martin

Pronouns: He, His, Him

City Planning Associate
Los Angeles City Planning

200 N. Spring St., Room 763

Los Angeles, CA 90012

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Trevor Martin <trevor.martin@lacity.org> Mon, Jan 8, 2024 at 2:46 PM
To: Jeff Sacher <jsacher@kona.net>

You're welcome!

And thank you! Likewise!

- Trevor

Trevor Martin
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200 N. Spring St., Room 763
Los Angeles, CA 90012
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Trevor Martin <trevor.martin@lacity.org>

Subject: West Hills/Chaminade Expansion/Case No. CPC-2023-1254-VZC-HD-ZAD-ZAA

2 messages

Karen <k10bs@aol.com> Thu, Jan 11, 2024 at 11:14 AM
To: Trevor Martin <trevor.martin@lacity.org>

Dear Mr. Martin,

As a resident of this West Hills community since 1986, I would like to present my concerns and that of many of my neighbors about the proposed expansion of the Chaminade High School.

The proposed expansion of an athletic field on the property in question will greatly change the nature of our neighborhood community.

The proposed athletic field will interfere with the quality and enjoyment of our bedroom community.

The lights, the noise and the traffic will make it nearly impossible for us to enjoy the respite of our homes.

Chaminade High School was built in the 1960's and the homes surrounding the current campus were built in the 1970's.

Those residents chose to live near the current athletic field whereas, we did not.

Our neighborhood realizes that Chaminade has purchased the property in question.

We are requesting that the school not be allowed to build an athletic complex on this property.

We would hope that the school would build classrooms and perhaps administrative offices on the property instead and keep all athletic activities on the current campus.

Sincerely,
Karen Sachs
23223 Keswick St.
West Hills, Ca 91304

Trevor Martin <trevor.martin@lacity.org> Thu, Jan 11, 2024 at 12:44 PM
To: Karen <k10bs@aol.com>

Good afternoon Karen,

Thank you for your email. Your comments will be filed for public record and added to the case file. Please feel free to reach out if you have any questions.

Thanks, and have a great day.

- Trevor

Trevor Martin
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Los Angeles, CA 90012
T: (213) 978-1341 | Planning4LA.org



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Trevor Martin <trevor.martin@lacity.org>

West Hills/Chaminade Expansion/Case No. CPC-2023-1254-VZC-HD-ZAD-ZAA

2 messages

Lauren Durr <mmeruby@gmail.com> Sun, Jan 7, 2024 at 6:20 PM
To: trevor.martin@lacity.org

I am a resident of West Hills interested in Chaminade College Preparatory's expansion plans. I live next door to the school and want to be informed.
Please send me a copy of the Mitigated Negative Declaration (MND) as soon as available, send to:
Mmeruby@gmail.com

I would appreciate receiving a return email that this request has been received and the MND will be sent.

Thank you for your help.
Lauren Durr
818-371-1168

Trevor Martin <trevor.martin@lacity.org> Mon, Jan 8, 2024 at 9:18 AM
To: Lauren Durr <mmeruby@gmail.com>

Hi Lauren,

I have added your name and contact to the interested parties list for the Chaminade High School Project (Case No. CPC-2023-1254-VZC-HD-ZAD-ZAA). I will send you a copy of the MND Report once it is finalized.

Best,

Trevor

Trevor Martin
Pronouns: He, His, Him
City Planning Associate
Los Angeles City Planning
200 N. Spring St., Room 763
Los Angeles, CA 90012
T: (213) 978-1341 | Planning4LA.org
E-NEWS

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Trevor Martin <trevor.martin@lacity.org>

West Hills/Chaminade Expansion/Case No. CPC-2023-1254-VZC-HD-ZAD-ZAA

2 messages

Marjorie Levin <marjorie.levin@gmail.com> Thu, Jan 11, 2024 at 2:37 PM
To: trevor.martin@lacity.org

Dear Mr. Martin:
I am a resident of West Hills interested in Chaminade College Preparatory's expansion plans. Please send me a copy of the Mitigated Negative Declaration (MND) as soon as available.
I would appreciate receiving a return email (marjorie.levin@gmail.com) that this request has been received and the MND will be sent.
Thank you for your help.
Regards,
Marjorie Levin

Trevor Martin <trevor.martin@lacity.org> Thu, Jan 11, 2024 at 3:13 PM
To: Marjorie Levin <marjorie.levin@gmail.com>

Hi Marjorie,

I have added your name and contact info to the interested parties list for the Chaminade High School Project (Case No. CPC-2023-1254-VZC-HD-ZAD-ZAA). I will send you a copy of the MND Report once it is finalized.

Best,

Trevor

Trevor Martin
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Los Angeles City Planning
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Los Angeles, CA 90012
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Trevor Martin <trevor.martin@lacity.org>

To Trevor Martin <trevor.martin@lacity.org>

2 messages

tdbear83@aol.com <tdbear83@aol.com> Wed, Jan 10, 2024 at 11:30 PM
To: Trevor Martin <trevor.martin@lacity.org>

Subject: Re: West Hills/Chaminade Expansion/Case No. CPC-2023-1254-VZC-HD-ZAD-ZAA

Trevor Martin
Pronouns: He, His, Him
City Planning Associate
Los Angeles City Planning
200 N. Spring St., Room 763
Los Angeles, CA 90012
T: (213) 978-1341 | Planning4LA.org
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Hi there:

> I am I I am a resident of West Hills interested in Chaminade College Preparatory's expansion plans.
>
> Please send me a copy of the Mitigated Negative Declaration (MND) as soon as available.
>
> tdbear83@aol.com
>
> I would appreciate receiving a return email that this request has been received and the MND will be sent. Thank you for your help.
>
> Regards,
>
> Marsha Boughourian

Trevor Martin <trevor.martin@lacity.org> Thu, Jan 11, 2024 at 10:25 AM
To: "tdbear83@aol.com" <tdbear83@aol.com>

Hi Marsha,

I have added your name and contact info to the interested parties list for the Chaminade High School Project (Case No. CPC-2023-1254-VZC-HD-ZAD-ZAA). I will send you a copy of the MND Report once it is finalized.

Best,

Trevor

Trevor Martin
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City Planning Associate
Los Angeles City Planning
200 N. Spring St., Room 763
Los Angeles, CA 90012
T: (213) 978-1341 | Planning4LA.org



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Trevor Martin <trevor.martin@lacity.org>

West Hills/Chaminade/Expansion/Case No. CPC-2023-1254-VZC-HD-ZAD-ZAa

2 messages

Michelle Watnick <mwatnick2002@yahoo.com> Tue, Jan 2, 2024 at 6:29 PM
To: trevor.martin@lacity.org

I am a resident of West Hills interested in Chaminade college preparatory expansion plans please send me a copy of the mitigated negative declaration MND as soon as possible. My email is mwatnick2002@yahoo.com I would appreciate receiving a return email that this request has been received and that the MND will be sent. Thank you for your help
Regards Michelle Watnick
Sent from Yahoo Mail for iPhone

Trevor Martin <trevor.martin@lacity.org> Wed, Jan 3, 2024 at 10:48 AM
To: Michelle Watnick <mwatnick2002@yahoo.com>

Hi Michelle,

I have added your name and contact to the interested parties list for the Chaminade High School Project (Case No. CPC-2023-1254-VZC-HD-ZAD-ZAA). I will send you a copy of the MND Report once it is finalized.

Best,

Trevor

Trevor Martin
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Los Angeles City Planning
200 N. Spring St., Room 763
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Trevor Martin
City Planner, Expedited Processing Section
Los Angeles City Planning
200 N. Spring Street, Room 763
Los Angeles, CA 90012
Trevor.Martin@lacity.org

RE: Response to Chaminade Preparatory School Expansion ENV-2023-1255-MND

This is my response to the Mitigated Negative Declaration (MND) released June 13, 2024 regarding the proposed Chaminade Preparatory School Expansion.

Essentially, I disagree with the MND signed by Trevor Martin, City Planner, dated 6/07/24. I believe that the proposed Chaminade Preparatory School Expansion WILL have a significant effect on the environment! Initially, Chaminade told the public that the property would be used for an "aquatic center". Personally, I felt that was a reasonable use for the property, given that Chaminade was going to do something with it. However, at the time I incorrectly assumed that the "aquatic center" would be enclosed. Subsequently, the project was changed to be primarily a baseball field with a small outdoor pool at the northeast corner of the property. The noise and lights associated with a baseball field would be untenable for the homeowners living adjacent to the property. It was at that time that I was opposed to Chaminade's proposed use, preferring that additional classrooms be built there and the proposed sports uses go on the current campus where they now intend to build additional classrooms.

In light of the above, I have many concerns about the parking, additional traffic generated by the now proposed use, as well as the negative affect the sports field would have on the adjacent home owners who most likely would never had purchased their home there had they known such a change would take place. Also, the MND did not take into account the major impact the proposed 324-unit apartment building on the south east corner of Woodlake and Saticoy will have, as that development was not known about at the time research was done for the MND. I personally believe that the proposed apartment project is out of conformance with the surrounding West Hills community! It is clear that the trend is to create new housing, but with the addition of many vehicles of those tenants having automobiles, an increase in traffic is sure to happen. Furthermore, with minimal parking for the proposed apartment occupants, there is no easy access to public transportation for tenants without automobiles, so other problems are sure to be created along with additional traffic generated by Uber drivers.

In my opinion, many of the conclusions stated in the MND are just not based on reality. One example is the grossly overstated number of car trips that would be eliminated with the removal of Field's market and the other tenants; the center generating a very low amount of traffic. Another example is the suggestion that

the noise coming from the new proposed use will be less than what exists now. Nothing could be further from reality!

In summary, while I have not mentioned many other important issues dues to a lack of time, such as the probable under-ground contamination from the former gas station on the northwest corner of Woodlake and Saticoy and adjacent south east of the development, I believe that at the very least a new MND must be generated taking into account the new apartment development, accurate current traffic and the affect the Chaminade expansion will have on the surrounding community.

Respectfully,
Steve Randall
11-year member of the West Hills NC Zoning & Planning Committee
11-year member of the West Hills NC Streets & Transportation Committee

Trevor Martin <trevor.martin@lacity.org>

West Hills/Chaminade Expansion/Case No. CPC-2023-1254-VZC-HD-ZAD-ZAA

4 messages

Tricia Tellier <sfvlady@aol.com> Sat, Jan 6, 2024 at 8:32 PM
To: trevor.martin@lacity.org
Cc: SFVLady <sfvlady@aol.com>

Dear Mr. Martin:

I am a resident of West Hills and very much interested in Chaminade College Preparatory's expansion plans.

Please send me a copy of the Mitigated Negative Declaration (MND) as soon as available.

My email is: sfvlady@aol.com

I would appreciate receiving a return email that this request has been received and the MND will be sent. Thank you for your assistance.

Regards,

Patricia Tellier

Trevor Martin <trevor.martin@lacity.org> Mon, Jan 8, 2024 at 9:11 AM
To: Tricia Tellier <sfvlady@aol.com>
Cc: SFVLady <sfvlady@aol.com>

Hi Patricia,

I have added your name and contact to the interested parties list for the Chaminade High School Project (Case No. CPC-2023-1254-VZC-HD-ZAD-ZAA). I will send you a copy of the MND Report once it is finalized.

Best,

Trevor

Trevor Martin
Pronouns: He, His, Him
City Planning Associate
Los Angeles City Planning
200 N. Spring St., Room 763
Los Angeles, CA 90012
T: (213) 978-1341 | Planning4LA.org
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Tricia Tellier <sfvlady@aol.com> Mon, Jan 8, 2024 at 9:35 AM
To: Trevor Martin <trevor.martin@lacity.org>

Thank you so much.
Enjoy your day!
Patricia

On Jan 8, 2024, at 9:11 AM, Trevor Martin <trevor.martin@lacity.org> wrote:

[Quoted text hidden]

Trevor Martin <trevor.martin@lacity.org> Mon, Jan 8, 2024 at 9:45 AM
To: Tricia Tellier <sfvlady@aol.com>

You're very welcome!

Thank you, you too!

- Trevor

Trevor Martin
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City Planning Associate
Los Angeles City Planning
200 N. Spring St., Room 763
Los Angeles, CA 90012
T: (213) 978-1341 | Planning4LA.org
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Trevor Martin <trevor.martin@lacity.org>

West Hills/Chaminade Expansion

3 messages

Penny Newmark <pennyfirst@sbcglobal.net> Tue, Dec 26, 2023 at 2:41 PM
To: trevor.martin@lacity.org

Case No. CPC-2023-1254-VZC-HD-ZAD-ZAA

Mr. Martin,

I am a resident of West Hills and a West Hills Neighborhood Council board member interested in Chaminade's expansion plans. Please send me a copy of the Mitigation Negative Declaration (MND) as soon as available.

Email address: pennyfirst@sbcglobal.net

I would appreciate receiving a return email that this request has been received and the MND will be sent. Thank you for your help.

Regards,

Penelope W. Newmark

Trevor Martin <trevor.martin@lacity.org> Wed, Dec 27, 2023 at 9:43 AM
To: Penny Newmark <pennyfirst@sbcglobal.net>

Good morning Penelope,

I am in receipt of your email. I will send you a copy of the MND Report once it is finalized, and will add you to the interested parties list.

Thanks, and have a Happy New Year's!

- Trevor

Trevor Martin
Pronouns: He, His, Him
City Planning Associate
Los Angeles City Planning
200 N. Spring St., Room 763
Los Angeles, CA 90012
T: (213) 978-1341 | Planning4LA.org
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Penny Newmark <pennyfirst@sbcglobal.net> Wed, Dec 27, 2023 at 10:28 AM
To: Trevor Martin <trevor.martin@lacity.org>

Trevor,

Thank you so much for your prompt reply. Sending all the best wishes for you in the New Year!

Penny

Sent from my iPhone

> On Dec 27, 2023, at 9:43 AM, Trevor Martin <trevor.martin@lacity.org> wrote:
>
> [Quoted text hidden]

Trevor Martin <trevor.martin@lacity.org>

West Hills/Chaminade College Preparatory's expansion plans

2 messages

Shirley <shirl.ey1548@att.net> Thu, Jan 18, 2024 at 11:34 AM
To: trevor.martin@lacity.org

I am a resident of West Hills interested in Chaminade College preparatory's expansion plans. Please send me a copy of the mitigated negative declaration (MND) as soon as available.

shirl.ey1548@att.net

I would appreciate receiving a return email that this request has been received and the MND and will be sent. Thank you for your help.

Regards.
Shirley Huber

Trevor Martin <trevor.martin@lacity.org> Fri, Jan 19, 2024 at 1:07 PM
To: Shirley <shirl.ey1548@att.net>

Hi Shirley,

I have added your name and contact info to the interested parties list for the Chaminade High School Project (Case No. CPC-2023-1254-VZC-HD-ZAD-ZAA). I will send you a copy of the MND Report once it is finalized.

Best,

Trevor

Trevor Martin
Pronouns: He, His, Him
City Planner
Los Angeles City Planning
200 N. Spring St., Room 763
Los Angeles, CA 90012
T: (213) 978-1341 | Planning4LA.org
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West Hills Neighborhood Council

"It's our neighborhood. Let's build a community."

April 19, 2024

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Faye Barta, J.D.
Vice President
Brad Vanderhoof
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Ed Youngblood
Charles "Chuck" Gremer

EXECUTIVE DIRECTOR
Michelle Ritchie

Mr. Robert Webb, President
Chaminade College Preparatory
7500 Chaminade Avenue
West Hills, CA 91304

Re: Expansion/Development for New Campus -Corner of Woodland & Saticoy Street
Updating Facilities at Current High School Campus – 7500 Chaminade Avenue
CASE NO. CPC-2023-1254-VZC-HD-ZAD-ZAA

Dear Mr. Webb:

Recently the West Hills Neighborhood Council (WHNC) Zoning & Planning Sub-Committee had two additional sessions with stakeholders to further discuss the proposed Chaminade expansion/development. Please see the following issues that the we feel will help preserve the unique character of our community.

- Request to ADD that residents and WHNC will be informed immediately of all environmental hazards and potential health exposures currently known or exposed throughout the project's development and lifespan.

Zone Change

- Request Covenant Agreement with Chaminade with no variances be incorporated as a requirement in the same filings with the L.A. City Planning Department.

Noise & Setbacks

- Request to ADD objections to all noise levels will be resolved to neighbors' satisfaction.
- Request to ADD increase the number of trees and planting along walls/fences to reduce noise.
- Request to ADD clarification of barrier fencing and wall materials to reduce noise.
- Request to ADD installation of soundproofing walls to reduce noise heard by residents on northern property line separating North Campus from homes; walls to provide STC ratings of 45-55 when surface is sealed.
- Request to ADD to setbacks list, the minimum setback for pool lights.
- Request to ADD all lights when not in use are low level and DarkSky compliant.

- Request to RECEIVE report on noise baffling measures for batting cages from Chaminade's noise consultant with changes as necessary for further noise reduction.
- Request to ADD sound-absorbing materials to pool building to reduce noise emanating from inside of building to outside environment.
- Request to ADD that noise levels will not exceed local ordinances and laws.
- Request to ADD definition of low decibel levels for outdoor public address system during special announcements and sporting events.
- Request to ADD definition of where and when designated amplified music is permitted.
- Request to ADD information if sound system is planned for Aquatic Center
- Request MOVING scoreboard to reduce invasive visual image experienced by residents. Chaminade to inform WHNC after discussions with sign company.

Rental or Lease of Facilities/Use Restrictions

- Request to ADD definition of North Campus users (all inclusive) including community members, other Chaminade schools, organizations, etc.
- Request to ADD maximum use of three (3) days per month for the pool.
- Request to ADD schedule of monthly pool swim use, with set hours, and number of days during the week and weekends.
- Request to ADD definition of daylight hours for the pool taking into account seasonal adjustments.
- Request to ADD a limit use of three (3) days per year for the Athletic Fields by community-based members and associated athletic organizations.

Hours of Operation

- Request TO CHANGE hours for Aquatic Complex/Pool use: to: "8:00am to 7:00pm…"
- Request to RECEIVE proposed pool use schedule with set hours and number of days by month from Chaminade.
- Request to RECEIVE schedule defining when ball games will be played, i.e, number of games played during week, weekends and approximate duration of games per month.

Complaints

- Request to ADD Chaminade will respond to noise /parking complaints within 48 hours from residents generated from the Athletic/Pool facilities, and during construction, i.e., trucks and equipment transporting dust, dirt, building materials, debris, any and all activities that negatively impact homes or prohibit or impede access to neighborhood streets.
- Request to ADD that residents' complaints will be logged along with complaint resolutions daily.
- Request to ADD logged complaints and complaint resolutions emailed to Charlene Rothstein, President, WHNC, weekly on Mondays.
- Request to ADD on Chaminade's website visible information including contact information for assigned Chaminade staff member handling complaints, how to file complaints by phone calls, by email or by using a dedicated online fillable complaint submission form.

Construction

- Request to ADD residents will receive information for the Main Campus, bridge (streets closures, e.g. Saticoy) and North Campus by postal mail as well as be available on Chaminade website the dates of project throughout the development stages from beginning to completion, along with construction routes and notices containing days/ hours of construction (weekdays and weekends).

Parking

- Request to ADD information on how violations for parking infractions will be handled, and preventative measures taken, i.e., Chaminade hires patrolling streets, notes/flyers on cars, sawhorses blocking entrances to residential streets, etc.

Traffic Management Plan

- Request to ADD further discussions and resolutions that the Board of WHNC and the Streets & Transportation Committee partner with Chaminade and CD12 to propose a solution on the dangerous intersection and traffic delays at Woodlake and Saticoy regarding stop signs and installation of traffic lights and sidewalks.

Safety and Security Monitoring

- Request to ADD verification and inform WHNC of compliance with the Topanga Community Police Station and L.A. City Planning during development of security plan.
- Request to ADD arrival and departure times for security guards on North Campus.

We look forward to continuing discussions at the next meeting at the Council District 12 office. If you have any questions, please do not hesitate to contact us.

Respectfully Submitted,

Bill Rose

Bill Rose, Co-Chair
Zoning & Planning Committee

Charlene Rothstein

Charlene Rothstein, Co-Chair
Zoning & Planning Committee

cc: Councilmember John Lee, Council District 12
Hannah Lee, Chief of Staff, Council District 12
Dan Rosales, Planning Director, Council District 12
Janet Koller, Chaminade College Preparatory, VP Finance & Operations
Chris Landon, Chaminade College Preparatory, Director of Facilities
Brad M. Rosenheim, Esq, President, CEO, Rosenheim & Associates Inc.
Jessica Pakdaman, Project Manager, Rosenheim & Associates Inc.
Trevor Martin, L.A. City Planning
Claudia Rodriguez, City Planner
Vicente Cordero, LADOT

Trevor Martin <trevor.martin@lacity.org>

Fw: Re: WHNC recommendation sand input

2 messages

Anthony Scearce (WHNC) <anthony.scearce@westhillsnc.org> Thu, Jun 8, 2023 at 5:03 PM
Reply-To: "Anthony Scearce (WHNC)" <anthony.scearce@westhillsnc.org>
To: trevor.martin@lacity.org

Trevor,

See email below.

Best Regards,

Anthony C. Scearce Co-Chair
Streets & Transportation Committee
West Hills Neighborhood Council
818-357-4946
P.O. Box 4670
West Hills, California 91308-4670
anthony.scearce@westhillsnc.org

------ Forwarded Message ------
From: "Char Rothstein" <charwhnc@gmail.com>
To: "Anthony Scearce (WHNC)" <anthony.scearce@westhillsnc.org>
Sent: 6/8/2023 4:47:03 PM
Subject: Re: WHNC recommendations and input

Hi Tony,

Please send your email with the request for an extension to trevor.martin@lacity.org and I'll contact cd12.

Thanks,
Char

On Thu, Jun 8, 2023 at 4:18 PM Anthony Scearce (WHNC) <anthony.scearce@westhillsnc.org> wrote:

> To All,
>
> As WHNC Streets & Transportation Committee Chair I request, LADOT attend our Streets & Transportation Committee meeting on June 20th. Where we will review the Transportation Assessment regarding the Chaminade expansion. The dates and conditions (see below) provided to me, will not allow stakeholder input on traffic and parking to be transmitted to the City within the time constraints the WHNC is required to submit a response.
>
> 1. I have been informed that Streets can have a meeting at de Toledo on the 20th at 7:00pm. (But no attendance by LADOT or Chaminade)
> 2. I've also been informed that ALL WHNC committee meetings are cleared to be held at Chaminade starting July 1st. (strictly adhering to our regular meeting schedule)
> 3. I've been contacted by Chaminade (Rosenheim & Associates, Inc) informing me that LADOT and Chaminade can not attend a WHNC Streets & Transportation Committee meeting until August 7th or later.
>
> WHNC has 90 days from 5/25/23 to respond to the City. (per document VTT-84101.pdf) If no response is made within that time it could be deemed approved by the WHNC. The WHNC committee meetings at Chaminade will be strictly held to our normal schedule. Zoning is held on the 2nd Tuesday of the month Streets on the 3rd Tuesday. Full Board held on the 1st Thursday. This would create the following, Streets would meet on 3rd Tuesday 8/15, WHNC Zoning Committee would not be able to review WHNC Streets Committee recommendations until the 2nd Tuesday in September (9/12) and the WHNC Board will not be able to take a vote to send a response to the City until the 1st

Thursday in October (10/5). Our 90 days to respond expires on 8/25/23. Any Zoning approval/denial and any recommendations are required to be passed by a full board vote before they can be submitted to the City.

The aforementioned conditions and time line, will not allow WHNC Streets & Transportation Committee (stakeholder) or Zoning input before 8/25/23. This is just not acceptable to me and seems to defeat the purpose of the Neighborhood Council providing a conduit from our stakeholders to City government.

If LADOT can not attend the WHNC Streets & Transportation Committee meeting on June 20th. It is my opinion that an extension of 60 days to the required response time for the WHNC be granted OFFICIALLY.

Best Regards,

Anthony C. Scearce Co-Chair
Streets & Transportation Committee
West Hills Neighborhood Council
818-357-4946
P.O. Box 4670
West Hills, California 91308-4670
anthony.scearce@westhillsnc.org

Trevor Martin <trevor.martin@lacity.org> Thu, Jun 8, 2023 at 5:08 PM
To: "Anthony Scearce (WHNC)" <anthony.scearce@westhillsnc.org>

Hi Anthony,

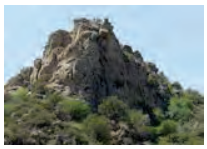
Received, thank you.

- Trevor

LOS ANGELES CITY PLANNING

Trevor Martin
Pronouns: He, His, Him
City Planning Associate
Los Angeles City Planning
200 N. Spring St., Room 763
Los Angeles, CA 90012
T: (213) 978-1341 | Planning4LA.org
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West Hills Neighborhood Council

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April 19, 2024

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Vinura Kotuwelle
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Joe Ourfalian
Alejandro Phillips
Carolyn Poppert
Bill Rose
Charlene Rothstein
Miriam Schimmel
Cole Smith
Joan Trent
Brad Vanderhoof
Joanne Yvanek-Garb
Zhelbert Zohrabian

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Stephen Lenske
Ed Youngblood
Charles "Chuck" Gremer

Executive Director
Michelle Ritchie

Mr. Robert Webb, President
Chaminade College Preparatory
7500 Chaminade Avenue
West Hills, CA 91304

Re: Expansion/Development for New Campus -Corner of Woodland & Saticoy Street
Updating Facilities at Current High School Campus – 7500 Chaminade Avenue
CASE NO. CPC-2023-1254-VZC-HD-ZAD-ZAA

Dear Mr. Webb:

Recently the West Hills Neighborhood Council (WHNC) Zoning & Planning Sub-Committee had two additional sessions with stakeholders to further discuss the proposed Chaminade expansion/development. Please see the following issues that the we feel will help preserve the unique character of our community.

- Request to ADD that residents and WHNC will be informed immediately of all environmental hazards and potential health exposures currently known or exposed throughout the project's development and lifespan.

Zone Change

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- Request to ADD a limit use of three (3) days per year for the Athletic Fields by community-based members and associated athletic organizations.

Hours of Operation

- Request TO CHANGE hours for Aquatic Complex/Pool use: to: "8:00am to 7:00pm…"
- Request to RECEIVE proposed pool use schedule with set hours and number of days by month from Chaminade.
- Request to RECEIVE schedule defining when ball games will be played, i.e, number of games played during week, weekends and approximate duration of games per month.

Complaints

- Request to ADD Chaminade will respond to noise /parking complaints within 48 hours from residents generated from the Athletic/Pool facilities, and during construction, i.e., trucks and equipment transporting dust, dirt, building materials, debris, any and all activities that negatively impact homes or prohibit or impede access to neighborhood streets.
- Request to ADD that residents' complaints will be logged along with complaint resolutions daily.
- Request to ADD logged complaints and complaint resolutions emailed to Charlene Rothstein, President, WHNC, weekly on Mondays.
- Request to ADD on Chaminade's website visible information including contact information for assigned Chaminade staff member handling complaints, how to file complaints by phone calls, by email or by using a dedicated online fillable complaint submission form.

Construction

- Request to ADD residents will receive information for the Main Campus, bridge (streets closures, e.g. Saticoy) and North Campus by postal mail as well as be available on Chaminade website the dates of project throughout the development stages from beginning to completion, along with construction routes and notices containing days/ hours of construction (weekdays and weekends).

Parking

- Request to ADD information on how violations for parking infractions will be handled, and preventative measures taken, i.e., Chaminade hires patrolling streets, notes/flyers on cars, sawhorses blocking entrances to residential streets, etc.

Traffic Management Plan

- Request to ADD further discussions and resolutions that the Board of WHNC and the Streets & Transportation Committee partner with Chaminade and CD12 to propose a solution on the dangerous intersection and traffic delays at Woodlake and Saticoy regarding stop signs and installation of traffic lights and sidewalks.

Safety and Security Monitoring

- Request to ADD verification and inform WHNC of compliance with the Topanga Community Police Station and L.A. City Planning during development of security plan.
- Request to ADD arrival and departure times for security guards on North Campus.

We look forward to continuing discussions at the next meeting at the Council District 12 office. If you have any questions, please do not hesitate to contact us.

Respectfully Submitted,

Bill Rose

Bill Rose, Co-Chair
Zoning & Planning Committee

Charlene Rothstein

Charlene Rothstein, Co-Chair
Zoning & Planning Committee

cc: Councilmember John Lee, Council District 12
Hannah Lee, Chief of Staff, Council District 12
Dan Rosales, Planning Director, Council District 12
Janet Koller, Chaminade College Preparatory, VP Finance & Operations
Chris Landon, Chaminade College Preparatory, Director of Facilities
Brad M. Rosenheim, Esq, President, CEO, Rosenheim & Associates Inc.
Jessica Pakdaman, Project Manager, Rosenheim & Associates Inc.
Trevor Martin, L.A. City Planning
Claudia Rodriguez, City Planner
Vicente Cordero, LADOT

West Hills Neighborhood Council

"It's our neighborhood. Let's build a community."

OFFICERS
Charlene Rothstein
President
Faye Barta, J.D.
Vice President
Brad Vanderhoof
Secretary
Carolyn Greenwood
Treasurer
Saif Mogri
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September 21, 2023

Mr. Robert Webb, President
Chaminade College Preparatory
7500 Chaminade Avenue West
Hills, California 91304

Re: **Expansion of an Existing High School, Including Construction, Use and Maintenance of a New Campus**

Case No. CPC-2023-1254-VZC-HD-ZAD-ZAA

Dear Mr. Webb:

The request for the proposed expansion of Chaminade College Preparatory High School is in actuality a request for the construction of a Sports Center without respect for the surrounding and adjacent single-family homes. According to the Planning Department, limitations are necessary to protect the best interests and to assure a development in harmony with the General Plan and the surrounding communities. The West Hills General Plan Land Use is very low residential, any reference to the West Hills **DRAFT** Community Plan is unacceptable. Please see Exhibits A & B attached hereto for reference.

The West Hills Neighborhood Council ("WHNC") Zoning & Planning Sub-Committee is in the process of an investigation regarding this case.

Our findings to date are as follows:

1. Many constituents would support an expansion of classrooms and library to the North campus if done appropriately with respect for the surrounding neighborhood;

2. Many constituents would support a Sports Center on the main South campus with compliance to the current conditions; and

3. Attachment D.1, regarding Discretionary Requests from Chaminade to change conditions place on Chaminade in Case No. CPC-2009-1477-CU-ZV-ZAA-SPR.

Recommendations from the Zoning & Planning Committee:

1. Condition 5 – To remain as written for both campuses;
2. Condition 6E Athletic Field Use/Batting Cages – Hours of operation and renting of facilities would be detrimental to the quiet and quality of life if permitted;
3. Condition 11 A& B Marching Band - Request is unclear and excessive; Condition to remain as written. Please see Exhibit C attached hereto for reference;
4. Condition 15 Parking – On-site parking requires further explanation for both the main South campus and North Campus;
5. Condition 16 Traffic Management Program – Requires and updated Traffic Management Program and the current program is flawed;
6. Condition 18 Buses – Requires queuing, possible splitting of buses and implementation of a drop-off and pick-up plan that does not inhibit traffic flow;
7. Condition 24 Lighting – Current lighting on the main South campus can be seen from adjacent streets; this is non-compliant with this condition;
8. Condition 26 Noise Mitigation – Should be kept as written for protection of the neighbors; and
9. Condition 27 Complaint Log – Constituents have been unable to locate a number for the Chaminade hotline. Requests were made directly to the school's office to see the complaint log. No log has been located to date. Pursuant to Condition 27 and as a public record, the WHNC requests a quarterly report of the complaint log.

APPLICANT REQUEST FOR A ZONE CHANE TO THE NORTH CAMPUS C2-1 WITH R4 USES

WEST HILLS NEIGHBORHOOD COUNCIL ("WHNC") ZONE CHANGE REQUEST FOR THE NORTH CAMPUS – C1-1VL-CUP-Variance-Covenant Agreement

Please see Exhibits D & E attached hereto for reference.

TRAFFIC STUDY:

The analysis of the May 4, 2023 Transportation Assessment report and the corresponding May 16, 2023 City of Los Angeles Inter-Departmental Correspondence remains in dispute. According to the reports, the project would not exceed 250 daily vehicle trips ("DVT") and refers to the shopping center ("North Campus") as a "high trip generator". The reality is that the

shopping center is an extremely "low trip generator". The WHNC's sub-committee encountered only 8 vehicles parked in the shopping center lot during one visit with 5-6 vehicles entering intermittently, 10 parked vehicles on another visit with 5-6 vehicles entering intermittently and comparable numbers of vehicles parked and entering on other visits. Intermittent vehicle trips generated throughout the day at the shopping center do not create long vehicle line-ups at Woodlake, Saticoy or Keswick nor interfere with traffic flow.

Many of the stores in the shopping center have been closed for many years and remain closed today. Fields Market has managed to remain open due to its continued use by the film industry for commercial filming.

Although student enrollment is stated to remain the same, there is no calculation for additional traffic from students coming from other schools and public attendance to the proposed Sports Center for games and competitions. Because Chaminade has not submitted a Traffic Management Program to date, that was not calculated in the analysis. Please see Exhibit F attached hereto for reference.

Should you have any questions please do not hesitate to let us know.

Respectfully Submitted,

Bill Rose

Bill Rose, Co-Chair
Zoning & Planning Committee

Charlene Rothstein

Charlene Rothstein
Zoning & Planning Committee

Enclosures as noted

cc: Councilmember John Lee
Hannah Lee, Council District 12
Dan Rosales, Council District 12
Trevor Martin, City Planning
Claudia Rodriguez, City Planner
Vicente Cordero, LADOT
Brad Rosenheim, Esq.

Exhibit A

ZIMAS

Public

7500 N CHAMINADE AVE

Font: A A A +/-

Site Address	7500 N CHAMINADE AVE
Site Address	23241 W COHASSET ST
ZIP Code	91304
PIN Number	186B093 52
Lot/Parcel Area (Calculated)	858,154.4 (sq ft)
Thomas Brothers Grid	PAGE 529 - GRID F4
Assessor Parcel No. (APN)	2027005009
Tract	TR 26072
Map Reference	M B 676-76/77
Block	None
Lot	FR LT 1
Arb (Lot Cut Reference)	None
Map Sheet	186B093

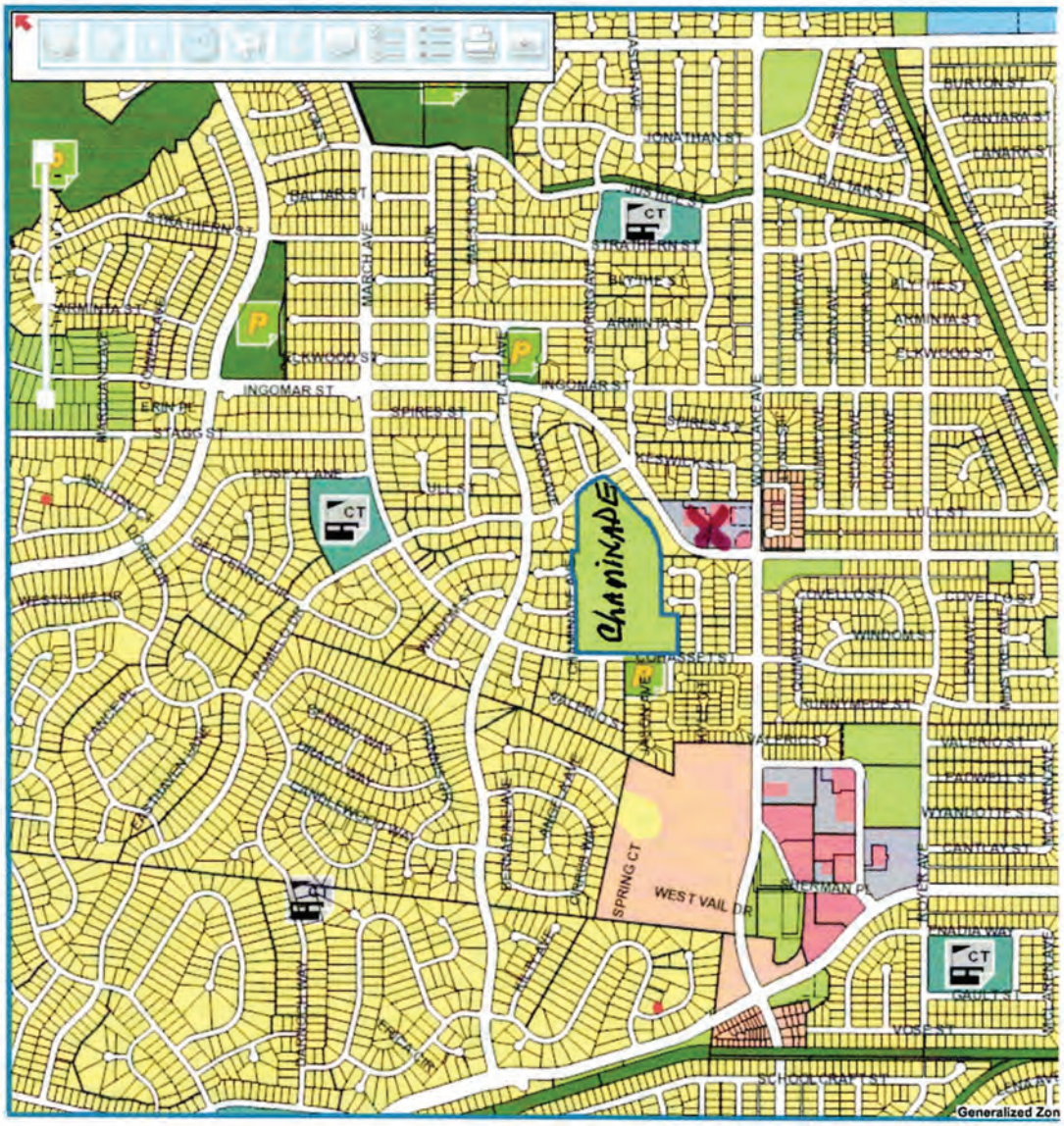


Exhibit B



NORTH CAMPUS - VIEW 01



NORTH CAMPUS - VIEW 02

Homes Adjacent

Homes Adjacent

Homes Adjacent



NORTH CAMPUS - VIEW 03

PLEASE RECYCLE

AGENCY APPROVAL:

CHAMINADE
COLLEGE PREPARATORY

HMC Architects

3561001000

3546 CONCOURS STREET
ONTARIO, CA 91764
909 989 9979 | www.hmcarchitects.com

NO.	DESCRIPTION	DATE



FACILITY:

7500 Chaminade Ave,
West Hills, CA 91304

PROJECT:

CHAMINADE COLLEGE PREPARATORY HIGH SCHOOL

SHEET NAME:

RENDERINGS - NORTH CAMPUS

CAMPUS PLAN

DATE: 2023-05-17	CLIENT PROJ NO:

SHEET:

A5.1

Exhibit C

Case No. CPC-2009-1477-CU-ZV-ZAA-SPR, Approved 11/17/2009, and As Amended by Letters of Clarification, dated 4/6/2010 & 6/16/2010	
Condition	**Response / If Applicable, REQUEST for Condition Modification**
9. Sign. One (1) 16-foot tall, text-only, LED pole sign for on-site identification and informational purposes only, with an 8-foot tall pole, and a sign face with dimensions of 8 feet in height and 12 feet in width, will be allowed along the Saticoy Street frontage as shown on the site plans (Exhibit B1). The pole sign will be in substantial conformance with Exhibit B3.	The Applicant is in compliance with this condition with respect to the existing pole sign. Please note that new identification and wayfinding signs will be proposed on the North Campus and on the pedestrian bridge.
10. Landscaping. For each new structure, and prior to obtaining any grading or building permits before the recordation of the final map, a landscape plan, prepared by a licensed landscape architect, shall be submitted to and approved by the Planning Department in accordance with CP-6730.	The Applicant has complied with this condition.
11. Marching Band practices shall be limited to the following locations and hours: **a.** Evening Practice Sessions. A maximum 1 weekday night per week in the outdoor stadium, between the hours of 6:30 p.m. and 9:00 p.m., to be completed with the lights turned out and the stadium vacated no later than 9:00 p.m. Students leaving the campus after 9:00 p.m. shall be instructed that no playing of instruments shall occur after the end of the session; this shall be strictly enforced by the school administration. The instructor or school staff shall monitor student activities and departures to ensure that noise impacts on adjacent neighbors are minimized. **b.** Morning Practice Sessions. In addition to the one night as per above, a maximum 3 working days (Monday through Friday) per week between the hours of 7:50 a.m. and ending by 9:30 a.m. An exception is made for no more than two weeks in the summer when a marching band camp is held. In all instances, all students shall refrain from congregating at the practice site prior to 7:30 a.m. and after 9:30 a.m. during the school year and between 7:30 a.m. and after noon during the two-week band camp, to minimize noise impacts on adjacent neighbors. An instructor/school staff member shall be present at the subject location by 7:30 a.m. to monitor student activities and arrivals to ensure that	**REQUEST** – Chaminade has a truly successful marching band program and requires slightly more outdoor practice time, as follows: **a.** The Applicant requests up to two (2) weekday nights per week in the outdoor stadium, between the hours of 6 p.m. to 9 p.m., in lieu of one (1) weekday night per week from 6:30 p.m. to 9 p.m. **b.** The Applicant requests that this condition be modified consistent with any modification to Condition No. 11.a. Chaminade also requests that morning practice sessions be modified to up to 2 hours of outdoor practice per day between the hours of 8:00 a.m. to 3:00 p.m, with an exception to allow no more than two weeks in the summer for marching band camp to be held between the hours of 8:00 a.m. and 8:00 p.m. To minimize disruption for neighbors, the outdoor playing of instruments is proposed to be limited to four (4) hours per day during summer camp.

Case No. CPC-2009-1477-CU-ZV-ZAA-SPR, Approved 11/17/2009, and As Amended by Letters of Clarification, dated 4/6/2010 & 6/16/2010	
Condition	**Response / If Applicable, REQUEST for Condition Modification**
noise impacts on adjacent neighbors are minimized. No instruments shall be played (including tuning, or "warming up") prior to the 7:50 a.m. start time. **c.** Saturday Sessions. A cumulative total of five Saturday marching band "warm up" sessions, immediately prior to participation at athletic competitions, shall be permitted during the school year, with hours expressly limited to starting after 8:45 a.m. and ending before 5:00 p.m.	c. No change is requested to this Condition. The Applicant complies with this condition and will continue to comply after Project completion.
12. Special Events. **a.** No more than 18 "Special Events" are authorized. Special events are activities involving parents and/or other visitors where more than 451 vehicles are anticipated at one time. School administrative board meetings and parent/teacher meetings are excluded from the definition of "Special Events". **b.** Unless subsequently modified by the City Planning Commission, the 18 special events authorized on the property are as follows: 1) Graduation - <u>One per semester</u> 2) Varsity Football Games (not including playoffs) - Eight per year 3) Also, <u>nine additional days annually</u>, for school performances, other athletic events, and school-related fundraising activities. 4) A copy of the Calendar and List of Major Events shall be submitted to the appropriate Council District, West Hills Neighborhood Council, and residents within 500 feet of the school property at least 60 days prior to the beginning of each school year for their reference. 5) Calendar Modifications. No variation to allow any "special' event that is not included on the Calendar shall be scheduled without a minimum 60-day advance notification to the appropriate Council District, Neighborhood Council, and residents within 500 feet of the school property. (This	The Applicant is in compliance with Condition No. 12 and will remain compliant with respect to the proposed Project. No changes are proposed to the permitted Special Events.

EXHIBIT D
REQUEST FOR
Case No. CPC-2009-1477-CU-ZV-ZAA-SPR,

C1-1VL LIMITED COMMERCIAL ZONE. (1VL height restrictions) (see Attachment A)

The following regulations shall apply to the "C1" Limited Commercial Zone:

A. Use – No building, structure or land shall be used and no building or structure shall be erected, structurally altered. enlarged or maintained, except for the following uses, and when a "**Supplemental Use District**" is created by the provisions of Article 3 of this chapter, for such uses as may be permitted therein:

1. Any use permitted in the CR Limited Commercial Zone ~~but not~~ including a church, educational institution, museum or school (elementary or high), provided that all the regulations of said CR zone are complied with except as provided in this section. Any residential use permitted in the ~~R3 Multiple Residential~~ Zone RS-1 provided that all the regulations of said ~~R3~~ RS zone are complied with except as provided in this section. **(Amended by Ord. No. 157,994, Eff. 9/25/82.)**

1.5. Hotels (including motels), apartment hotels or hostels when no portion of a structure proposed to be used as a hotel (including a motel), apartment hotel or hostel is located within 500 feet from any A or R zone. **(Amended by Ord. No. 185,931, Eff. 7/1/19.)**

2. **(Amended by Ord. No. 140,726, Eff. 9/3/70.)** The following retail stores, shops or businesses when conducted in accordance with the limitations hereafter specified:

(a) **Types of Uses:**

(1) Bakery goods shop;

(2) **(None)**

(3) Barber shop or beauty parlor;

(4) Book or stationery store;

(5) Clothes cleaning agency or pressing establishment;

(6) ~~Clubs or lodges, bridge clubs, fraternal or religious associations; (Amended by Ord. No. 144,365, Eff. 4/5/73, Oper. 9/1/73.)~~ **Removed under covenant agreement**

(7) Confectionery store;

(8) Custom dressmaking or millinery store;

Exhibit D
Cont.

(9) Drugstore;

(10) Dry goods or notions store;

(11) Florist or gift shop;

(12) Grocery, fruit or vegetable store;

(13) ~~Hospital, sanitarium or clinics (except animal hospitals). (Amended by Ord. No. 177,325, Eff. 3/18/06.)~~ **Removed under covenant agreement**

(14) Hardware or electric appliance store;

(15) Jewelry store;

(16) Laundry agency;

(17) Meat market or delicatessen store;

(18) Office, business or professional;

(19) Photographer;

(20) Restaurant, tea room or cafe (excluding dancing or entertainment). Restaurants with drive-through service that adjoin or are across the street from or separated only by an alley from any portion of a lot in a residential zone or use or in an RA Zone, shall be subject to the conditional use requirements of Section 12.24 W.17. **(Amended by Ord. No. 173,492, Eff. 10/10/00.)**

(21) Shoe store or shoe repair store;

(22) Tailor, clothing or wearing apparel shop;

(23) Laundries or cleaning establishments of a self-service type using only automatic machines with non-flammable cleaning fluid; **(Added by Ord. No. 140,726, Eff. 9/4/70.)**

(24) Other uses similar to the above list when determined as provided for in Section 12.21 A.2.; **(Added by Ord. No. 140,726, Eff. 9/4/70.)**

(25) Uses (not involving storage) customarily incident to any of the above- named uses and accessory buildings (including storage garages) when located on the same lot. Automobile parking space required in connection with permitted uses as provided for in Section 12.21 A.4.

(26) **(Amended by Ord. No. 173,754, Eff. 3/5/01.)** Indoor swap meets when authorized pursuant to the provisions of Section 12.24 W.42.

Exhibit D
cont.

(27) Joint living and work quarters for the following occupations: accountants; architects; artists and artisans; attorneys; computer software and multimedia related professionals; consultants; engineers; fashion, graphic, interior and other designers; insurance, real estate and travel agents; photographers and other similar occupations as determined by the Zoning Administrator, provided that the commercial uses are permitted by the underlying zone. **(First Sentence Amended by Ord. No. 172,572, Eff. 6/3/99.)** For all existing buildings, the yards required shall be the same as the yards observed by the existing structures on the site. For an existing building, for which a building permit was issued before April 1, 1994, and which contains no more than eight living and work quarters, the number of parking spaces required shall be the same as the number of spaces existing on the site. All other buildings used for this purpose must meet the parking and yard requirements for residential buildings. **(Added by Ord. No. 169,670, Eff. 5/13/94.)**

(28) Facilities for the development of software (including the reproduction of software and data) and other computer and media-related products and services, not including hardware. **(Added by Ord. No. 172,106, Eff. 8/14/98.)**

(29) Skilled Nursing Care Housing. **(Added by Ord. No. 178,063, Eff. 12/30/06.)**

(30) Alzheimer's/Dementia Care Housing. **(Added by Ord. No. 178,063, Eff. 12/30/06.)**

(31) Eldercare Facility. **(Added by Ord. No. 178,063, Eff. 12/30/06.)**

(b) **Limitations:**

(1) **(Amended by Ord. No. 173,492, Eff. 10/10/00.)** All merchandise shall be ~~new~~ and shall be sold at retail only, unless the sale of the merchandise is authorized in an indoor swap meet pursuant to the provisions of Section 12.24 W.42.

(2) All activities are conducted wholly within an enclosed building, except that ground floor restaurants may have outdoor eating areas. An outdoor eating area for a ground floor restaurants may be located anywhere between the building and its required front yard, or between the building and any required side or rear yard which side or rear yard abuts a public street. **(Amended by Ord. No. 165,403, Eff. 2/17/90.)**

(3) All products produced, whether primary or incidental, are sold on the premises, and not more than five persons are engaged in such production or in servicing of materials. **(Amended by Ord. No. 144,365, Eff. 4/5/73, Oper. 9/1/73.)**

(4) Any exterior sign is attached to a building, does not extend more than two feet beyond the wall of the building, and does not project above the roof ridge or parapet wall (whichever is higher) of the building.

(5) **(Added by Ord. No. 174,097, Eff. 8/26/01.)** All retail stores, shops or businesses shall be limited to less than 100,000 square feet of floor area. This limitation shall apply to the cumulative sum of related or successive permits that are a part of a larger project, such as piecemeal additions

Exhibit D cont.

to a building, or multiple buildings on a lot or adjacent lots, as determined by the Director of Planning.

B. Restriction. (Amended by Ord. No. 173,268, Eff. 7/1/00, Oper. 7/1/00.) For any lot designated as Public, Quasi-Public, Public/Quasi-Public Use, Other Public, or Open Space on the land use map of the applicable community or district plan; any lot shown on the map as having existing lakes, waterways, reservoirs, debris basins, or similar facilities; any lot shown on the map as the location of a freeway right-of-way; and any property annexed to the City of Los Angeles where a plan amendment was not adopted as part of the annexation proceedings:

Any of the uses permitted by Subsection A of this section shall require prior approval in accordance with the provisions of Section 12.24.1 of this Code.

C. Area. (Amended by Ord. No. 144,365, Eff. 4/5/73, Oper. 9/1/73.) No building or structure nor the enlargement of any building or structure, shall be erected and maintained unless the following yards, lot areas and loading spaces are provided and maintained in connection with such building, structure or enlargement.

In applying the provisions of this section, the front lot line of a corner lot shall be the line separating the lot from the principal street upon which it abuts. Where said lot abuts upon a major or secondary highway such highway shall be construed as being the principal street. Where a lot abuts upon two or more highways, and in all other cases, a Zoning Administrator shall determine which street is the principal street.

1. **Front Yard**. There shall be a front yard of not less than 10 feet in depth.

2. **Side Yards**. Side yards shall be required only in the following instances:

(a) Along the side street lot line of every corner lot in the C1 Zone.

(b) Where the side lot line of the lot in the C1 Zone abuts upon the side of a lot in an A or R Zone.

(c) For all portions of buildings erected and used for residential purposes.

The width of such required side yard shall not be less than 10 percent of the lot width, but need not exceed five feet and shall not be less than three feet in width. Provided, however, that one foot shall be added to the width of the required side yard for each additional story above the second story, but such side yard need not exceed 16 feet in width.

In all other cases, a side yard for a commercial building shall not be required, but if provided, it shall not be less than three feet in width.

3. **Rear Yard.** A rear yard shall be provided only in the following instances:

(a) Where the rear of the lot in the C1 Zone abuts upon a lot in an A or R Zone.

Exhibit D cont.

(b) For all portions of buildings erected and used for residential purposes. Such yard shall be provided and maintained at and above the floor level of the lowest story designed or used for residential purposes, and the full height of the building shall be used in computing the required depth of rear yard.

The depth of such required rear yard shall be not less than 15 feet. One foot shall be added to the depth of such rear yard for each additional story above the third story, but such rear yard need not exceed 20 feet in depth.

4. **Lot Area**. The lot area requirements of the ~~R3~~ RS-1 Zone (Section 12.07.1 C.4.) shall apply to all portions of buildings erected and used for residential purposes. Provided, however, that where the lot is in the "H" Hillside or Mountainous Area, there shall be not more than one dwelling unit for each 5,000 square feet of lot area.

5. **Loading Space**. As required by Section 12.21 C.1. Exceptions to Area regulations are provided for in Section 12.22 C.

VARIENCES & MONDIFICATIONS

1. School, elementary or high, or educational institution (Pursuant LAMC 6. LAMC 12.32 G2)
2. Approved Conditional Use, RS Suburban Zone Residential Zone (in lieu of R4 Multiple Dwelling) Zone.

EXHIBIT E
ATTACHMENT A
DISCRETIONARY REQUESTS
APPROVE/RECOMMEND
Case No. CPC-2009-1477-CU-ZV-ZAA-SPR

The applicant requests a **VESTING ZONE CHANGE AND HEIGHT DISTRICT CHANGE**, pursuant to Los Angeles Municipal Code ("LAMC") Sections 12.32 F and 12.32 Q, **from the [Q]C1-1VL and P-1VL Zones to the C2-1 Zone** on the new North Campus.

We recommend a **VESTING ZONE CHANGE ONLY** on the North Campus from [Q]C1-1VL and P-1VL to [Q]C1-1VL only, Pursuant to Los Angeles Municipal Code ("LAMC") Sections 12.32 F and 12.32 G-2 a 1-3 Code. Keeping existing condition of a maximum 0.5:1 FAR

We reject applicants "Attachment C" under **JUSTIFICATIONS / FINDINGS "The proposed Zone Change is in conformity with public necessity, convenience, general welfare and good zoning practice."**, references to the draft Canoga Park-Winnetka-Woodland Hill-West Hills Community Plan. This plan has not been adopted and is still under review and any reference to this plan is rejected when used for justification of any development or vesting zone change.

We reject applicants Attachment F Zoning Administrator Determination Findings section 3 Community Plan which references Page III-10 of the Canoga Park-Winnetka-Woodland Hills-West Hills Community Plan. This section applies to Public Schools not private schools.

The applicant claims the development is beneficial in terms of **public necessity**. We reject these justification and findings. The applicant is a private school and business not open to the public while it is located in West Hills this proposed development serves it's clients. Fences and security keep the public out.

The applicant claims the development is beneficial in terms of **Convenience**. We reject these justification and findings. The applicant is a private school and business not open to the public while, it is located in West Hills this proposed development serves Chaminade clients. There will be increased traffic on Saticoy where the drop off of clients will be changed. For the stakeholders in this area this will be inconvenient at best.

Community Plan page III-12 and III-13 Goals, Objectives and Policies states:

SCHOOLS:
In the Canoga Park-Winnetka-Woodland Hills-West Hills, public schools are administered by the Los Angeles Unified School District (LAUSD). The number of LAUSD facilities in the Plan area are twenty-two elementary schools, five middle schools, and three high schools.

GOAL 6:

Exhibit E
Cont.

PUBLIC SCHOOLS THAT PROVIDE A QUALITY EDUCATION FOR ALL OF THE CITY'S CHILDREN, INCLUDING THOSE WITH SPECIAL NEEDS, AND ADEQUATE SCHOOL FACILITIES TO SERVE EVERY NEIGHBORHOOD IN THE CITY.
Objective 6-1 Work constructively with LAUSD to promote the siting and construction of adequate school facilities phased with growth.

Policies

6.1.1 Explore creative alternatives for providing new school sites in the City, where appropriate.

Program: Develop plans to address issues of siting and joint use of facilities including strategies for expansion in transit-rich locations.

Program: Use the City's "Annual Growth Report" to monitor locations for growth and potential new school sites.

Objective 6-2 Maximize the use of local schools for community use and local open space and parks for school use.
Policies 6-2.1 Encourage the siting of community facilities (libraries, parks, schools and auditoriums) together. Program: Formulate/update plans to address issues relating to siting and the joint use of facilities. Identify strategies for the expansion of school facilities including:

1. Siting of schools and other community facilities (libraries, parks, and auditoriums) within a transit station, center, or mixed-use area so they can complement each other and make the most efficient use of the land provided for these services.

2. Locating middle schools and high schools where possible, close to transit stations and key centers and mixed-use districts, so students can use the transit system to get to and from school.

3. Encouraging private redevelopment of existing school sites in the immediate vicinity of transit stations and centers so that the existing site (a low intensity use) would be replaced by a high intensity mixed-use development that would incorporate school facilities.

The above polices are intended for Public Schools not Private Schools. We reject these polies as applied to Private Schools.

The applicant claims the development is beneficial in terms of **general welfare**. We reject these justifications and findings. The applicant is a private school and business is not open to the public while located in West Hills this proposed development serves its clients. We agree the general welfare of the applicants' clients will benefit from this proposed development, but the general public will not.

The applicant claims "the proposed Vesting Zone Change and Height District Change is beneficial in terms of **good zoning practice**" The applicant claims that their proposed C2 Zone corresponds to the existing Neighborhood Commercial land use designation of the North

Exhibit E
Cont.

Campus. These justifications refer to a draft Community Plan that has not been adopted. We reject all references to the Draft Community Plan.

We recommend C1-1VL Zone for this development project in keeping with "**good zoning practice**" with the application of condition 1 referenced on the applicates attachment D.1 of the Conditions of Approval Compliance Matrix.

We recommend the R3 zoning normally allowed under C1 modified to RS.

1. Community Plan I-9 "Preserve and enhance the positive characteristics of existing uses which provide the foundation for community identity, such as scale, height, bulk, setbacks and appearance."
2. Community Plan I-2 "West Hills" This primarily single-family neighborhood is bound by Roscoe Boulevard to the north, Topanga Canyon Boulevard on the east, the Ventura Freeway to the South, and the Simi Hills on the South and Southwest.
3. Residential page III-1 of Community Plan states: "the proposed Plan has three fundamental premises. First, is limiting single family residential densities in various neighborhoods to the prevailing density of development in these neighborhoods"
4. The properties located to the north of the Subject Property and abutting, are zoned RS-1 and improved with single-family.
5. The properties located to the west and south of the Subject Property across Saticoy Street, are zoned RS-1 and improved with single-family
6. LAMC 12.32 G2 provision may be made in a zoning ordinance that the property not be utilized for all the uses ordinarily permitted in a particular zone classification and/or that the development of the site shall conform to certain specified standards, if the limitations are deemed necessary to:

   (1) Protect the best interests of and assure a development more compatible with the surrounding property or neighborhood;

   (2) Secure an appropriate development in harmony with the objectives of the General Plan; or

   (3) Prevent or mitigate potential adverse environmental effects of the zone change.

We recommend -1VL for height restrictions. (Summary of Zoning Regulations page 7) All surrounding properties are -1VL or RS-1.
C2-1 would violate the intent of the Community Plan to preserve the positive characteristics of existing uses which provide the foundation for community identity, such as scale, height, bulk, setbacks and appearance.

Applicants **CONDITIONS OF APPROVAL COMPLIANCE MATRIX**

Exhibit E cont.

8. Setbacks change. The Applicant requests the modification of Condition No. 8 to clarify that it applies to new structures on the Main Campus only, as there are no minimum required setbacks in the C2 Zone proposed for the new North Campus.

We reject C2 and recommend C1 for the North Campus Condition should be changed to "With the exception of the proposed xx-foot tall fence for the baseball field, all new structures abutting a single-family residence shall be located at a minimum distance of 25 feet from the property line on the North Campus All other setbacks shall comply with C1 zoned setbacks (LAMC) 12.13. section **C Area.** Setbacks on the Main Campus shall remain unchanged from the existing covenant agreement. (#8 Setbacks)

11. Marching Band practices shall be limited to the following locations and hours:
All changes rejected.

The Applicant requests the following discretionary approvals:
• A **ZONING ADMINISTRATOR DETERMINATION**, as follows:
a. A Zoning Administrator Determination, pursuant to Los Angeles Municipal Code ("LAMC") Section 12.24 X.22, for new structures related to the sports facilities on the new North Campus, including, but not limited to, a score board, netting and netting poles, lights and a pedestrian bridge, ranging in height from approximately 25 to 90 feet tall, in lieu of the 25-foot, 33-foot and 61-foot tall structures permitted within 0-199 feet of lots zoned RW1 or more restrictive per the Transitional Height limitations in LAMC Section 12.21.1 A.10.

1. We reject 90-foot tall lights Pursuant to Community Plan page I-9 "Preserve and enhance the positive characteristics of existing uses which provide the foundation for community identity, such as scale, height, bulk, setbacks and appearance" and LAMC 12.32 G2 provision may be made in a zoning ordinance that the property not be utilized for all the uses ordinarily permitted in a particular zone classification and/or that the development of the site shall conform to certain specified standards, if the limitations are deemed necessary to:

   (1) Protect the best interests of and assure a development more compatible with the surrounding property or neighborhood;

   (2) Secure an appropriate development in harmony with the objectives of the General Plan; or

   (3) Prevent or mitigate potential adverse environmental effects of the zone change.

WHNC
Exhibit 1 (F)

Chaminade -Traffic Study
8/31/23



A. Long line of cars lined up on Cohasset traveling west from Woodlake Avenue heading toward Chaminade's main gate



B. Long line of cars traveling east from Pomelo on Cohasset waiting to turn left to enter side gate accessed on Chaminade Avenue



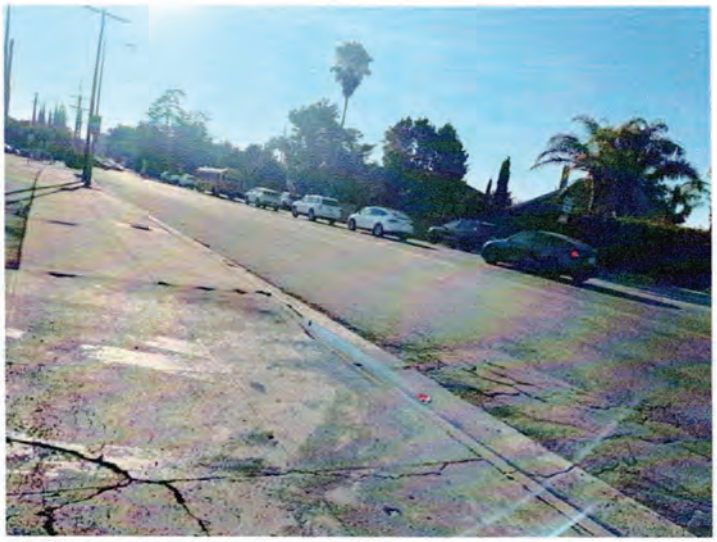
C. Long lines of cars on Chaminade Avenue waiting to access side gate and cars also waiting on Cohasset to turn right onto Chaminade Avenue

WHNC
Exhibit 2 (F)

Chaminade -Traffic Study
9/07/23



TAKEN ON SAME DAY FROM INSIDE MY CAR AS I'M WAITING TO GO THRU THE STOP SIGN AT WOODLAKE & SATICOY. CARS GOING WEST ON SATICOY WERE LINED UP FROM STOP SIGN AT WOODLAKE & SATICOY TO ABOUT 1/2 BLOCK FROM FALLBROOK & SATICOY



9/7/23 8:15 AM-CARS LINED UP WESTBOUND TO CROSS WOODLAKE & SATICOY INTERSECTION.



9/7/23 8:25 AM-CARS LINED UP ON SATICOY TRYING TO CROSS INTERSECTION AT WOODLAKE & SATICOY.



3 8:10 AM-CARS LINED UP GOING EAST ON SATICOY WAITING TO CROSS WOODLAKE

WHNC
Exhibit 2 (F)

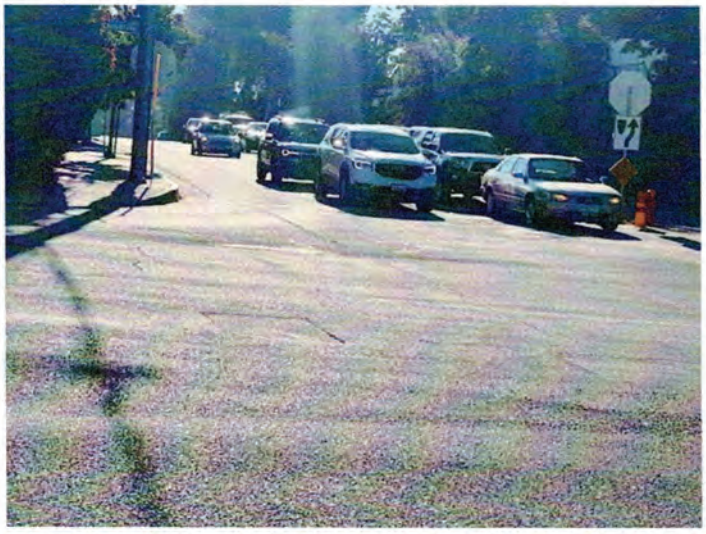
Chaminade -Traffic Study
9/07/23



9/7/23 8:10 AM CARS AT STOP SIGN AT WOODLAKE & SATICOY GOING SOUTH.



CARS GOING THRU INTERSECTION WEST ON SATICOY & SOUTH ON WOODLAKE AT 8 AM ON 9/7/23



9/7/23 8:15 AM-CARS GOING WESTBOUND ON SATICOY AT WOODLAKE.

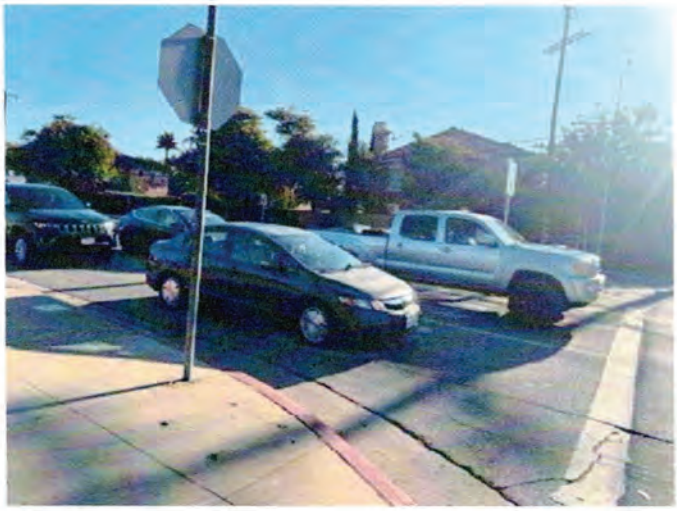


9/7/23 AT 8:15 AM -CARS LINED UP GOING WESTBOUND ON SATICOY TO CROSS WOODLAKE. CARS LINED UP TO CHAMINADE ENTRANCE ON SATICOY.

WHNC
Exhibit 2 (F)

Chaminade -Traffic Study
9/07/23





9/7/23-CARS LINED UP GOING WESTBOUND & TO CROSS INTERSECTION AT WOODLAKE & SATICOY 8:10 AM

Chaminade Expansion
Case CPC-2023-1254-VZC-HD-ZAD-ZAA
Conditions:

Approved by West Hills Neighborhood Council
Zoning & Planning committee September 12th, 2023

1) Zone Change to C1-1VL-CUP, a covenant agreement removing Hotels, Apts, etc from the C1 Zone and a variance/s as needed

2) All Conditions from the South Campus to be applied to the North Campus

3) No Events relocated to the North Campus

4) No parking on any residential streets for students and/or parents, games or events

5) Indoor/Enclosed Pool facility with same requirements as the noise mitigation included in CPC-2009-1477-CU-ZV-ZAA-SPR

6) Location of the Bridge (moved eastward away from homes for privacy)

7) Split buses/queuing avoiding traffic issues on Saticoy and Cohasset

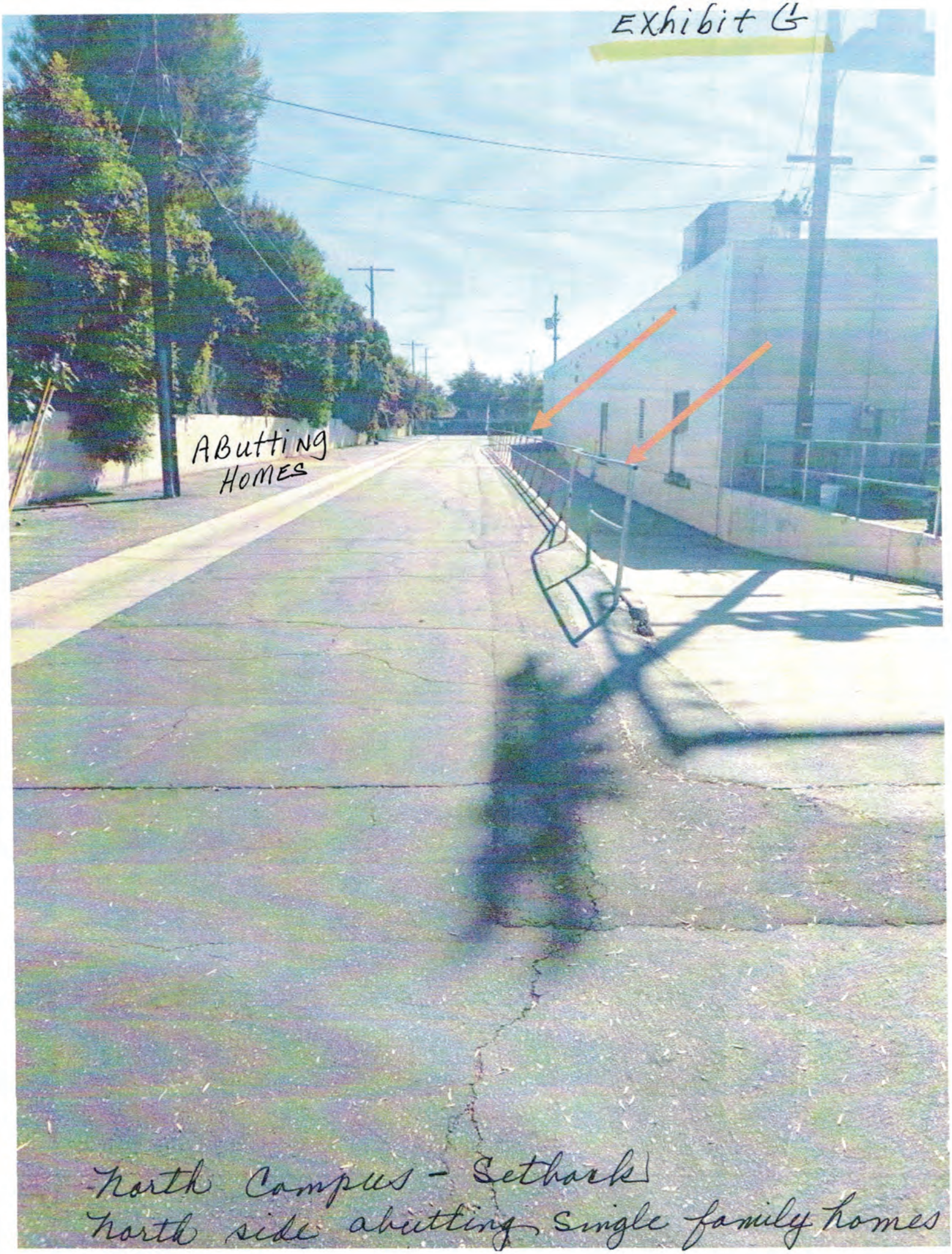
8) Security guard at bridge/driveways to ensure that pedestrians do not cross in the street

9) Batting Cages/Hours of Operation/No rental or outside use

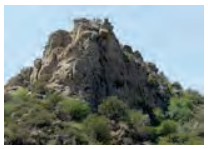
10) Lights at North Campus/Maximum height 50 feet

11) Setbacks on the North Campus, north side abutting residential, to be no less than 15 feet
(please see Exhibit G)

Exhibit G



North Campus - Setback
North side abutting single family homes



West Hills Neighborhood Council

"It's our neighborhood. Let's build a community."

July 12, 2024

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Faye Barta, J.D.
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Robert S. Webb, President
Chaminade College Preparatory
7500 Chaminade Avenue
West Hills, CA 91304

RE: Response to Chaminade Preparatory School Expansion
ENV-2023-1255-MND

This document is in Response to the Mitigated Negative Declaration (MND) released June 13, 2024 for the proposed Chaminade Preparatory School Expansion.

A Motion was passed unanimously to approve the WHNC Zoning & Planning Committee's Response at the July 9, 2024 meeting.

WHNC disagrees with the DETERMINATION for issuing an MND signed by Trevor Martin, City Planner, dated 6/07/24:
"I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions on the project have been made by or agreed to by the project proponent."

Note: Document titles in red; WHNC comments in blue

Request to be added to Report for North Campus:

* Setbacks for structures including pool
* Request for on-site meetings with Chaminade at proposed North Campus to indicate visually where lights will be placed along wall with neighbors North of project as well as on site at Main Campus to compare pole heights and lighting
* Marching band hours and restrictions

ENV-2023-1255-MND
Project Description
3.2.4 Existing Facilities
Pg 18
"The existing high school encompasses approximately 21.03 acres on the Main Campus……*and a pool."*
Although Chaminade was permitted to install a pool on the Main Campus, it was never built.

3.3.2 New Construction and Campus Changes
Pg 22
"Six modular trailers/classrooms will be temporarily located on the Main Campus during the construction until the new Multistory Building is completed. Parking spaces displaced by these temporary classrooms will be available in the new surface parking lot on the North Campus prior to the installation of the modular trailers."
How many parking spots will be moved to the North Campus during construction?

3.3.5 Vehicle and Bicycle Parking
Pg 32
After construction 501 parking spaces
Main Campus existing 462 stalls; after construction 501 parking stalls
North Campus 101 parking stalls (86 stalls entrance from Saticoy + 15 stalls-pool & Srs- entrance from Woodlake)
Increase of 39 parking spaces
Still Inadequate parking for all of the events and games with vehicles encroaching into neighborhoods

3.5 Related Projects
Pg 38
"As stated in the Transportation Assessment prepared for the Project……no related projects have been identified within one-half mile of the Project Site."
Vesting Preliminary Application filed 3/30/2024 for proposed 324-unit apartment building on former Circle S Ranch property, 7556 Woodlake Avenue, West Hills, 91304. The project was not included in the MND and will have a major impact on the Transportation Assessment. The single-family home was demolished and consideration must be made for development of multiple buildings (homes or apartments) resulting in higher densities on this site.

Project Impacts
Artificial Light
Pg 42
"Ad adverse impact would occur if a project created a substantial new source of artificial light that would adversely affect the surrounding area…….The North Campus portion of the Project will include new lighting standards ranging in height from 70-90 feet ….. "
****Setbacks must be in the MND Report to understand the impact of the pole lights on the homes to the North of the Project. Request for on-site meetings with Chaminade at proposed North Campus to indicate visually where lights will be placed along wall as well as on site at Main Campus to compare pole heights.***
Refer to 3/07/24 DRAFT for Discussion; Setbacks on North Campus, pg 1.

III Air Quality
Pg 53
Southern California Association of Governments
"To this end, the 2020-2045 TP/SCS land use pattern continues the trend of focusing new housing and employment in the region's High Quality Transit Areas (HQTAs) and aims to enhance and build out the region's transit network."
Refer to "ENV-2023-1255-H-1 Transportation Assessment Report, "According to the City of Los Angeles' Mobility Plan 2035, the project site and its vicinity is not a part of the Transit Enhance Network".

City of Los Angeles Policies
Pg 61
"In addition, due to the removal of the existing supermarket and other commercial uses……the Project would result in a net reduction of 1,355 daily trips. Because of this significant reduction in site-related daily trips, the Project would result in a net decrease in operational emissions as compared to existing site uses."
The number of daily trips in this Report is overstated and does not reflect the actual number of trips to the shopping center. Long-time business tenants state that there were closer to 500 trips daily before COVID reduced shopping. The number 1,355 is incorrectly mentioned throughout the Report approximately 30 times.

Off-Side Operational Noise Sources
Pg 186
"The Project would result in a net-reduction in vehicle trips when compared to existing uses….."
The number of daily trips in this Report is overstated and does not reflect the actual number of trips to the shopping center. Long-time business tenants state that there were closer to 500 trips daily before COVID reduced shopping. The number 1,355 is incorrectly mentioned throughout the Report approximately 30 times.

Construction
On-Site Construction Activities
Pg 187
"The Project may not be fully implemented until 2035, and there is currently no exact sequence of construction activities or phasing….."
Without including Start dates and End dates for each phase of construction for the Project, the cumulative impact on noise, air quality/emissions, traffic and transportation cannot be fully realized.

North Campus – Demolition
Pg 189
"Table XIII-3 shows the estimated noise increases that would result from the Project's demolition activities on the North Campus…….noise increases at Melba Street Cul-de-Sac Residences and Bobbyboyar Avenue Residences could exceed the 5 dBA Leq threshold of significance for daytime construction activities lasting more than 10 days in a three-month period……"
****Not acceptable. Request reducing permitted construction hours from 7:00am-9:00pm (Monday-Friday) because of detrimental impact especially to neighborhoods located North of the planned development.***

LAMC Section 112.05 Threshold Analysis
Pg 194-197
****Not acceptable. Request reducing permitted construction hours from 7:00am-9:00pm (Monday-Friday) because of detrimental impact especially to neighborhoods located North of the planned development.***

Pg 194-196

LAMC Section 112.05 Threshold Analysis

"LAMC establishes a noise limit of 75 dBA Leq for powered equipment….operated within 500 feet of numerous residential-zoned properties…….would apply to the Project's construction noise levels. Project would not expose nearby residential uses to noise levels in excess of 75 dBA Leq…."

Table XIII-10/Construction Noise Levels-North Campus Construction of Pedestrian Bridge (Mitigated)

23309 Saticoy Street Residence- New Noise Level (dBA Leq): 67.0

Melba Street Cul-deSac Residences-New Noise Level (dBA Leq: 58.7

Bobbyboyar Avenue Cul de Sac Residences – New Noise Level (dBA Leq: 54.4

*"As shown, implementation of noise barriers pursuant to Mitigation Measure NOI-1 would ensure that the demolition-related noise increases at these receptors are below the 5 dBA Leq threshold of significance….."

Not acceptable. Also refer to "ENV-2023-1255-G-1 Noise Measurement Map", Equipment Noise Levels, Bore/Drill Rig at 95 ft. Workday Noise Level -dBA Leq. Bore drilling will be substantially noisier than a lawn mower at dBA Leq 80-100. Homes on West side of Saticoy, 23320 and 23314 Saticoy, should be included in the MND Reports. They will also be substantially affected by bridge construction.

Parking Related Activities

Pg 199

"Further it is worth noting that the existing shopping center on the North Campus is associated with 2,307 daily trips, according to the Project's transportation study……This is far greater than the number of vehicles that would utilize the two North Campus parking lots…….This suggests that the parking-related noises associated with the North Campus site would likely decrease with implementation of the Project."

Neighbors to the North of the proposed expansion development report that they do not experience noise from vehicles coming and going to the shopping center. The existing building acts as a buffer to noise. Therefore the statement in the Report that noises would be decreased is incorrect. In addition, noises generated by the Project will increase due to crowds attending athletic competitions and students participating in ongoing sport practices, i.e., baseball, soccer and swimming events.

North Campus Athletics and Aquatic Facilities

Summary of new activities at the North Campus (not including existing school events that would shift from the Main Campus to the North Campus)

Local community swimming –WHNC understood that a decision to open the pool to the community would probably not be included because of liability issues.

Pg 200

(North Campus) Batting cage: Monday – Saturday, 7:00am-8:00pm. No use is permitted on Sundays.

The time is incorrect. The agreed upon time indicated in the 3/07/24 DRAFT is 9:00am to 7:00pm.

On-Site Operational Noise Mitigation Measures

Pg 204-205

NOI-3 Amplified sound systems

"LAMC Section 112.01 (b) would prohibit any amplified noises from being audible at a distance greater than 150 feet from the North Campus property line, and compliance with this regulation would necessitate that the project's amplified noise levels are much lower than the levels predicted by this analysis. Without mitigation, this impact related to athletic operations on the North Campus could be significant"

Neighbors will contact Chaminade if noise levels are significant enough to disturb them and Chaminade will reduce noise to satisfy their concerns.

XVII Transportation

Pg 221

Vesting Preliminary Application filed 3/30/2024 for proposed 324-unit apartment building on former Circle S Ranch property, 7556 Woodlake Avenue, West Hills, 91304. This project was not included in the MND and will have a major impact on the Transportation Assessment. . The single-family home was demolished and consideration must be made for development of multiple buildings (homes or apartments) resulting in higher densities on this site. **Would this project conflict or be inconsistent with CEQA Guidelines section 15064.3 subdivision (b)?**

Pg 222

"…….demonstrate that the Project would result in a net decrease of daily vehicle trips when compared to existing conditions. This reduction is the result of demolishing an existing shopping center which is a high trip-generating use and replacing it with athletic and ancillary facilities for a high school."

The shopping center does not generate high-trip use. The number of miles in this Report is overstated and does not reflect the actual VMT. However, accepted that the number of cars entering and exiting the proposed athletic facility will be less than the existing shopping center.

ENV-2023-1255-A

Tech Lighting

Pg 14

Conclusion

In conclusion, the proposed sports lighting design does demonstrate an increase in both spill light and maximum intensity in comparison to the existing lighting conditions.

****Setbacks must be included in the MND Report to understand the impact of the pole lights on neighboring homes.***

As an example, In the June 7, 2024 Letter from Robert Webb/Chaminade to Charlene Rothstein/WHNC, page 4, "regarding minimum setbacks for the pool lights along the Woodlake Avenue frontage, in response to your request, we agree to propose the following as a condition of approval: Along the Woodlake Avenue frontage, pool lights shall be set back a minimum of 12 inches from the property line." WHNC requests on-site meetings with Chaminade at proposed North Campus to visually indicate where lights will be placed along wall with neighbors as well as on site at Main Campus for comparison of pole height.

ENV-2023-1255-B

Health and Equity Details

Pg 2-3

CalEEMod version 2022 seems to underestimate default horsepower ratings for this equipment."

Please explain

"It is worth noting that Sunshine Canyon Landfill, the likeliest destination, is located within 20 miles of the Project site."

Sunshine Landfill is a Class III landfill and is not permitted to accept hazardous waste under California Law. There may be a possibility that hazardous soil will have to be removed; an alternative landfill for hazardous waste should be listed.

Pg 27

"A high score (i.e. greater than 50) reflects a higher pollution burden compared to other census tracts in the State.

Drinking Water – 83.1"

****Request more information on water, potable or ground water, etc. and how this might affect usage and /or construction.***

Pg 22 & Pg 50
Activity Data
Operational Mobile Sources
"Shopping Center: 2,307 trips/weekday; VMT weekday 15,622"
*Actual total weekday trips is less than HALF the number used in the data

"High School: 2,953 trips/weekday; VMT/weekday 24,112"
**** Pollution Measurements--Does the "school weekday VMT" include that vehicles will travel greater distances from homes to and from Chaminade than current trips made by surrounding neighbors' homes to the shopping center?***

ENV-2023-1255-F
Environmental Site Assessment
Summary of Findings
Section 9/Additional Hazards
Pg 4
"An additional potential hazard has been identified as the adjacent former gas station/auto repair facility."
****Request for former gas station/auto repair facility site to be tested every year.***
L.A. zoning ordinance: If the lot is located 500 ft. or less from any school lot with a Certificate of Occupancy for a one-family dwelling, multiple family dwelling or mixed-use project containing a residential use or an A or R zone, automotive repair is prohibited unless approved pursuant to the provision of Section 12.24W. *Provide Conditional Use Permit.

5.2 User-Provided Information
Pg 10
"Price will likely be lowered due to soil contamination on the property."
****See comments ENV-2023-1255-B***
Health and Equity Details
****Sunshine Landfill is a Class III landfill and is not permitted to accept hazardous waste under California Law. If there a possibility of hazardous soil that may have to be removed, list the alternative landfill destination.***

9. Vapor Encroachment Screening
Pg 30
"Based on this screening, a VEC cannot be ruled out for the subject property due to the long-term presence of a dry cleaner and residual impacts left in place at the adjacent gas station; both items are considered REC's."

Pg 44
3.Data Summary and Recommendations
"PCE concentrations in soil vapor exceed both residential and commercial screening levels."
****The biodegradation process degrades PCE to TCE and eventually to VC. PCE can persist in subsurface soil a long period of time. Will soil venting technology be used to remove the PCE?***

ENV-2023-1255-G-1
Noise Measurement
Construction Noise Impact Analysis
23309 Saticoy Street Residence
****The residence at 23309 Saticoy is referenced throughout the report for high noise and vibration impact. It does not appear that the following homes at 23320 and 23314 Saticoy on the West side of***

Saticoy are included. They will be negatively impacted, particularly with the bridge construction. Add them to the Report.

Vibration Impact Analysis
Pg 66
****Vibrations from drilling/boring will affect nearby residences. Include monitoring equipment to detect levels of vibration during the operation to adjust and minimize the impact.***

ENV 2023-1255-G-2
Air Quality, Greenhouse Gases, Noise Analysis
Pg 3
Table 1 Aquatic Complex/Pool Noise Levels-Swim Meet (Leq 1hr)"
"Source: Woodrow Wilson High School Aquatic Center IS/MND March 2021"
****Assume this is the school located in Long Beach. Without having site map and information on their aquatic center project, we are unable to determine if the pool noises associated with the W. Wilson project are comparable to the projected Chaminade pool noise levels.***

Batting Cage
Discussion & Analysis
"The batting cage would be located approximately 75 feet south of the Project's northern property line."
****How many balls per minute are released from the batting machine and how long does one standard batting practice session last per individual session?***

ENV-2023-1255-H-2
Transportation Impact Assessment
C Access and Circulation
Existing & Cumulative Traffic Conditions
Pg 2
The access and circulation analysis included a delay study of the following intersections using the Highway Capacity Manual (HCM) methodology which calculates the amount of delay per vehicle based upon the intersection traffic volumes, lane configurations and signal timing:
****The Transportation Impact Assessment does not take into consideration the Vesting Preliminary Application filed 3/30/2024 for proposed 324-unit apartment building on former Circle S Ranch property, 7556 Woodlake Avenue, West Hills, 91304. The single-family home was demolished and consideration must be made for development of multiple buildings (homes or apartments) resulting in higher densities on this site. This project was not included in the MND and will have a major impact on the Transportation Assessment. Currently there is a 4-way stop at the corner of Saticoy Street and Woodlake Avenue. Saticoy Street crossing Woodlake Avenue heading East is narrow and may have to be widened. To avoid accidents, there should be a traffic light to replace the 4-way stop.***

Pg 3
Student Drop-Off/Pick up
School Access Points
****Will school be in session when construction begins and during dates of peak activity? What plan is in place to accommodate disrupted traffic flow when students and visitors are attending classes and events?***

ENV-2023-1255-H-1
Transportation Assessment Report
Overall comments
****The proposed 324-unit apartment project on the former Circle S property located at the intersection of Saticoy Street and Woodlake Avenue (a 4-way stop) will add multiple vehicle trips (volume) to***

immediate vicinity roadways and intersections that combined with Chaminade traffic will negatively impact the analysis contained in the MND (including traffic forecasts and ambient traffic growth. The single-family home was demolished and consideration must be made for development of multiple buildings (homes or apartments) resulting in higher densities on this site. WHNC believes that the MND has not considered to the fullest extent changes that the S.W. Valley 2024-2025 Community Plan will be bringing to the surrounding community of West Hills.

Respectfully
Submitted by:

Bill Rose

Bill Rose, Co-Chair
Zoning & Planning Committee

Charlene Rothstein

Charlene Rothstein, Co-Chair
Zoning & Planning Committee

cc: Councilmember John Lee, Council District 12
Hannah Lee, Chief of Staff, Council District 12
Dan Rosales, Planning Director, Council District 12
Chris Landon, Chaminade College Preparatory, Director of Facilities
Brad M. Rosenheim, Esq., President, CEO Rosenheim & Associates Inc.
Jessica Pakdaman, Project Manager, Rosenheim & Associates Inc.
Claudia Rodriquez, City Planner
Vicente Cordero, LADOT

*****Attachments***
1. Vesting Preliminary Application
Case #PAR: 2024-1742-VHCA; 5-Story, 324-unit Affordable Senior Age Restricted Housing Development; 7556 Woodlake Avenue, West Hills, CA 91304
2. 7/02/24 WHNC Email to L.A. City Planning Department; Case #2024-1742-VHCA

REFERRAL FORM

HOUSING CRISIS ACT
Vesting Preliminary Application

This form serves as the optional Housing Crisis Act Vesting Preliminary Application for projects creating one or more units seeking vesting rights pursuant to the Housing Crisis Act of 2019 (HCA). This form also serves as a referral to the Los Angeles City Planning (City Planning) Development Services Center (DSC) and to the Los Angeles Department of Building and Safety (LADBS) Plan Check for HCA vesting purposes. The HCA Vesting Preliminary Application (Preliminary Application) allows the applicant to vest to City ordinances, policies, and standards adopted and in effect on the day that a complete Preliminary Application is submitted. Please be advised that these vesting rights do not apply to changes in State law or to changes in building code.

The following project types are eligible to submit a Preliminary Application:

- Housing Development Projects requiring an application to City Planning; or
- Housing Development Projects not requiring a City Planning application and submitting for building permit Plan Check to LADBS on or after January 1, 2022.

For Submittal Instructions, refer to Section E of this form. Section G ("Retention of Vesting Rights") of this form may be referenced for additional guidance on HCA vesting rights. The "Housing Development Project Applicability Matrix" may also be used to identify whether the HCA applies to specified development types, and when a Preliminary Application applies.

THIS SECTION TO BE COMPLETED BY PLANNING STAFF ONLY

Case Number PAR- 2024-1742-VHCA

Proposed No. of Dwelling Units[1]: 324

Proposed Building Area[1,2]: 246,573 sf

Submittal Completion Date[3]: 3/20/2024

Last Day to file City Planning Application/Submit to LADBS Plan Check[1]: 09/16/2024

Invoice No.: 94485 **Payment Date:** 03/20/2024

City Planning Staff Name and Title: Greg Guillermo, Planning Assistant

City Planning Staff Signature: _____

1 For information on retention of vesting rights, refer to Section F of this form.
2 Building Area, as defined by the California Building Standards Code (Title 24 of the California Code of Regulations) – California Government Code Section 65941.1(c). Refer to Appendix 2 for Building Area calculation instructions.
3 As part of the process to deem complete the submittal of this optional Preliminary Application, City Planning staff have affirmed neither the feasibility nor the entitlement review path of the proposed project.

This form shall be completed by the applicant and reviewed and signed by City Planning staff prior to filing the City Planning application, or the LADBS Plan Check application for projects that do not require a City Planning application. The signed Preliminary Application shall be submitted during the City Planning application filing, or the submission of an application for building permit and Plan Check. Any modifications to the content(s) of this form after its authorization by City Planning staff is prohibited. Further, any change to the proposed number of dwelling units or the proposed building area must be verified by City staff.

THIS SECTION TO BE COMPLETED BY THE APPLICANT

A. SITE INFORMATION

PROJECT LOCATION

Street Address[4]: 7556-7572 N WOODLAKE AVE LOS ANGELES CA, 91304

Legal Description[5] (Lot, Block, Tract): LOT: FR 208, BLOCK: N/A, TRACT: TR21391

Assessor Parcel Number(s): 2021-002-013 **Site Area (sf):** 95,699.3

EXISTING USE(S)

Describe in detail the existing uses on the project site, including any major physical alterations or soil disturbance that may have previously occurred.

TWO TWO-STORY SINGLE FAMILY DWELLINGS TO BE DEMOLISHED.

B. PROPOSED PROJECT

☐ **ED 1 Eligible[6]**

PROPOSED USE(S)

Describe in detail the characteristics, scope and/or operation of the proposed project.

NEW CONSTRUCTION, 5-STORY, TYPE VA OVER TYPE IA, 324-UNIT, 193,834 SF, 100% AFFORDABLE SENIOR AGE RESTRICTED HOUSING DEVELOPMENT. PROJECT TO SEEK ON-MENU INCENTIVES PER LAMC 12.22.A.25 AND AB2334.

[4] Street Address must include all addresses on the subject/application site (as identified in ZIMAS http://zimas.lacity.org).
[5] Legal Description must include all contiguously owned properties (even if they are not a part of the proposed project site).
[6] Refer to Executive Directive 1 Implementation Guidelines for qualifying criteria. If the project is determined to be ineligible for ED 1, a new Referral Form will need to be obtained.

AFFORDABLE HOUSING INCENTIVES, WAIVERS, CONCESSIONS, AND PARKING REDUCTIONS

Will the project proponent seek incentives, waivers, concessions, or parking reductions pursuant to California Government Code Section 65915 (i.e., Density Bonus), the Transit-Oriented Communities (TOC) program, or any other affordable housing incentive program[7]?

☒ **YES** ☐ **NO**

If "YES", describe:

BASE INCENTIVES (3):
33' ADDITIONAL HEIGHT FEET OR 3 STORIES PER AB2334
UNLIMITED DENSITY PER AB2334
PARKING OPTION 3 PER AB2334 - SENIOR HOUSING

ON-MENU INCENTIVE (5):

RESIDENTIAL DWELLING UNIT COUNT

Indicate the total number of dwelling units proposed as well as a breakdown by levels of affordability.

PER AB2334 GENERAL PLAN ALLOWS RD5 DENSITY.

Affordability Levels	Total
Market Rate	1
No. of Affordable Units Proposed	323
Extremely Low Income	
Very Low Income	
Low Income	259
Moderate Income	64
TOTAL No. of Units Proposed	324

Total Units	Total
No. of Units Allowed by Right (per LAMC)	19
No. of Bonus Units Proposed	305
TOTAL No. of Units Proposed	324

Other Notes on Units:

[7] Projects proposing Density Bonus "On-Menu" incentives through a ministerial process or "Off-Menu" incentives, waivers, concessions and parking reductions through a discretionary process must be reviewed by the Los Angeles City Planning Affordable Housing Services Section and obtain a signed Affordable Housing Referral Form (CP13-4043) prior to filing a City Planning application.

FLOOR AREA

Provide the proposed floor area and square footage of residential and non-residential development:

Floor Area[8] 193,834 **Building Area**[9] 246,573

PARKING

Provide the proposed number of automobile and bicycle parking spaces:

Automobile Parking	**Total**
Residential	184
Non-Residential	

Bicycle Parking	**Total**
Residential Long Term	156
Residential Short Term	16
Non-Residential Long Term	
Non-Residential Short Term	

SUBDIVISION

Will the proposed project include a request for an approval pursuant to the Subdivision Map Act, including a Vesting or Tentative Tract Map, Preliminary Parcel Map, Condominium Map, Lot Line Adjustment, or Certificate of Compliance?

☐ **YES** ☒ **NO**

ADDITIONAL INFORMATION

Does the project propose any point sources of air or water pollutants[10]?

☐ **YES** ☒ **NO**

If "YES", please describe:

[8] As defined by the LAMC.

[9] As defined by the California Building Standards Code (Title 24 of the California Code of Regulations) – California Government Code Section 65941.1(c). Refer to Appendix 1 for Building Area calculation instructions.

[10] A project that proposes point sources of air or water pollutants may trigger review and permitting by, but not limited to, the South Coast Air Quality Management District, the Los Angeles Regional Water Quality Control Board, or the Los Angeles Bureau of Sanitation.

C. EXISTING SITE CONDITIONS

HOUSING[11]

Provide the number of existing residential units on the project site that will be demolished and whether each existing unit is occupied or unoccupied:

	Existing Residential Units	Demolished or To Be Demolished
Occupied Units		
Unoccupied Units	2	2
TOTAL Units	2	2

ADDITIONAL SITE CONDITIONS

1. Is the project site located wholly or partially within:

a. A Very High Fire Hazard Severity Zone (VHFHSZ)[12]? ☐ **YES** ☒ **NO**

b. Wetlands, as defined in United States Fish and Wildlife (USFW) Service Manual, Part 660 FW 2 (June 21, 1993)? ☐ **YES** ☒ **NO**

c. A special flood hazard area subject to inundation by the one percent annual chance flood (100-year flood) as determined by the Federal Emergency Management Agency (FEMA) in any official maps published by FEMA? ☐ **YES** ☒ **NO**

d. Delineated earthquake fault zone as determined by the State Geologist in any official maps published by the State Geologist? ☐ **YES** ☒ **NO**

e. Hazardous waste site that is listed pursuant to Section 65962.5 or a hazardous waste site designated by the Department of Toxic Substances Control (DTSC) pursuant to Section 25356 of the Health and Safety Code[13]? ☐ **YES** ☒ **NO**

[11] A Housing Development Project, as defined in California Government Code Section 65905.5(b)(3), is subject to the provisions of Government Code Section 66300, as amended by SB 8, and will require an SB 8 Replacement Unit Determination letter from the Los Angeles Housing Department or a No-Net-Loss Property Owner Declaration.

[12] Housing Development Projects located in a VHFHSZ are eligible to seek vesting rights pursuant to the HCA.

[13] The development shall not be located on a legal parcel that is a hazardous waste site except for sites the DTSC has cleared for residential use or residential mixed use.

2. Does the project site contain a designated or potentially historic and/or cultural resource[14]? ☐ **YES** ☒ **NO**

   If "YES", please describe:

   a. Does the project site contain any species of special concern such as special status flora or fauna, protected trees, or wildlife[15]? ☐ **YES** ☒ **NO**

      If "YES", please describe and/or depict on the site plan:

   b. Does the project site contain any recorded easement, such as easements for conservation, storm drains, water lines, and other public rights of way? ☐ **YES** ☒ **NO**

      If "YES", please describe and/or depict on the site plan:

   c. Does the project site contain a stream or other resource that may be subject to a streambed alteration agreement pursuant to Chapter 6 (commencing with Section 1600) of Division 2 of the California Fish and Wildlife Code, including creeks and wetlands? ☐ **YES** ☒ **NO**

      If "YES", please describe and/or depict on the site plan:

[14] Information regarding historic resources that have been identified by the City or another public agency can be found in SurveyLA, HistoricPlacesLA, or ZIMAS.

[15] An Arborist Report or a Biological Survey and Impact Assessment may be required following the filing of an application requesting approval of a discretionary action if the project site is on or adjacent to open space or previously undisturbed land in order to demonstrate whether the site provides habitat for any special status flora or fauna, including those identified in a Specific Plan or Zoning Overlay.

D. COASTAL

1. Is the project site located wholly or partially within the Coastal Zone, as defined in Division 20 (commencing with Section 3000) of the Public Resources Code (PRC). If marked "NO", skip to section E. ☐ **YES** ☒ **NO**

2. Does the project site contain a/an:

   a. Wetlands, as defined in subdivision (b) of Section 13577 of Title 14 of the California Code of Regulations[16]? ☐ **YES** ☐ **NO**

   b. Environmentally Sensitive Habitat Area (ESHAs), as defined in Section 30240 or the California PRC[17]? ☐ **YES** ☐ **NO**

   c. Tsunami run-up zone? ☐ **YES** ☐ **NO**

   d. Area used for public access to or along the coast? ☐ **YES** ☐ **NO**

E. ADDITIONAL REQUIRED MATERIALS

In order to initiate a request for HCA vesting rights, an applicant must submit a Preliminary Application and the following materials and information through City Planning's Online Application Portal. An appointment is not required.

1. **HCA Vesting Preliminary Application** (CP13-4062)

2. **Plot/Site Plan.** A legible plot plan drawn to scale is required. The plot plan must include all contiguous parcels under the applicants' ownership and any contiguous parcels proposed to be part of the project site. The plot plan should identify which parcels are/are not a part of the proposed project. The plot plan should include a summary of information table indicating the following:

   - Building area of each building that is to be occupied
   - Proposed land uses
   - Proposed number of dwelling units
   - Height of buildings
   - All measurements that establish the proposed location of the proposed buildings and structures, including property lines, yards, setbacks, space between buildings and structures, and building footprint dimensions.
   - Trees and Shrubs. Plans must clearly show all existing trees and shrubs on the project site and within the right-of-way adjacent to the property. Identify and label (by name and trunk diameter) the following protected trees and shrubs as identified on the Plot Plan Instructions (CP-7752).

[16] Wetlands may include a watercourse or a storm drain. A Wetlands Delineation Report may be required following the filing of an application requesting approval of a discretionary action in the Coastal Zone if the site contains a watercourse or a storm drain.

[17] ESHAs are mapped areas in the certified Venice Land Use Plan and the San Pedro Coastal Land Use Plan.

- Watercourses, storm drains, creeks streams, wetlands (as defined in the USFW Service Manual, Part 660 FW 2 (June 21, 1993) or as defined in subdivision (b) of Section 13577 of Title 14 of the California Code of Regulations), or other resources that may be subject to a streambed alteration agreement pursuant to Chapter 6 (commencing with Section 1600) of Division 2 of the Fish and Wildlife Code.
- Aerial Site Photograph showing existing site conditions of environmental site features that would be subject to regulations by a public agency, including creeks and wetlands. It may be provided on any relevant plan sheet, including a project information sheet.

Refer to the Plot Plan Instructions (CP-7752) for additional guidance.

3. **Elevation Plans.** Elevations must show the design, materials, color, textures, patterns, massing and height of each building under the project scope. Refer to the Housing Crisis Act Vesting Preliminary Application Elevations Instructions (Appendix 1 of this form, page 15) for additional guidance. The elevations plans shall be included as part of the set of plans.
4. **Building Area Analysis.** Refer to the Housing Crisis Act Vesting Preliminary Application Building Area Analysis Instructions (Appendix 2 of this form, page 16) for additional guidance. The building area plans shall be included as part of the set of plans.
5. **Sections** for projects located on multiple levels or subterranean floors (e.g., basements, subterranean parking, etc.) showing depth (linear feet) and amount (cubic yards) of proposed cut, fill, import, and export related to grading, excavation of earthwork. The sections shall be included in the set of plans.
6. **Filing Fee.** Fees must be paid online after the electronic invoice is received.

F. ADDITIONAL RESOURCES

1. **Appendix 1:** Elevations Instructions for Vesting Pursuant to the Housing Crisis Act (page 15).
2. **Appendix 2:** Building Area Analysis for Vesting Pursuant to the Housing Crisis Act (page 16).

G. RETENTION OF VESTING RIGHTS

A Preliminary Application must be deemed complete by City Planning in order to obtain vesting rights. A Preliminary Application is deemed complete at the time that all required forms, documents, and materials are submitted, and the final invoice has been issued and proof of payment is presented to City Planning. A Preliminary Application completed before January 1, 2030 is valid until January 1, 2034, provided that HCA vesting rights are maintained and have not otherwise lapsed or terminated.

To retain HCA vesting rights, the applicant must adhere to certain time limits and limitations on project scope changes. **If the time limits are not met or if the changes in the project scope exceed specified thresholds, the Preliminary Application shall expire and have no further force or effect.** During City Planning application filing or the submission of an application for building permit and Plan Check, as well as through the development process, City staff will verify whether a project has been able to maintain vesting rights. Refer to the “Housing Crisis Act Vesting Log” on page 11 for additional instructions.

TIME LIMITS TO RETAIN VESTING RIGHTS

Once the Preliminary Application is complete, the City Planning application or the application for building permits and Plan Check must be submitted within 180 days of the date on which the Preliminary Application is deemed complete, in order to retain vesting rights.

If a City Planning application is required, the applicant must submit all outstanding information needed in order to deem the City Planning application complete within 90 days of receiving a hold or "deemed incomplete" letter from City Planning staff. The 90-day period does not apply to projects eligible to submit a building permit Plan Check application to LADBS without a City Planning application on or after January 1, 2022.

For all vested projects (ministerial or discretionary), construction of the Housing Development Project must commence within 2.5 years. For vested projects that are 100 percent affordable, the Housing Development Project must commence within 3.5 years.

If the project is discovered to require a City Planning application during the permitting process, the project may still use the Preliminary Application issued as long as the City Planning application is submitted within 180 days of the date a complete Vesting Preliminary Application was submitted. The submittal of the building permit application to LADBS would not be held against the project.

PROJECT SCOPE THRESHOLDS TO RETAIN VESTING RIGHTS

In order to maintain vesting rights, any change in the residential unit count or in the Building Area is limited to *less than* 20 percent of the total proposed on the completed Preliminary Application, exclusive of any increase resulting from the receipt of a density bonus, concession, waiver, or similar provision.

H. PROJECT TEAM INFORMATION (Complete all applicable fields)

Applicant[18] Name: JEFF ZBIKOWSKI

Company/Firm: JZA ARCHITECTURE

Address: 4043 IRVING PL **Unit/Space Number:** SUITE B

City: CULVER CITY **State:** CA **Zip Code:** 90232

Telephone: 310.853.500 **E-mail:** JEFF@JZARCH.LA

Are you in escrow to purchase the subject property? ☐ **YES** ☐ **NO**

(Optional) Agent/Representative Name: _____

Company/Firm: _____

Address: _____ **Unit/Space Number:** _____

City: _____ **State:** _____ **Zip Code:** _____

Telephone: _____ **E-mail:** _____

Primary Contact for Project Information[19]
(select only one) ☐ Agent/Representative ☐ Applicant

[18] An applicant is a person with a lasting interest in the completed project such as the property owner or a lessee/user of a project. An applicant is not someone filing the case on behalf of a client (i.e., usually not the agent/representative).

[19] As of June 8, 2022, the Primary Contact for Project is required to have an Angeleno Account and register with the Ethics Commission for Significant Project Entitlements, as defined in LAMC Section 49.7.37(A)(6). An email address and phone number shall be required on the City Planning Application Form, and the email address provided shall match the email address used to create the Angeleno Account.

THIS SECTION SHALL BE ADDED ONTO THE FINAL PLAN SET PERMITTED BY LADBS

HOUSING CRISIS ACT VESTING LOG

This log is intended to be used by City staff to track compliance with the time limits and project scope changes (unit count), in order to retain vesting rights through the development process. If a vested Housing Development Project is associated with a City Planning application for its development, this page and the log shall be completed by the City Planning Case Processing Unit. Any modifications to the content(s) of this log by anyone other than City staff is prohibited. A copy of this page and the completed log must be included on the final set of plans for construction.

CITY STAFF USE ONLY

Case Number PAR- _____

Date Vested (Date Preliminary Application Submittal Complete): _____

Proposed No. of Dwelling Units[20]: _____

City Planning Staff Name and Title: _____

[20] The proposed number of dwelling units should match the number of proposed dwelling units identified on page 1.

TABLE A - HOUSING CRISIS ACT VESTING LOG
THIS SECTION TO BE COMPLETED BY CITY PLANNING CASE PROCESSING UNIT ONLY

Milestone	Date Due	Date Complete	Dwelling Units[21]	Determination[22]	Staff Name
City Planning Application Filing Project submitted within 180 days of the HCA Vesting Preliminary Application being deemed complete.[23] Project meets the time limits: ☐ **YES** ☐ **NO**			☐ Project meets 20% threshold ☐ Project exceeds 20% threshold Proposed Units: _____ Plan Sheet No.: _____	☐ The project meets the time limits (180 days) and limitations on project scope (unit count). ☐ The HCA Vesting Preliminary Application is expired and has no further force or effect.	
Applicant Response to Deemed Incomplete Letter If a City Planning Application is Deemed Incomplete, the applicant must submit all information needed within 90 days of receiving the Deemed Incomplete Letter (applies ONLY to projects that are required to file a City Planning application) Project meets the time limits: ☐ **YES** ☐ **NO**			☐ Project meets 20% threshold ☐ Project exceeds 20% threshold Proposed Units: _____ Plan Sheet No.: _____	☐ The project meets the time limits (90 days) and limitations on project scope (unit count). ☐ The HCA Vesting Preliminary Application is expired and has no further force or effect.	

[21] Any change in the residential unit count is limited to less than 20 percent of what is indicated on the completed Preliminary Application, exclusive of any increase resulting from the receipt of a density bonus, concession, waiver, or similar provision.
[22] If the time limits are not met or if the changes in the project scope exceed specified thresholds, then the Preliminary Application shall expire and have no further force or effect.
[23] Once the Preliminary Application is complete, the City Planning application must be submitted within 180 days of the Preliminary Application completion date.

Milestone	Date Due	Date Complete	Dwelling Units	Determination	Staff Name
Date City Planning Application Deemed Complete	N/A		☐ Project meets 20% threshold ☐ Project exceeds 20% threshold Proposed Units: _____ Plan Sheet No.: _____	☐ The project meets the limitations on project scope (unit count). ☐ The HCA Vesting Preliminary Application is expired and has no further force or effect.	
Date of Hearing	N/A		☐ Project meets 20% threshold ☐ Project exceeds 20% threshold Proposed Units: _____ Plan Sheet No.: _____	☐ The project meets the limitations on project scope (unit count). ☐ The HCA Vesting Preliminary Application is expired and has no further force or effect.	
Date of Final Approval of City Planning Application[24]	N/A		☐ Project meets 20% threshold ☐ Project exceeds 20% threshold Proposed Units: _____ Plan Sheet No.: _____	☐ The project meets the limitations on project scope (unit count). ☐ The HCA Vesting Preliminary Application is expired and has no further force or effect.	

[24] Final approval means that a project has obtained all necessary approvals to be eligible to apply for, and obtain, a building permit or permits, and all appeal periods or statutes of limitations have been exhausted or resolved in favor of the Housing Development Project (G.C. Sec. 65589.5(o)(2)(D)(ii)).

Milestone	Date Due	Date Complete	Dwelling Units	Determination	Staff Name
Date Construction Commenced (within 2.5 years or 3.5 years of Final Decision)[25] Project meets the time limits: ☐ **YES** ☐ **NO**			☐ Project meets 20% threshold ☐ Project exceeds 20% threshold Proposed Units: _____ Plan Sheet No.: _____	☐ The project meets the time limits (2.5 or 3.5 years) and limitations on project scope (unit count). ☐ The HCA Vesting Preliminary Application is expired and has no further force or effect.	

Notes:

[25] Vested Housing Development Projects must commerce construction within two and one-half years, or three and one-half years for one hundred percent affordable Housing Development Projects.

Appendix 1
Elevations Instructions for Vesting Pursuant to the Housing Crisis Act

123 Example Blvd, Los Angeles, CA



Materials, Textures and Colors


Exterior Cement Plaster, Smooth, Cream


Balcony Door, Vinyl, White


Board Formed Concrete, Wood Grain, Misty Blue


Exterior Cement Plaster, Smooth, Pewter


Aluminum, Brushed Metal, Dark Grey

Elevations shall show the design, materials, color, massing, facade and height of each building under the project scope:

- **Scale:** The scale shall be no less than ⅛" = 1'-0" or a scale that produces a readable illustration.
- **Building Materials and Colors:** Elevations must identify all building materials types and colors. Include any sustainable features of the project as well as the material texture or pattern.
- **Location:** The elevations page must include the site address.
- **Labeling:** All views and major features shall be labeled, including which side of the project is being illustrated.
- **Dimensions:** Elevations shall be dimensioned in a manner that all relevant measurements can be read. Accessory structures shall have the same dimension requirements as the main structure. Include the dimensions for all heights. Required dimensions must include the following items:
  - The lowest elevation within 5 feet of the perimeter of the building;
  - The highest elevation for purposes of determining maximum building height as measured per Department of Building and Safety requirements and as defined by LAMC Section 12.03 of Chapter 1;
  - Height to the highest point of the roof and all roof structures;
  - Wireless facilities and transformers;
  - Projections proposed to be attached to a building facade;
  - Poles or signs including those attached to the facade or roof. Roof signs, pole signs and billboards must show both sides;
  - Facade texture, pattern, color and material changes to determine compliance with building articulation and design standards; and
  - Fences, walls, beams, barriers, including lighting fixtures, pillars, and gates on all sides.

Most City Planning processes involve a review of the project design. Applicants are encouraged to consult with the **LACP Urban Design Studio** regarding the design of the project early in the application process, ideally prior to filing. You may schedule a design review meeting online: planning.lacity.org/plans-policies/urban-design-studio/schedule-appointment.
Refer to Elevation Instructions (CP-7817) for additional guidance.

Appendix 2
Building Area Analysis for Vesting Pursuant to the Housing Crisis Act

The purpose of this Building Area analysis sample and instructions is to provide guidance with determining the total Building Area or "square footage of construction" of a Housing Development Project in order to vest pursuant to the Housing Crisis Act. The sample below broadly applies to all types of Housing Development Projects.

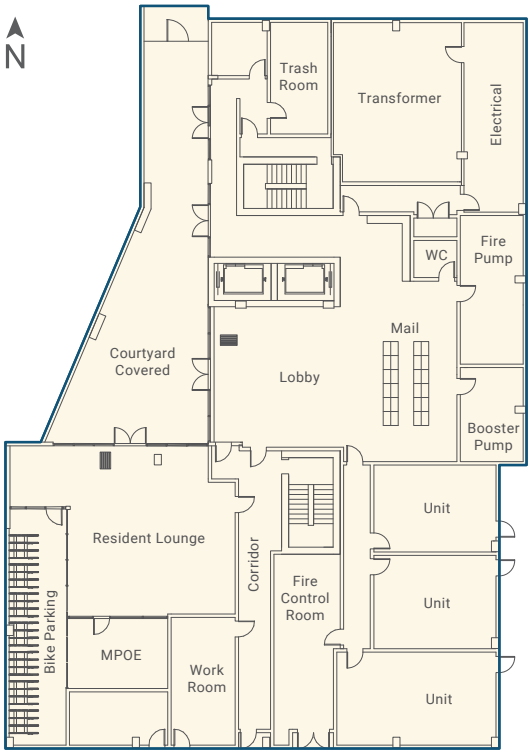
Building Area Calculation Table – Example

Level	Proposed
L2–L5	30,704 sf
L1	9,426 sf
Total	40,130 sf

Building Area Definition

The area included within surrounding exterior walls (or exterior walls and fire walls) exclusive of vent shafts and courts. Areas of the building not provided with surrounding walls shall be included in the building area if such areas are included within the horizontal projection of the roof or floor above.
– California Government Code Section 65941.1(C)

Building Area Diagram – Example



Level 1 Building Area 9,426 sf



Levels 2-5 Building Area 7,676 sf (per level)

Instructions

- **Shaded and Dimensioned Diagram:** Set of plans shall include a shaded and dimensioned diagram indicating the total Building Area for each level, including any covered parking areas, elevator shafts and stairwells at each level.
- **Quantities Referenced Diagram:** Each area analysis must include a label or reference to its Building Area, expressed as square-footage.
- **Calculation Table:** The Building Area page should include a corresponding calculation table indicating the Building Area for each level, as well as the grand total.

Gmail

Char Rothstein <charwhnc@gmail.com>

Re Case #2024-1742-VHCA

Char Rothstein <charwhnc@gmail.com> Tue, Jul 2, 2024 at 12:09 PM
To: "greg.guillermo@lacity.org" <greg.guillermo@lacity.org>

Good morning Greg,

Hope this finds you doing well.

This is a follow up to my voicemail left on your LA city phone on 7/1/2024 and comes to you from the West Hills Neighborhood Council (WHNC) Zoning & Planning committee:

The Vesting Preliminary Application filed on 3/20/2024 has been shown to be problematic and has raised many concerns. The proposal is for an extremely dense project, to be built at (5) stories on a hill facing surrounding single family homes of (1) and (2) stories, also facing a two way street which already has traffic issues. Many constituents have requested a signal in the past at Woodlake & Saticoy for safety reasons.

On June 11, 2024, the WHNC held their regularly scheduled Zoning & Planning committee meeting. This case was on the agenda and over 250 stakeholders attended in person with over 150 attending on zoom.
(please see a 15 second video of the meeting attached)

We will be meeting at Senator Stern's office during the week of July 22nd to discuss this case and other community concerns.There are many questions that have come from the community regarding this application. Can we please discuss?

We appreciate your help.

Best regards,
Char Rothstein
WHNC/President
Zoning & Planning
Co-Chair
818-888-8805 office

IMG_6208.MOV
22065K

Trevor Martin <trevor.martin@lacity.org>

West Hills/Chaminade Expansion/Case No. CPC-2023-1254-VZC-HD-ZAD-ZAA

2 messages

byrose627 <byrose627@gmail.com> Tue, Jan 9, 2024 at 7:23 PM
To: trevor.martin@lacity.org
Cc: byrose627@gmail.com

Hi there

I am a resident of West Hills interested in Chaminade College Preparatory's expansion plans.

Please send me a copy of the Mitigated Negative Declaration (MND) as soon as available.

byrose627@gmail.com

I would appreciate receiving a return email that this request has been received and the MND will be sent. Thank you for your help.

Regards,

Yvonne Rose

Sent from my Verizon, Samsung Galaxy smartphone

Trevor Martin <trevor.martin@lacity.org> Wed, Jan 10, 2024 at 9:53 AM
To: byrose627 <byrose627@gmail.com>
Cc: byrose627@gmail.com

Hi Yvonne,

I have added your name and contact to the interested parties list for the Chaminade High School Project (Case No. CPC-2023-1254-VZC-HD-ZAD-ZAA). I will send you a copy of the MND Report once it is finalized.

Best,

Trevor

LOS ANGELES CITY PLANNING

Trevor Martin
Pronouns: He, His, Him
City Planning Associate
Los Angeles City Planning
200 N. Spring St., Room 763
Los Angeles, CA 90012
T: (213) 978-1341 | Planning4LA.org
E-NEWS

[Quoted text hidden]

August 14, 2024

Chaminade College Preparatory, High School Campus
Proposed Modified and New Conditions in Response to WHNC Comments
Case Nos. CPC-2009-1477-CU-ZV-ZAA-SPR-PA1, CPC-2023-1254-VZC-HD-ZAD-ZAA

Note: ~~Strikethrough text~~ is proposed to be deleted and **bolded underlined text** is proposed to be added.

1. ZONE CHANGE ON NORTH CAMPUS

New "Q" Qualified Condition on North Campus:

- **Use. Uses shall be limited to school uses for Grade K-12 and uses accessory to or associated with the school, such as athletic and parking facilities as shown on and in substantial conformance with the plans ("Exhibit A") and the Conditions of Approval associated with this Case. No residential or hotel uses are permitted.**

New "D" Development Limitation on North Campus:

- **Height of Buildings and Structures. No building, fence or structure shall exceed 45 feet in height, except for the athletic field and pool facility lights which shall not exceed 90 feet in height, in substantial conformance with the plans ("Exhibit A").**

2. SETBACKS ON NORTH CAMPUS

New "Q" Qualified Condition on North Campus:

- **Setbacks on North Campus. No new buildings or structures may be located within 15 feet of the northern property line, except for the following as shown on the plans ("Exhibit A"):**

  a. **10-foot-tall perimeter fence, with a minimum setback of approximately 1-foot, 4 inches;**
  b. **40-foot-tall poles and netting, with a minimum setback of approximately 2 feet, 10 inches;**
  c. **22-foot-tall to 25-foot-tall parking lot lights, with minimum setbacks of approximately 3 feet, 4 inches and 6 feet-6 inches, respectively;**
  d. **A 26-foot-tall score board, with a minimum setback of approximately 6 feet, 8 inches;**
  e. **70-foot-tall stadium lights, with a minimum setback of 8 feet, 4 inches; and**
  f. **8-foot-tall bull pen, with a minimum setback of 10 feet.**

New “Q” Qualified Condition on North Campus:

- **Along the Woodlake Avenue frontage, pool lights shall be set back a minimum of 12 inches from the property line.**

3. RENTAL OR LEASE OF FACILITIES

Revise Existing Condition 5:

5. Use Restrictions.

   a. Rental or lease of the batting cage facilities or athletic fields located on the school campus is not permitted for any purpose**, except as permitted under Condition 5.e**. Rental or lease of other on-site facilities is limited to activities solely to the general educational purpose of the institution. [The term "rental of the facilities" is not dependent upon the payment of a fee].

   b. Parking on-site shall not be utilized for events or uses occurring at off-site locations, unless the off-site event occurs on a weekend, in the summer, and does not coincide with a Special Event at the school.

   c. Filming exclusively for commercial purposes and without active student participation, shall be prohibited on the property. All filming shall be limited between the hours of 8:00 a.m. to 8 p.m., Monday through Friday. The use of artificial light is prohibited.

   d. No incidental gaming activities as defined in Section 12.21-A,13, shall be permitted on the site.

   e. North Campus Only: The rental or lease of the athletic and parking facilities, and associated structures, for non-Chaminade activities are restricted to the following:

   Athletic Fields. Use by community-based organizations shall be limited to 36 days per year, Monday through Saturday, from 8 a.m. to 6 p.m. Use is not permitted on Sundays and national holidays. The rental or lease of the batting cages is not permitted at any time.

   Aquatic Complex/Pool. Use by community-based organizations, which shall travel to and from the North Campus by bus, shall be limited to daylight hours only, and to end no later than 7:00 p.m., Monday through Friday, and no later than 5:00 p.m. on Saturdays, with no use of outdoor lighting other than low-level security lighting. For community member swim activities, use hours shall be limited to

Monday-Saturday, 8:00 a.m. to 6:00 p.m. Use is not permitted on Sundays and national holidays. A lifeguard must be on duty any time the pool is in use.

For purposes of the above conditions, "community-based organization" shall mean any educational or athletic institution, group or league. "Daylight hours" shall mean hours illuminated by the natural light of day, or from dawn to dusk, year-round, but further limited by the times noted herein.

4. HOURS OF OPERATION

Revise Existing Condition 6:

6. Hours of Operation Shall Observe the Following Limitations**, unless otherwise permitted elsewhere in the conditions**.

   a. For daytime classroom instruction: 6:30 a.m. to 6 p.m., Monday through Friday. Evening classes, occurring no more than four times weekly is to conclude by 10:00 p.m. Saturday classroom instruction is limited to the hours of 8:00 a.m. to 6:00 p.m. No classroom instruction is permitted on Sunday.

   b. For gymnasium use: 6:30 a.m. to 10:00 p.m., Monday through Friday; 8:30 a.m. to 10:00 p.m. on Saturday; and 8:30 a.m. to 8:00 p.m. on Sunday. No Saturday game or practice session shall begin prior to 8:30 a.m. No congregating on the school site for the purpose of these activities shall occur prior to 8:30 a.m. on Saturdays and Sundays. An instructor or school staff member shall be present at the subject site at least one half hour prior to the designated start times to monitor student activities/arrivals to assure that noise impacts on the adjacent neighbors are minimized.

   c. For Athletic Field/Stadium use: **Main Campus:** Shall have hours of 7:00 a.m. to 10:00 p.m., Monday through Friday; Saturday use is limited to 8:00 a.m. to 9 p.m., and; 9:00 a.m. to 8:00 p.m. on Sunday. No more than 15 Sundays per year will be allowed. **North Campus: Shall have the same hours as the Main Campus, except the end time shall be 9:00 p.m. (instead of 10:00 p.m.) on Monday through Friday, with an exception for overtime/extra inning play. Both Campuses:** Athletic use is not permitted on national holidays. No congregating on the site for the purpose of these activities shall occur before the permitted hours. An instructor/school staff member shall be present at the subject site at least one-half hour prior to the designated start times to monitor student activities/arrivals to assure that noise impacts on the adjacent neighbors are minimized.

d. For Aquatic Complex/Pool use: Shall have hours of 8:00 a.m. to 8:00 p.m., Monday through Friday. Saturday use is limited to 10 a.m. to 7 p.m. Athletic use is not permitted on Sundays or national holidays.

e. Batting Cage**s**. The batting cage**s** shall be restricted to the sole use of Chaminade students and staff. **Main Campus:** ~~No use of the cages shall occur between 8:00 p.m. and 8:00 a.m., the following day (~~**Shall be limited to 8:00 a.m. to 8:00 p.m.,** Monday through Saturday~~)~~. **North Campus: Shall be limited to 9:00 a.m. to 7:00 p.m., Monday through Saturday. Both Campuses:** No use of the batting cages ~~in~~ **is** permitted on Sundays **and national holidays**.

f. Teacher preparations, normal school maintenance, parent conferences with teachers, school board meetings and similar customary school activities cumulatively limited to 451 vehicles on the property at one time, **consistent with the minimum parking required per the Conditional Use under Case No. CPC-2009-1477-CU-ZV-ZAA-SPR, or limited to 501 vehicles on the property at one time upon full buildout of the Project approved pursuant Case Nos. CPC-2009-1477-CU-ZV-ZAA-SPR-PA1 and CPC-2023-1254-VZC-HD-ZAD-ZAA,** may extend beyond the hours set forth above.

g. Motorized sweeping of the parking lots and driveways and motorized landscape maintenance shall occur only between the hours of 8 a.m. and 6 p.m., Monday through Saturday.

5. SETBACKS ON MAIN CAMPUS

Revise Existing Condition 8:

8. **Setbacks on Main Campus**. With the exception of **existing structures to remain as of date of this approval, including** the **existing** ~~proposed~~ 36-foot tall fence for the baseball**/softball** field, all new structures abutting a single-family residence shall be located at a minimum distance of 35 feet from the property line.

6. MARCHING BAND HOURS

Revise Existing Condition 11:

11. Marching Band practices **held outdoors** shall be limited to **the Main Campus with** the following locations and hours:

a. Evening Practice Sessions. A maximum **of** 1 week~~day~~ night per week in the outdoor stadium, between the hours of ~~6:30 p.m.~~ **6:00 p.m.** and 9:00 p.m., **and 1 weeknight per week, between the hours of 6:00 pm. and 8:00 p.m.,** to be completed with the lights turned out and the stadium vacated no later than **the required end time** ~~9:00 p.m~~. Students leaving the campus ~~after 9:00 p.m.~~ shall be instructed that no playing of instruments shall occur after the end of the session; this shall be strictly enforced by the school administration. The instructor or school staff shall monitor student activities and departures to ensure that noise impacts on adjacent neighbors are minimized.

b. ~~Morning~~ **Daytime** Practice Sessions. In addition to the ~~one~~ **two week**night**s permitted** as per **Condition 11.a.** above, a maximum **of** 3 ~~working~~ **week**days (Monday through Friday) per week**, not to exceed 2 consecutive hours per day,** between the hours of ~~7:50 a.m. and ending by 9:30 a.m~~ **8:00 a.m. and 3:00 p.m. shall be permitted**.

c. Band Camp: An exception is made for no more than two weeks in the summer when ~~a~~ marching band camp is held**, allowed between the hours of 8:00 a.m. and 8:00 p.m., with a maximum of 4 hours per day for the outdoor playing of instruments (the 4 hours of outdoor playing of instruments need not be consecutive)**.

d. In all instances **stated in Conditions 11.b. and 11.c. above**, all students shall refrain from congregating at the practice site prior to 7:30 a.m. and after ~~9:30 a.m. during the school year and between 7:30 a.m. and after noon during the two-week band camp~~ **the required end time**, to minimize noise impacts on adjacent neighbors. An instructor/school staff member shall be present at the subject location by 7:30 a.m. to monitor student activities and arrivals to ensure that noise impacts on adjacent neighbors are minimized. No instruments shall be played (including tuning, or "warming up") prior to the ~~7:50~~ **8:00** a.m. start time.

~~c.~~**e.** Saturday Sessions. A cumulative total of five Saturday marching band "warm up" sessions, immediately prior to participation at athletic competitions, shall be permitted during the school year, with hours expressly limited to starting after 8:45 a.m. and ending before 5:00 p.m.

7. ON-SITE PARKING

Revise Existing Condition 15:

15. Parking.

a. At least 451 permanent, striped parking spaces shall be provided on the site at all times **consistent with the Conditional Use under Case No. CPC-2009-**

1477-CU-ZV-ZAA-SPR. Upon full buildout of the Project approved pursuant Case Nos. CPC-2009-1477-CU-ZV-ZAA-SPR-PA1 and CPC-2023-1254-VZC-HD-ZAD-ZAA, at least 501 permanent, striped parking spaces shall be provided on-site between the Main Campus and North Campus, consistent with Exhibit A. ~~In conjunction with the construction of the aquatic complex, 24 new parking spaces will be constructed as shown on the plans (Exhibit B).~~

b. The school shall inform parents, students, faculty and staff in writing on an annual basis of all rules regulating school traffic and parking. A copy shall be mailed to the City Planning Department at the same time. The school shall maintain a progressive disciplinary system of enforcement of the involved student(s) from school. The school administration shall maintain a list of license plate numbers of all staff and students permitted to park on campus and shall issue a parking tag to all families to be used when parents visit the school site.

c. Except during special events, all faculty, administrators, other employees and visitors shall be instructed by persons acting on behalf of the school to park on-site at designated locations.

d. Special Event Parking

   (1) If a special event at the property is expected to attract more than 451 vehicles, **or more than 501 vehicles after full buildout of the Project approved pursuant to Case Nos. CPC-2009-1477-CU-ZV-ZAA-SPR-PA1 and CPC-2023-1254-VZC-HD-ZAD-ZAA,** then off-site parking for vehicles in excess of the 451st vehicle **(or in excess of the 501st vehicle after full Project buildout)** shall be provided at the West Hills Hospital (located at 7300 Medical Center Drive) and/or other locations which the school may secure, to the satisfaction of the City Planning Department. Those persons attending the event shall be instructed to park in such off-site parking locations (unless playing field parking is allowed on the campus). Note: In the event that the school secures another off-site parking facility in lieu of the existing site, the applicant must notify the City Planning Department, the West Hills Neighborhood Council, the Council Office, and residents within a 500-foot radius, in writing at least 90 days in advance.

   (2) A free shuttle bus system shall be used between the off-site parking area(s) and the subject property. Shuttle vehicles shall be of a number and carrying capacity to facilitate the transport of persons to and from the property expeditiously. The use of temporary signage will be used to inform parents, students and visitors to park within the designated off-site area(s) and to use the shuttle system. Note: Text-only temporary signs are permitted for use during the day of the special event, and will be posted and removed at least one half hour prior to the event and removed one half hour after the conclusion of the event.

e. Construction Parking. In the event that construction staging takes place within the parking areas, and if at least 20 spaces are encumbered for construction

purposes, Chaminade shall provide an equal number of temporary off-site parking spaces at a secondary site. Off-site parking will not be permitted along adjacent streets. If the secondary site is not immediately adjacent to the campus, a shuttle shall be provided to transport students, staff, and visitors to and from the school.

f. For all games, competitions and swim meets on the North Campus:

(1) All Chaminade students, faculty and staff shall be directed to park on the Main Campus.

(2) In advance of each game day, written notice shall be provided to all visiting teams to indicate that vehicles must park on campus (either on the North Campus or across the street on the Main Campus), and that street parking on Keswick Street and other residential streets is not permitted.

(3) A permanent sign shall be placed or posted at each driveway entry along Saticoy Street and Woodlake Avenue serving the North Campus, directing attendees to park on the North Campus or across the street on the Main Campus, and indicating that parking is not permitted on Keswick Street, Saticoy Street, Woodlake Avenue or other streets.

8. UPDATED TRAFFIC MANAGEMENT PLAN

Revise Existing Condition 16:

16. Traffic Management Program. The school shall implement ~~a~~ **the updated** Traffic Management Program**, dated May 4, 2023,** to encourage carpooling amongst parents and students, bicycling, **the use of school buses,** and the use of public transit to reduce vehicular trips to school**, and to improve the efficiency of the drop-off and pick-up operations and help minimize any disruptions to non-school traffic flow in the vicinity of the school**. A copy of ~~which~~ **the updated Traffic Management Program** shall be provided to the Department of City Planning and the Council Office prior to the issuance of a **new** certificate of occupancy. A copy shall also be ~~posted~~ **available** on-site **in the Facilities Office**, **posted** online, sent by email, or regular mail to staff, students, and parents. Components of such efforts shall include:

a. Appointing adult traffic monitors for the program, distribution of literature explaining the program, and maintaining a system to encourage and enable parents to form and participate in carpools.

b. For each day that school is in session and for special events, parking monitors shall be required to be posted at each vehicular access driveway in order to direct traffic and minimize queuing of school visitor, student, and

staff vehicles on adjacent residential streets, from blocking **the** public right-of-ways, private driveways, or otherwise adversely affecting traffic circulation for residents. Likewise, they will discourage excessive noise from car horns, car radios, car alarms and loud voices, and to maintain smooth ingress to and egress from the parking areas.

c. Traffic monitors shall be at the school for: (1) 30 minutes prior to the start of school through such time at which the gates are to be closed or have a security guard stationed at the gates; (2) One-half hour prior to the end of school through such time at which the primary gates are to be closed or guarded, and; (3) One hour prior to the beginning of special events through such time at which the primary gates to the campus are to be closed or guarded.

d. Once parking has reached capacity, traffic monitors shall direct traffic away from residential streets, and utilize cones and temporary signage wherever necessary, to re-direct traffic, discourage spillover traffic and parking on adjacent residential streets, and to direct drivers to the secondary parking area (West Hills Hospital), where the free shuttle will transport visitors back to the school. Note: In the event that the school secures another off-site parking facility in lieu of the existing site, the applicant must notify the City Planning Department, the West Hills Neighborhood Council, the Council Office, and residents within a 500-foot radius, in writing at least 90 days in advance.

e. Provide a safe and secure area for bicycle parking.

f. There shall be no school drop-off or pick-up on the North Campus.

9. SAFETY AND SECURITY MONITORING

Existing Conditions to remain (for reference only):

21. A minimum of four state-licensed security guards shall provide security on football game nights with at least two officers assigned to patrol the adjacent residential neighborhoods with an emphasis on those residential streets nearest to the school. The officers shall be present one hour before game time and shall patrol the defined area until the campus is cleared of game participants and spectators and the campus gates are closed.

22. A security plan shall be developed in consultation with the Police Department, outlining security features of each new structure to prior to the issuance of a certificate of occupancy for each new structure. In addition, the property owner shall provide to the Topanga Commanding Officer a diagram of the site indicating access routes and any additional information that might facilitate

police response. The applicant shall submit evidence of compliance to the City Planning Department.

23. The property shall be internally secured when not in use.

New Condition on North Campus:

- **Security on North Campus.**

  a. All driveway gates shall be closed 15 minutes after the morning bell rings and opened 15 minutes before the dismissal bell rings.

  b. A security guard or school employee shall be posted at or near the Saticoy Street driveways to monitor student arrival and departure during regular school days when the North Campus gate(s) are open, to ensure use of the pedestrian bridge and control street-level crossing.

  c. There shall be a 24/7 security camera monitoring and burglar alarm system.

10. LIGHTS

Revised Existing Conditions 24 and 25 to apply to both campuses:

24. All lighting shall be directed onto the site. Floodlighting shall be designed and installed to preclude glare to adjoining and adjacent properties. Outdoor lighting shall be designed and installed with shielding such that the light source ~~cannot be seen~~ **is directed on-site, away** from adjacent properties.

25. **Main Campus:** The athletic field lights shall be turned off no later than 11:00 p.m. on contest nights, and no later than 9:00 p.m. on practice nights. **North Campus: The athletic facility lights shall be turned off no later than 9:00 p.m. on practice and contest nights, with an exception for overtime/extra inning play. Both Campuses:** On nights when the field is not in use, only low-level security lighting shall be ~~allowed~~ **permitted**.

11. NOISE

Existing Condition 26 – To remain as written and apply to both campuses, with proposed new Conditions 26.g. and 26.h for North Campus:

26. Noise Mitigation.

a. An outdoor public address system shall be utilized for emergency purposes, special announcements, and sporting events only. The use of the outdoor public address system shall not be used after 6:00 p.m., unless to notify students, staff, and visitors of emergency purposes, or during sporting events occurring after 6:00 p.m.

b. The existing solid masonry walls at the adjoining property lines, where the school abuts a residence, shall be maintained at the site.

c. Except where designated elsewhere in this determination (special events, marching band practice, etc.), amplified music or loud non-amplified music is not permitted outside.

d. The gymnasium shall contain no operable windows. No doors shall be oriented to the adjacent residences, unless where required by law.

e. Compressors and other equipment which may introduce noise impacts beyond any property line shall be enclosed or otherwise attenuated so as to be inaudible off-site.

f. No exterior bells are permitted outside the hours of daytime classroom instruction detailed under Condition No. 6(a). No exterior bells are permitted on Saturdays or Sundays.

g. Noise levels including, but not limited to, activities such as the use of outdoor public address system or speakers and announcements during sporting events, use of batting cages, and other activities will be subject to the local noise ordinance. All amplified noise must comply with LAMC Section 112.01, referenced below.

SEC. 112.01. RADIOS, TELEVISION SETS, AND SIMILAR DEVICES. (Amended by Ord. No. 156,363, Eff. 3/29/82.)

(a) It shall be unlawful for any person within any zone of the City to use or operate any radio, musical instrument, phonograph, television receiver, or other machine or device for the producing, reproducing or amplification of the human voice, music, or any other sound, in such a manner, as to disturb the peace, quiet, and comfort of neighbor occupants or any reasonable person residing or working in the area.

(b) Any noise level caused by such use or operation which is audible to the human ear at a distance in excess of 150 feet from the property line of the noise source, within any residential zone of the City or within 500 feet thereof, shall be a violation of the provisions of this section.

(c) Any noise level caused by such use or operation which exceeds the ambient noise level on the premises of any other occupied property, or if a condominium, apartment house, duplex, or attached business, within any adjoining unit, by more than five (5) decibels shall be a violation of the provisions of this section.

h. Batting cages on the North Campus shall incorporate noise baffling measures.

New Mitigation Measure for North Campus:

- **Amplified sound systems for the Project's baseball field/bleachers and outdoor aquatics facility/bleachers shall be acoustically engineered with the following design and performance standards:**
  - **Amplified sound levels, as measured at the northern property line of the North Campus, shall not exceed 50 dBA.**
  - **Amplified sound systems shall not be operated outside the operational hours established for the North Campus facilities.**
  - **Speakers shall be directional and oriented away from the northern property line of the North Campus.**
  - **Non-Chaminade users of the facilities shall not be permitted to utilize amplified sound systems.**

12. COMPLAINT LOG

Existing Condition 27 – To remain as written:

27. Complaint Log. The school shall maintain a complaint log associated with any concerns, written or verbal, expressed to the school by area residents, staff, students, or visitors regarding the operation of the school. The complaint log shall be made available to the Director of Planning in conjunction with the review of conditions set forth under Condition No. 28. The school administration shall make the complaint log available for review by any member of the public.

13. CONSTRUCTION ACTIVITIES

Existing Condition 35 to remain and apply to both campuses:

35. Posting of Construction Activities. The adjacent residents shall be given regular notification of major construction activities and their duration. A visible and readable sign (at a distance of 50 feet) shall be posted on the construction site identifying a telephone number for inquiring about the construction process and to register complaints.

IMPORTANT NOTE: *It should be noted that LA City Planning may adjust the above proposed language, as deemed necessary for consistency with department policies and procedures for condition language. In addition, it is expected that LA City Planning will further modify the language in other existing conditions of approval, and impose additional conditions of approval, for consistency with the current campus plan, the changes for the proposed campus plan, and the pending City Planning application.*

West Hills Neighborhood Council

"It's our neighborhood. Let's build a community."

April 19, 2024

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Mr. Robert Webb, President
Chaminade College Preparatory
7500 Chaminade Avenue
West Hills, CA 91304

Re: Expansion/Development for New Campus -Corner of Woodland & Saticoy Street
Updating Facilities at Current High School Campus – 7500 Chaminade Avenue
CASE NO. CPC-2023-1254-VZC-HD-ZAD-ZAA

Dear Mr. Webb:

Recently the West Hills Neighborhood Council (WHNC) Zoning & Planning Sub-Committee had two additional sessions with stakeholders to further discuss the proposed Chaminade expansion/development. Please see the following issues that the we feel will help preserve the unique character of our community.

- Request to ADD that residents and WHNC will be informed immediately of all environmental hazards and potential health exposures currently known or exposed throughout the project's development and lifespan.

Zone Change

- Request Covenant Agreement with Chaminade with no variances be incorporated as a requirement in the same filings with the L.A. City Planning Department.

Noise & Setbacks

- Request to ADD objections to all noise levels will be resolved to neighbors' satisfaction.
- Request to ADD increase the number of trees and planting along walls/fences to reduce noise.
- Request to ADD clarification of barrier fencing and wall materials to reduce noise.
- Request to ADD installation of soundproofing walls to reduce noise heard by residents on northern property line separating North Campus from homes; walls to provide STC ratings of 45-55 when surface is sealed.
- Request to ADD to setbacks list, the minimum setback for pool lights.
- Request to ADD all lights when not in use are low level and DarkSky compliant.

- Request to RECEIVE report on noise baffling measures for batting cages from Chaminade's noise consultant with changes as necessary for further noise reduction.
- Request to ADD sound-absorbing materials to pool building to reduce noise emanating from inside of building to outside environment.
- Request to ADD that noise levels will not exceed local ordinances and laws.
- Request to ADD definition of low decibel levels for outdoor public address system during special announcements and sporting events.
- Request to ADD definition of where and when designated amplified music is permitted.
- Request to ADD information if sound system is planned for Aquatic Center
- Request MOVING scoreboard to reduce invasive visual image experienced by residents. Chaminade to inform WHNC after discussions with sign company.

Rental or Lease of Facilities/Use Restrictions

- Request to ADD definition of North Campus users (all inclusive) including community members, other Chaminade schools, organizations, etc.
- Request to ADD maximum use of three (3) days per month for the pool.
- Request to ADD schedule of monthly pool swim use, with set hours, and number of days during the week and weekends.
- Request to ADD definition of daylight hours for the pool taking into account seasonal adjustments.
- Request to ADD a limit use of three (3) days per year for the Athletic Fields by community-based members and associated athletic organizations.

Hours of Operation

- Request TO CHANGE hours for Aquatic Complex/Pool use: to: "8:00am to 7:00pm…"
- Request to RECEIVE proposed pool use schedule with set hours and number of days by month from Chaminade.
- Request to RECEIVE schedule defining when ball games will be played, i.e, number of games played during week, weekends and approximate duration of games per month.

Complaints

- Request to ADD Chaminade will respond to noise /parking complaints within 48 hours from residents generated from the Athletic/Pool facilities, and during construction, i.e., trucks and equipment transporting dust, dirt, building materials, debris, any and all activities that negatively impact homes or prohibit or impede access to neighborhood streets.
- Request to ADD that residents' complaints will be logged along with complaint resolutions daily.
- Request to ADD logged complaints and complaint resolutions emailed to Charlene Rothstein, President, WHNC, weekly on Mondays.
- Request to ADD on Chaminade's website visible information including contact information for assigned Chaminade staff member handling complaints, how to file complaints by phone calls, by email or by using a dedicated online fillable complaint submission form.

Construction

- Request to ADD residents will receive information for the Main Campus, bridge (streets closures, e.g. Saticoy) and North Campus by postal mail as well as be available on Chaminade website the dates of project throughout the development stages from beginning to completion, along with construction routes and notices containing days/ hours of construction (weekdays and weekends).

Parking

- Request to ADD information on how violations for parking infractions will be handled, and preventative measures taken, i.e., Chaminade hires patrolling streets, notes/flyers on cars, sawhorses blocking entrances to residential streets, etc.

Traffic Management Plan

- Request to ADD further discussions and resolutions that the Board of WHNC and the Streets & Transportation Committee partner with Chaminade and CD12 to propose a solution on the dangerous intersection and traffic delays at Woodlake and Saticoy regarding stop signs and installation of traffic lights and sidewalks.

Safety and Security Monitoring

- Request to ADD verification and inform WHNC of compliance with the Topanga Community Police Station and L.A. City Planning during development of security plan.
- Request to ADD arrival and departure times for security guards on North Campus.

We look forward to continuing discussions at the next meeting at the Council District 12 office. If you have any questions, please do not hesitate to contact us.

Respectfully Submitted,

Bill Rose

Bill Rose, Co-Chair
Zoning & Planning Committee

Charlene Rothstein

Charlene Rothstein, Co-Chair
Zoning & Planning Committee

cc: Councilmember John Lee, Council District 12
Hannah Lee, Chief of Staff, Council District 12
Dan Rosales, Planning Director, Council District 12
Janet Koller, Chaminade College Preparatory, VP Finance & Operations
Chris Landon, Chaminade College Preparatory, Director of Facilities
Brad M. Rosenheim, Esq, President, CEO, Rosenheim & Associates Inc.
Jessica Pakdaman, Project Manager, Rosenheim & Associates Inc.
Trevor Martin, L.A. City Planning
Claudia Rodriguez, City Planner
Vicente Cordero, LADOT

West Hills Neighborhood (WHNC) Council Zoning & Planning
August 22, 2024
Additional Proposed Conditions
Chaminade Expansion Proposal
Case #CPC-2009-1477-CU-ZV-ZAA-SPR-PA1, Cpc-2023-1254-VZC-HD-ZAD-ZAA

Landscaping on the North Campus:

1) To include trees as close to the northern property line as possible and to fully screen and infill where needed to provide coverage for the abutting residential homes.
2) To include trees along the most easterly side of the site along Woodlake Avenue, to provide screening to the residential homes on Woodlake as well as use of the pool.
3) To contact the homeowners of the northern abutting properties regarding an offer from Chaminade to provide trees on their properties for the purpose of screening.

Traffic Management Program:

1) Subsequent to review of the Traffic Study, the WHNC requested a Traffic Management Program to be submitted with the expansion proposal.
2) We request the traffic program includes a plan with the following; diagrams with drop-offs and pick-ups for vehicles and buses, locations and times for the pick-ups, drop-offs and which gates will be open and used at what times of the day and which gates will be used for students that drive.

Noise and Facility Use Issues:

1) The WHNC requests that during construction and following the opening of the sports facility, Chaminade hold public meetings with the WHNC Zoning committee every six (6) months or as issues arise from the community.
2) The Zoning Administrator/Decision Maker shall reserve the right to impose additional corrective Conditions if proven necessary for the protection of persons in the neighborhood or occupants of the adjacent properties.

Trevor Martin <trevor.martin@lacity.org>

Fw: Re: WHNC recommendation sand input

2 messages

Anthony Scearce (WHNC) <anthony.scearce@westhillsnc.org> Thu, Jun 8, 2023 at 5:03 PM
Reply-To: "Anthony Scearce (WHNC)" <anthony.scearce@westhillsnc.org>
To: trevor.martin@lacity.org

Trevor,

See email below.

Best Regards,

Anthony C. Scearce Co-Chair
Streets & Transportation Committee
West Hills Neighborhood Council
818-357-4946
P.O. Box 4670
West Hills, California 91308-4670
anthony.scearce@westhillsnc.org

------ Forwarded Message ------
From: "Char Rothstein" <charwhnc@gmail.com>
To: "Anthony Scearce (WHNC)" <anthony.scearce@westhillsnc.org>
Sent: 6/8/2023 4:47:03 PM
Subject: Re: WHNC recommendations and input

Hi Tony,

Please send your email with the request for an extension to trevor.martin@lacity.org and I'll contact cd12.

Thanks,
Char

On Thu, Jun 8, 2023 at 4:18 PM Anthony Scearce (WHNC) <anthony.scearce@westhillsnc.org> wrote:

> To All,
>
> As WHNC Streets & Transportation Committee Chair I request, LADOT attend our Streets & Transportation Committee meeting on June 20th. Where we will review the Transportation Assessment regarding the Chaminade expansion. The dates and conditions (see below) provided to me, will not allow stakeholder input on traffic and parking to be transmitted to the City within the time constraints the WHNC is required to submit a response.
>
> 1. I have been informed that Streets can have a meeting at de Toledo on the 20th at 7:00pm. (But no attendance by LADOT or Chaminade)
> 2. I've also been informed that ALL WHNC committee meetings are cleared to be held at Chaminade starting July 1st. (strictly adhering to our regular meeting schedule)
> 3. I've been contacted by Chaminade (Rosenheim & Associates, Inc) informing me that LADOT and Chaminade can not attend a WHNC Streets & Transportation Committee meeting until August 7th or later.
>
> WHNC has 90 days from 5/25/23 to respond to the City. (per document VTT-84101.pdf) If no response is made within that time it could be deemed approved by the WHNC. The WHNC committee meetings at Chaminade will be strictly held to our normal schedule. Zoning is held on the 2nd Tuesday of the month Streets on the 3rd Tuesday. Full Board held on the 1st Thursday. This would create the following, Streets would meet on 3rd Tuesday 8/15, WHNC Zoning Committee would not be able to review WHNC Streets Committee recommendations until the 2nd Tuesday in September (9/12) and the WHNC Board will not be able to take a vote to send a response to the City until the 1st

Thursday in October (10/5). Our 90 days to respond expires on 8/25/23. Any Zoning approval/denial and any recommendations are required to be passed by a full board vote before they can be submitted to the City.

The aforementioned conditions and time line, will not allow WHNC Streets & Transportation Committee (stakeholder) or Zoning input before 8/25/23. This is just not acceptable to me and seems to defeat the purpose of the Neighborhood Council providing a conduit from our stakeholders to City government.

If LADOT can not attend the WHNC Streets & Transportation Committee meeting on June 20th. It is my opinion that an extension of 60 days to the required response time for the WHNC be granted OFFICIALLY.

Best Regards,

Anthony C. Scearce Co-Chair
Streets & Transportation Committee
West Hills Neighborhood Council
818-357-4946
P.O. Box 4670
West Hills, California 91308-4670
anthony.scearce@westhillsnc.org

Trevor Martin <trevor.martin@lacity.org> Thu, Jun 8, 2023 at 5:08 PM
To: "Anthony Scearce (WHNC)" <anthony.scearce@westhillsnc.org>

Hi Anthony,

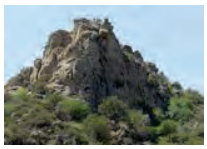
Received, thank you.

- Trevor

LOS ANGELES CITY PLANNING

Trevor Martin
Pronouns: He, His, Him
City Planning Associate
Los Angeles City Planning
200 N. Spring St., Room 763
Los Angeles, CA 90012
T: (213) 978-1341 | Planning4LA.org
E-NEWS

[Quoted text hidden]



West Hills Neighborhood Council

"It's our neighborhood. Let's build a community."

April 19, 2024

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Mr. Robert Webb, President
Chaminade College Preparatory
7500 Chaminade Avenue
West Hills, CA 91304

Re: Expansion/Development for New Campus -Corner of Woodland & Saticoy Street
Updating Facilities at Current High School Campus – 7500 Chaminade Avenue
CASE NO. CPC-2023-1254-VZC-HD-ZAD-ZAA

Dear Mr. Webb:

Recently the West Hills Neighborhood Council (WHNC) Zoning & Planning Sub-Committee had two additional sessions with stakeholders to further discuss the proposed Chaminade expansion/development. Please see the following issues that the we feel will help preserve the unique character of our community.

- Request to ADD that residents and WHNC will be informed immediately of all environmental hazards and potential health exposures currently known or exposed throughout the project's development and lifespan.

Zone Change

- Request Covenant Agreement with Chaminade with no variances be incorporated as a requirement in the same filings with the L.A. City Planning Department.

Noise & Setbacks

- Request to ADD objections to all noise levels will be resolved to neighbors' satisfaction.
- Request to ADD increase the number of trees and planting along walls/fences to reduce noise.
- Request to ADD clarification of barrier fencing and wall materials to reduce noise.
- Request to ADD installation of soundproofing walls to reduce noise heard by residents on northern property line separating North Campus from homes; walls to provide STC ratings of 45-55 when surface is sealed.
- Request to ADD to setbacks list, the minimum setback for pool lights.
- Request to ADD all lights when not in use are low level and DarkSky compliant.

- Request to RECEIVE report on noise baffling measures for batting cages from Chaminade's noise consultant with changes as necessary for further noise reduction.
- Request to ADD sound-absorbing materials to pool building to reduce noise emanating from inside of building to outside environment.
- Request to ADD that noise levels will not exceed local ordinances and laws.
- Request to ADD definition of low decibel levels for outdoor public address system during special announcements and sporting events.
- Request to ADD definition of where and when designated amplified music is permitted.
- Request to ADD information if sound system is planned for Aquatic Center
- Request MOVING scoreboard to reduce invasive visual image experienced by residents. Chaminade to inform WHNC after discussions with sign company.

Rental or Lease of Facilities/Use Restrictions

- Request to ADD definition of North Campus users (all inclusive) including community members, other Chaminade schools, organizations, etc.
- Request to ADD maximum use of three (3) days per month for the pool.
- Request to ADD schedule of monthly pool swim use, with set hours, and number of days during the week and weekends.
- Request to ADD definition of daylight hours for the pool taking into account seasonal adjustments.
- Request to ADD a limit use of three (3) days per year for the Athletic Fields by community-based members and associated athletic organizations.

Hours of Operation

- Request TO CHANGE hours for Aquatic Complex/Pool use: to: "8:00am to 7:00pm…"
- Request to RECEIVE proposed pool use schedule with set hours and number of days by month from Chaminade.
- Request to RECEIVE schedule defining when ball games will be played, i.e, number of games played during week, weekends and approximate duration of games per month.

Complaints

- Request to ADD Chaminade will respond to noise /parking complaints within 48 hours from residents generated from the Athletic/Pool facilities, and during construction, i.e., trucks and equipment transporting dust, dirt, building materials, debris, any and all activities that negatively impact homes or prohibit or impede access to neighborhood streets.
- Request to ADD that residents' complaints will be logged along with complaint resolutions daily.
- Request to ADD logged complaints and complaint resolutions emailed to Charlene Rothstein, President, WHNC, weekly on Mondays.
- Request to ADD on Chaminade's website visible information including contact information for assigned Chaminade staff member handling complaints, how to file complaints by phone calls, by email or by using a dedicated online fillable complaint submission form.

Construction

- Request to ADD residents will receive information for the Main Campus, bridge (streets closures, e.g. Saticoy) and North Campus by postal mail as well as be available on Chaminade website the dates of project throughout the development stages from beginning to completion, along with construction routes and notices containing days/ hours of construction (weekdays and weekends).

Parking

- Request to ADD information on how violations for parking infractions will be handled, and preventative measures taken, i.e., Chaminade hires patrolling streets, notes/flyers on cars, sawhorses blocking entrances to residential streets, etc.

Traffic Management Plan

- Request to ADD further discussions and resolutions that the Board of WHNC and the Streets & Transportation Committee partner with Chaminade and CD12 to propose a solution on the dangerous intersection and traffic delays at Woodlake and Saticoy regarding stop signs and installation of traffic lights and sidewalks.

Safety and Security Monitoring

- Request to ADD verification and inform WHNC of compliance with the Topanga Community Police Station and L.A. City Planning during development of security plan.
- Request to ADD arrival and departure times for security guards on North Campus.

We look forward to continuing discussions at the next meeting at the Council District 12 office. If you have any questions, please do not hesitate to contact us.

Respectfully Submitted,

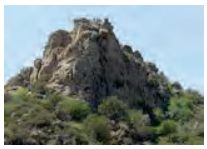
Bill Rose

Bill Rose, Co-Chair
Zoning & Planning Committee

Charlene Rothstein

Charlene Rothstein, Co-Chair
Zoning & Planning Committee

cc: Councilmember John Lee, Council District 12
Hannah Lee, Chief of Staff, Council District 12
Dan Rosales, Planning Director, Council District 12
Janet Koller, Chaminade College Preparatory, VP Finance & Operations
Chris Landon, Chaminade College Preparatory, Director of Facilities
Brad M. Rosenheim, Esq, President, CEO, Rosenheim & Associates Inc.
Jessica Pakdaman, Project Manager, Rosenheim & Associates Inc.
Trevor Martin, L.A. City Planning
Claudia Rodriguez, City Planner
Vicente Cordero, LADOT



West Hills Neighborhood Council

"It's our neighborhood. Let's build a community."

August 27, 2024

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Michelle Ritchie

Mr. Trevor Martin, City Planner
Los Angeles City Planning
Expedited Processing Section
200 N. Spring Street, Room 763
Los Angeles, California 90012

Via Email Only
trevor.martin@lacity.org

Re: Case #: CPC-2009-1477-CU-ZV-ZAA-ZAA-SPR-PA1, CPC-2023-1254-VZCC-HD-ZAD-ZAA
Chaminade Avenue, West Hills, California 91304
Main Campus and North Campus

Hearing Date: August 28, 2024

Dear Mr. Martin:

As you know, the West Hills Neighborhood Council ("WHNC") has been in discussions with Chaminade and their associates over the past year regarding the expansion of Chaminade High School. The negotiations included numerous meetings with the WHNC Zoning & Planning Committee, a Zoning sub-committee, Council District 12, community members and Chaminade.

After extensive examination of the proposal and careful study of best practices to ensure due regard for the character of the surrounding community and quality of life for the adjoining residents, the WHNC voted at a Special Zoning & Planning meeting held on Thursday, August 22, 2024, to support the proposal with conditions. Please find the WHNC approved conditions dated August 14, 2024 and August 22, 2024 with this letter.

Because the subject site is situated in a residential area and also directly abuts some of the homes, there have been concerns from residents concerning future problems that may occur. For this reason, the establishment of the conditions is significant, those from the WHNC and from LA City Planning.

Should you have any questions, please do not hesitate to contact us.

Respectfully submitted,

Bill Rose

Bill Rose, Co-Chair
West Hills Neighborhood Council
Zoning & Planning Committee

Charlene Rothstein

Charlene Rothstein, Co-Chair
West Hills Neighborhood Council
Zoning & Planning Committee

August 14, 2024

Chaminade College Preparatory, High School Campus
Proposed Modified and New Conditions in Response to WHNC Comments
Case Nos. CPC-2009-1477-CU-ZV-ZAA-SPR-PA1, CPC-2023-1254-VZC-HD-ZAD-ZAA

Note: ~~Strikethrough text~~ is proposed to be deleted and **bolded underlined text** is proposed to be added.

1. ZONE CHANGE ON NORTH CAMPUS

New "Q" Qualified Condition on North Campus:

- **Use. Uses shall be limited to school uses for Grade K-12 and uses accessory to or associated with the school, such as athletic and parking facilities as shown on and in substantial conformance with the plans ("Exhibit A") and the Conditions of Approval associated with this Case. No residential or hotel uses are permitted.**

New "D" Development Limitation on North Campus:

- **Height of Buildings and Structures. No building, fence or structure shall exceed 45 feet in height, except for the athletic field and pool facility lights which shall not exceed 90 feet in height, in substantial conformance with the plans ("Exhibit A").**

2. SETBACKS ON NORTH CAMPUS

New "Q" Qualified Condition on North Campus:

- **Setbacks on North Campus. No new buildings or structures may be located within 15 feet of the northern property line, except for the following as shown on the plans ("Exhibit A"):**

  a. **10-foot-tall perimeter fence, with a minimum setback of approximately 1-foot, 4 inches;**
  b. **40-foot-tall poles and netting, with a minimum setback of approximately 2 feet, 10 inches;**
  c. **22-foot-tall to 25-foot-tall parking lot lights, with minimum setbacks of approximately 3 feet, 4 inches and 6 feet-6 inches, respectively;**
  d. **A 26-foot-tall score board, with a minimum setback of approximately 6 feet, 8 inches;**
  e. **70-foot-tall stadium lights, with a minimum setback of 8 feet, 4 inches; and**
  f. **8-foot-tall bull pen, with a minimum setback of 10 feet.**

New “Q” Qualified Condition on North Campus:

- **Along the Woodlake Avenue frontage, pool lights shall be set back a minimum of 12 inches from the property line.**

3. RENTAL OR LEASE OF FACILITIES

Revise Existing Condition 5:

5. Use Restrictions.

   a. Rental or lease of the batting cage facilities or athletic fields located on the school campus is not permitted for any purpose**, except as permitted under Condition 5.e**. Rental or lease of other on-site facilities is limited to activities solely to the general educational purpose of the institution. [The term "rental of the facilities" is not dependent upon the payment of a fee].

   b. Parking on-site shall not be utilized for events or uses occurring at off-site locations, unless the off-site event occurs on a weekend, in the summer, and does not coincide with a Special Event at the school.

   c. Filming exclusively for commercial purposes and without active student participation, shall be prohibited on the property. All filming shall be limited between the hours of 8:00 a.m. to 8 p.m., Monday through Friday. The use of artificial light is prohibited.

   d. No incidental gaming activities as defined in Section 12.21-A,13, shall be permitted on the site.

   e. North Campus Only: The rental or lease of the athletic and parking facilities, and associated structures, for non-Chaminade activities are restricted to the following:

   Athletic Fields. Use by community-based organizations shall be limited to 36 days per year, Monday through Saturday, from 8 a.m. to 6 p.m. Use is not permitted on Sundays and national holidays. The rental or lease of the batting cages is not permitted at any time.

   Aquatic Complex/Pool. Use by community-based organizations, which shall travel to and from the North Campus by bus, shall be limited to daylight hours only, and to end no later than 7:00 p.m., Monday through Friday, and no later than 5:00 p.m. on Saturdays, with no use of outdoor lighting other than low-level security lighting. For community member swim activities, use hours shall be limited to

Monday-Saturday, 8:00 a.m. to 6:00 p.m. Use is not permitted on Sundays and national holidays. A lifeguard must be on duty any time the pool is in use.

For purposes of the above conditions, "community-based organization" shall mean any educational or athletic institution, group or league. "Daylight hours" shall mean hours illuminated by the natural light of day, or from dawn to dusk, year-round, but further limited by the times noted herein.

4. HOURS OF OPERATION

Revise Existing Condition 6:

6. Hours of Operation Shall Observe the Following Limitations**, unless otherwise permitted elsewhere in the conditions**.

   a. For daytime classroom instruction: 6:30 a.m. to 6 p.m., Monday through Friday. Evening classes, occurring no more than four times weekly is to conclude by 10:00 p.m. Saturday classroom instruction is limited to the hours of 8:00 a.m. to 6:00 p.m. No classroom instruction is permitted on Sunday.

   b. For gymnasium use: 6:30 a.m. to 10:00 p.m., Monday through Friday; 8:30 a.m. to 10:00 p.m. on Saturday; and 8:30 a.m. to 8:00 p.m. on Sunday. No Saturday game or practice session shall begin prior to 8:30 a.m. No congregating on the school site for the purpose of these activities shall occur prior to 8:30 a.m. on Saturdays and Sundays. An instructor or school staff member shall be present at the subject site at least one half hour prior to the designated start times to monitor student activities/arrivals to assure that noise impacts on the adjacent neighbors are minimized.

   c. For Athletic Field/Stadium use: **Main Campus:** Shall have hours of 7:00 a.m. to 10:00 p.m., Monday through Friday; Saturday use is limited to 8:00 a.m. to 9 p.m., and; 9:00 a.m. to 8:00 p.m. on Sunday. No more than 15 Sundays per year will be allowed. **North Campus: Shall have the same hours as the Main Campus, except the end time shall be 9:00 p.m. (instead of 10:00 p.m.) on Monday through Friday, with an exception for overtime/extra inning play. Both Campuses:** Athletic use is not permitted on national holidays. No congregating on the site for the purpose of these activities shall occur before the permitted hours. An instructor/school staff member shall be present at the subject site at least one-half hour prior to the designated start times to monitor student activities/arrivals to assure that noise impacts on the adjacent neighbors are minimized.

d. For Aquatic Complex/Pool use: Shall have hours of 8:00 a.m. to 8:00 p.m., Monday through Friday. Saturday use is limited to 10 a.m. to 7 p.m. Athletic use is not permitted on Sundays or national holidays.

e. Batting Cage**s**. The batting cage**s** shall be restricted to the sole use of Chaminade students and staff. **Main Campus:** ~~No use of the cages shall occur between 8:00 p.m. and 8:00 a.m., the following day (~~**Shall be limited to 8:00 a.m. to 8:00 p.m.,** Monday through Saturday~~)~~. **North Campus: Shall be limited to 9:00 a.m. to 7:00 p.m., Monday through Saturday. Both Campuses:** No use of the batting cages ~~in~~ **is** permitted on Sundays **and national holidays**.

f. Teacher preparations, normal school maintenance, parent conferences with teachers, school board meetings and similar customary school activities cumulatively limited to 451 vehicles on the property at one time, **consistent with the minimum parking required per the Conditional Use under Case No. CPC-2009-1477-CU-ZV-ZAA-SPR, or limited to 501 vehicles on the property at one time upon full buildout of the Project approved pursuant Case Nos. CPC-2009-1477-CU-ZV-ZAA-SPR-PA1 and CPC-2023-1254-VZC-HD-ZAD-ZAA,** may extend beyond the hours set forth above.

g. Motorized sweeping of the parking lots and driveways and motorized landscape maintenance shall occur only between the hours of 8 a.m. and 6 p.m., Monday through Saturday.

5. SETBACKS ON MAIN CAMPUS

Revise Existing Condition 8:

8. **Setbacks on Main Campus**. With the exception of **existing structures to remain as of date of this approval, including** the **existing** ~~proposed~~ 36-foot tall fence for the baseball**/softball** field, all new structures abutting a single-family residence shall be located at a minimum distance of 35 feet from the property line.

6. MARCHING BAND HOURS

Revise Existing Condition 11:

11. Marching Band practices **held outdoors** shall be limited to **the Main Campus with** the following locations and hours:

a. Evening Practice Sessions. A maximum **of** 1 week~~day~~ night per week in the outdoor stadium, between the hours of ~~6:30 p.m.~~ **6:00 p.m.** and 9:00 p.m., **and 1 weeknight per week, between the hours of 6:00 pm. and 8:00 p.m.,** to be completed with the lights turned out and the stadium vacated no later than **the required end time** ~~9:00 p.m~~. Students leaving the campus ~~after 9:00 p.m.~~ shall be instructed that no playing of instruments shall occur after the end of the session; this shall be strictly enforced by the school administration. The instructor or school staff shall monitor student activities and departures to ensure that noise impacts on adjacent neighbors are minimized.

b. ~~Morning~~ **Daytime** Practice Sessions. In addition to the ~~one~~ **two week**night**s permitted** as per **Condition 11.a.** above, a maximum **of** 3 ~~working~~ **week**days (Monday through Friday) per week**, not to exceed 2 consecutive hours per day,** between the hours of ~~7:50 a.m. and ending by 9:30 a.m~~ **8:00 a.m. and 3:00 p.m. shall be permitted**.

c. Band Camp: An exception is made for no more than two weeks in the summer when ~~a~~ marching band camp is held**, allowed between the hours of 8:00 a.m. and 8:00 p.m., with a maximum of 4 hours per day for the outdoor playing of instruments (the 4 hours of outdoor playing of instruments need not be consecutive)**.

d. In all instances **stated in Conditions 11.b. and 11.c. above**, all students shall refrain from congregating at the practice site prior to 7:30 a.m. and after ~~9:30 a.m. during the school year and between 7:30 a.m. and after noon during the two-week band camp~~ **the required end time**, to minimize noise impacts on adjacent neighbors. An instructor/school staff member shall be present at the subject location by 7:30 a.m. to monitor student activities and arrivals to ensure that noise impacts on adjacent neighbors are minimized. No instruments shall be played (including tuning, or "warming up") prior to the ~~7:50~~ **8:00** a.m. start time.

~~c.~~**e.** Saturday Sessions. A cumulative total of five Saturday marching band "warm up" sessions, immediately prior to participation at athletic competitions, shall be permitted during the school year, with hours expressly limited to starting after 8:45 a.m. and ending before 5:00 p.m.

7. ON-SITE PARKING

Revise Existing Condition 15:

15. Parking.

a. At least 451 permanent, striped parking spaces shall be provided on the site at all times **consistent with the Conditional Use under Case No. CPC-2009-**

1477-CU-ZV-ZAA-SPR. Upon full buildout of the Project approved pursuant Case Nos. CPC-2009-1477-CU-ZV-ZAA-SPR-PA1 and CPC-2023-1254-VZC-HD-ZAD-ZAA, at least 501 permanent, striped parking spaces shall be provided on-site between the Main Campus and North Campus, consistent with Exhibit A. ~~In conjunction with the construction of the aquatic complex, 24 new parking spaces will be constructed as shown on the plans (Exhibit B).~~

b. The school shall inform parents, students, faculty and staff in writing on an annual basis of all rules regulating school traffic and parking. A copy shall be mailed to the City Planning Department at the same time. The school shall maintain a progressive disciplinary system of enforcement of the involved student(s) from school. The school administration shall maintain a list of license plate numbers of all staff and students permitted to park on campus and shall issue a parking tag to all families to be used when parents visit the school site.

c. Except during special events, all faculty, administrators, other employees and visitors shall be instructed by persons acting on behalf of the school to park on-site at designated locations.

d. Special Event Parking

   (1) If a special event at the property is expected to attract more than 451 vehicles, **or more than 501 vehicles after full buildout of the Project approved pursuant to Case Nos. CPC-2009-1477-CU-ZV-ZAA-SPR-PA1 and CPC-2023-1254-VZC-HD-ZAD-ZAA,** then off-site parking for vehicles in excess of the 451st vehicle **(or in excess of the 501st vehicle after full Project buildout)** shall be provided at the West Hills Hospital (located at 7300 Medical Center Drive) and/or other locations which the school may secure, to the satisfaction of the City Planning Department. Those persons attending the event shall be instructed to park in such off-site parking locations (unless playing field parking is allowed on the campus). Note: In the event that the school secures another off-site parking facility in lieu of the existing site, the applicant must notify the City Planning Department, the West Hills Neighborhood Council, the Council Office, and residents within a 500-foot radius, in writing at least 90 days in advance.

   (2) A free shuttle bus system shall be used between the off-site parking area(s) and the subject property. Shuttle vehicles shall be of a number and carrying capacity to facilitate the transport of persons to and from the property expeditiously. The use of temporary signage will be used to inform parents, students and visitors to park within the designated off-site area(s) and to use the shuttle system. Note: Text-only temporary signs are permitted for use during the day of the special event, and will be posted and removed at least one half hour prior to the event and removed one half hour after the conclusion of the event.

e. Construction Parking. In the event that construction staging takes place within the parking areas, and if at least 20 spaces are encumbered for construction

purposes, Chaminade shall provide an equal number of temporary off-site parking spaces at a secondary site. Off-site parking will not be permitted along adjacent streets. If the secondary site is not immediately adjacent to the campus, a shuttle shall be provided to transport students, staff, and visitors to and from the school.

f. For all games, competitions and swim meets on the North Campus:

(1) All Chaminade students, faculty and staff shall be directed to park on the Main Campus.

(2) In advance of each game day, written notice shall be provided to all visiting teams to indicate that vehicles must park on campus (either on the North Campus or across the street on the Main Campus), and that street parking on Keswick Street and other residential streets is not permitted.

(3) A permanent sign shall be placed or posted at each driveway entry along Saticoy Street and Woodlake Avenue serving the North Campus, directing attendees to park on the North Campus or across the street on the Main Campus, and indicating that parking is not permitted on Keswick Street, Saticoy Street, Woodlake Avenue or other streets.

8. UPDATED TRAFFIC MANAGEMENT PLAN

Revise Existing Condition 16:

16. Traffic Management Program. The school shall implement ~~a~~ **the updated** Traffic Management Program**, dated May 4, 2023,** to encourage carpooling amongst parents and students, bicycling, **the use of school buses,** and the use of public transit to reduce vehicular trips to school**, and to improve the efficiency of the drop-off and pick-up operations and help minimize any disruptions to non-school traffic flow in the vicinity of the school**. A copy of ~~which~~ **the updated Traffic Management Program** shall be provided to the Department of City Planning and the Council Office prior to the issuance of a **new** certificate of occupancy. A copy shall also be ~~posted~~ **available** on-site **in the Facilities Office**, **posted** online, sent by email, or regular mail to staff, students, and parents. Components of such efforts shall include:

a. Appointing adult traffic monitors for the program, distribution of literature explaining the program, and maintaining a system to encourage and enable parents to form and participate in carpools.

b. For each day that school is in session and for special events, parking monitors shall be required to be posted at each vehicular access driveway in order to direct traffic and minimize queuing of school visitor, student, and

staff vehicles on adjacent residential streets, from blocking **the** public right-of-ways, private driveways, or otherwise adversely affecting traffic circulation for residents. Likewise, they will discourage excessive noise from car horns, car radios, car alarms and loud voices, and to maintain smooth ingress to and egress from the parking areas.

c. Traffic monitors shall be at the school for: (1) 30 minutes prior to the start of school through such time at which the gates are to be closed or have a security guard stationed at the gates; (2) One-half hour prior to the end of school through such time at which the primary gates are to be closed or guarded, and; (3) One hour prior to the beginning of special events through such time at which the primary gates to the campus are to be closed or guarded.

d. Once parking has reached capacity, traffic monitors shall direct traffic away from residential streets, and utilize cones and temporary signage wherever necessary, to re-direct traffic, discourage spillover traffic and parking on adjacent residential streets, and to direct drivers to the secondary parking area (West Hills Hospital), where the free shuttle will transport visitors back to the school. Note: In the event that the school secures another off-site parking facility in lieu of the existing site, the applicant must notify the City Planning Department, the West Hills Neighborhood Council, the Council Office, and residents within a 500-foot radius, in writing at least 90 days in advance.

e. Provide a safe and secure area for bicycle parking.

f. There shall be no school drop-off or pick-up on the North Campus.

9. SAFETY AND SECURITY MONITORING

Existing Conditions to remain (for reference only):

21. A minimum of four state-licensed security guards shall provide security on football game nights with at least two officers assigned to patrol the adjacent residential neighborhoods with an emphasis on those residential streets nearest to the school. The officers shall be present one hour before game time and shall patrol the defined area until the campus is cleared of game participants and spectators and the campus gates are closed.

22. A security plan shall be developed in consultation with the Police Department, outlining security features of each new structure to prior to the issuance of a certificate of occupancy for each new structure. In addition, the property owner shall provide to the Topanga Commanding Officer a diagram of the site indicating access routes and any additional information that might facilitate

police response. The applicant shall submit evidence of compliance to the City Planning Department.

23. The property shall be internally secured when not in use.

New Condition on North Campus:

- **Security on North Campus.**

  a. All driveway gates shall be closed 15 minutes after the morning bell rings and opened 15 minutes before the dismissal bell rings.

  b. A security guard or school employee shall be posted at or near the Saticoy Street driveways to monitor student arrival and departure during regular school days when the North Campus gate(s) are open, to ensure use of the pedestrian bridge and control street-level crossing.

  c. There shall be a 24/7 security camera monitoring and burglar alarm system.

10. LIGHTS

Revised Existing Conditions 24 and 25 to apply to both campuses:

24. All lighting shall be directed onto the site. Floodlighting shall be designed and installed to preclude glare to adjoining and adjacent properties. Outdoor lighting shall be designed and installed with shielding such that the light source ~~cannot be seen~~ **is directed on-site, away** from adjacent properties.

25. **Main Campus:** The athletic field lights shall be turned off no later than 11:00 p.m. on contest nights, and no later than 9:00 p.m. on practice nights. **North Campus: The athletic facility lights shall be turned off no later than 9:00 p.m. on practice and contest nights, with an exception for overtime/extra inning play. Both Campuses:** On nights when the field is not in use, only low-level security lighting shall be ~~allowed~~ **permitted**.

11. NOISE

Existing Condition 26 – To remain as written and apply to both campuses, with proposed new Conditions 26.g. and 26.h for North Campus:

26. Noise Mitigation.

a. An outdoor public address system shall be utilized for emergency purposes, special announcements, and sporting events only. The use of the outdoor public address system shall not be used after 6:00 p.m., unless to notify students, staff, and visitors of emergency purposes, or during sporting events occurring after 6:00 p.m.

b. The existing solid masonry walls at the adjoining property lines, where the school abuts a residence, shall be maintained at the site.

c. Except where designated elsewhere in this determination (special events, marching band practice, etc.), amplified music or loud non-amplified music is not permitted outside.

d. The gymnasium shall contain no operable windows. No doors shall be oriented to the adjacent residences, unless where required by law.

e. Compressors and other equipment which may introduce noise impacts beyond any property line shall be enclosed or otherwise attenuated so as to be inaudible off-site.

f. No exterior bells are permitted outside the hours of daytime classroom instruction detailed under Condition No. 6(a). No exterior bells are permitted on Saturdays or Sundays.

g. Noise levels including, but not limited to, activities such as the use of outdoor public address system or speakers and announcements during sporting events, use of batting cages, and other activities will be subject to the local noise ordinance. All amplified noise must comply with LAMC Section 112.01, referenced below.

SEC. 112.01. RADIOS, TELEVISION SETS, AND SIMILAR DEVICES. (Amended by Ord. No. 156,363, Eff. 3/29/82.)

(a) It shall be unlawful for any person within any zone of the City to use or operate any radio, musical instrument, phonograph, television receiver, or other machine or device for the producing, reproducing or amplification of the human voice, music, or any other sound, in such a manner, as to disturb the peace, quiet, and comfort of neighbor occupants or any reasonable person residing or working in the area.

(b) Any noise level caused by such use or operation which is audible to the human ear at a distance in excess of 150 feet from the property line of the noise source, within any residential zone of the City or within 500 feet thereof, shall be a violation of the provisions of this section.

(c) Any noise level caused by such use or operation which exceeds the ambient noise level on the premises of any other occupied property, or if a condominium, apartment house, duplex, or attached business, within any adjoining unit, by more than five (5) decibels shall be a violation of the provisions of this section.

h. Batting cages on the North Campus shall incorporate noise baffling measures.

New Mitigation Measure for North Campus:

- **Amplified sound systems for the Project's baseball field/bleachers and outdoor aquatics facility/bleachers shall be acoustically engineered with the following design and performance standards:**
  - **Amplified sound levels, as measured at the northern property line of the North Campus, shall not exceed 50 dBA.**
  - **Amplified sound systems shall not be operated outside the operational hours established for the North Campus facilities.**
  - **Speakers shall be directional and oriented away from the northern property line of the North Campus.**
  - **Non-Chaminade users of the facilities shall not be permitted to utilize amplified sound systems.**

12. COMPLAINT LOG

Existing Condition 27 – To remain as written:

27. Complaint Log. The school shall maintain a complaint log associated with any concerns, written or verbal, expressed to the school by area residents, staff, students, or visitors regarding the operation of the school. The complaint log shall be made available to the Director of Planning in conjunction with the review of conditions set forth under Condition No. 28. The school administration shall make the complaint log available for review by any member of the public.

13. CONSTRUCTION ACTIVITIES

Existing Condition 35 to remain and apply to both campuses:

35. Posting of Construction Activities. The adjacent residents shall be given regular notification of major construction activities and their duration. A visible and readable sign (at a distance of 50 feet) shall be posted on the construction site identifying a telephone number for inquiring about the construction process and to register complaints.

IMPORTANT NOTE: *It should be noted that LA City Planning may adjust the above proposed language, as deemed necessary for consistency with department policies and procedures for condition language. In addition, it is expected that LA City Planning will further modify the language in other existing conditions of approval, and impose additional conditions of approval, for consistency with the current campus plan, the changes for the proposed campus plan, and the pending City Planning application.*

West Hills Neighborhood Council

"It's our neighborhood. Let's build a community."

OFFICERS
Charlene Rothstein
President
Faye Barta, J.D.
Vice President
Brad Vanderhoof
Secretary
Carolyn Greenwood
Treasurer
Saif Mogri
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Stephen Lenske
Ed Youngblood
Charles "Chuck" Gremer

EXECUTIVE DIRECTOR
Michelle Ritchie

September 21, 2023

Mr. Robert Webb, President
Chaminade College Preparatory
7500 Chaminade Avenue West
Hills, California 91304

Re: **Expansion of an Existing High School, Including Construction, Use and Maintenance of a New Campus**

Case No. CPC-2023-1254-VZC-HD-ZAD-ZAA

Dear Mr. Webb:

The request for the proposed expansion of Chaminade College Preparatory High School is in actuality a request for the construction of a Sports Center without respect for the surrounding and adjacent single-family homes. According to the Planning Department, limitations are necessary to protect the best interests and to assure a development in harmony with the General Plan and the surrounding communities. The West Hills General Plan Land Use is very low residential, any reference to the West Hills **DRAFT** Community Plan is unacceptable. Please see Exhibits A & B attached hereto for reference.

The West Hills Neighborhood Council ("WHNC") Zoning & Planning Sub-Committee is in the process of an investigation regarding this case.

Our findings to date are as follows:

1. Many constituents would support an expansion of classrooms and library to the North campus if done appropriately with respect for the surrounding neighborhood;

2. Many constituents would support a Sports Center on the main South campus with compliance to the current conditions; and

3. Attachment D.1, regarding Discretionary Requests from Chaminade to change conditions place on Chaminade in Case No. CPC-2009-1477-CU-ZV-ZAA-SPR.

Recommendations from the Zoning & Planning Committee:

1. Condition 5 – To remain as written for both campuses;
2. Condition 6E Athletic Field Use/Batting Cages – Hours of operation and renting of facilities would be detrimental to the quiet and quality of life if permitted;
3. Condition 11 A& B Marching Band - Request is unclear and excessive; Condition to remain as written. Please see Exhibit C attached hereto for reference;
4. Condition 15 Parking – On-site parking requires further explanation for both the main South campus and North Campus;
5. Condition 16 Traffic Management Program – Requires and updated Traffic Management Program and the current program is flawed;
6. Condition 18 Buses – Requires queuing, possible splitting of buses and implementation of a drop-off and pick-up plan that does not inhibit traffic flow;
7. Condition 24 Lighting – Current lighting on the main South campus can be seen from adjacent streets; this is non-compliant with this condition;
8. Condition 26 Noise Mitigation – Should be kept as written for protection of the neighbors; and
9. Condition 27 Complaint Log – Constituents have been unable to locate a number for the Chaminade hotline. Requests were made directly to the school's office to see the complaint log. No log has been located to date. Pursuant to Condition 27 and as a public record, the WHNC requests a quarterly report of the complaint log.

APPLICANT REQUEST FOR A ZONE CHANE TO THE NORTH CAMPUS C2-1 WITH R4 USES

WEST HILLS NEIGHBORHOOD COUNCIL ("WHNC") ZONE CHANGE REQUEST FOR THE NORTH CAMPUS – C1-1VL-CUP-Variance-Covenant Agreement

Please see Exhibits D & E attached hereto for reference.

TRAFFIC STUDY:

The analysis of the May 4, 2023 Transportation Assessment report and the corresponding May 16, 2023 City of Los Angeles Inter-Departmental Correspondence remains in dispute. According to the reports, the project would not exceed 250 daily vehicle trips ("DVT") and refers to the shopping center ("North Campus") as a "high trip generator". The reality is that the

shopping center is an extremely "low trip generator". The WHNC's sub-committee encountered only 8 vehicles parked in the shopping center lot during one visit with 5-6 vehicles entering intermittently, 10 parked vehicles on another visit with 5-6 vehicles entering intermittently and comparable numbers of vehicles parked and entering on other visits. Intermittent vehicle trips generated throughout the day at the shopping center do not create long vehicle line-ups at Woodlake, Saticoy or Keswick nor interfere with traffic flow.

Many of the stores in the shopping center have been closed for many years and remain closed today. Fields Market has managed to remain open due to its continued use by the film industry for commercial filming.

Although student enrollment is stated to remain the same, there is no calculation for additional traffic from students coming from other schools and public attendance to the proposed Sports Center for games and competitions. Because Chaminade has not submitted a Traffic Management Program to date, that was not calculated in the analysis. Please see Exhibit F attached hereto for reference.

Should you have any questions please do not hesitate to let us know.

Respectfully Submitted,

Bill Rose

Bill Rose, Co-Chair
Zoning & Planning Committee

Charlene Rothstein

Charlene Rothstein
Zoning & Planning Committee

Enclosures as noted

cc: Councilmember John Lee
Hannah Lee, Council District 12
Dan Rosales, Council District 12
Trevor Martin, City Planning
Claudia Rodriguez, City Planner
Vicente Cordero, LADOT
Brad Rosenheim, Esq.

Exhibit A

ZIMAS

Public

7500 N CHAMINADE AVE

Font: A A A +/-

Site Address	7500 N CHAMINADE AVE
Site Address	23241 W COHASSET ST
ZIP Code	91304
PIN Number	186B093 52
Lot/Parcel Area (Calculated)	858,154.4 (sq ft)
Thomas Brothers Grid	PAGE 529 - GRID F4
Assessor Parcel No. (APN)	2027005009
Tract	TR 26072
Map Reference	M B 676-76/77
Block	None
Lot	FR LT 1
Arb (Lot Cut Reference)	None
Map Sheet	186B093

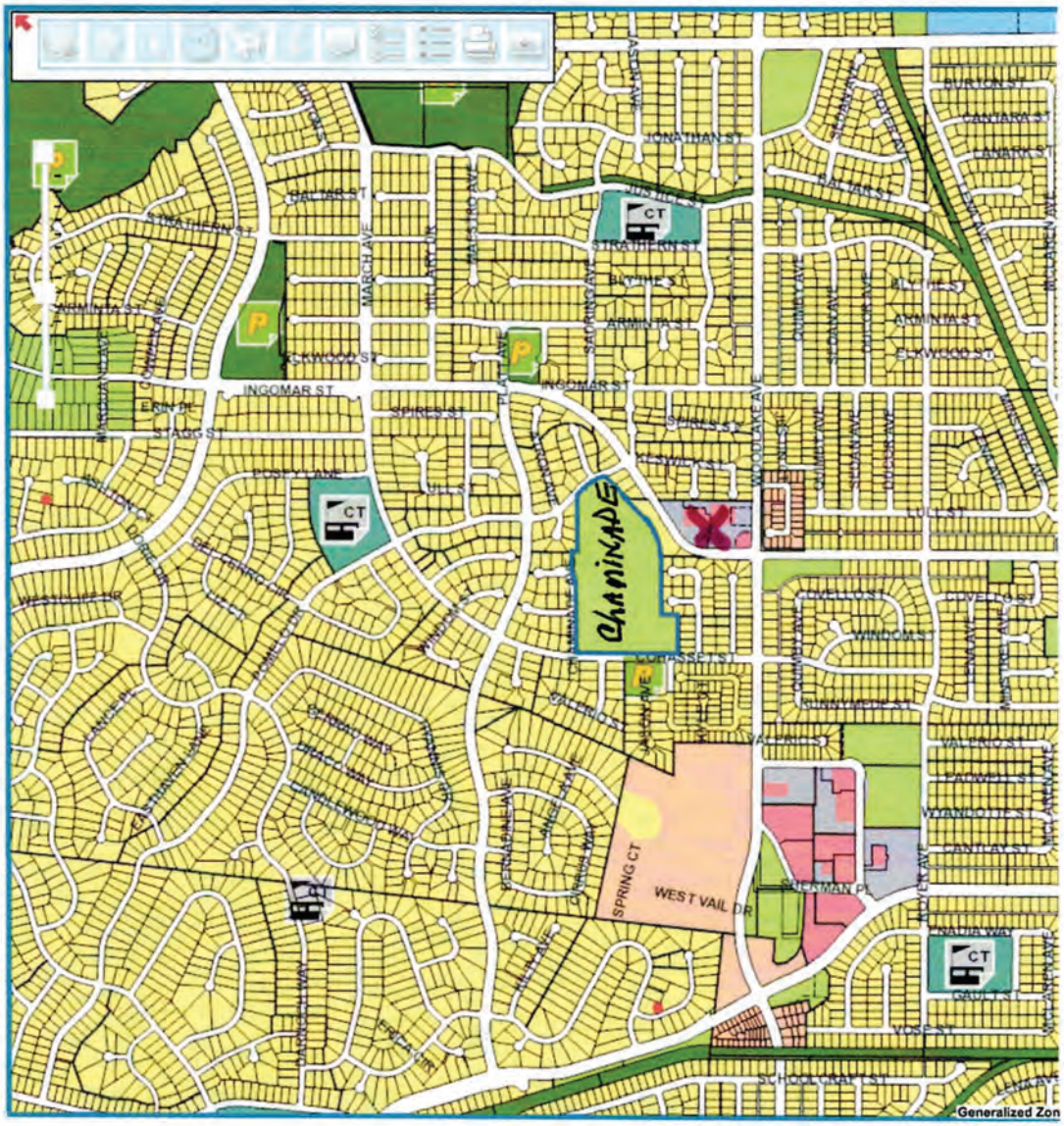


Exhibit B



NORTH CAMPUS - VIEW 01



NORTH CAMPUS - VIEW 02

Homes Adjacent

Homes Adjacent

Homes Adjacent



NORTH CAMPUS - VIEW 03

PLEASE RECYCLE

AGENCY APPROVAL:

CHAMINADE
COLLEGE PREPARATORY

HMC Architects

3561001000

3546 CONCOURS STREET
ONTARIO, CA 91764
909 989 9979 | www.hmcarchitects.com

NO.	DESCRIPTION	DATE



FACILITY:

7500 Chaminade Ave,
West Hills, CA 91304

PROJECT:

CHAMINADE COLLEGE PREPARATORY HIGH SCHOOL

SHEET NAME:

RENDERINGS - NORTH CAMPUS

CAMPUS PLAN

DATE: 2023-05-17	CLIENT PROJ NO:

SHEET:

A5.1

Exhibit C

Case No. CPC-2009-1477-CU-ZV-ZAA-SPR, Approved 11/17/2009, and As Amended by Letters of Clarification, dated 4/6/2010 & 6/16/2010	
Condition	**Response / If Applicable, REQUEST for Condition Modification**
9. Sign. One (1) 16-foot tall, text-only, LED pole sign for on-site identification and informational purposes only, with an 8-foot tall pole, and a sign face with dimensions of 8 feet in height and 12 feet in width, will be allowed along the Saticoy Street frontage as shown on the site plans (Exhibit B1). The pole sign will be in substantial conformance with Exhibit B3.	The Applicant is in compliance with this condition with respect to the existing pole sign. Please note that new identification and wayfinding signs will be proposed on the North Campus and on the pedestrian bridge.
10. Landscaping. For each new structure, and prior to obtaining any grading or building permits before the recordation of the final map, a landscape plan, prepared by a licensed landscape architect, shall be submitted to and approved by the Planning Department in accordance with CP-6730.	The Applicant has complied with this condition.
11. Marching Band practices shall be limited to the following locations and hours: **a.** Evening Practice Sessions. A maximum 1 weekday night per week in the outdoor stadium, between the hours of 6:30 p.m. and 9:00 p.m., to be completed with the lights turned out and the stadium vacated no later than 9:00 p.m. Students leaving the campus after 9:00 p.m. shall be instructed that no playing of instruments shall occur after the end of the session; this shall be strictly enforced by the school administration. The instructor or school staff shall monitor student activities and departures to ensure that noise impacts on adjacent neighbors are minimized. **b.** Morning Practice Sessions. In addition to the one night as per above, a maximum 3 working days (Monday through Friday) per week between the hours of 7:50 a.m. and ending by 9:30 a.m. An exception is made for no more than two weeks in the summer when a marching band camp is held. In all instances, all students shall refrain from congregating at the practice site prior to 7:30 a.m. and after 9:30 a.m. during the school year and between 7:30 a.m. and after noon during the two-week band camp, to minimize noise impacts on adjacent neighbors. An instructor/school staff member shall be present at the subject location by 7:30 a.m. to monitor student activities and arrivals to ensure that	**REQUEST** – Chaminade has a truly successful marching band program and requires slightly more outdoor practice time, as follows: **a.** The Applicant requests up to two (2) weekday nights per week in the outdoor stadium, between the hours of 6 p.m. to 9 p.m., in lieu of one (1) weekday night per week from 6:30 p.m. to 9 p.m. **b.** The Applicant requests that this condition be modified consistent with any modification to Condition No. 11.a. Chaminade also requests that morning practice sessions be modified to up to 2 hours of outdoor practice per day between the hours of 8:00 a.m. to 3:00 p.m, with an exception to allow no more than two weeks in the summer for marching band camp to be held between the hours of 8:00 a.m. and 8:00 p.m. To minimize disruption for neighbors, the outdoor playing of instruments is proposed to be limited to four (4) hours per day during summer camp.

Case No. CPC-2009-1477-CU-ZV-ZAA-SPR, Approved 11/17/2009, and As Amended by Letters of Clarification, dated 4/6/2010 & 6/16/2010	
Condition	**Response / If Applicable, REQUEST for Condition Modification**
noise impacts on adjacent neighbors are minimized. No instruments shall be played (including tuning, or "warming up") prior to the 7:50 a.m. start time. **c.** Saturday Sessions. A cumulative total of five Saturday marching band "warm up" sessions, immediately prior to participation at athletic competitions, shall be permitted during the school year, with hours expressly limited to starting after 8:45 a.m. and ending before 5:00 p.m.	c. No change is requested to this Condition. The Applicant complies with this condition and will continue to comply after Project completion.
12. Special Events. **a.** No more than 18 "Special Events" are authorized. Special events are activities involving parents and/or other visitors where more than 451 vehicles are anticipated at one time. School administrative board meetings and parent/teacher meetings are excluded from the definition of "Special Events". **b.** Unless subsequently modified by the City Planning Commission, the 18 special events authorized on the property are as follows: 1) Graduation - <u>One per semester</u> 2) Varsity Football Games (not including playoffs) - Eight per year 3) Also, <u>nine additional days annually</u>, for school performances, other athletic events, and school-related fundraising activities. 4) A copy of the Calendar and List of Major Events shall be submitted to the appropriate Council District, West Hills Neighborhood Council, and residents within 500 feet of the school property at least 60 days prior to the beginning of each school year for their reference. 5) Calendar Modifications. No variation to allow any "special' event that is not included on the Calendar shall be scheduled without a minimum 60-day advance notification to the appropriate Council District, Neighborhood Council, and residents within 500 feet of the school property. (This	The Applicant is in compliance with Condition No. 12 and will remain compliant with respect to the proposed Project. No changes are proposed to the permitted Special Events.

EXHIBIT D
REQUEST FOR
Case No. CPC-2009-1477-CU-ZV-ZAA-SPR,

C1-1VL LIMITED COMMERCIAL ZONE. (1VL height restrictions) (see Attachment A)

The following regulations shall apply to the "C1" Limited Commercial Zone:

A. Use – No building, structure or land shall be used and no building or structure shall be erected, structurally altered. enlarged or maintained, except for the following uses, and when a "**Supplemental Use District**" is created by the provisions of Article 3 of this chapter, for such uses as may be permitted therein:

1. Any use permitted in the CR Limited Commercial Zone ~~but not~~ including a church, educational institution, museum or school (elementary or high), provided that all the regulations of said CR zone are complied with except as provided in this section. Any residential use permitted in the ~~R3 Multiple Residential~~ Zone RS-1 provided that all the regulations of said ~~R3~~ RS zone are complied with except as provided in this section. **(Amended by Ord. No. 157,994, Eff. 9/25/82.)**

1.5. Hotels (including motels), apartment hotels or hostels when no portion of a structure proposed to be used as a hotel (including a motel), apartment hotel or hostel is located within 500 feet from any A or R zone. **(Amended by Ord. No. 185,931, Eff. 7/1/19.)**

2. **(Amended by Ord. No. 140,726, Eff. 9/3/70.)** The following retail stores, shops or businesses when conducted in accordance with the limitations hereafter specified:

(a) **Types of Uses:**

(1) Bakery goods shop;

(2) **(None)**

(3) Barber shop or beauty parlor;

(4) Book or stationery store;

(5) Clothes cleaning agency or pressing establishment;

(6) ~~Clubs or lodges, bridge clubs, fraternal or religious associations; (Amended by Ord. No. 144,365, Eff. 4/5/73, Oper. 9/1/73.)~~ **Removed under covenant agreement**

(7) Confectionery store;

(8) Custom dressmaking or millinery store;

Exhibit D
Cont.

(9) Drugstore;

(10) Dry goods or notions store;

(11) Florist or gift shop;

(12) Grocery, fruit or vegetable store;

(13) ~~Hospital, sanitarium or clinics (except animal hospitals). (Amended by Ord. No. 177,325, Eff. 3/18/06.)~~ **Removed under covenant agreement**

(14) Hardware or electric appliance store;

(15) Jewelry store;

(16) Laundry agency;

(17) Meat market or delicatessen store;

(18) Office, business or professional;

(19) Photographer;

(20) Restaurant, tea room or cafe (excluding dancing or entertainment). Restaurants with drive-through service that adjoin or are across the street from or separated only by an alley from any portion of a lot in a residential zone or use or in an RA Zone, shall be subject to the conditional use requirements of Section 12.24 W.17. **(Amended by Ord. No. 173,492, Eff. 10/10/00.)**

(21) Shoe store or shoe repair store;

(22) Tailor, clothing or wearing apparel shop;

(23) Laundries or cleaning establishments of a self-service type using only automatic machines with non-flammable cleaning fluid; **(Added by Ord. No. 140,726, Eff. 9/4/70.)**

(24) Other uses similar to the above list when determined as provided for in Section 12.21 A.2.; **(Added by Ord. No. 140,726, Eff. 9/4/70.)**

(25) Uses (not involving storage) customarily incident to any of the above- named uses and accessory buildings (including storage garages) when located on the same lot. Automobile parking space required in connection with permitted uses as provided for in Section 12.21 A.4.

(26) **(Amended by Ord. No. 173,754, Eff. 3/5/01.)** Indoor swap meets when authorized pursuant to the provisions of Section 12.24 W.42.

Exhibit D
cont.

(27) Joint living and work quarters for the following occupations: accountants; architects; artists and artisans; attorneys; computer software and multimedia related professionals; consultants; engineers; fashion, graphic, interior and other designers; insurance, real estate and travel agents; photographers and other similar occupations as determined by the Zoning Administrator, provided that the commercial uses are permitted by the underlying zone. **(First Sentence Amended by Ord. No. 172,572, Eff. 6/3/99.)** For all existing buildings, the yards required shall be the same as the yards observed by the existing structures on the site. For an existing building, for which a building permit was issued before April 1, 1994, and which contains no more than eight living and work quarters, the number of parking spaces required shall be the same as the number of spaces existing on the site. All other buildings used for this purpose must meet the parking and yard requirements for residential buildings. **(Added by Ord. No. 169,670, Eff. 5/13/94.)**

(28) Facilities for the development of software (including the reproduction of software and data) and other computer and media-related products and services, not including hardware. **(Added by Ord. No. 172,106, Eff. 8/14/98.)**

(29) Skilled Nursing Care Housing. **(Added by Ord. No. 178,063, Eff. 12/30/06.)**

(30) Alzheimer's/Dementia Care Housing. **(Added by Ord. No. 178,063, Eff. 12/30/06.)**

(31) Eldercare Facility. **(Added by Ord. No. 178,063, Eff. 12/30/06.)**

(b) **Limitations:**

(1) **(Amended by Ord. No. 173,492, Eff. 10/10/00.)** All merchandise shall be ~~new~~ and shall be sold at retail only, unless the sale of the merchandise is authorized in an indoor swap meet pursuant to the provisions of Section 12.24 W.42.

(2) All activities are conducted wholly within an enclosed building, except that ground floor restaurants may have outdoor eating areas. An outdoor eating area for a ground floor restaurants may be located anywhere between the building and its required front yard, or between the building and any required side or rear yard which side or rear yard abuts a public street. **(Amended by Ord. No. 165,403, Eff. 2/17/90.)**

(3) All products produced, whether primary or incidental, are sold on the premises, and not more than five persons are engaged in such production or in servicing of materials. **(Amended by Ord. No. 144,365, Eff. 4/5/73, Oper. 9/1/73.)**

(4) Any exterior sign is attached to a building, does not extend more than two feet beyond the wall of the building, and does not project above the roof ridge or parapet wall (whichever is higher) of the building.

(5) **(Added by Ord. No. 174,097, Eff. 8/26/01.)** All retail stores, shops or businesses shall be limited to less than 100,000 square feet of floor area. This limitation shall apply to the cumulative sum of related or successive permits that are a part of a larger project, such as piecemeal additions

Exhibit D cont.

to a building, or multiple buildings on a lot or adjacent lots, as determined by the Director of Planning.

B. Restriction. (Amended by Ord. No. 173,268, Eff. 7/1/00, Oper. 7/1/00.) For any lot designated as Public, Quasi-Public, Public/Quasi-Public Use, Other Public, or Open Space on the land use map of the applicable community or district plan; any lot shown on the map as having existing lakes, waterways, reservoirs, debris basins, or similar facilities; any lot shown on the map as the location of a freeway right-of-way; and any property annexed to the City of Los Angeles where a plan amendment was not adopted as part of the annexation proceedings:

Any of the uses permitted by Subsection A of this section shall require prior approval in accordance with the provisions of Section 12.24.1 of this Code.

C. Area. (Amended by Ord. No. 144,365, Eff. 4/5/73, Oper. 9/1/73.) No building or structure nor the enlargement of any building or structure, shall be erected and maintained unless the following yards, lot areas and loading spaces are provided and maintained in connection with such building, structure or enlargement.

In applying the provisions of this section, the front lot line of a corner lot shall be the line separating the lot from the principal street upon which it abuts. Where said lot abuts upon a major or secondary highway such highway shall be construed as being the principal street. Where a lot abuts upon two or more highways, and in all other cases, a Zoning Administrator shall determine which street is the principal street.

1. **Front Yard**. There shall be a front yard of not less than 10 feet in depth.

2. **Side Yards**. Side yards shall be required only in the following instances:

(a) Along the side street lot line of every corner lot in the C1 Zone.

(b) Where the side lot line of the lot in the C1 Zone abuts upon the side of a lot in an A or R Zone.

(c) For all portions of buildings erected and used for residential purposes.

The width of such required side yard shall not be less than 10 percent of the lot width, but need not exceed five feet and shall not be less than three feet in width. Provided, however, that one foot shall be added to the width of the required side yard for each additional story above the second story, but such side yard need not exceed 16 feet in width.

In all other cases, a side yard for a commercial building shall not be required, but if provided, it shall not be less than three feet in width.

3. **Rear Yard.** A rear yard shall be provided only in the following instances:

(a) Where the rear of the lot in the C1 Zone abuts upon a lot in an A or R Zone.

Exhibit D cont.

(b) For all portions of buildings erected and used for residential purposes. Such yard shall be provided and maintained at and above the floor level of the lowest story designed or used for residential purposes, and the full height of the building shall be used in computing the required depth of rear yard.

The depth of such required rear yard shall be not less than 15 feet. One foot shall be added to the depth of such rear yard for each additional story above the third story, but such rear yard need not exceed 20 feet in depth.

4. **Lot Area**. The lot area requirements of the ~~R3~~ RS-1 Zone (Section 12.07.1 C.4.) shall apply to all portions of buildings erected and used for residential purposes. Provided, however, that where the lot is in the "H" Hillside or Mountainous Area, there shall be not more than one dwelling unit for each 5,000 square feet of lot area.

5. **Loading Space**. As required by Section 12.21 C.1. Exceptions to Area regulations are provided for in Section 12.22 C.

VARIENCES & MONDIFICATIONS

1. School, elementary or high, or educational institution (Pursuant LAMC 6. LAMC 12.32 G2)
2. Approved Conditional Use, RS Suburban Zone Residential Zone (in lieu of R4 Multiple Dwelling) Zone.

EXHIBIT E
ATTACHMENT A
DISCRETIONARY REQUESTS
APPROVE/RECOMMEND
Case No. CPC-2009-1477-CU-ZV-ZAA-SPR

The applicant requests a **VESTING ZONE CHANGE AND HEIGHT DISTRICT CHANGE**, pursuant to Los Angeles Municipal Code ("LAMC") Sections 12.32 F and 12.32 Q, **from the [Q]C1-1VL and P-1VL Zones to the C2-1 Zone** on the new North Campus.

We recommend a **VESTING ZONE CHANGE ONLY** on the North Campus from [Q]C1-1VL and P-1VL to [Q]C1-1VL only, Pursuant to Los Angeles Municipal Code ("LAMC") Sections 12.32 F and 12.32 G-2 a 1-3 Code. Keeping existing condition of a maximum 0.5:1 FAR

We reject applicants "Attachment C" under **JUSTIFICATIONS / FINDINGS "The proposed Zone Change is in conformity with public necessity, convenience, general welfare and good zoning practice."**, references to the draft Canoga Park-Winnetka-Woodland Hill-West Hills Community Plan. This plan has not been adopted and is still under review and any reference to this plan is rejected when used for justification of any development or vesting zone change.

We reject applicants Attachment F Zoning Administrator Determination Findings section 3 Community Plan which references Page III-10 of the Canoga Park-Winnetka-Woodland Hills-West Hills Community Plan. This section applies to Public Schools not private schools.

The applicant claims the development is beneficial in terms of **public necessity**. We reject these justification and findings. The applicant is a private school and business not open to the public while it is located in West Hills this proposed development serves it's clients. Fences and security keep the public out.

The applicant claims the development is beneficial in terms of **Convenience**. We reject these justification and findings. The applicant is a private school and business not open to the public while, it is located in West Hills this proposed development serves Chaminade clients. There will be increased traffic on Saticoy where the drop off of clients will be changed. For the stakeholders in this area this will be inconvenient at best.

Community Plan page III-12 and III-13 Goals, Objectives and Policies states:

SCHOOLS:
In the Canoga Park-Winnetka-Woodland Hills-West Hills, public schools are administered by the Los Angeles Unified School District (LAUSD). The number of LAUSD facilities in the Plan area are twenty-two elementary schools, five middle schools, and three high schools.

GOAL 6:

Exhibit E
Cont.

PUBLIC SCHOOLS THAT PROVIDE A QUALITY EDUCATION FOR ALL OF THE CITY'S CHILDREN, INCLUDING THOSE WITH SPECIAL NEEDS, AND ADEQUATE SCHOOL FACILITIES TO SERVE EVERY NEIGHBORHOOD IN THE CITY.
Objective 6-1 Work constructively with LAUSD to promote the siting and construction of adequate school facilities phased with growth.

Policies

6.1.1 Explore creative alternatives for providing new school sites in the City, where appropriate.

Program: Develop plans to address issues of siting and joint use of facilities including strategies for expansion in transit-rich locations.

Program: Use the City's "Annual Growth Report" to monitor locations for growth and potential new school sites.

Objective 6-2 Maximize the use of local schools for community use and local open space and parks for school use.
Policies 6-2.1 Encourage the siting of community facilities (libraries, parks, schools and auditoriums) together. Program: Formulate/update plans to address issues relating to siting and the joint use of facilities. Identify strategies for the expansion of school facilities including:

1. Siting of schools and other community facilities (libraries, parks, and auditoriums) within a transit station, center, or mixed-use area so they can complement each other and make the most efficient use of the land provided for these services.

2. Locating middle schools and high schools where possible, close to transit stations and key centers and mixed-use districts, so students can use the transit system to get to and from school.

3. Encouraging private redevelopment of existing school sites in the immediate vicinity of transit stations and centers so that the existing site (a low intensity use) would be replaced by a high intensity mixed-use development that would incorporate school facilities.

The above polices are intended for Public Schools not Private Schools. We reject these polies as applied to Private Schools.

The applicant claims the development is beneficial in terms of **general welfare**. We reject these justifications and findings. The applicant is a private school and business is not open to the public while located in West Hills this proposed development serves its clients. We agree the general welfare of the applicants' clients will benefit from this proposed development, but the general public will not.

The applicant claims "the proposed Vesting Zone Change and Height District Change is beneficial in terms of **good zoning practice**" The applicant claims that their proposed C2 Zone corresponds to the existing Neighborhood Commercial land use designation of the North

Exhibit E
Cont.

Campus. These justifications refer to a draft Community Plan that has not been adopted. We reject all references to the Draft Community Plan.

We recommend C1-1VL Zone for this development project in keeping with "**good zoning practice**" with the application of condition 1 referenced on the applicates attachment D.1 of the Conditions of Approval Compliance Matrix.

We recommend the R3 zoning normally allowed under C1 modified to RS.

1. Community Plan I-9 "Preserve and enhance the positive characteristics of existing uses which provide the foundation for community identity, such as scale, height, bulk, setbacks and appearance."
2. Community Plan I-2 "West Hills" This primarily single-family neighborhood is bound by Roscoe Boulevard to the north, Topanga Canyon Boulevard on the east, the Ventura Freeway to the South, and the Simi Hills on the South and Southwest.
3. Residential page III-1 of Community Plan states: "the proposed Plan has three fundamental premises. First, is limiting single family residential densities in various neighborhoods to the prevailing density of development in these neighborhoods"
4. The properties located to the north of the Subject Property and abutting, are zoned RS-1 and improved with single-family.
5. The properties located to the west and south of the Subject Property across Saticoy Street, are zoned RS-1 and improved with single-family
6. LAMC 12.32 G2 provision may be made in a zoning ordinance that the property not be utilized for all the uses ordinarily permitted in a particular zone classification and/or that the development of the site shall conform to certain specified standards, if the limitations are deemed necessary to:

   (1) Protect the best interests of and assure a development more compatible with the surrounding property or neighborhood;

   (2) Secure an appropriate development in harmony with the objectives of the General Plan; or

   (3) Prevent or mitigate potential adverse environmental effects of the zone change.

We recommend -1VL for height restrictions. (Summary of Zoning Regulations page 7) All surrounding properties are -1VL or RS-1.
C2-1 would violate the intent of the Community Plan to preserve the positive characteristics of existing uses which provide the foundation for community identity, such as scale, height, bulk, setbacks and appearance.

Applicants **CONDITIONS OF APPROVAL COMPLIANCE MATRIX**

Exhibit E cont.

8. Setbacks change. The Applicant requests the modification of Condition No. 8 to clarify that it applies to new structures on the Main Campus only, as there are no minimum required setbacks in the C2 Zone proposed for the new North Campus.

We reject C2 and recommend C1 for the North Campus Condition should be changed to "With the exception of the proposed xx-foot tall fence for the baseball field, all new structures abutting a single-family residence shall be located at a minimum distance of 25 feet from the property line on the North Campus All other setbacks shall comply with C1 zoned setbacks (LAMC) 12.13. section **C Area.** Setbacks on the Main Campus shall remain unchanged from the existing covenant agreement. (#8 Setbacks)

11. Marching Band practices shall be limited to the following locations and hours:
All changes rejected.

The Applicant requests the following discretionary approvals:
• A **ZONING ADMINISTRATOR DETERMINATION**, as follows:
a. A Zoning Administrator Determination, pursuant to Los Angeles Municipal Code ("LAMC") Section 12.24 X.22, for new structures related to the sports facilities on the new North Campus, including, but not limited to, a score board, netting and netting poles, lights and a pedestrian bridge, ranging in height from approximately 25 to 90 feet tall, in lieu of the 25-foot, 33-foot and 61-foot tall structures permitted within 0-199 feet of lots zoned RW1 or more restrictive per the Transitional Height limitations in LAMC Section 12.21.1 A.10.

1. We reject 90-foot tall lights Pursuant to Community Plan page I-9 "Preserve and enhance the positive characteristics of existing uses which provide the foundation for community identity, such as scale, height, bulk, setbacks and appearance" and LAMC 12.32 G2 provision may be made in a zoning ordinance that the property not be utilized for all the uses ordinarily permitted in a particular zone classification and/or that the development of the site shall conform to certain specified standards, if the limitations are deemed necessary to:

   (1) Protect the best interests of and assure a development more compatible with the surrounding property or neighborhood;

   (2) Secure an appropriate development in harmony with the objectives of the General Plan; or

   (3) Prevent or mitigate potential adverse environmental effects of the zone change.

WHNC
Exhibit 1 (F)

Chaminade -Traffic Study
8/31/23



A. Long line of cars lined up on Cohasset traveling west from Woodlake Avenue heading toward Chaminade's main gate



B. Long line of cars traveling east from Pomelo on Cohasset waiting to turn left to enter side gate accessed on Chaminade Avenue



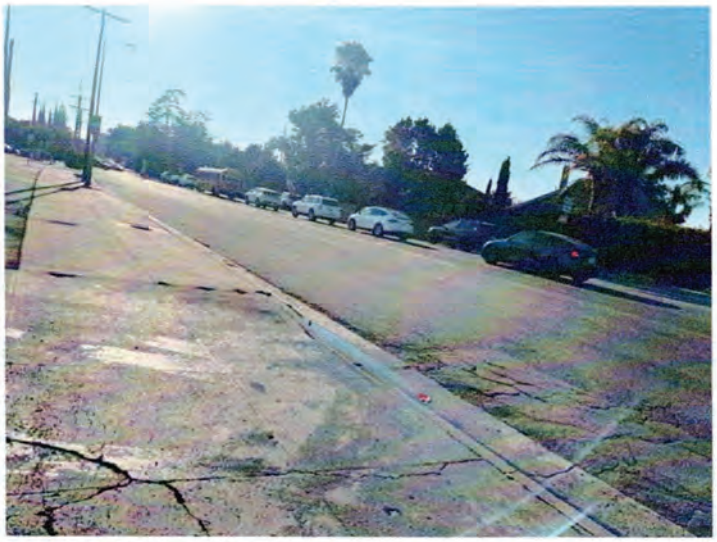
C. Long lines of cars on Chaminade Avenue waiting to access side gate and cars also waiting on Cohasset to turn right onto Chaminade Avenue

WHNC
Exhibit 2 (F)

Chaminade -Traffic Study
9/07/23



TAKEN ON SAME DAY FROM INSIDE MY CAR AS I'M WAITING TO GO THRU THE STOP SIGN AT WOODLAKE & SATICOY. CARS GOING WEST ON SATICOY WERE LINED UP FROM STOP SIGN AT WOODLAKE & SATICOY TO ABOUT 1/2 BLOCK FROM FALLBROOK & SATICOY



9/7/23 8:15 AM-CARS LINED UP WESTBOUND TO CROSS WOODLAKE & SATICOY INTERSECTION.



9/7/23 8:25 AM-CARS LINED UP ON SATICOY TRYING TO CROSS INTERSECTION AT WOODLAKE & SATICOY.



3 8:10 AM-CARS LINED UP GOING EAST ON SATICOY WAITING TO CROSS WOODLAKE

WHNC
Exhibit 2 (F)

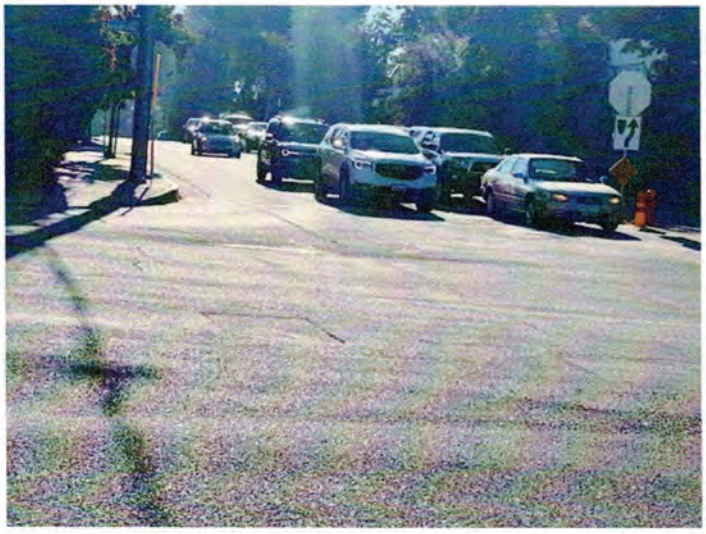
Chaminade -Traffic Study
9/07/23



9/7/23 8:10 AM CARS AT STOP SIGN AT WOODLAKE & SATICOY GOING SOUTH.



CARS GOING THRU INTERSECTION WEST ON SATICOY & SOUTH ON WOODLAKE AT 8 AM ON 9/7/23



9/7/23 8:15 AM-CARS GOING WESTBOUND ON SATICOY AT WOODLAKE.

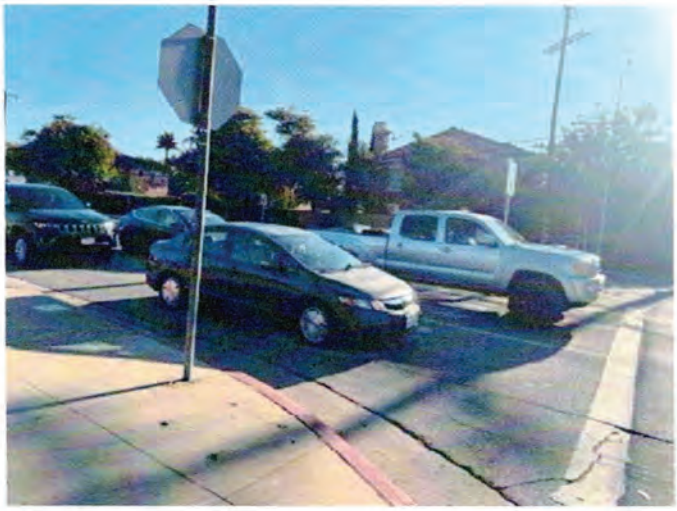


9/7/23 AT 8:15 AM -CARS LINED UP GOING WESTBOUND ON SATICOY TO CROSS WOODLAKE. CARS LINED UP TO CHAMINADE ENTRANCE ON SATICOY.

WHNC
Exhibit 2 (F)

Chaminade -Traffic Study
9/07/23





9/7/23-CARS LINED UP GOING WESTBOUND & TO CROSS INTERSECTION AT WOODLAKE & SATICOY 8:10 AM

Chaminade Expansion
Case CPC-2023-1254-VZC-HD-ZAD-ZAA
Conditions:

Approved by West Hills Neighborhood Council
Zoning & Planning committee September 12th, 2023

1) Zone Change to C1-1VL-CUP, a covenant agreement removing Hotels, Apts, etc from the C1 Zone and a variance/s as needed

2) All Conditions from the South Campus to be applied to the North Campus

3) No Events relocated to the North Campus

4) No parking on any residential streets for students and/or parents, games or events

5) Indoor/Enclosed Pool facility with same requirements as the noise mitigation included in CPC-2009-1477-CU-ZV-ZAA-SPR

6) Location of the Bridge (moved eastward away from homes for privacy)

7) Split buses/queuing avoiding traffic issues on Saticoy and Cohasset

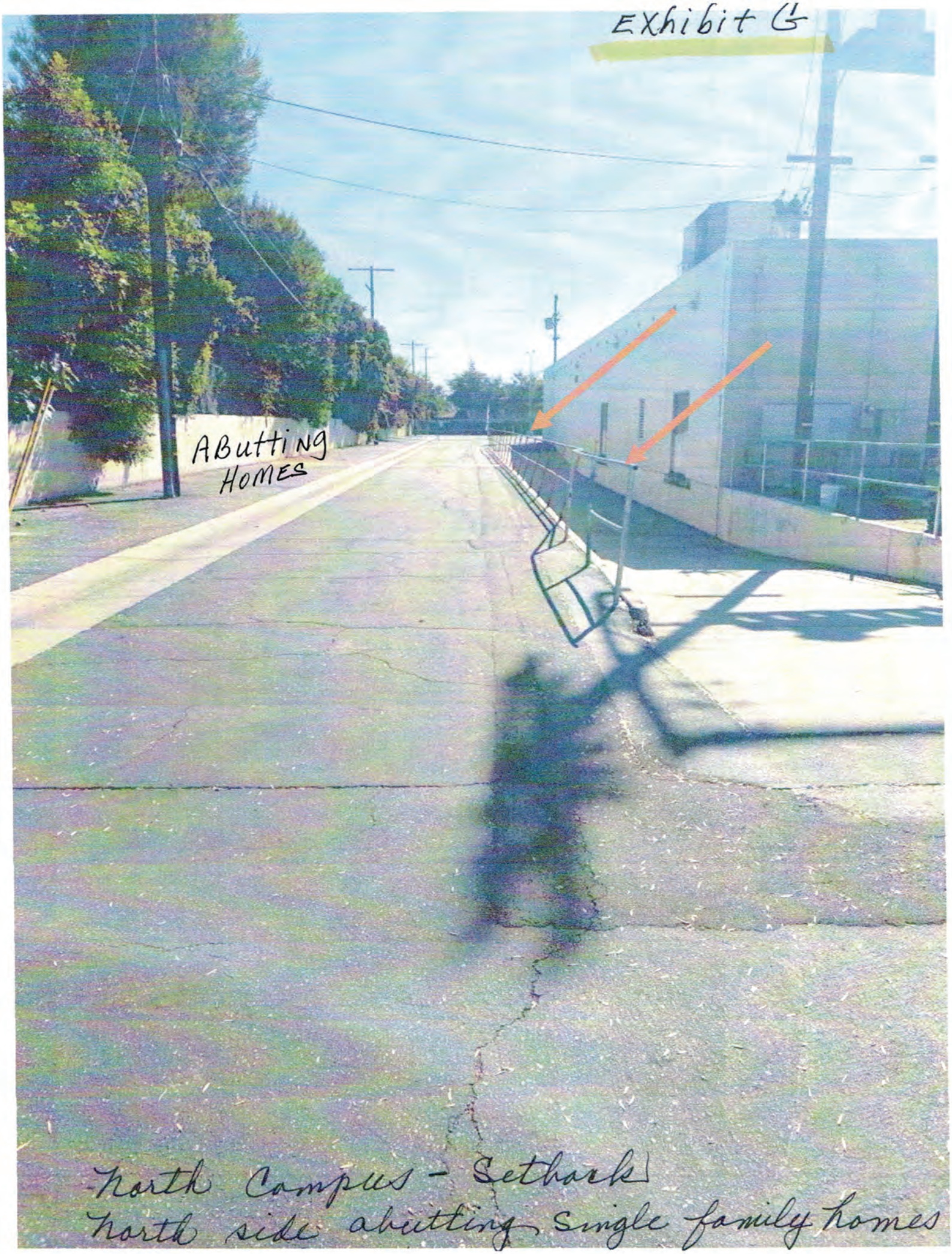
8) Security guard at bridge/driveways to ensure that pedestrians do not cross in the street

9) Batting Cages/Hours of Operation/No rental or outside use

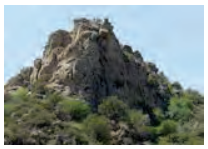
10) Lights at North Campus/Maximum height 50 feet

11) Setbacks on the North Campus, north side abutting residential, to be no less than 15 feet
(please see Exhibit G)

Exhibit G



North Campus - Setback
North side abutting single family homes



West Hills Neighborhood Council

"It's our neighborhood. Let's build a community."

July 12, 2024

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Robert S. Webb, President
Chaminade College Preparatory
7500 Chaminade Avenue
West Hills, CA 91304

RE: Response to Chaminade Preparatory School Expansion
ENV-2023-1255-MND

This document is in Response to the Mitigated Negative Declaration (MND) released June 13, 2024 for the proposed Chaminade Preparatory School Expansion.

A Motion was passed unanimously to approve the WHNC Zoning & Planning Committee's Response at the July 9, 2024 meeting.

WHNC disagrees with the DETERMINATION for issuing an MND signed by Trevor Martin, City Planner, dated 6/07/24:
"I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions on the project have been made by or agreed to by the project proponent."

Note: Document titles in red; WHNC comments in blue

Request to be added to Report for North Campus:

* Setbacks for structures including pool
* Request for on-site meetings with Chaminade at proposed North Campus to indicate visually where lights will be placed along wall with neighbors North of project as well as on site at Main Campus to compare pole heights and lighting
* Marching band hours and restrictions

ENV-2023-1255-MND
Project Description
3.2.4 Existing Facilities
Pg 18
"The existing high school encompasses approximately 21.03 acres on the Main Campus……*and a pool."*
Although Chaminade was permitted to install a pool on the Main Campus, it was never built.

3.3.2 New Construction and Campus Changes
Pg 22
"Six modular trailers/classrooms will be temporarily located on the Main Campus during the construction until the new Multistory Building is completed. Parking spaces displaced by these temporary classrooms will be available in the new surface parking lot on the North Campus prior to the installation of the modular trailers."
How many parking spots will be moved to the North Campus during construction?

3.3.5 Vehicle and Bicycle Parking
Pg 32
After construction 501 parking spaces
Main Campus existing 462 stalls; after construction 501 parking stalls
North Campus 101 parking stalls (86 stalls entrance from Saticoy + 15 stalls-pool & Srs- entrance from Woodlake)
Increase of 39 parking spaces
Still Inadequate parking for all of the events and games with vehicles encroaching into neighborhoods

3.5 Related Projects
Pg 38
"As stated in the Transportation Assessment prepared for the Project……no related projects have been identified within one-half mile of the Project Site."
Vesting Preliminary Application filed 3/30/2024 for proposed 324-unit apartment building on former Circle S Ranch property, 7556 Woodlake Avenue, West Hills, 91304. The project was not included in the MND and will have a major impact on the Transportation Assessment. The single-family home was demolished and consideration must be made for development of multiple buildings (homes or apartments) resulting in higher densities on this site.

Project Impacts
Artificial Light
Pg 42
"Ad adverse impact would occur if a project created a substantial new source of artificial light that would adversely affect the surrounding area…….The North Campus portion of the Project will include new lighting standards ranging in height from 70-90 feet ….. "
****Setbacks must be in the MND Report to understand the impact of the pole lights on the homes to the North of the Project. Request for on-site meetings with Chaminade at proposed North Campus to indicate visually where lights will be placed along wall as well as on site at Main Campus to compare pole heights.***
Refer to 3/07/24 DRAFT for Discussion; Setbacks on North Campus, pg 1.

III Air Quality
Pg 53
Southern California Association of Governments
"To this end, the 2020-2045 TP/SCS land use pattern continues the trend of focusing new housing and employment in the region's High Quality Transit Areas (HQTAs) and aims to enhance and build out the region's transit network."
Refer to "ENV-2023-1255-H-1 Transportation Assessment Report, "According to the City of Los Angeles' Mobility Plan 2035, the project site and its vicinity is not a part of the Transit Enhance Network".

City of Los Angeles Policies
Pg 61
"In addition, due to the removal of the existing supermarket and other commercial uses……the Project would result in a net reduction of 1,355 daily trips. Because of this significant reduction in site-related daily trips, the Project would result in a net decrease in operational emissions as compared to existing site uses."
The number of daily trips in this Report is overstated and does not reflect the actual number of trips to the shopping center. Long-time business tenants state that there were closer to 500 trips daily before COVID reduced shopping. The number 1,355 is incorrectly mentioned throughout the Report approximately 30 times.

Off-Side Operational Noise Sources
Pg 186
"The Project would result in a net-reduction in vehicle trips when compared to existing uses….."
The number of daily trips in this Report is overstated and does not reflect the actual number of trips to the shopping center. Long-time business tenants state that there were closer to 500 trips daily before COVID reduced shopping. The number 1,355 is incorrectly mentioned throughout the Report approximately 30 times.

Construction
On-Site Construction Activities
Pg 187
"The Project may not be fully implemented until 2035, and there is currently no exact sequence of construction activities or phasing….."
Without including Start dates and End dates for each phase of construction for the Project, the cumulative impact on noise, air quality/emissions, traffic and transportation cannot be fully realized.

North Campus – Demolition
Pg 189
"Table XIII-3 shows the estimated noise increases that would result from the Project's demolition activities on the North Campus…….noise increases at Melba Street Cul-de-Sac Residences and Bobbyboyar Avenue Residences could exceed the 5 dBA Leq threshold of significance for daytime construction activities lasting more than 10 days in a three-month period……"
****Not acceptable. Request reducing permitted construction hours from 7:00am-9:00pm (Monday-Friday) because of detrimental impact especially to neighborhoods located North of the planned development.***

LAMC Section 112.05 Threshold Analysis
Pg 194-197
****Not acceptable. Request reducing permitted construction hours from 7:00am-9:00pm (Monday-Friday) because of detrimental impact especially to neighborhoods located North of the planned development.***

Pg 194-196

LAMC Section 112.05 Threshold Analysis

"LAMC establishes a noise limit of 75 dBA Leq for powered equipment….operated within 500 feet of numerous residential-zoned properties…….would apply to the Project's construction noise levels. Project would not expose nearby residential uses to noise levels in excess of 75 dBA Leq…."

Table XIII-10/Construction Noise Levels-North Campus Construction of Pedestrian Bridge (Mitigated)

23309 Saticoy Street Residence- New Noise Level (dBA Leq): 67.0

Melba Street Cul-deSac Residences-New Noise Level (dBA Leq: 58.7

Bobbyboyar Avenue Cul de Sac Residences – New Noise Level (dBA Leq: 54.4

*"As shown, implementation of noise barriers pursuant to Mitigation Measure NOI-1 would ensure that the demolition-related noise increases at these receptors are below the 5 dBA Leq threshold of significance….."

Not acceptable. Also refer to "ENV-2023-1255-G-1 Noise Measurement Map", Equipment Noise Levels, Bore/Drill Rig at 95 ft. Workday Noise Level -dBA Leq. Bore drilling will be substantially noisier than a lawn mower at dBA Leq 80-100. Homes on West side of Saticoy, 23320 and 23314 Saticoy, should be included in the MND Reports. They will also be substantially affected by bridge construction.

Parking Related Activities

Pg 199

"Further it is worth noting that the existing shopping center on the North Campus is associated with 2,307 daily trips, according to the Project's transportation study……This is far greater than the number of vehicles that would utilize the two North Campus parking lots…….This suggests that the parking-related noises associated with the North Campus site would likely decrease with implementation of the Project."

Neighbors to the North of the proposed expansion development report that they do not experience noise from vehicles coming and going to the shopping center. The existing building acts as a buffer to noise. Therefore the statement in the Report that noises would be decreased is incorrect. In addition, noises generated by the Project will increase due to crowds attending athletic competitions and students participating in ongoing sport practices, i.e., baseball, soccer and swimming events.

North Campus Athletics and Aquatic Facilities

Summary of new activities at the North Campus (not including existing school events that would shift from the Main Campus to the North Campus)

Local community swimming –WHNC understood that a decision to open the pool to the community would probably not be included because of liability issues.

Pg 200

(North Campus) Batting cage: Monday – Saturday, 7:00am-8:00pm. No use is permitted on Sundays.

The time is incorrect. The agreed upon time indicated in the 3/07/24 DRAFT is 9:00am to 7:00pm.

On-Site Operational Noise Mitigation Measures

Pg 204-205

NOI-3 Amplified sound systems

"LAMC Section 112.01 (b) would prohibit any amplified noises from being audible at a distance greater than 150 feet from the North Campus property line, and compliance with this regulation would necessitate that the project's amplified noise levels are much lower than the levels predicted by this analysis. Without mitigation, this impact related to athletic operations on the North Campus could be significant"

Neighbors will contact Chaminade if noise levels are significant enough to disturb them and Chaminade will reduce noise to satisfy their concerns.

XVII Transportation

Pg 221

Vesting Preliminary Application filed 3/30/2024 for proposed 324-unit apartment building on former Circle S Ranch property, 7556 Woodlake Avenue, West Hills, 91304. This project was not included in the MND and will have a major impact on the Transportation Assessment. . The single-family home was demolished and consideration must be made for development of multiple buildings (homes or apartments) resulting in higher densities on this site. **Would this project conflict or be inconsistent with CEQA Guidelines section 15064.3 subdivision (b)?**

Pg 222

"…….demonstrate that the Project would result in a net decrease of daily vehicle trips when compared to existing conditions. This reduction is the result of demolishing an existing shopping center which is a high trip-generating use and replacing it with athletic and ancillary facilities for a high school."

The shopping center does not generate high-trip use. The number of miles in this Report is overstated and does not reflect the actual VMT. However, accepted that the number of cars entering and exiting the proposed athletic facility will be less than the existing shopping center.

ENV-2023-1255-A

Tech Lighting

Pg 14

Conclusion

In conclusion, the proposed sports lighting design does demonstrate an increase in both spill light and maximum intensity in comparison to the existing lighting conditions.

****Setbacks must be included in the MND Report to understand the impact of the pole lights on neighboring homes.***

As an example, In the June 7, 2024 Letter from Robert Webb/Chaminade to Charlene Rothstein/WHNC, page 4, "regarding minimum setbacks for the pool lights along the Woodlake Avenue frontage, in response to your request, we agree to propose the following as a condition of approval: Along the Woodlake Avenue frontage, pool lights shall be set back a minimum of 12 inches from the property line." WHNC requests on-site meetings with Chaminade at proposed North Campus to visually indicate where lights will be placed along wall with neighbors as well as on site at Main Campus for comparison of pole height.

ENV-2023-1255-B

Health and Equity Details

Pg 2-3

CalEEMod version 2022 seems to underestimate default horsepower ratings for this equipment."

Please explain

"It is worth noting that Sunshine Canyon Landfill, the likeliest destination, is located within 20 miles of the Project site."

Sunshine Landfill is a Class III landfill and is not permitted to accept hazardous waste under California Law. There may be a possibility that hazardous soil will have to be removed; an alternative landfill for hazardous waste should be listed.

Pg 27

"A high score (i.e. greater than 50) reflects a higher pollution burden compared to other census tracts in the State.

Drinking Water – 83.1"

****Request more information on water, potable or ground water, etc. and how this might affect usage and /or construction.***

Pg 22 & Pg 50
Activity Data
Operational Mobile Sources
"Shopping Center: 2,307 trips/weekday; VMT weekday 15,622"
*Actual total weekday trips is less than HALF the number used in the data

"High School: 2,953 trips/weekday; VMT/weekday 24,112"
**** Pollution Measurements--Does the "school weekday VMT" include that vehicles will travel greater distances from homes to and from Chaminade than current trips made by surrounding neighbors' homes to the shopping center?***

ENV-2023-1255-F
Environmental Site Assessment
Summary of Findings
Section 9/Additional Hazards
Pg 4
"An additional potential hazard has been identified as the adjacent former gas station/auto repair facility."
****Request for former gas station/auto repair facility site to be tested every year.***
L.A. zoning ordinance: If the lot is located 500 ft. or less from any school lot with a Certificate of Occupancy for a one-family dwelling, multiple family dwelling or mixed-use project containing a residential use or an A or R zone, automotive repair is prohibited unless approved pursuant to the provision of Section 12.24W. *Provide Conditional Use Permit.

5.2 User-Provided Information
Pg 10
"Price will likely be lowered due to soil contamination on the property."
****See comments ENV-2023-1255-B***
Health and Equity Details
****Sunshine Landfill is a Class III landfill and is not permitted to accept hazardous waste under California Law. If there a possibility of hazardous soil that may have to be removed, list the alternative landfill destination.***

9. Vapor Encroachment Screening
Pg 30
"Based on this screening, a VEC cannot be ruled out for the subject property due to the long-term presence of a dry cleaner and residual impacts left in place at the adjacent gas station; both items are considered REC's."

Pg 44
3.Data Summary and Recommendations
"PCE concentrations in soil vapor exceed both residential and commercial screening levels."
****The biodegradation process degrades PCE to TCE and eventually to VC. PCE can persist in subsurface soil a long period of time. Will soil venting technology be used to remove the PCE?***

ENV-2023-1255-G-1
Noise Measurement
Construction Noise Impact Analysis
23309 Saticoy Street Residence
****The residence at 23309 Saticoy is referenced throughout the report for high noise and vibration impact. It does not appear that the following homes at 23320 and 23314 Saticoy on the West side of***

Saticoy are included. They will be negatively impacted, particularly with the bridge construction. Add them to the Report.

Vibration Impact Analysis
Pg 66
****Vibrations from drilling/boring will affect nearby residences. Include monitoring equipment to detect levels of vibration during the operation to adjust and minimize the impact.***

ENV 2023-1255-G-2
Air Quality, Greenhouse Gases, Noise Analysis
Pg 3
Table 1 Aquatic Complex/Pool Noise Levels-Swim Meet (Leq 1hr)"
"Source: Woodrow Wilson High School Aquatic Center IS/MND March 2021"
****Assume this is the school located in Long Beach. Without having site map and information on their aquatic center project, we are unable to determine if the pool noises associated with the W. Wilson project are comparable to the projected Chaminade pool noise levels.***

Batting Cage
Discussion & Analysis
"The batting cage would be located approximately 75 feet south of the Project's northern property line."
****How many balls per minute are released from the batting machine and how long does one standard batting practice session last per individual session?***

ENV-2023-1255-H-2
Transportation Impact Assessment
C Access and Circulation
Existing & Cumulative Traffic Conditions
Pg 2
The access and circulation analysis included a delay study of the following intersections using the Highway Capacity Manual (HCM) methodology which calculates the amount of delay per vehicle based upon the intersection traffic volumes, lane configurations and signal timing:
****The Transportation Impact Assessment does not take into consideration the Vesting Preliminary Application filed 3/30/2024 for proposed 324-unit apartment building on former Circle S Ranch property, 7556 Woodlake Avenue, West Hills, 91304. The single-family home was demolished and consideration must be made for development of multiple buildings (homes or apartments) resulting in higher densities on this site. This project was not included in the MND and will have a major impact on the Transportation Assessment. Currently there is a 4-way stop at the corner of Saticoy Street and Woodlake Avenue. Saticoy Street crossing Woodlake Avenue heading East is narrow and may have to be widened. To avoid accidents, there should be a traffic light to replace the 4-way stop.***

Pg 3
Student Drop-Off/Pick up
School Access Points
****Will school be in session when construction begins and during dates of peak activity? What plan is in place to accommodate disrupted traffic flow when students and visitors are attending classes and events?***

ENV-2023-1255-H-1
Transportation Assessment Report
Overall comments
****The proposed 324-unit apartment project on the former Circle S property located at the intersection of Saticoy Street and Woodlake Avenue (a 4-way stop) will add multiple vehicle trips (volume) to***

immediate vicinity roadways and intersections that combined with Chaminade traffic will negatively impact the analysis contained in the MND (including traffic forecasts and ambient traffic growth. The single-family home was demolished and consideration must be made for development of multiple buildings (homes or apartments) resulting in higher densities on this site. WHNC believes that the MND has not considered to the fullest extent changes that the S.W. Valley 2024-2025 Community Plan will be bringing to the surrounding community of West Hills.

Respectfully
Submitted by:

Bill Rose

Bill Rose, Co-Chair
Zoning & Planning Committee

Charlene Rothstein

Charlene Rothstein, Co-Chair
Zoning & Planning Committee

cc: Councilmember John Lee, Council District 12
Hannah Lee, Chief of Staff, Council District 12
Dan Rosales, Planning Director, Council District 12
Chris Landon, Chaminade College Preparatory, Director of Facilities
Brad M. Rosenheim, Esq., President, CEO Rosenheim & Associates Inc.
Jessica Pakdaman, Project Manager, Rosenheim & Associates Inc.
Claudia Rodriquez, City Planner
Vicente Cordero, LADOT

*****Attachments***
1. Vesting Preliminary Application
Case #PAR: 2024-1742-VHCA; 5-Story, 324-unit Affordable Senior Age Restricted Housing Development; 7556 Woodlake Avenue, West Hills, CA 91304
2. 7/02/24 WHNC Email to L.A. City Planning Department; Case #2024-1742-VHCA

REFERRAL FORM

HOUSING CRISIS ACT
Vesting Preliminary Application

This form serves as the optional Housing Crisis Act Vesting Preliminary Application for projects creating one or more units seeking vesting rights pursuant to the Housing Crisis Act of 2019 (HCA). This form also serves as a referral to the Los Angeles City Planning (City Planning) Development Services Center (DSC) and to the Los Angeles Department of Building and Safety (LADBS) Plan Check for HCA vesting purposes. The HCA Vesting Preliminary Application (Preliminary Application) allows the applicant to vest to City ordinances, policies, and standards adopted and in effect on the day that a complete Preliminary Application is submitted. Please be advised that these vesting rights do not apply to changes in State law or to changes in building code.

The following project types are eligible to submit a Preliminary Application:

- Housing Development Projects requiring an application to City Planning; or
- Housing Development Projects not requiring a City Planning application and submitting for building permit Plan Check to LADBS on or after January 1, 2022.

For Submittal Instructions, refer to Section E of this form. Section G ("Retention of Vesting Rights") of this form may be referenced for additional guidance on HCA vesting rights. The "Housing Development Project Applicability Matrix" may also be used to identify whether the HCA applies to specified development types, and when a Preliminary Application applies.

THIS SECTION TO BE COMPLETED BY PLANNING STAFF ONLY

Case Number PAR- 2024-1742-VHCA

Proposed No. of Dwelling Units[1]: 324

Proposed Building Area[1,2]: 246,573 sf

Submittal Completion Date[3]: 3/20/2024

Last Day to file City Planning Application/Submit to LADBS Plan Check[1]: 09/16/2024

Invoice No.: 94485 **Payment Date:** 03/20/2024

City Planning Staff Name and Title: Greg Guillermo, Planning Assistant

City Planning Staff Signature: _____

1 For information on retention of vesting rights, refer to Section F of this form.
2 Building Area, as defined by the California Building Standards Code (Title 24 of the California Code of Regulations) – California Government Code Section 65941.1(c). Refer to Appendix 2 for Building Area calculation instructions.
3 As part of the process to deem complete the submittal of this optional Preliminary Application, City Planning staff have affirmed neither the feasibility nor the entitlement review path of the proposed project.

This form shall be completed by the applicant and reviewed and signed by City Planning staff prior to filing the City Planning application, or the LADBS Plan Check application for projects that do not require a City Planning application. The signed Preliminary Application shall be submitted during the City Planning application filing, or the submission of an application for building permit and Plan Check. Any modifications to the content(s) of this form after its authorization by City Planning staff is prohibited. Further, any change to the proposed number of dwelling units or the proposed building area must be verified by City staff.

THIS SECTION TO BE COMPLETED BY THE APPLICANT

A. SITE INFORMATION

PROJECT LOCATION

Street Address[4]: 7556-7572 N WOODLAKE AVE LOS ANGELES CA, 91304

Legal Description[5] (Lot, Block, Tract): LOT: FR 208, BLOCK: N/A, TRACT: TR21391

Assessor Parcel Number(s): 2021-002-013 **Site Area (sf):** 95,699.3

EXISTING USE(S)

Describe in detail the existing uses on the project site, including any major physical alterations or soil disturbance that may have previously occurred.

TWO TWO-STORY SINGLE FAMILY DWELLINGS TO BE DEMOLISHED.

B. PROPOSED PROJECT

☐ **ED 1 Eligible[6]**

PROPOSED USE(S)

Describe in detail the characteristics, scope and/or operation of the proposed project.

NEW CONSTRUCTION, 5-STORY, TYPE VA OVER TYPE IA, 324-UNIT, 193,834 SF, 100% AFFORDABLE SENIOR AGE RESTRICTED HOUSING DEVELOPMENT. PROJECT TO SEEK ON-MENU INCENTIVES PER LAMC 12.22.A.25 AND AB2334.

[4] Street Address must include all addresses on the subject/application site (as identified in ZIMAS http://zimas.lacity.org).
[5] Legal Description must include all contiguously owned properties (even if they are not a part of the proposed project site).
[6] Refer to Executive Directive 1 Implementation Guidelines for qualifying criteria. If the project is determined to be ineligible for ED 1, a new Referral Form will need to be obtained.

AFFORDABLE HOUSING INCENTIVES, WAIVERS, CONCESSIONS, AND PARKING REDUCTIONS

Will the project proponent seek incentives, waivers, concessions, or parking reductions pursuant to California Government Code Section 65915 (i.e., Density Bonus), the Transit-Oriented Communities (TOC) program, or any other affordable housing incentive program[7]?

☒ **YES** ☐ **NO**

If "YES", describe:

BASE INCENTIVES (3):
33' ADDITIONAL HEIGHT FEET OR 3 STORIES PER AB2334
UNLIMITED DENSITY PER AB2334
PARKING OPTION 3 PER AB2334 - SENIOR HOUSING

ON-MENU INCENTIVE (5):

RESIDENTIAL DWELLING UNIT COUNT

Indicate the total number of dwelling units proposed as well as a breakdown by levels of affordability.

PER AB2334 GENERAL PLAN ALLOWS RD5 DENSITY.

Affordability Levels	Total
Market Rate	1
No. of Affordable Units Proposed	323
Extremely Low Income	
Very Low Income	
Low Income	259
Moderate Income	64
TOTAL No. of Units Proposed	324

Total Units	Total
No. of Units Allowed by Right (per LAMC)	19
No. of Bonus Units Proposed	305
TOTAL No. of Units Proposed	324

Other Notes on Units:

[7] Projects proposing Density Bonus "On-Menu" incentives through a ministerial process or "Off-Menu" incentives, waivers, concessions and parking reductions through a discretionary process must be reviewed by the Los Angeles City Planning Affordable Housing Services Section and obtain a signed Affordable Housing Referral Form (CP13-4043) prior to filing a City Planning application.

FLOOR AREA

Provide the proposed floor area and square footage of residential and non-residential development:

Floor Area[8] 193,834 **Building Area**[9] 246,573

PARKING

Provide the proposed number of automobile and bicycle parking spaces:

Automobile Parking	**Total**
Residential	184
Non-Residential	

Bicycle Parking	**Total**
Residential Long Term	156
Residential Short Term	16
Non-Residential Long Term	
Non-Residential Short Term	

SUBDIVISION

Will the proposed project include a request for an approval pursuant to the Subdivision Map Act, including a Vesting or Tentative Tract Map, Preliminary Parcel Map, Condominium Map, Lot Line Adjustment, or Certificate of Compliance?

☐ **YES** ☒ **NO**

ADDITIONAL INFORMATION

Does the project propose any point sources of air or water pollutants[10]?

☐ **YES** ☒ **NO**

If "YES", please describe:

[8] As defined by the LAMC.

[9] As defined by the California Building Standards Code (Title 24 of the California Code of Regulations) – California Government Code Section 65941.1(c). Refer to Appendix 1 for Building Area calculation instructions.

[10] A project that proposes point sources of air or water pollutants may trigger review and permitting by, but not limited to, the South Coast Air Quality Management District, the Los Angeles Regional Water Quality Control Board, or the Los Angeles Bureau of Sanitation.

C. EXISTING SITE CONDITIONS

HOUSING[11]

Provide the number of existing residential units on the project site that will be demolished and whether each existing unit is occupied or unoccupied:

	Existing Residential Units	Demolished or To Be Demolished
Occupied Units		
Unoccupied Units	2	2
TOTAL Units	2	2

ADDITIONAL SITE CONDITIONS

1. Is the project site located wholly or partially within:

a. A Very High Fire Hazard Severity Zone (VHFHSZ)[12]? ☐ **YES** ☒ **NO**

b. Wetlands, as defined in United States Fish and Wildlife (USFW) Service Manual, Part 660 FW 2 (June 21, 1993)? ☐ **YES** ☒ **NO**

c. A special flood hazard area subject to inundation by the one percent annual chance flood (100-year flood) as determined by the Federal Emergency Management Agency (FEMA) in any official maps published by FEMA? ☐ **YES** ☒ **NO**

d. Delineated earthquake fault zone as determined by the State Geologist in any official maps published by the State Geologist? ☐ **YES** ☒ **NO**

e. Hazardous waste site that is listed pursuant to Section 65962.5 or a hazardous waste site designated by the Department of Toxic Substances Control (DTSC) pursuant to Section 25356 of the Health and Safety Code[13]? ☐ **YES** ☒ **NO**

[11] A Housing Development Project, as defined in California Government Code Section 65905.5(b)(3), is subject to the provisions of Government Code Section 66300, as amended by SB 8, and will require an SB 8 Replacement Unit Determination letter from the Los Angeles Housing Department or a No-Net-Loss Property Owner Declaration.

[12] Housing Development Projects located in a VHFHSZ are eligible to seek vesting rights pursuant to the HCA.

[13] The development shall not be located on a legal parcel that is a hazardous waste site except for sites the DTSC has cleared for residential use or residential mixed use.

2. Does the project site contain a designated or potentially historic and/or cultural resource[14]? ☐ **YES** ☒ **NO**

   If "YES", please describe:

   a. Does the project site contain any species of special concern such as special status flora or fauna, protected trees, or wildlife[15]? ☐ **YES** ☒ **NO**

      If "YES", please describe and/or depict on the site plan:

   b. Does the project site contain any recorded easement, such as easements for conservation, storm drains, water lines, and other public rights of way? ☐ **YES** ☒ **NO**

      If "YES", please describe and/or depict on the site plan:

   c. Does the project site contain a stream or other resource that may be subject to a streambed alteration agreement pursuant to Chapter 6 (commencing with Section 1600) of Division 2 of the California Fish and Wildlife Code, including creeks and wetlands? ☐ **YES** ☒ **NO**

      If "YES", please describe and/or depict on the site plan:

[14] Information regarding historic resources that have been identified by the City or another public agency can be found in SurveyLA, HistoricPlacesLA, or ZIMAS.

[15] An Arborist Report or a Biological Survey and Impact Assessment may be required following the filing of an application requesting approval of a discretionary action if the project site is on or adjacent to open space or previously undisturbed land in order to demonstrate whether the site provides habitat for any special status flora or fauna, including those identified in a Specific Plan or Zoning Overlay.

D. COASTAL

1. Is the project site located wholly or partially within the Coastal Zone, as defined in Division 20 (commencing with Section 3000) of the Public Resources Code (PRC). If marked "NO", skip to section E. ☐ **YES** ☒ **NO**

2. Does the project site contain a/an:

   a. Wetlands, as defined in subdivision (b) of Section 13577 of Title 14 of the California Code of Regulations[16]? ☐ **YES** ☐ **NO**

   b. Environmentally Sensitive Habitat Area (ESHAs), as defined in Section 30240 or the California PRC[17]? ☐ **YES** ☐ **NO**

   c. Tsunami run-up zone? ☐ **YES** ☐ **NO**

   d. Area used for public access to or along the coast? ☐ **YES** ☐ **NO**

E. ADDITIONAL REQUIRED MATERIALS

In order to initiate a request for HCA vesting rights, an applicant must submit a Preliminary Application and the following materials and information through City Planning's Online Application Portal. An appointment is not required.

1. **HCA Vesting Preliminary Application** (CP13-4062)

2. **Plot/Site Plan.** A legible plot plan drawn to scale is required. The plot plan must include all contiguous parcels under the applicants' ownership and any contiguous parcels proposed to be part of the project site. The plot plan should identify which parcels are/are not a part of the proposed project. The plot plan should include a summary of information table indicating the following:

   - Building area of each building that is to be occupied
   - Proposed land uses
   - Proposed number of dwelling units
   - Height of buildings
   - All measurements that establish the proposed location of the proposed buildings and structures, including property lines, yards, setbacks, space between buildings and structures, and building footprint dimensions.
   - Trees and Shrubs. Plans must clearly show all existing trees and shrubs on the project site and within the right-of-way adjacent to the property. Identify and label (by name and trunk diameter) the following protected trees and shrubs as identified on the Plot Plan Instructions (CP-7752).

[16] Wetlands may include a watercourse or a storm drain. A Wetlands Delineation Report may be required following the filing of an application requesting approval of a discretionary action in the Coastal Zone if the site contains a watercourse or a storm drain.

[17] ESHAs are mapped areas in the certified Venice Land Use Plan and the San Pedro Coastal Land Use Plan.

- Watercourses, storm drains, creeks streams, wetlands (as defined in the USFW Service Manual, Part 660 FW 2 (June 21, 1993) or as defined in subdivision (b) of Section 13577 of Title 14 of the California Code of Regulations), or other resources that may be subject to a streambed alteration agreement pursuant to Chapter 6 (commencing with Section 1600) of Division 2 of the Fish and Wildlife Code.
- Aerial Site Photograph showing existing site conditions of environmental site features that would be subject to regulations by a public agency, including creeks and wetlands. It may be provided on any relevant plan sheet, including a project information sheet.

Refer to the Plot Plan Instructions (CP-7752) for additional guidance.

3. **Elevation Plans.** Elevations must show the design, materials, color, textures, patterns, massing and height of each building under the project scope. Refer to the Housing Crisis Act Vesting Preliminary Application Elevations Instructions (Appendix 1 of this form, page 15) for additional guidance. The elevations plans shall be included as part of the set of plans.
4. **Building Area Analysis.** Refer to the Housing Crisis Act Vesting Preliminary Application Building Area Analysis Instructions (Appendix 2 of this form, page 16) for additional guidance. The building area plans shall be included as part of the set of plans.
5. **Sections** for projects located on multiple levels or subterranean floors (e.g., basements, subterranean parking, etc.) showing depth (linear feet) and amount (cubic yards) of proposed cut, fill, import, and export related to grading, excavation of earthwork. The sections shall be included in the set of plans.
6. **Filing Fee.** Fees must be paid online after the electronic invoice is received.

F. ADDITIONAL RESOURCES

1. **Appendix 1:** Elevations Instructions for Vesting Pursuant to the Housing Crisis Act (page 15).
2. **Appendix 2:** Building Area Analysis for Vesting Pursuant to the Housing Crisis Act (page 16).

G. RETENTION OF VESTING RIGHTS

A Preliminary Application must be deemed complete by City Planning in order to obtain vesting rights. A Preliminary Application is deemed complete at the time that all required forms, documents, and materials are submitted, and the final invoice has been issued and proof of payment is presented to City Planning. A Preliminary Application completed before January 1, 2030 is valid until January 1, 2034, provided that HCA vesting rights are maintained and have not otherwise lapsed or terminated.

To retain HCA vesting rights, the applicant must adhere to certain time limits and limitations on project scope changes. **If the time limits are not met or if the changes in the project scope exceed specified thresholds, the Preliminary Application shall expire and have no further force or effect.** During City Planning application filing or the submission of an application for building permit and Plan Check, as well as through the development process, City staff will verify whether a project has been able to maintain vesting rights. Refer to the “Housing Crisis Act Vesting Log” on page 11 for additional instructions.

TIME LIMITS TO RETAIN VESTING RIGHTS

Once the Preliminary Application is complete, the City Planning application or the application for building permits and Plan Check must be submitted within 180 days of the date on which the Preliminary Application is deemed complete, in order to retain vesting rights.

If a City Planning application is required, the applicant must submit all outstanding information needed in order to deem the City Planning application complete within 90 days of receiving a hold or "deemed incomplete" letter from City Planning staff. The 90-day period does not apply to projects eligible to submit a building permit Plan Check application to LADBS without a City Planning application on or after January 1, 2022.

For all vested projects (ministerial or discretionary), construction of the Housing Development Project must commence within 2.5 years. For vested projects that are 100 percent affordable, the Housing Development Project must commence within 3.5 years.

If the project is discovered to require a City Planning application during the permitting process, the project may still use the Preliminary Application issued as long as the City Planning application is submitted within 180 days of the date a complete Vesting Preliminary Application was submitted. The submittal of the building permit application to LADBS would not be held against the project.

PROJECT SCOPE THRESHOLDS TO RETAIN VESTING RIGHTS

In order to maintain vesting rights, any change in the residential unit count or in the Building Area is limited to *less than* 20 percent of the total proposed on the completed Preliminary Application, exclusive of any increase resulting from the receipt of a density bonus, concession, waiver, or similar provision.

H. PROJECT TEAM INFORMATION (Complete all applicable fields)

Applicant[18] Name: JEFF ZBIKOWSKI

Company/Firm: JZA ARCHITECTURE

Address: 4043 IRVING PL **Unit/Space Number:** SUITE B

City: CULVER CITY **State:** CA **Zip Code:** 90232

Telephone: 310.853.500 **E-mail:** JEFF@JZARCH.LA

Are you in escrow to purchase the subject property? ☐ **YES** ☐ **NO**

(Optional) Agent/Representative Name: _____

Company/Firm: _____

Address: _____ **Unit/Space Number:** _____

City: _____ **State:** _____ **Zip Code:** _____

Telephone: _____ **E-mail:** _____

Primary Contact for Project Information[19]
(select only one) ☐ Agent/Representative ☐ Applicant

[18] An applicant is a person with a lasting interest in the completed project such as the property owner or a lessee/user of a project. An applicant is not someone filing the case on behalf of a client (i.e., usually not the agent/representative).

[19] As of June 8, 2022, the Primary Contact for Project is required to have an Angeleno Account and register with the Ethics Commission for Significant Project Entitlements, as defined in LAMC Section 49.7.37(A)(6). An email address and phone number shall be required on the City Planning Application Form, and the email address provided shall match the email address used to create the Angeleno Account.

THIS SECTION SHALL BE ADDED ONTO THE FINAL PLAN SET PERMITTED BY LADBS

HOUSING CRISIS ACT VESTING LOG

This log is intended to be used by City staff to track compliance with the time limits and project scope changes (unit count), in order to retain vesting rights through the development process. If a vested Housing Development Project is associated with a City Planning application for its development, this page and the log shall be completed by the City Planning Case Processing Unit. Any modifications to the content(s) of this log by anyone other than City staff is prohibited. A copy of this page and the completed log must be included on the final set of plans for construction.

CITY STAFF USE ONLY

Case Number PAR- _____

Date Vested (Date Preliminary Application Submittal Complete): _____

Proposed No. of Dwelling Units[20]: _____

City Planning Staff Name and Title: _____

[20] The proposed number of dwelling units should match the number of proposed dwelling units identified on page 1.

TABLE A - HOUSING CRISIS ACT VESTING LOG
THIS SECTION TO BE COMPLETED BY CITY PLANNING CASE PROCESSING UNIT ONLY

Milestone	Date Due	Date Complete	Dwelling Units[21]	Determination[22]	Staff Name
City Planning Application Filing Project submitted within 180 days of the HCA Vesting Preliminary Application being deemed complete.[23] Project meets the time limits: ☐ **YES** ☐ **NO**			☐ Project meets 20% threshold ☐ Project exceeds 20% threshold Proposed Units: _____ Plan Sheet No.: _____	☐ The project meets the time limits (180 days) and limitations on project scope (unit count). ☐ The HCA Vesting Preliminary Application is expired and has no further force or effect.	
Applicant Response to Deemed Incomplete Letter If a City Planning Application is Deemed Incomplete, the applicant must submit all information needed within 90 days of receiving the Deemed Incomplete Letter (applies ONLY to projects that are required to file a City Planning application) Project meets the time limits: ☐ **YES** ☐ **NO**			☐ Project meets 20% threshold ☐ Project exceeds 20% threshold Proposed Units: _____ Plan Sheet No.: _____	☐ The project meets the time limits (90 days) and limitations on project scope (unit count). ☐ The HCA Vesting Preliminary Application is expired and has no further force or effect.	

[21] Any change in the residential unit count is limited to less than 20 percent of what is indicated on the completed Preliminary Application, exclusive of any increase resulting from the receipt of a density bonus, concession, waiver, or similar provision.
[22] If the time limits are not met or if the changes in the project scope exceed specified thresholds, then the Preliminary Application shall expire and have no further force or effect.
[23] Once the Preliminary Application is complete, the City Planning application must be submitted within 180 days of the Preliminary Application completion date.

Milestone	Date Due	Date Complete	Dwelling Units	Determination	Staff Name
Date City Planning Application Deemed Complete	N/A		☐ Project meets 20% threshold ☐ Project exceeds 20% threshold Proposed Units: _____ Plan Sheet No.: _____	☐ The project meets the limitations on project scope (unit count). ☐ The HCA Vesting Preliminary Application is expired and has no further force or effect.	
Date of Hearing	N/A		☐ Project meets 20% threshold ☐ Project exceeds 20% threshold Proposed Units: _____ Plan Sheet No.: _____	☐ The project meets the limitations on project scope (unit count). ☐ The HCA Vesting Preliminary Application is expired and has no further force or effect.	
Date of Final Approval of City Planning Application[24]	N/A		☐ Project meets 20% threshold ☐ Project exceeds 20% threshold Proposed Units: _____ Plan Sheet No.: _____	☐ The project meets the limitations on project scope (unit count). ☐ The HCA Vesting Preliminary Application is expired and has no further force or effect.	

[24] Final approval means that a project has obtained all necessary approvals to be eligible to apply for, and obtain, a building permit or permits, and all appeal periods or statutes of limitations have been exhausted or resolved in favor of the Housing Development Project (G.C. Sec. 65589.5(o)(2)(D)(ii)).

Milestone	Date Due	Date Complete	Dwelling Units	Determination	Staff Name
Date Construction Commenced (within 2.5 years or 3.5 years of Final Decision)[25] Project meets the time limits: ☐ **YES** ☐ **NO**			☐ Project meets 20% threshold ☐ Project exceeds 20% threshold Proposed Units: _____ Plan Sheet No.: _____	☐ The project meets the time limits (2.5 or 3.5 years) and limitations on project scope (unit count). ☐ The HCA Vesting Preliminary Application is expired and has no further force or effect.	

Notes:

[25] Vested Housing Development Projects must commerce construction within two and one-half years, or three and one-half years for one hundred percent affordable Housing Development Projects.

Appendix 1
Elevations Instructions for Vesting Pursuant to the Housing Crisis Act

123 Example Blvd, Los Angeles, CA



Materials, Textures and Colors


Exterior Cement Plaster, Smooth, Cream


Balcony Door, Vinyl, White


Board Formed Concrete, Wood Grain, Misty Blue


Exterior Cement Plaster, Smooth, Pewter


Aluminum, Brushed Metal, Dark Grey

Elevations shall show the design, materials, color, massing, facade and height of each building under the project scope:

- **Scale:** The scale shall be no less than ⅛" = 1'-0" or a scale that produces a readable illustration.
- **Building Materials and Colors:** Elevations must identify all building materials types and colors. Include any sustainable features of the project as well as the material texture or pattern.
- **Location:** The elevations page must include the site address.
- **Labeling:** All views and major features shall be labeled, including which side of the project is being illustrated.
- **Dimensions:** Elevations shall be dimensioned in a manner that all relevant measurements can be read. Accessory structures shall have the same dimension requirements as the main structure. Include the dimensions for all heights. Required dimensions must include the following items:
  - The lowest elevation within 5 feet of the perimeter of the building;
  - The highest elevation for purposes of determining maximum building height as measured per Department of Building and Safety requirements and as defined by LAMC Section 12.03 of Chapter 1;
  - Height to the highest point of the roof and all roof structures;
  - Wireless facilities and transformers;
  - Projections proposed to be attached to a building facade;
  - Poles or signs including those attached to the facade or roof. Roof signs, pole signs and billboards must show both sides;
  - Facade texture, pattern, color and material changes to determine compliance with building articulation and design standards; and
  - Fences, walls, beams, barriers, including lighting fixtures, pillars, and gates on all sides.

Most City Planning processes involve a review of the project design. Applicants are encouraged to consult with the **LACP Urban Design Studio** regarding the design of the project early in the application process, ideally prior to filing. You may schedule a design review meeting online: planning.lacity.org/plans-policies/urban-design-studio/schedule-appointment.
Refer to Elevation Instructions (CP-7817) for additional guidance.

Appendix 2
Building Area Analysis for Vesting Pursuant to the Housing Crisis Act

The purpose of this Building Area analysis sample and instructions is to provide guidance with determining the total Building Area or "square footage of construction" of a Housing Development Project in order to vest pursuant to the Housing Crisis Act. The sample below broadly applies to all types of Housing Development Projects.

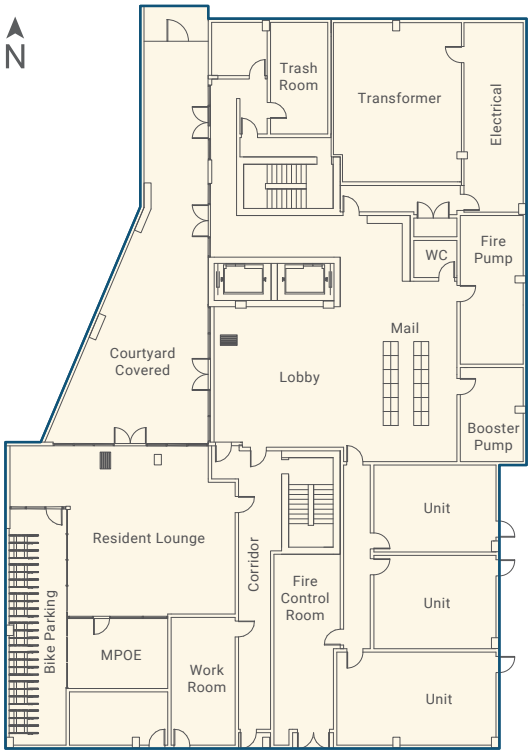
Building Area Calculation Table – Example

Level	Proposed
L2–L5	30,704 sf
L1	9,426 sf
Total	40,130 sf

Building Area Definition

The area included within surrounding exterior walls (or exterior walls and fire walls) exclusive of vent shafts and courts. Areas of the building not provided with surrounding walls shall be included in the building area if such areas are included within the horizontal projection of the roof or floor above.
– California Government Code Section 65941.1(C)

Building Area Diagram – Example



Level 1 Building Area 9,426 sf



Levels 2-5 Building Area 7,676 sf (per level)

Instructions

- **Shaded and Dimensioned Diagram:** Set of plans shall include a shaded and dimensioned diagram indicating the total Building Area for each level, including any covered parking areas, elevator shafts and stairwells at each level.
- **Quantities Referenced Diagram:** Each area analysis must include a label or reference to its Building Area, expressed as square-footage.
- **Calculation Table:** The Building Area page should include a corresponding calculation table indicating the Building Area for each level, as well as the grand total.

Gmail

Char Rothstein <charwhnc@gmail.com>

Re Case #2024-1742-VHCA

Char Rothstein <charwhnc@gmail.com> Tue, Jul 2, 2024 at 12:09 PM
To: "greg.guillermo@lacity.org" <greg.guillermo@lacity.org>

Good morning Greg,

Hope this finds you doing well.

This is a follow up to my voicemail left on your LA city phone on 7/1/2024 and comes to you from the West Hills Neighborhood Council (WHNC) Zoning & Planning committee:

The Vesting Preliminary Application filed on 3/20/2024 has been shown to be problematic and has raised many concerns. The proposal is for an extremely dense project, to be built at (5) stories on a hill facing surrounding single family homes of (1) and (2) stories, also facing a two way street which already has traffic issues. Many constituents have requested a signal in the past at Woodlake & Saticoy for safety reasons.

On June 11, 2024, the WHNC held their regularly scheduled Zoning & Planning committee meeting. This case was on the agenda and over 250 stakeholders attended in person with over 150 attending on zoom.
(please see a 15 second video of the meeting attached)

We will be meeting at Senator Stern's office during the week of July 22nd to discuss this case and other community concerns.There are many questions that have come from the community regarding this application. Can we please discuss?

We appreciate your help.

Best regards,
Char Rothstein
WHNC/President
Zoning & Planning
Co-Chair
818-888-8805 office

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22065K

INITIAL SUBMISSIONS

The following submissions by the public are in compliance with the Commission Rules and Operating Procedures (ROPs), Rule 4.3a. Please note that "compliance" means that the submission complies with deadline, delivery method (hard copy and/or electronic) AND the number of copies. The Commission's ROPs can be accessed at **http://planning.lacity.org**, by selecting "Commissions & Hearings" and selecting the specific Commission.

The following submissions are not integrated or addressed in the Staff Report but have been distributed to the Commission.

Material which does not comply with the submission rules is not distributed to the Commission.

ENABLE BOOKMARKS ONLINE:

**If you are using Explorer, you will need to enable the Acrobat  toolbar to see the bookmarks on the left side of the screen.

If you are using Chrome, the bookmarks are on the upper right-side of the screen. If you do not want to use the bookmarks, simply scroll through the file.

If you have any questions, please contact the Commission Office at (213) 978-1300.

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FAX: (916) 444-6209

March 17, 2025

VIA E-Mail and U.S. Mail

President Monique Lawshe
c/o Cecilia Lamas
Commission Executive Assistant
City Planning Commission
City of Los Angeles
200 North Spring Street, Room 272
Los Angeles, California 90012
cpc@lacity.org
cecilia.lamas@lacity.org

VIA E-Mail Only

Trevor Martin, City Planner
trevor.martin@lacity.org

Re: **City Planning Commission Hearing for Chaminade College Preparatory High School Expansion Project (CPC-2023-1254-VZC-HD-ZAD-ZAA; CPC-2009-1477-CU-ZV—ZAA-SPR-PA1; VTT-84101-1A; ENV-2023-1255-MND)**

Dear President Lawshe, Commissioners, Ms. Lamas, and Mr. Martin:

We write on behalf of the Coalition for Responsible Equitable Economic Development Los Angeles ("CREED LA") in objection to the Chaminade College Preparatory High School Expansion Project (Case No. CPC-2023-1254-VZC-HD-ZAD-ZAA; CPC-2009-1477-CU-ZV—ZAA-SPR-PA1; VTT-84101-1A; ENV-2023-1255-MND) ("Project") proposed by Chaminade College Preparatory ("Applicant").

CREED LA respectfully urges the City of Los Angeles ("City") Planning Commission to vacate the Deputy Advisory Agency's approval of the Vesting Tentative Tract Map ("VTTM") and associated environmental determinations. The Commission should remand this matter to City staff with direction to prepare an environmental impact report ("EIR") that fully discloses, analyzes, and mitigates the Project's significant noise, hazards, public health, and biological resources impacts, as required under the California Environmental Quality Act ("CEQA"), before approving any additional Project entitlements.

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I. INTRODUCTION

On March 27, 2025, the Planning Commission will consider CREED LA's appeal of the Deputy Advisory Agency's Determination approving the VTTM and adopting a Mitigated Negative Declaration ("MND") and Mitigation Monitoring Program, along with other entitlements, including a vesting zoning change and height district change, a zoning administrator's determination regarding fences and sport facilities structures, zoning administrator's adjustment for building height and above-grade pedestrian bridge, and plan approval to allow continued use and operation of existing high school with modified conditions.[1] Any recommendation to approve the Project's entitlements or adopt the MND is premature and unsupported by substantial evidence in the record because the City has failed to comply with CEQA.

CEQA requires preparation of an EIR when substantial evidence in the record supports a ***fair argument*** that a project may have significant environmental impacts that are not fully mitigated.[2] This is true even though the City purports to rely on substantial evidence that the Project will not have significant environmental impacts: "if there is disagreement among expert opinion supported by facts over the significance of an effect on the environment, the Lead Agency ***shall treat the effect as significant and shall prepare an EIR***."[3]

The City consultant's responses[4] to CREED LA's MND comments[5] fail to meaningfully refute the substantial evidence presented regarding the Project's significant environmental impacts. Rather than addressing the core issues raised, the responses narrowly focus on defending the adequacy of the MND by attempting to justify its own analysis and conclusions. As demonstrated below, and in the

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[1] *See* Los Angeles City Planning, Notice of Public Hearing: 7500 North Chaminade Avenue (Mar. 4, 2025).
[2] CEQA Guidelines § 15064(f)(1).
[3] *Id*. § 15064(g) (emphasis added).
[4] Letter to Trevor Martin, Los Angeles Department of City Planning from Stacie Henderson, CAJA Environmental Services, LLC re: Responses to Comments on the Chaminade College Preparatory, High School Project (Aug. 27, 2024) (hereinafter "CAJA Responses"); Letter to Trevor Martin, City of Los Angeles from Noah Tanski, Noah Tanski Environmental Consulting re: Response to CREED LA Comments on the Chaminade College Preparatory, High School Project (ENV-2023-1255-MND) (Aug. 27, 2024) (hereinafter "Tanski Responses").
[5] Letter to Trevor Martin, City of Los Angeles from Andrew J. Graf, Adams Broadwell Joseph & Cardozo re: Comments on the Mitigated Negative Declaration for the Chaminade College Preparatory High School Project (Case No. ENV-2023-1255-MND, SCH No. 2024060557) (July 15, 2025) ("CREED LA MND Comments").

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accompanying comments by CREED LA's noise expert Jack Meighan,[6] the consultant's responses do not remedy the fundamental deficiencies in the MND, and there exists substantial evidence supporting a fair argument that the Project would have significant noise, hazard, public health, and biological resources impacts. Under CEQA, this triggers the requirement for the preparation of an EIR.

CREED LA respectfully urges the Planning Commission to vacate the Deputy Advisory Agency's approval of the VTTM and adoption of the MND and MMP, and direct Staff to prepare an EIR that fully discloses, analyzes, and mitigates the Project's noise, hazards, public health, and biological resources impacts, as required by CEQA.

II. SUBSTANTIAL EVIDENCE SUPPORTS A FAIR ARGUMENT THAT THE PROJECT MAY RESULT IN SIGNIFICANT NOISE IMPACTS

A. The City's Response Does Not Cure Errors in the Baseline Ambient Noise Measurements

CREED LA commented that the MND lacks substantial evidence to support its baseline ambient noise measurements because the methodology used to establish baseline conditions was flawed.[7] In response, the City's consultant claims that the noise study was comprehensive due to the number of measurement locations.[8] However, this assertion fails to address CREED LA's central concern: the noise study only collected noise data over a single day, using just 10-minute intervals at each location.[9] This limited snapshot fails to capture fluctuations in ambient noise over time, including variations due to school activities, traffic patterns, and other factors.[10] Without a more representative assessment, the study does not provide a reliable basis for evaluating the Project's noise impacts.[11]

The City's consultant further asserts that the measurements are consistent with their experience in similar neighborhoods.[12] However, this claim is entirely

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[6] **Attachment 1**, Letter to Andrew J. Graf, Adams Broadwell Joseph & Cardozo from Jack Meighan, Wilson Ihrig re: Chaminade High School Expansion Project Response to Comments (Mar. 13, 2025) (hereinafter "Meighan Comments").
[7] CREED LA MND Comments at pp. 5-7.
[8] Tanski Response at p. 2.
[9] Meighan Comments at p. 1.
[10] *Ibid.*
[11] *Ibid.*
[12] Tanski Response at p. 2.

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unsubstantiated, as the consultant provides no documentation, comparative data, or other evidence to support it. Without verifiable evidence demonstrating that recorded noise levels align with those of comparable areas, this assertion lacks credibility and does not remedy the study's methodological shortcomings.

B. The City Fails to Properly Analyze Construction Noise Impacts on Existing On-Site Sensitive Receptors

CREED LA commented that the MND fails to analyze noise impacts on students and teachers utilizing on-site classrooms during Project construction.[13] In response, the City's consultant incorrectly asserts that these students and teachers should be considered components of the Project itself.[14] Based on this flawed premise, the consultant claims – without any supporting legal citation – that CEQA does not require an analysis of noise impacts on students and teachers because it does not assess project-on-project impacts.[15] This claim is entirely unfounded.

The Project consists of renovations and new construction on an existing high school campus. Students and teachers are not Project elements; they are existing, on-site receptors who would be directly exposed to construction-related impacts, including harmful noise pollution. Under CEQA, a project's impact must be assessed in comparison to the existing environmental conditions.[16] The presence of students and teachers on-site is part of the existing physical environment and must be considered in the environmental impact analysis.[17] Mischaracterizing them as part of the Project does not relieve the City's obligation to assess and mitigate potential environmental impacts on these individuals.

The City's consultant also claims that the MND does not need to analyze impacts to students and teachers because CEQA does not require an analysis of the environment's impacts on the project.[18] The City's consultant has fundamentally misinterpreted *California Building Industry Association v. Bay Area Air Quality Management District* (*CBIA*).[19] While CEQA does not generally require lead

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[13] CREED LA MND Comments at pp. 7-10.
[14] Tanski Response at p. 2.
[15] *Ibid*.
[16] CEQA Guidelines § 15125; *Communities for a Better Env't v. South Coast Air Quality Mgmt. Dist.* (2010) 48 Cal.4th 310, 320 n. 5.
[17] CEQA Guidelines § 15125(a).
[18] Tanski Response at p. 2.
[19] *California Building Industry Assn. v. Bay Area Air Quality Management Dist.* (2015) 62 Cal.4th 369.

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agencies to analyze how existing environmental conditions might impact future users of a project, that principle is irrelevant here. As a threshold matter, this case does not involve hypothetical future occupants – it concerns current students and teachers who are already present at the Project site and will remain there throughout construction. Further, the question is not how the existing environment will affect future users of the Project site; rather, it is how the Project (campus expansion) will affect existing, on-site sensitive receptors.

The proposed construction activities to expand the high school will directly exacerbate noise impacts on these existing on-site receptors. Unlike *CBIA*, this case involves evaluating how the Project-related construction impacts will harm individuals who are already there. The *CBIA* court explicitly recognized that such analysis is valid and entirely consistent with CEQA's core concerns – environmental protection, public health, and informed decision-making.[20] As the court stated, "CEQA calls upon an agency to evaluate existing conditions in order to assess whether a project could exacerbate hazards that are already present."[21]

CBIA's example is instructive:

> Suppose that an agency wants to locate a project next to the site of a long-abandoned gas station. For years, that station pumped gasoline containing methyl tertiary-butyl ether (MTBE), an additive – now banned by California – that can seep into soil and groundwater. Without any additional development in the area, the MTBE might well remain locked in place, an existing condition whose risks – most notably the contamination of the drinking water supply – are limited to the gas station site and its immediate environs. But by virtue of its proposed location, the project threatens to disperse the settled MTBE and thus exacerbate the existing contamination. The agency would have to evaluate the existing condition – here, the presence of MTBE in the soil – as part of its environmental review. Because this type of inquiry still focuses on the *project's impacts on the environment* – how a project might worsen existing conditions – directing an agency to evaluate how such worsened conditions could affect a project's future users or residents is entirely consistent with this focus and with CEQA as a whole.[22]

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[20] *Id*. at p. 388.
[21] *Id*. at pp. 388-89.
[22] *Id*. at p. 389 (internal citations omitted) (emphasis in original).

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Similarly, in this case, the Project would expand the high school, with construction occurring while classes are in session – which the City's consultant does not dispute. By allowing construction activities adjacent to existing and temporary classrooms, the Project threatens to generate substantial noise, exacerbating current noise levels.[23] Accordingly, the City must evaluate the existing condition – ambient noise levels at both permanent and temporary classrooms – and evaluate the Project's noise impacts on existing receptors in those classrooms as part of its environmental review. Because this inquiry remains focused on the Project's impacts on the environment – specifically, how it may worsen existing noise conditions – the City is required to assess how these worsened conditions will affect students and teachers. Failing to do so would contradict CEQA's fundamental purpose of disclosing and addressing significant environmental impacts.

Moreover, even the City's interpretation of *CBIA* was correct (which it is not), allowing construction activities near students and teachers without analyzing the potential noise impacts or implementing mitigation measures to reduce significant impacts is simply poor policy. Exposing children and educators to harmful noise pollution without adequate protection disregards basic public health and safety considerations. Regardless of the City's legal interpretation, responsible planning dictates that reasonable mitigation measures should be required to minimize harm to those who will remain on-site throughout construction.

Finally, the City's consultant fails to dispute or provide substantial evidence contradicting CREED LA's expert evidence demonstrating that construction noise would have significant impacts on students and teachers in both permanent and temporary classrooms adjacent to construction activities.[24] Demolition of the existing building could generate noise levels up to 76 dBA at the temporary classrooms and 82 dBA at the permanent classrooms.[25] Additionally, demolition of the upper-level parking lot could result in noise levels up to 83 dBA at the permanent classrooms.[26] These levels far exceed the ambient noise measurements at nearby off-site receptors and represent a noise increase of more than 25 dBA.[27] Moreover, temporary noise walls, such as those proposed as mitigation for

[23] CREED LA MND Comments at pp. 7-10; Meighan Comments at p. 1.
[24] CREED LA Comments at p. 9; Meighan Comments at p. 1.
[25] *Ibid.*
[26] *Ibid.*
[27] *Ibid.*

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residential receptors, would not effectively mitigate these construction noise impacts.[28]

Finally, the City's consultant does not address the effects of excessive noise on student outcomes and cognitive performance.[29] Mr. Meighan identifies additional regulatory guidance recommending that interior noise levels for learning environments not exceed 40 dBA.[30] Considering typical noise reduction from building construction, exterior noise levels exceeding 65 dBA could disrupt classroom activities.[31] Since Project construction activities would generate noise levels that create an unacceptable learning environment,[32] the impact is significant and remains unmitigated.

Given these exceedances, there is substantial evidence supporting a fair argument that the Project may have a significant effect on the environment. An EIR must be prepared to ensure a comprehensive assessment of these impacts and include the necessary mitigation to protect the health and well-being of students and teachers during the construction period.

C. The Construction Noise Impact Analysis Remains Deficient Due to Unsubstantiated Assumptions

CREED LA previously commented that the MND fails to identify and substantiate key assumptions used to evaluate construction noise impacts, particularly the lack of a specified averaging period for Leq calculations.[33] However, the City's consultant does not adequately address this deficiency.[34] The MND's noise modeling is flawed because it does not clarify the time frame over which Leq is averaged.[35] Without this critical information, the analysis either underestimates peak noise levels by averaging over an inappropriately long period or misrepresents baseline conditions by using an averaging window that does not reflect actual noise fluctuations.[36] This omission undermines the accuracy and reliability of the MND's noise impact conclusions.

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[28] *Ibid.*
[29] Meighan Comments at p. 1-2.
[30] *Id.* at p. 2.
[31] *Ibid.*
[32] *Ibid.*
[33] CREED LA MND Comments at pp. 10-11.
[34] Meighan Comments at p. 2.
[35] *Ibid.*
[36] *Ibid.*

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CREED LA also commented that the MND underestimates construction noise during the grading phase for the North Campus by relying on unsubstantiated equipment usage factors.[37] In response, the City's consultant asserts that a 20% usage factor is appropriate because the Project does not require site clearing, mass grading, rough grading, or basement excavation.[38] However, the MND itself describes construction activities, including subgrade preparation of athletic fields and finished grading for parking lots, that suggest the site conditions will resemble typical construction activities rather than the significantly quieter scenario assumed by the consultant.[39] Given these factors, the assumptions in the noise analysis do not accurately reflect potential noise impacts during construction activities.[40]

CREED LA's comments, supported by expert evidence, demonstrate that applying the correct usage factor results in a projected 18 dBA increase in noise levels at residences near the North Campus.[41] Even with mitigation, noise levels would increase by 6.2 dBA, exceeding the applicable significance threshold identified in the MND.[42] Accordingly, substantial evidence supports a fair argument the Project would result in significant, unmitigated construction noise impacts.

D. The City Fails to Analyze Operational Noise from Rooftop Mechanical Equipment

CREED LA commented that the MND failed to analyze operational noise from rooftop mechanical equipment.[43] In response, the City's consultant identifies the applicable numerical significance threshold,[44] but does not provide any analysis demonstrating that operational noise levels would remain below the threshold.[45] Without such an analysis, the City lacks substantial evidence to conclude operational noise impacts associated with the rooftop mechanical equipment on the North Campus would be less than significant.

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[37] CREED LA MND Comments at pp. 11-13.
[38] Tanski Response at p. 7.
[39] Meighan Comments at p. 2.
[40] *Ibid*.
[41] CREED LA MND Comments at pp. 11-12.
[42] Meighan Comments at p. 2.
[43] CREED LA MND Comments at p. 14.
[44] Tanski Response at p. 10.
[45] Meighan Comments at p. 3.

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E. Substantial Evidence Supports a Fair Argument the Project's Vibration Impacts Are Significant

CREED LA commented that the MND fails to analyze the potential for vibration annoyance and submitted expert evidence demonstrating that vibration impacts would exceed relevant regulatory thresholds.[46] In response, the City's consultant disputes CREED LA's selection of the 72 VdB threshold, asserting that it is inappropriate because construction would not be permanent and would comply with municipal code limits on construction hours. However, this response does not address whether vibration levels could still cause significant annoyance during construction. As a result, the MND fails to analyze vibration annoyance potential.

CREED LA's comments demonstrate that ground borne vibrations from construction equipment operating within 10 feet of homes adjacent to the North Campus could reach 96 VdB – far exceeding thresholds established by the Federal Transit Administration and the California Department of Transportation.[47] Given this exceedance, substantial evidence supports a fair argument that construction-related vibration impacts are potentially significant and require further analysis and mitigation.

III. THE CITY LACKS SUBSTANTIAL EVIDENCE TO CONCLUDE THE PROJECT'S HAZARD RISKS ARE LESS THAN SIGNIFICANT

CREED LA commented that mitigation measure HAZ-1, which requires remediation of tetrachloroethene ("PCE")-impacted soil vapor through soil vapor extraction ("SVE"), subject to approval by the Los Angeles Fire Department and the Department of Building and Safety, is improperly deferred because it relies on future agency approvals.[48] In response, the City's claims that the measure is not deferred, arguing that SVE is mandatory and that the Fire Department, as the regulatory agency with subject matter expertise, is responsible for determining the adequacy and efficacy of the remediation system.[49]

CEQA, however, requires that mitigation measures include clear, enforceable performance standards to ensure their effectiveness, rather than relying on vague

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[46] CREED LA MND Comments at p. 15.
[47] *Ibid.*; Meighan Comments at p. 3.
[48] CREED LA MND Comments at pp. 16-18.
[49] CAJA Response at p. 37.

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or deferred commitments.[50] Here, the proposed mitigation fails to meet this legal requirement because it lacks objective, measurable criteria to determine whether PCE impacts will actually be reduced to less than significant. For example, HAZ-1 does not require that soil vapor be remediated to a level considered safe for the uses proposed on the Project site. Instead, it defers to the "satisfaction" of the Fire Department and the Department of Building and Safety – an inherently subjective and unenforceable standard.[51]

CREED LA also commented that HAZ-1 is speculative, as the consultant who proposed the mitigation explicitly acknowledged uncertainty about its effectiveness, citing the prolonged timeframe and unpredictable outcomes associated with achieving meaningful reductions in PCE concentrations.[52] Notably, the City's consultant does not dispute that the proposed mitigation is speculative.[53]

Despite these concerns, the City has failed to address the limitations of the proposed mitigation or respond to its own consultant's recommendation to conduct a site-specific human health risk analysis to assess potential risks at post-remediation levels.[54] The City has also disregarded recommendations to adopt additional mitigation measures, such as vapor barriers or passive venting, to address residual contamination.[55] This failure to engage with known uncertainties underscores the speculative nature of the mitigation and raises serious concerns about its adequacy in protecting human health and the environment.

When, as here, the City's own consultant expresses doubt about the viability of the proposed remediation strategies, the City lacks substantial evidence to support its conclusion that the impact would be mitigated to a less than significant level. An EIR is necessary to comprehensively evaluate and disclose the feasibility and effectiveness of the proposed mitigation measures, ensuring that all potential hazard impacts are fully assessed and properly mitigated.

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[50] CEQA Guidelines § 15126.4(a)(1)(B); *Sierra Club v. County of Fresno* (2018) 6 Cal.5th 502, 525.
[51] *See Rialto Citizens for Responsible Growth v. City of Rialto* (2012) 208 Cal.App.4th 899, 945 ("loose or open-ended performance criteria" are prohibited because they provide no assurance that adequate mitigation will occur).
[52] CREED LA MND Comments at pp. 17-18.
[53] CAJA Response at p. 37.
[54] CREED LA MND Comments at pp. 17-18.
[55] *Ibid.*

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IV. THE CITY LACKS SUBSTANTIAL EVIDENCE TO CONCLUDE THAT BIOLOGICAL RESOURCES IMPACTS ARE LESS THAN SIGNIFICANT

CREED LA commented that the MND fails to establish that mitigation measures for migratory birds are enforceable or sufficient to reduce impacts to less than significant.[56] The City's consultant incorrectly asserts that the MBTA regulates vegetation removal during the nesting season to prevent significant impacts on migratory birds.[57] However, the MBTA does not explicitly regulate vegetation removal. Rather it prohibits "take" of migratory birds, including their nests and eggs, unless authorized by the U.S. Fish and Wildlife Service.[58]

While compliance with relevant regulatory standards can be used to support a less than significant finding,[59] such a conclusion must be based on substantial evidence demonstrating that compliance will effectively reduce the impact.[60] Here, the MBTA does not impose specific regulatory requirements – such as seasonal restrictions on vegetation removal, mandatory biological monitoring, or buffer zones. Without such enforceable measures, the MND lacks substantial evidence to support its conclusion that impacts migratory birds would be less than significant.

Moreover, the consultant's reliance on a proposed measure suggesting that a biological monitor would be present during vegetation removal and that buffer zones would be implemented is insufficient to support the finding of less than significant because the measure is unenforceable.[61] To ensure impacts are meaningfully reduced, the measure must be adopted as a legally enforceable requirement,[62] rather a discretionary recommendation. Without enforceability, the MND fails to provide substantial evidence that impacts on migratory birds would be avoided or minimized.

V. CONCLUSION

CREED LA respectfully urges the Planning Commission to vacate the Deputy Advisory Agency's approval of the VTTM and adoption of the MND and MMP. Additionally, the Planning Commission should direct Staff to prepare an EIR that

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[56] *Id*. at p. 19-22.
[57] CAJA Response at p. 41.
[58] 16 U.S.C. § 703 *et seq*.
[59] *Tracy First v. City of Tracy* (2009) 177 Cal.App.4th 912.
[60] CEQA Guidelines § 15126.4(a)(1)(B).
[61] CAJA Response at p. 41.
[62] *Woodward Park Homeowners Ass'n v. City of Fresno* (2007) 150 Cal.App.4th 683, 730.

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fully discloses, analyzes, and mitigates the Project's noise, hazards, public heath, and biological resources impacts, as required by CEQA.

Thank you for your consideration of these comments.

Sincerely,



Andrew J. Graf

Attachments
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Attachment 1

WILSON IHRIG
ACOUSTICS, NOISE & VIBRATION

CALIFORNIA
WASHINGTON
NEW YORK

WI #24-001.09

March 13, 2025

Andrew J. Graf, Esq.
Adams Broadwell Joseph & Cardozo
601 Gateway Boulevard, Suite 1000
South San Francisco, California 94080

SUBJECT: Chaminade High School Expansion Project
Response to Comments

CAJA Environmental Services prepared the document *Responses to Comments on the Chaminade College Preparatory, High School Project*. Specific responses to issues we raised regarding the MND were included in a supplemental document provided by Noah Taski Environmental Consulting and correspond to Response 2-6 through 2-12. These responses are addressed below.

Comment number	Response
2-6	This response claims that "110 minutes of measurement data" provide "cumulative informational value that goes beyond the results of any individual 10-minute measurement." However, our comment still stands: the MND noise measurement durations are insufficient to accurately characterize the noise environment over a full day. Applicable regulatory guidance documents support this conclusion. For example, the Federal Transit Administration's 2018 Transit Noise and Vibration Impact Assessment Manual[1] (FTA Manual) Appendix E recommends a minimum of three one-hour Equivalent Sound Level (Leq) noise measurements, capturing peak-hour roadway traffic, typical midday conditions, and typical nighttime conditions. A more comprehensive measurement approach is necessary to account for variations in noise levels throughout the day. Additionally, traffic conditions can influence noise levels in complex ways. The loudest periods do not necessarily align with peak traffic hours, as factors such as vehicle speed, congestion patterns and roadway conditions affect noise generation. Short-duration measurements may not capture these variations, leading to an incomplete representation of existing noise conditions. Without a longer and more representative duration, baseline conditions cannot be adequately documented.
2-7	This response does not dispute that construction activities would occur adjacent to classrooms while school is in session. It also does not contest that noise levels could exceed 76 dBA at the temporary classrooms or 80 dBA at the permanent classroom. Additionally, it does not refute that proposed noise mitigation measures, such as noise walls intended for residential receptors, would not effectively mitigate construction noise impacts on students and teachers. Furthermore, the response does not address the well-documented effects of excessive noise on student outcomes and cognitive performance. The 2021

[1] https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/research-innovation/118131/transit-noise-and-vibration-impact-assessment-manual-fta-report-no-0123_0.pdf

Comment number	Response
	California Collaborative for High Performance Schools (CHPS)[2] version 2.0 establishes a standard for interior on-going noise levels, recommending that they not exceed 40 dBA or less from all noise sources to support an effective learning environment. Typical building construction with windows open for ventilation typically provides approximately 15 dBA of noise reduction.[3] Therefore, exterior noise levels exceeding 65 dBA would result in interior noise levels above the CHPS standard, potentially disrupting classroom operations. Given this, we maintain that such noise levels do not support an acceptable learning environment and should be considered a significant impact.
2-8	This response does not fully address the discrepancy identified in our original letter. The MND states that a "half-acre area was modeled as a 150- foot by 150-foot square with a grid spacing of 10 feet" to estimate construction noise levels. However, this modeling approach does not accurately capture noise impacts. The MND applies a threshold of 5 dBA over ambient levels but does not specify the time frame over which the Leq is averaged. This omission is critical because the chosen averaging period significantly affects the noise impact assessment. If the Leq is time-averaged over an hour, then modeling noise over a 150 by 150 square foot area would underestimate noise levels, since the peak hour would be significantly louder than when construction activities are 150 feet away. If the Leq is time-averaged over a day, then our concerns outlined in response to comment 2-6 become even more relevant, since short-duration noise measurements would not sufficiently represent full daytime noise conditions. Either way, the methodology underestimates peak noise levels or misrepresents baseline conditions. Additionally, RCNM 1.1 and 2.0 are both commonly used industry tools. The assertion that only RCNM 2.0 should be used is not justified, as the RCNM 2.0 program requires an ArcGIS license, limiting public accessibility.
2-9	The response states that, due to site-specific usage, only one grader would be used for a shorter period than typical for similar projects. However, assuming both reduced equipment quantity and reduced operation time significantly underestimates noise levels. Additionally, even with a reduced number of graders, peak-hour noise levels may still require a 40% usage rate. The described activities, including subgrade preparation for the athletic field and finish grading of surface parking lots, suggest that construction activities during peak periods will mirror typical construction sites conditions rather than a significantly quieter scenario. Given these factors, the assumptions in the noise analysis do not fully represent potential noise impacts during peak construction activities. Our MND comments demonstrate that when the correct usage factor is applied, grading activities would cause an 18 dBA increase in noise levels at residences near the North Campus. Even with mitigation, noise levels would increase by 6.2 dBA, exceeding the applicable significance threshold.

[2] https://static1.squarespace.com/static/642de662bb454d02a92440d4/t/647a32e91266f162304bd234/1685730028907/CA-CHPSv2.pdf
https://chps.net/sites/default/files/file_attach/CAv2-requirements-only.pdf

[3] This is a base assumption of the California Title 24 code which requires multi-family residences to show that the building shell can reduce sound to achieve 45 dBA (Ldn) when the exterior environment exceeds 60 Ldn.

Comment number	Response
2-10	This comment is accepted as written.
2-11	First, this response misrepresents our original comment, as we did not suggest noise impacts are based on "audibility alone." Second, our comments specifically stated that noise impacts from mechanical equipment (which can have sound power source levels north of 90 dBA) should be properly analyzed to demonstrate that significant impacts do not occur. The response does not provide such an analysis. If noise is truly not an impact, this should be empirically demonstrated, based on a realistic estimate of source levels, modeling at the nearest sensitive receiver, and comparison to an applicable threshold. Neither the MND nor this response includes such an analysis.
2-12	This response asserts that LA CEQA Thresholds Guide doesn't require an analysis for a 72 VdB threshold. However, the CEQA checklist explicitly requires screening for "generation of excessive groundborne vibration or groundborne noise levels." Also, the LA CEQA Thresholds Guide I.1.1.A.XI.b screening checklist asks, "Would the project result in exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?" If no jurisdiction governing this project has applicable criteria, then it is up to the lead agency to find and cite an appropriate threshold. The FTA Manual and California Department of Transportation's (CalTrans) Transportation and Construction Guidance Manual are applicable regulatory sources, but if the lead agency wants to find and use another, it must be clearly identified and justified. However, as it stands, vibration annoyance has not been considered in the analysis. Our MND comments demonstrate that groundborne vibrations from construction equipment operating within 10 feet of homes adjacent to the North Campus could reach 96 VdB, which clearly exceeds both the FTA and CalTrans thresholds. As a result, construciton vibration impacts are potentially significant.

Very truly yours,
WILSON IHRIG



Jack Meighan
Associate

chaminade high school expansion project - response to comments.docx

WILSON IHRIG
ACOUSTICS, NOISE & VIBRATION



JACK MEIGHAN

Associate

Jack joined Wilson Ihrig in 2021 and is an experienced acoustics engineer with expertise in projects involving rail transit systems, highways, CEQA analysis, environmental noise reduction, mechanical drawing reviews, and construction noise and vibration mitigation. He has hands-on experience with project management, including client coordination and presentations, as well as in designing, developing, and testing MATLAB code used in acoustics applications. Additionally, his expertise includes taking field measurements, developing test plans and specifying, purchasing, setting up and repairing acoustic measurement equipment. He has experience in using Traffic Noise Model (TNM), CadnaA, EASE, Visual Basic, LabView, and CAD software.

Education

- B.S. in Mechanical Engineering, University of Southern California, Los Angeles, CA

Project Experience

Metro Regional Connector, Los Angeles CA
Planned, took, and processed measurements as part of a team to determine the effectiveness of floating slab trackwork for a new subway in downtown Los Angeles that travels below the Walt Disney Concert Hall and the Colburn School of Music.

Rodeo Credit Enterprise CEQA Analysis for New Construction, Palmdale, CA
Wrote an accepted proposal and executed it for a noise study project to determine noise mitigation requirements on a new housing development. Led all aspects of the project and managed the budget during all phases of project completion. Completed 5 separate projects of this type for this developer.

Blackhall Studios, Santa Clarita, CA
Led the vibration measurement effort for a new soundstage directly adjacent to an existing freight and commuter rail line. Tested equipment, processed data, and analyzed results to determine the vibration propagation through the soil to the proposed soundstage locations, and was part of the team that developed mitigation techniques for the office spaces directly next to the rail line.

Octavia Residential Condos CEQA Study, San Francisco, CA
Calculated the STC ratings for the proposed windows to meet Title 24 requirements, modeled the acoustic performance of floor and ceiling structures, researched noise codes, helped with a mechanical design review, and wrote a report summarizing the results for a new Condominium project being developed in San Francisco.

San Diego International Airport Terminal I Replacement, CA
Conducted interior noise and vibration measurements, analyzed measurement data to help determine project criteria, modeled the existing and future terminals in CadnaA, and was part of a team that did a complete HVAC analysis of the entire terminal, as part of a CEQA analysis where a new terminal for the airport is being designed.

Five Points Apartments Noise Study, Whittier, CA
Took measurements, researched sound data and solutions, and recommended mitigation for a new apartment complex that was located next to an existing car wash, as part of a CEQA review.

USC Ellison Vibration Survey, Los Angeles, CA
Conducted vibration measurements as part of a survey to determine the effectiveness of vibration isolation platforms that are used to insulate cell growth in a cancer research facility. Determined the effectiveness and presented this information to the client. Researched and recommended a permanent monitoring system so the client could view data in real time.

TEN50 Condos 'Popping' Noise Investigation, Los Angeles, CA
Was part of a team that investigated the noise source of an unwanted popping noise in luxury condos in Downtown Los Angeles. Helped isolate the noise source location with accelerometers to determine where vibrations were occurring first and used an acoustic camera to determine where in the condo the noise was coming from.

2000 University Project, Berkely, CA
Wrote a construction noise monitoring plan based on environmental noise calculations, wrote a report summarizing the results, and attending a meeting with the client to discuss options.

Bay Area Rapid Transit (BART) On-Track, CA, San Francisco Bay Area, CA*
Day to day project manager, responsible for meetings, presentations, and coordination with the client for an ongoing noise study on the BART system. Developed MATLAB code to process measurements and determine areas where high corrugation was present, contributing to excessively high in-car noise levels. Performed noise measurements inside both the right of way and the vehicle cabin, in addition to rail corrugation measurements.

California I-605/SR-60 Interchange Improvement, Los Angeles, CA*
Developed a noise model of the area that predicted sound levels for abatement design, in addition to conducting noise measurements and analysis. Led the Team in use of the FHWA Traffic Noise Model Software for the project, involving three major highways and two busy interchanges extending over 17 miles in southern California.

Sound Transit On-Track, Seattle, WA*
Took measurements, fixed equipment, and developed software in MATLAB to process Corrugation Analysis Trolley measurements as part of an ongoing noise study on the Sound Transit Link system. Tested vibration data to determine the best measurement and processing techniques to store the data in an online database for in-car measurements.

LA Metro CRRC Railcar Testing, Los Angeles, CA*
Led the effort to plan the measurements, determine measurement locations and finalize the test plan. Formulated a method to capture speed data directly from legacy train vehicles. Executed noise and vibration specification measurements for new rail cars delivered by CRRC.

City of Los Angeles, Pershing Square Station Rehabilitation Noise Monitoring, CA*
Built noise models, wrote a construction noise plan, and assisted in on-site construction noise issues as they arose for a renovation of the Pershing Square metro station in downtown Los

Angeles. Trained construction personnel in techniques for noise reduction and how to conduct noise monitoring measurements to meet project specifications.

City of Orange Metrolink Parking Garage Construction Monitoring, CA*
Wrote an adaptive management vibration monitoring plan, set up equipment to monitor live vibration levels, and generated weekly reports as part of an effort to build a new parking garage. Designed, planned, and completed measurements to predict and mitigate pile driving construction impacts at three historic building locations adjacent to the construction site. Coordinated with the client whenever an on-site problem arose.

LA Metro Westside Subway Construction, Los Angeles, CA*
Planned, organized, and processed noise measurements for the Purple Line extension construction. Implemented both long term microphones to measure noise levels and accelerometers to measure vibration levels in existing subway tunnels. Oversaw noise monitoring at sensitive construction sites for the project and worked with the contractor to find ways to reduce construction noise levels by approximately 10dB.

Montreal Réseau Express Métropolitain, Canada*
Conducted vibration propagation measurements used to create models to predict operational vibration levels for an under-construction transit line. Managed equipment, solved problems in the field, and wrote parts of the report summarizing the findings of the acoustic study.

NHCRP Barrier*
Took on-highway measurements and wrote, designed, developed, and tested MATLAB code to identify specific spectrograms to use for analyses for a project evaluating barrier reflected highway traffic noise differences in the presence of a single absorptive or reflective noise barrier.

Siemens Railcar Testing for Sound Transit, Seattle, WA*
Measured in-car noise and vibration for new rail cars delivered by Siemens. Developed new internal techniques for measurements based on the written specifications. Contributed to the team that helped identify issues that new cars had in meeting the Sound Transit specifications for noise and vibration. Participated in developing the test plan and specified then acquired new equipment for the measurement.

Toronto/Ontario Eglinton Crosstown Light Rail, Final Design, Canada*
Assisted in vibration propagation measurements, analysis, and recommendations for mitigation for a 12-mile light-rail line both on and under Eglinton Avenue. Set up and ran equipment for at-grade measurements with an impact hammer for underground measurements with an impact load cell that was used during pre-construction borehole drilling.

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8 Considerations in Warehouse Ventilation Design

The health of product and employees can be greatly affected by air filtration in a warehouse setting. It's important for companies to take in these considerations for ventilation when it comes to warehouse design.

February 9, 2022 | By Rick Kreczmer From Robovent



Photo Credit: Petinovs/stock.adobe.com

Industrial ventilation and air filtration are important considerations for warehouse design. Here are the terms you need to know—and how to improve the efficiency, effectiveness and sustainability of your ventilation solution.

1. Occupancy Rates and Activities

How many people will be occupying the space, and how much time will they spend there? Proper warehouse ventilation is important to ensure the health, comfort and safety of the human beings who will be working in the space. The higher the occupancy rate, the longer the time people spend in the area, and the more strenuous the work demands, the more critical ventilation will be.

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2. Material Storage Requirements

What is being stored in the space? What are the temperature and humidity requirements for proper storage? Some materials—like dry goods, paper products or pharmaceuticals—may require temperatures and humidity levels to stay within a defined range. Other

can build up in inadequately ventilated warehouse environments. In some cases, indoor pollutants may be linked to the materials being stored, such as outgassing of volatile organic compounds (VOCs) from foams, paints and plastics, or dust from loose storage of bulk or powder materials.

4. Room Refresh Rates/CFM Requirements

The room refresh rate (or air change rate) refers to the rate at which fresh outdoor air is introduced to the space. It is usually expressed as the air changes per hour (ACH) in a room. Air change rates for warehouses are typically set between 6 – 30 changes per hour. ASHRAE sets minimum ventilation rates for commercial and institutional spaces (expressed in cubic feet per minute (CFM) of airflow per square foot of area) under the ANSI/ASHRAE Standard 62.1 guidelines, based on the space type, occupancy and room size. For warehouses, the ASHRAE minimum ventilation rate is 0.06 CFM per square foot. However, this is a minimum rate and must be adjusted based on occupancy rates, indoor air quality and other factors. For example, if there are excessive fumes from material handling equipment, room refresh rates will need to be higher to compensate. To calculate ACH from ventilation system CFM (or vice versa), use the following formula: ACH = 60Q/Vol. (Q= the CFM of your system and Vol is total air volume of the space in cubic feet.)

5. Layout and Airflow Patterns

Once you figure out your optimal air change rate and CFM for your space, you then need to consider how you want air to flow through the space. Warehouse ventilation generally involves some combination of rooftop or sidewall exhaust fans, rooftop or sidewall supply fans, rooftop gravity vents and wall louvers. These can be positioned to create different airflow patterns in the space. For example, exhaust fans can be placed along one sidewall and supply fans or louvers along the opposite wall to create a continuous crossflow pattern. Another option would be to put exhaust fans along the center roof line and supply fans on both sidewalls to bring cool air in from the sides and exhaust warm air from the ceiling. Airflow patterns should be designed to remove indoor air contaminants from the breathing zone and keep air circulating through all parts of the facility for better temperature and humidity control. In heated or air-conditioned warehouses with high ceilings, additional fans may be needed to combat air stratification, in which warm air rises to the ceiling and cooler air settles to the floor. These fans are located to promote air mixing within the room.

6. Exhaust/Makeup Air Balance

It is important to properly balance exhaust and makeup air rates for the warehouse. If you exhaust more air than you bring in, you will create a negative pressure condition in the warehouse (inside pressure is less than atmospheric pressure). Conversely, if you bring in more air than you exhaust, the warehouse will be under positive pressure (inside pressure is more than atmospheric pressure). If fresh air is coming in primarily through open doorways, windows, and louver systems, the pressure inside the building will balance naturally —the more air you exhaust, the more will be pulled in through these natural openings. If the warehouse is sealed more tightly (for example, to keep heated/cooled air in or keep outdoor pollutants out), you will need a mechanical makeup air system to bring in fresh air to compensate for the air being exhausted. Maintaining a slight positive pressure will reduce the flow of outdoor air into the building if a door or window is opened. In some cases, maintaining a slight negative pressure in some areas may be desirable—for example, to prevent airborne contaminants from migrating from “dirtier” to “cleaner” areas within the facility.

7. Filtration Needs

Does warehouse air need to be filtered? Most warehouses rely on basic industrial ventilation principles to bring fresh air in and exhaust stagnant air to the outside. However, it may be desirable to add filtration options to improve indoor air quality. Filtration can be used

8. Energy Consumption

A warehouse ventilation system should be designed with energy efficiency in mind. For example, high-volume, low-speed (HVLS) fans can be used to improve temperature control and reduce the reliance on the HVAC system. The layout and design of your warehouse ventilation system will have a big impact on the overall efficiency and energy consumption.

There is no one-size-fits-all answer for efficient warehouse ventilation system design; the right answer will depend on the facility size and layout, climate conditions, heating and cooling requirements and HVAC system design, indoor air quality and other factors. Ideally, design of the ventilation system will be part of the initial design and engineering process for a new facility; it is much more cost-effective to design the right system from the start than to try to correct or retrofit later. For best results, work with a ventilation and air filtration expert with training in ASHRAE standards and ACGIH guidelines for warehouse ventilation systems.

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Colliers September 28, 2024

A yearly cost of $8.31 per square foot of warehouse space, up from $8.22 in 2023, reflects the ongoing rise in real estate expenses.

WarehousingAndFulfillment.com, a division of InsightQuote, Inc. September 10, 2024

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Velociti Inc. July 24, 2024

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Claiming the largest shares of the 100 leases were traditional retailers and wholesalers, followed by third-party logistics (3PL) providers, e-commerce operators and food and beverage companies.

CBRE Research July 18, 2024

By following a few best practices, warehouse owners and fire sprinkler contractors can develop effective, affordable ASRS fire protection schemes that can help keep product moving and business running.

Johnson Controls July 12, 2024

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Respondents to the LMI survey continue to be largely optimistic about the future of the logistics industry.

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The National Industrial Real Estate Vacancy Rate eclipsed 6.2%, which is up from 5.7% in Q1, according to new data from ITS Logistics.

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Steel King Industries May 20, 2024

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General retailers and wholesalers leased the most big-box warehouse space in North America in 2023, accounting for 36% of all transactions, according to a new report from CBRE.

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FEDERAL TRANSIT ADMINISTRATION

Transit Noise and Vibration Impact Assessment Manual

SEPTEMBER 2018

FTA Report No. 0123
Federal Transit Administration

PREPARED BY
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U.S. Department of Transportation
Federal Transit Administration

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Metric Conversion Table

SYMBOL	WHEN YOU KNOW	MULTIPLY BY	TO FIND	SYMBOL
		LENGTH		
in	inches	25.4	millimeters	mm
ft	feet	0.305	meters	m
yd	yards	0.914	meters	m
mi	miles	1.61	kilometers	km
		VOLUME		
fl oz	fluid ounces	29.57	milliliters	mL
gal	gallons	3.785	liters	L
ft^3	cubic feet	0.028	cubic meters	m^3
yd^3	cubic yards	0.765	cubic meters	m^3
		NOTE: volumes greater than 1000 L shall be shown in m^3		
		MASS		
oz	ounces	28.35	grams	g
lb	pounds	0.454	kilograms	kg
T	short tons (2000 lb)	0.907	megagrams (or "metric ton")	Mg (or "t")
		TEMPERATURE (exact degrees)		
°F	Fahrenheit	5 (F-32)/9 or (F-32)/1.8	Celsius	°C

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14. ABSTRACT

This report is the third edition of a guidance manual originally issued in 1995. It includes clarifications to existing policy and updates to outdated references where applicable. Topics presented in this manual include procedures for predicting and assessing noise and vibration impacts of proposed transit projects for different stages of project development and different levels of analysis. Additional topics include descriptions of noise and vibration mitigation measures, construction noise and vibration, and how to present these analyses in the Federal Transit Administration's environmental documents. This guidance is for technical specialists who conduct the analyses, as well as project sponsor staff, Federal agency reviewers, and members of the general public who may be affected by the projects.

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Abstract

This report is the third edition of a guidance manual originally issued in 1995. It includes clarifications to existing policy and updates to outdated references where applicable. Topics presented in this manual include procedures for predicting and assessing noise and vibration impacts of proposed transit projects for different stages of project development and different levels of analysis. Additional topics include descriptions of noise and vibration mitigation measures, construction noise and vibration, and how to present these analyses in the Federal Transit Administration's environmental documents. This guidance is for technical specialists who conduct the analyses, as well as project sponsor staff, Federal agency reviewers, and members of the general public who may be affected by the projects.

Acknowledgments

The original 1995 version of this manual was developed by the firm Harris Miller Miller & Hanson Inc. (HMMH) and peer-reviewed by a group of specialists in the fields of acoustics and environmental planning and analysis. HMMH updated the original manual in 2006.

The updates for this current version were provided by the John A. Volpe National Transportation Systems Center, Cross Spectrum Acoustics, and FTA, and it was peer-reviewed by a panel of experts.

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SECTION 1

Introduction

1.1 Purpose

The Council on Environmental Quality (CEQ) regulations for implementing the procedural provisions of the National Environmental Policy Act of 1969 (NEPA)[1,2] require that a federally-funded project be assessed for its impact on the human and natural environment prior to implementation. The Federal Transit Administration (FTA), in conjunction with the Federal Highway Administration (FHWA), has issued detailed regulations implementing NEPA for transit and highway projects. The regulations are codified in part 771 of title 23, Code of Federal Regulations, and are titled "Environmental Impact and Related Procedures." (23 CFR part 771).[3]

The Federal Transit Administration (FTA) provides financial assistance for a range of public transportation projects from new rail rapid transit (RRT) systems to bus maintenance facilities and vehicle purchases. As required by NEPA and its implementing regulations, each project must undergo environmental review.

Noise and vibration are sometimes among the major concerns regarding the effects of a transit project on the surrounding community and are key elements of the environmental impact assessment process for public transportation projects. A transit system is often placed near population centers by necessity and may cause noise and vibration at nearby residences and other sensitive types of land use.

This manual provides technical guidance for conducting noise and vibration analyses for transit projects, as well as direction regarding preparation of the information for FTA's environmental documents. Some situations may not be explicitly covered in this manual; the exercise of professional judgment may be required to extend the basic methods in these cases and frequent consultation with FTA staff is important to ensure the methods used meet the requirements for environmental reviews. See Appendix G for information on using non-standard modeling procedures.

In general, the noise and vibration impact assessment process for projects includes the following steps:

1. Determine appropriate impact criteria (Section 4.1).
2. Conduct screening and determine appropriate level of noise analysis, analyze project noise impacts, and evaluate mitigation options if appropriate (Sections 4.2–4.5).
3. Determine appropriate level of vibration analysis, analyze project vibration impacts, and evaluate mitigation options if appropriate (Sections 6.1–6.5).
4. Analyze construction noise and vibration impacts (Section 7).
5. Document findings (Section 8).

1.2 Organization of the Manual

This guidance manual is organized by the following recommended analysis workflow. A glossary of terms used throughout this manual is available in Appendix A. Detailed information on the fundamentals of noise, noise impact criteria, clustering receivers, determining existing noise, computing source levels from measurements, and using non-standard methodology is available in the appendices.

Section 2: Project Class of Action and Planning – This section describes the first step in the analysis process that is applicable to both noise and vibration analyses.

Section 3: Transit Noise – This section provides the reader with background information specific to transit noise.

Section 4: Noise Impact Analysis – This section provides a general outline of the entire noise impact analysis process: guidelines on determining noise impact criteria, methods for choosing the appropriate level of noise analysis ("Screening," "General," or "Detailed"), steps for evaluating noise impacts with the Noise Screening Procedure (a simplified method of evaluating the potential for noise impact from transit projects), steps for evaluating noise impact with the General Noise Assessment procedure (a simplified assessment method to estimate noise impact and compare alternatives for transit projects), and steps for evaluating noise impact with the Detailed Noise Analysis procedure (a comprehensive assessment method to produce the most accurate estimates of noise impact intended for certain major public transportation projects).

Section 5: Transit Vibration – This section contains background information specific to transit vibration.

Section 6: Vibration Impact Analysis – This section provides a general outline of the entire vibration impact analysis process: guidelines on determining vibration impact criteria, methods for choosing the appropriate level of vibration analysis ("Screening," "General," or "Detailed"), steps for evaluating vibration impact with the vibration screening procedure (a simplified method of evaluating the potential for vibration impact from transit projects), steps for evaluating vibration impact with the general vibration assessment procedure (a simplified assessment method to estimate vibration impact and compare alternatives for transit projects), and steps for evaluating vibration impact with the detailed vibration analysis procedure (a comprehensive assessment method to produce the most accurate estimates of vibration impact intended for certain major public transportation projects).

Section 7: Noise and Vibration During Construction – This section presents the process of assessing noise and vibration impact during construction, including determination of level of assessment, source levels, impact criteria, and mitigation.

Section 8: Documentation of Noise and Vibration Assessment – This section includes guidance for documenting the noise and vibration assessment in technical reports and environmental documents.

SECTION 2

Project Class of Action and Planning

The level of environmental analysis and review depends on the significance of any potential associated environmental impacts, which in turn depends in part on the scope and complexity of the proposed project. The goals of a transit noise and vibration impact assessment are to:

1. Determine existing noise and vibration levels.
2. Assess project noise and vibration for potential impact.
3. Evaluate the effect of mitigation options on impacts.

The class of action determination will inform the required level of analysis. The FTA Regional office[i] determines the class of action based on project information provided by the project sponsor. The following types of information can assist the FTA Regional office in an initial class of action determination for a project:

- Project description
- Project-specific graphics, including:
  - Project location/sizes
  - Known land use and environmental features
- Additional information, as appropriate:
  - Summary of prior planning
  - Draft purpose and need statement

Project classes of action are described in Section 2.1. Project planning and development guidelines are presented in Section 2.2.

2.1 Project Class of Action

FTA's environmental regulations classify projects by level of environmental analysis. The class of action will determine the appropriate level of analysis and documentation for a project. Details of each class are described in the following sections. For more information, review FTA's environmental impact and related procedures at 23 CFR part 771.

Environmental Impact Statements

Environmental impact statements (EISs) apply to projects that are expected to cause significant environmental effects in the NEPA context. Typical examples include new or extensions of fixed-guideway projects, such as heavy rail, light rail, commuter rail, and automated guideway transit (AGT) systems that are not located within existing transportation right-of-way (ROW). It is likely that for major infrastructure projects requiring an EIS, the most detailed treatment of noise and vibration impacts will often be required.

Categorical Exclusions

Categorical exclusions (CEs) cover actions that are excluded from requiring an EIS or environmental assessment (EA) because FTA has determined that they do

[i] http://www.fta.dot.gov/12926.html.

not routinely cause significant environmental impacts. FTA's CEs are located at 23 CFR §§ 771.118(c) and (d), commonly referred to as the c-list and d-list, respectively. Examples of projects that would normally be CEs include vehicle purchases, maintenance of equipment, vehicles, or facilities, and ROW acquisition.
In general, CEs for transit capital construction projects often require at least a screening of noise impacts.

Environmental Assessments
When a proposed project is presented to FTA and it is uncertain whether the project requires an EIS or qualifies for a CE, FTA will normally direct the project sponsor to prepare an environmental assessment (EA) to assist in making the determination. An EA may be prepared for any type of project if uncertainty exists about the magnitude or extent of the impacts. Generally, an EA is selected over a CE if FTA determines that several types of potential impacts require further investigation, for example, air quality, noise, wetlands, historic sites, and/or traffic, but FTA's environmental regulation does not list typical projects that require EAs.
Experience shows that most of the EAs prepared for transit projects require at least a general assessment of noise impacts.

2.2 Project Planning and Development

Capital transit projects are ordinarily developed initially from a comprehensive transportation planning process conducted in metropolitan areas (see 23 CFR § 450.300).[4] The metropolitan planning process often includes some early consideration of social, economic, and environmental effects of proposed major infrastructure improvements. At this stage, environmental effects are usually considered on a broad scale—for example, overall development patterns, impacts on green space, and regional air quality. Noise and vibration assessments are not typically performed at this stage because the proposed infrastructure improvements lack the necessary detail.

Once the need for a capital transit project in a corridor is established in the metropolitan transportation plan, the transit mode and general alignment best suited for the corridor are identified. The Screening and General noise assessment procedures and the vibration screening procedure described in this manual may be used to compare noise and vibration effects among different transit modes and alignments at an early stage of the project planning. The analysis that results is documented through the environmental review process.

NEPA establishes a broad policy regarding mitigation as a means of accomplishing its environmental objectives. Other Federal laws, such as Section 4(f) (49 U.S.C. 303) and Section 404 (33 U.S.C. 1344), have explicit mitigation requirements for certain resources. The decision to include noise or vibration mitigation for a project is made by FTA and the project sponsor after public review of the environmental document, as appropriate. If mitigation measures are deemed necessary to protect the environment or to satisfy statutory requirements, they will be incorporated as an integral part of the project and subsequent grant documents will reference these measures as contractual obligations on the part of the project sponsor. Through that process, FTA

ensures that the project sponsor complies with all design and mitigation commitments contained in the environmental record.

Once the project enters construction, noise or vibration may need to be reassessed in some circumstances. Some large construction projects in densely populated residential areas may require noise monitoring to ensure agreed-upon noise limits are not exceeded. Vibration testing may be needed in the final stages of construction to determine whether vibration control measures have the predicted effect.

Considering that transit projects must be located amid or very close to concentrations of people, noise and vibration impacts can be a concern throughout the environmental review process, design, and construction phases. This manual offers the flexibility to address noise and vibration at different stages in the development of a project and in different levels of detail.

2.3 Mitigation Policy Considerations

Because noise is frequently among the greatest environmental concerns of planned transit projects, FTA and the project sponsor should make reasonable efforts to reduce predicted noise to levels considered acceptable for affected noise-sensitive land uses. The need for noise mitigation is determined based on the magnitude of impact and consideration of factors specifically related to the proposed project and affected land uses.

The goal of providing noise mitigation is to gain substantial noise reduction, not simply to reduce the predicted levels to just below the "severe" impact threshold. For FTA to determine whether the mitigation is reasonable, the evaluation of specific mitigation measures should include the noise reduction potential, the cost, the effect on transit operations and maintenance, and any other relevant factors, such as any new environmental impacts that may be caused by the implementation of a noise reduction measure. A thorough evaluation enables FTA to make the findings required by NEPA and other statutes, such as Section 4(f) or Section 106 requirements and their implementing regulations.

Severe impacts have the greatest adverse impact on the community, and mitigation should be strongly considered. Areas with "moderate" impacts also have potential for effects on the community and therefore should also include consideration and possible adoption of mitigation measures when considered reasonable.

Since reasonableness is not strictly defined, FTA recommends that project sponsors work with the affected public and FTA staff during the environmental review process to decide appropriate mitigation strategies. A project sponsor may also consider developing and formally adopting a mitigation policy to aid in the determination of appropriate and applicable mitigation measures for current and proposed projects and anticipated impacts. Having such a policy in place can aid in the project planning up front and help to expedite mitigation decisions.

The following considerations can assist in determining circumstances that trigger the need for mitigation and include examples of how they can be applied in a noise mitigation policy:

- **Number of Noise-Sensitive Sites Affected**
  A row or cluster of residences adjacent to a rail transit line establishes a greater need for mitigation than one or several isolated residences in a mixed-use area. Single residences may not be able to meet a cost-effectiveness criterion for mitigation.

  Example Mitigation Policy Consideration: Set a minimum number of noise-sensitive sites as a threshold, combined with a reference to a cost-effectiveness criterion.

- **Increase over Existing Noise Levels**
  Since the noise impact criteria are delineated as bands or ranges, project noise can vary 5 to 7 decibels (dB) within the band of moderate impact at any specific ambient noise level. If the project and ambient noise plot falls just below the severe range, the need for mitigation is strongest for a moderate impact. Similarly, if the plot falls within the moderate range just above the no impact threshold, the impacts are expected to be less, so the justification for mitigation would not be as strong.

  Example Mitigation Policy Consideration: Set a strong need for mitigation when a moderate impact is 2 dB (for example) over the no impact threshold.

- **Noise Sensitivity of the Property**
  Section 4.1 includes a comprehensive list of noise-sensitive land uses, yet there can be differences in noise sensitivity depending on individual circumstances. For example, parks and recreational areas vary in their sensitivity depending on the type of use they experience (active vs. passive recreation) and the settings in which they are located.

  Example Mitigation Policy Consideration: Cite the use of the property as a determination of sensitivity for parks and recreational areas.

- **Effectiveness of the Mitigation Measure(s)**
  Determine the magnitude of the noise reduction that can be achieved, and consider whether there are conditions that limit effectiveness, such as noise barrier effectiveness for a multi-story apartment building.

  Example Mitigation Policy Consideration: Set a minimum reduction in noise level to be considered effective. A 5-dB reduction is typically considered an effective reduction from mitigation.

- **Feasibility of the Mitigation Measure(s)**
  Determine if the mitigation measure is feasible from an engineering, operations or safety perspective. In some cases, it may not be possible to construct mitigation (noise barriers) due to physical or structural limitations

or because of safety concerns, especially related to sight lines for pedestrians and vehicles.

Example Mitigation Policy Consideration: State that the engineering design of the mitigation must be feasible, that it must be implementable in light of operations, and that mitigation must not compromise safety.

- **Fairness and Equity of the Mitigation Measure(s)**
  Ensure that mitigation measures are applied in a fair and equitable manner. In many cases, small differences in distances or operations can result in small differences in projected noise levels. For example, all the residences in a row could have a projected moderate impact except for one residence at the end of the row that falls just under the moderate criteria due to being set slightly further back from the alignment. In a case like this, mitigation should be applied for the entire row of residences if possible.

  Example Mitigation Policy Consideration: State that mitigation should be applied equitably.

- **Existing Transportation Noise**
  Neighborhoods with ambient noise levels already heavily influenced by transportation noise, especially the same type of noise source as the project, should be considered. Often adding a new similar noise source will not add to the ambient noise levels or only slightly increase it to within acceptable levels. Whereas, impacts would be more likely, if the new noise was added to a neighborhood with minimal transportation noise. However, it is important to note that per (Section 4.1, Step 3) the higher the existing noise, the lower the allowable noise increase from new sources. A new cumulative noise environment may be very objectionable because people will not be compartmentalizing the existing noise versus the new noise and reacting only to the new noise. In this circumstance, impacts predicted in the moderate range could be treated as if they were severe.

  Example Mitigation Policy Consideration: Set a policy that moderate impacts under these circumstances be treated as severe and cite the potential for reducing noise from existing transportation noise, as well as from project noise.

- **Community Views**
  This manual provides the methodology to make an objective assessment of the need for noise mitigation. However, the views of the community should be considered where there are potential noise impacts predicted through this manual. The NEPA compliance process provides the framework for hearing the community's concerns about a proposed project and then making a good-faith effort to address those concerns. Many projects can be expected to have projected noise levels within the moderate impact range and, where possible, decisions regarding mitigation should be made after considering input from the affected public, relevant government agencies, and community organizations. There have been cases where the solution to the noise problem, a noise barrier, was not preferable to community members because of perceived adverse visual effects.

Example Mitigation Policy Consideration: State that community input in determining the need for mitigation will be included whenever possible.

- **Implementation Cost**
  Cost is an important consideration in reaching decisions about noise mitigation measures. One guideline for gauging the reasonableness of the cost of mitigation is the state DOT's procedures on the subject. Many states have established their own cost threshold per benefited residence for determining whether installation of noise barriers for noise reduction is a reasonable expenditure. Several airport authorities have placed limits on the costs they will incur for sound insulation per residence for homes, and FTA assesses cost in a similar manner by benefited residence. Higher costs may be justified depending on the specific set of circumstances of a project.

  Example Mitigation Policy Consideration: State the adopted cost threshold per benefited receiver for typical circumstances.

SECTION 3

Transit Noise

This section presents the basic concepts of transit noise as background for computation methods and transit noise assessment procedures presented in Section 4. An overview of fundamental noise topics, including amplitude, frequency, time pattern, and decibel addition, is presented in Appendix B.

The Source-Path-Receiver framework for noise illustrated in Figure 3-1 is central to all environmental noise studies. Each transit source generates noise that depends upon the type of source and its operating characteristics. Along the propagation path, between all sources and receivers, noise levels can be reduced (attenuated) by distance depending on ground type, intervening obstacles, and other factors. Finally, noise combines from multiple sources at each receiver and potentially interferes with activities at that location.

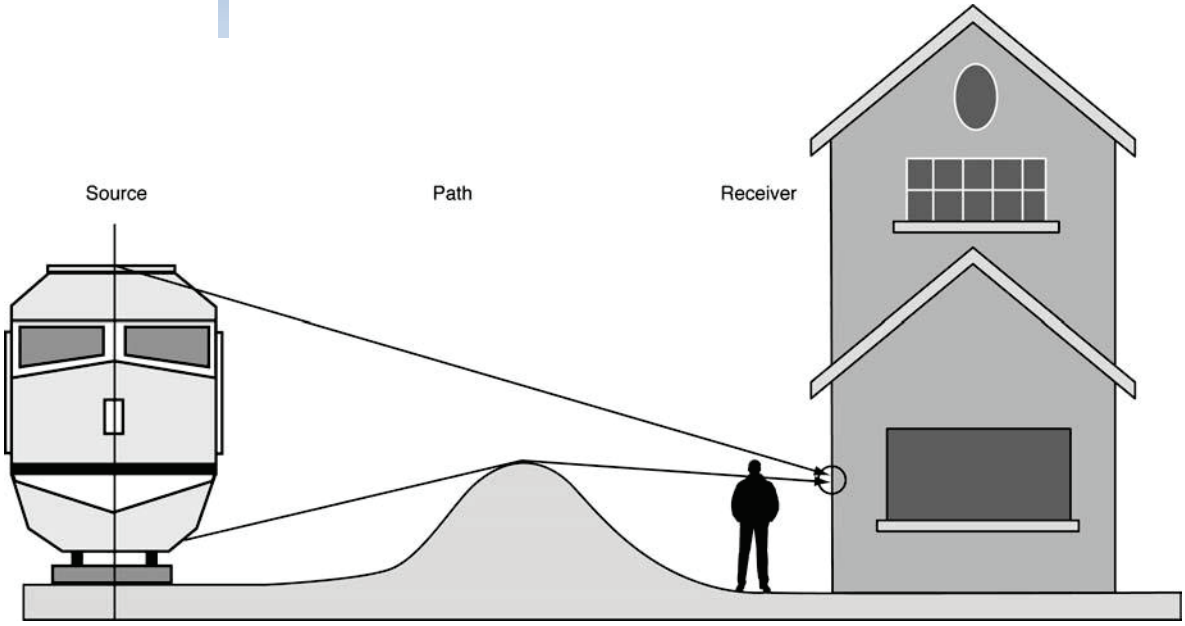


Figure 3-1 Source-Path-Receiver Framework

This section contains the following:

- Section 3.1 presents the noise metrics used in this manual.
- Section 3.2 provides an overview of transit noise sources, including a listing of major sources and a discussion of noise-generation mechanisms.
- Section 3.3 provides an overview of noise paths, including a discussion of the various attenuating mechanisms on the path between source and receiver.
- Section 3.4 provides an overview of receiver response to transit noise, including a discussion of the technical background for transit noise criteria and the distinction between absolute and relative noise impact.

3.1 Noise Metrics

This manual uses the noise metrics outlined in Table 3-1 for transit noise measurements, computations, and assessment. The terminology is consistent with common usage in the United States. All of these noise metrics are expressed in units of A-weighted decibels (dBA). A-weighted sound levels represent the overall noise at a receiver that is adjusted in frequency to approximate typical human hearing sensitivity. This is the basic noise unit for transit noise analyses.

Table 3-1 Noise Metrics

Metric	Abbreviation	Definition
A-weighted Sound Level	dBA	A-weighted sound levels represent the overall noise at a receiver that is adjusted in frequency to approximate typical human hearing sensitivity. This is expressed as A-weighted decibels (dBA), the basic noise unit for transit noise analyses.
Sound Exposure Level	*SEL*	SEL is the cumulative noise exposure from a single noise event, normalized to one second. SEL contains the same overall sound energy as the actual varying sound energy during the event. It is the primary metric for the measurement of transit vehicle noise emissions, and is an intermediate metric in the measurement and calculation of both $L_{eq(t)}$ and L_{dn}.
Equivalent Sound Level	$L_{eq(t)}$	The equivalent sound level $L_{eq(t)}$ describes a receiver's cumulative noise exposure from all events normalized to a specified period of time "t". $L_{eq(t)}$ represents a hypothetical, constant sound level and contains the same overall sound energy as the actual varying sound energy during the time period "t". For transit noise impact assessments, the equivalent sound level metric is A-weighted and all events are normalized over a one-hour time period, $L_{eq(1hr)}$. For transit noise assessments, this metric is appropriate for non-residential land uses and is computed for the loudest hour of project related activity during hours of noise sensitivity.
Day-Night Sound Level	L_{dn}	L_{dn} describes a receiver's cumulative noise exposure from all events over 24 hours. Events between 10 p.m. and 7 a.m. are increased by 10 dB to account for humans' greater nighttime sensitivity to noise. L_{dn} is used to assess transit noise for residential land uses.
Maximum Sound Level	L_{max}	The maximum level describes the maximum noise level reached during a single noise event. For transit noise impact assessments, it is appropriate to consider the A-weighted maximum level (L_{max}) to understand the full context of the scenario. It is not appropriate to use this metric for transit noise impact assessments. This metric is commonly used in vehicle noise specifications and commonly measured for individual vehicles.

The noise metrics, including their application to transit noise and vibration impact assessment, are described in more detail in Appendix B.1.4. Mathematical definitions and graphic illustrations are presented to facilitate understanding and the interrelationships among metrics.

3.2 Sources of Transit Vehicle Noise

This section discusses major characteristics of the sources of transit noise. Transit noise can be generated by transit vehicles in motion, stationary transit

vehicles, and fixed-transit facilities. Procedures for computing nearby noise levels for major sources as a function of operating parameters such as vehicle speed are given in Sections 4.4 and 4.5.

Transit Vehicles in Motion

Transit vehicles most noticeably create noise when in motion. Noise from transit vehicles in motion can come from multiple sources, including the propulsion unit (i.e., the engine and engine components), the interaction of the wheels and/or tires and the running surface, and warning bells and horns.

Vehicle propulsion units generate:

- Whine from electric control systems and traction motors that propel rapid transit cars
- Diesel-engine exhaust noise from both diesel-electric locomotives and transit buses
- Air-turbulence noise generated by cooling fans
- Gear noise

Noise is also generated by the interaction of wheels and/or tires with their running surfaces. Tire noise from rubber-tired vehicles is generated at normal operating speeds. The interaction of steel wheels and rails generates:

- Rolling noise due to continuous rolling contact
- Impact noise when a wheel encounters a discontinuity in the running surface such as a rail joint, turnout or crossover (where the train or rail vehicle switches off one track and onto another)
- Impact noise from the wheel and running surface if the wheel is not completely round (wheel flat) or if the running surface is not completely flat
- Squeal generated by friction between wheels and rail on tight curves

Transit vehicles are equipped with horns and bells for use in emergency situations and as a general audible warning to track workers and trespassers within the ROW, pedestrians, and motor vehicles at highway grade crossings. Horns and bells on the moving transit vehicle combined with stationary bells at-grade crossings can generate high noise levels for nearby residents and are often sources of complaints.

For many noise sources, such as transit vehicles, the sound level is dependent on the speed of the noise source. In other cases, such as for stationary sources or horns mounted on vehicles, the sound level is not dependent on speed. Figure 3-2 illustrates sound level dependence on speed for a diesel-powered commuter rail train and an electric-powered transit train assuming all other parameters, such as weight, are equal. Plotted vertically in this figure is a notional indication of the maximum sound level during a passby. Speed dependence is strong for electric-powered transit trains because wheel/rail noise is the dominant noise source and noise from this type of source increases strongly with speed. Diesel-powered commuter rail train noise is dominated by the locomotive exhaust noise at slower speeds. As speed increases, wheel-rail

noise becomes the dominant noise source and diesel- and electric-powered trains generate similar noise levels. Similarly, speed dependence is also strong for automobiles, city buses (two-axle), and non-accelerating highway buses (three-axle), because tire/pavement noise is the dominant noise source for these vehicles. Accelerating highway bus noise is dominated by exhaust noise.

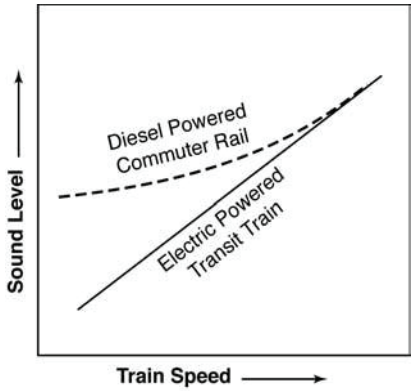


Figure 3-2 Sound Level Dependence on Speed

Sound levels close to the source are also dependent on vehicle acceleration, vehicle length, running surface type, and running surface condition. For high-speed rail vehicles (vehicles with an operating speed of 90–250 mph are typically beyond the scope of this manual), air turbulence can also be a source of noise. In addition, for an elevated structure, the guideway can radiate noise as it vibrates in response to the dynamic loading of the moving vehicle.

Stationary Transit Vehicles

Noise can be generated by transit vehicles even when they are stationary. For example, auxiliary equipment such as cooling fans on motors, radiator fans, plus hydraulic, pneumatic, and air-conditioning pumps, often continue to run when vehicles are stationary. Transit buses are also often left idling in stations or storage yards.

Fixed-transit Facilities

Noise can also be generated by sources at fixed-transit facilities. Such sources include ventilation fans in transit stations, subway tunnels, and electric power substations, as well as equipment in chiller plants, and many activities within maintenance facilities and shops.

Common Noise Sources

Table 3-2 summarizes common sources of transit noise by vehicle and facility type.

Table 3-2 Sources of Transit Noise

Vehicle or Facility*	Dominant Components	Comments
RRT or Light Rail Transit (LRT) on exclusive ROW	Wheel/rail interaction and guideway amplification	Depends on condition of wheels and rails
	Propulsion system	When accelerating and at higher speeds
	Brakes	When stopping
	Auxiliary equipment	When stopped
	Wheel squeal	On tight curves
	In general	Noise increases with speed and train length
LRT in Mixed Traffic	Wheel squeal	On tight curves
	Auxiliary equipment	When stopped
	Horns and crossing bells	At-grade crossings and stations
	In general	Traveling at lower speeds in mixed traffic produces less noise than when traveling at higher speeds in exclusive ROW
Commuter Rail	Diesel exhaust	On diesel-hauled trains
	Cooling fans	On both diesel and electric-powered trains
	Wheel/rail interaction	Depends on condition of wheels and rails
	Horns and crossing gate bells	At-grade crossings and stations
	In general	Noise is usually dominated by locomotives and horns/bells at-grade crossings
Low and Intermediate Capacity Transit	Propulsion systems, including speed controllers	At low speeds
	Ventilation systems	At low speeds
	Tire/guideway interaction	For rubber-tired vehicles, including monorails
	Wheel/rail interaction	Depends on condition of wheels and rails
	In general	Wide range of vehicles: monorail, rubber-tired, steel-wheeled, linear induction. Noise characteristics depend upon type
Diesel Buses	Cooling fans	While idling
	Engine casing	While idling
	Diesel exhaust	At low speeds and while accelerating
	Tire/roadway interaction	At moderate and high speeds
	In general	Includes city buses (generally two-axle) and commuter buses (generally three-axle)
Electric Buses and Trackless Trolleys	Tire/roadway interaction	At moderate speeds
	Electric traction motors	At moderate speeds
	In general	Much quieter than diesel buses
Bus Storage Yards	Buses starting up	Usually most disruptive in the early morning
	Buses accelerating	Usually near entrances/exits and/or locations that require buses to accelerate (tight turns)
	Buses idling	Warm-up areas
	In general	Site specific: often peak periods with considerable noise
Rail Transit Storage Yards	Wheel squeal	On tight curves
	Wheel impacts	On joints and switches
	Wheel rolling noise	On tangent track
	Auxiliary equipment	Throughout day and night; includes air-break release noise
	Coupling/uncoupling	On storage tracks
	Signal horns	Throughout yard site
	In general	Site specific: often early morning and peak periods with considerable noise

Maintenance Facilities	Signal horns	Throughout facility
	Intercoms	Throughout facility
	Impact tools	Shop buildings
	Car/bus washers/driers	Wash facility
	Vehicle activity	Throughout facility
	In general	Site specific: considerable activity throughout day and night, some outside.
Stations	Automobiles	Patron arrival/departure, especially in early morning
	Buses idling	Bus loading zone
	Intercoms	Platform area
	Locomotive idling	At commuter rail terminal stations
	Auxiliary systems	At terminal stations and layover facilities
	Horns	At stations, if applicable
	In general	Site specific, with peak activity periods
Subways	Fans	Noise through vent shafts/structures
	Buses/trains in tunnels	Noise through vent shafts/structures
	In general	Noise is not a problem, except in the immediate vicinity of vent shafts/structures.

* Refer to Appendix A for additional information.

3.3 Paths of Transit Noise from Source to Receiver

This section contains a qualitative overview of noise-path characteristics from source to receiver, including attenuation along these paths. Equations for specific noise-level attenuations along source-receiver paths are included in Sections 4.4 and 4.5.

Sound paths from source to receiver are predominantly through the air. Along these paths, sound reduces with distance due to divergence, absorption/diffusion, and shielding. These mechanisms of sound attenuation are discussed below.

Divergence

Sound levels naturally attenuate with distance, as shown in Figure 3-3. The plot shows attenuation at the receiver relative to the sound level 50 ft from the source. This type of attenuation is called divergence and is dependent upon source configuration (line or point source) or other source-emission characteristics. Localized sources (point sources) grouped closely together attenuate greatly with distance at a rate of approximately 6 dB per doubling of distance. Examples of point sources include highway grade-crossing signals along rail corridors, intercoms in maintenance yards and other closely grouped sources of noise. Vehicles passing along a track or roadway forming a line are called line sources. Line sources attenuate less than point sources with distance. Rate of attenuation for line sources varies depending on the noise metric. $L_{eq(1hr)}$ and L_{dn} noise levels attenuate at a rate of 3 dB per doubling of distance and L_{max} noise levels attenuate at a rate of 3 to 6 dBs per doubling of distance.

Figure 3-3 illustrates approximate attenuation with distance between the source and receiver for point and line sources. The line source curve for the L_{max} noise

metric separates into three curves because it is dependent on the length of the line source. Equations for the curves in Figure 3-3 are included in Section 4.5.

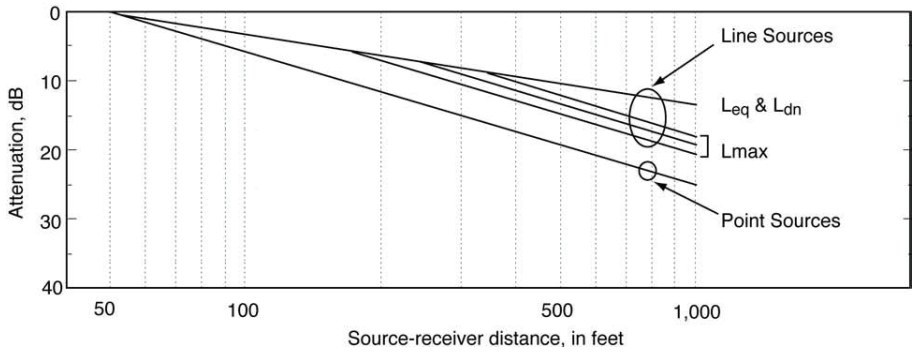


Figure 3-3 Attenuation Due to Distance (Divergence)

Absorption/Diffusion

In addition to distance, sound levels can be attenuated depending on the type of ground between the source and receiver. A portion of the sound energy is absorbed by the ground and only the remaining energy travels to the source. How much energy the ground absorbs is dependent on the ground type (characterized as acoustically "hard" or "soft") and geometry. Example absorptive ground types include freshly-plowed or vegetation-covered ground. Figure 3-4 illustrates approximate attenuation due to ground type by source to receiver path distance and height. Ground attenuation can be as large as 5 dB over a path distance of several hundred ft. At very large distances, wind and temperature gradients could modify the expected ground attenuation. However, these variable atmospheric effects are not included in this manual because they generally occur beyond the range of typical transit-noise impact. Equations for the curves in this figure are included in Section 4.5.

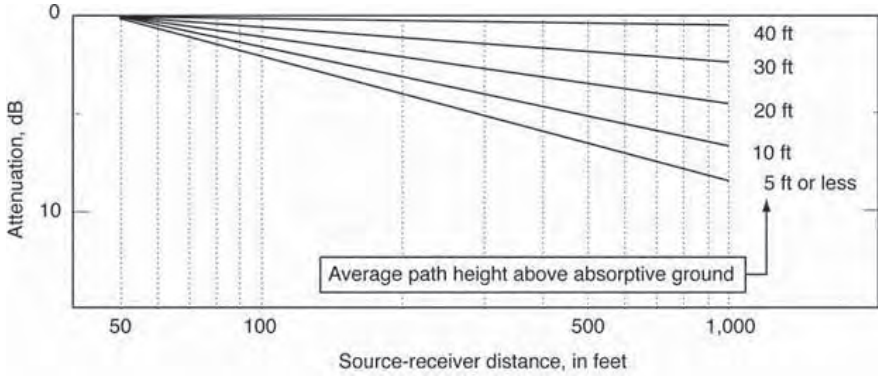


Figure 3-4 Attenuation due to Soft Ground

Shielding

Sound paths are sometimes interrupted by terrain, human-constructed noise barriers, rows of buildings, or other objects. Noise barriers are one of the most effective means of mitigating noise (Section 4.5, Step 7). A noise barrier reduces sound levels at a receiver by breaking the direct line-of-sight between source and receiver with a solid wall (in contrast to vegetation which hides the source from view but does not reduce sound levels substantially over short distances). Sound energy reaches the receiver only by bending (diffracting) over the top of

the barrier, as shown in Figure 3-5. This diffraction over the barrier reduces the sound level that reaches the receiver. One important consideration in using noise barriers to mitigate noise impacts is safety. Noise barriers, if not designed and sited carefully, can reduce visibility of trains for pedestrians and motorists, leading to less safe conditions. It is important to consult with safety experts when choosing and siting a noise barrier.

Noise barriers for transportation systems are typically used to attenuate noise at the receiver, potentially reducing received sound levels by 5 to 15 dB, depending upon barrier height, length, and distance from both source and receiver. Barriers on structures close to the transportation noise source may provide less attenuation than barriers located farther from the source due to reverberation (multiple reflections) between the barrier and the body of the vehicle or noise source. This reverberation can be offset by increased barrier height and/or acoustical absorption on the source side of the barrier. Further discussion and equations on acoustical absorption and barrier attenuation is provided in Section 4.5.

Source-to-receiver sound paths may not always travel through the air, but rather through the ground or through structural components of the receiver's building. Discussion of such ground-borne and structure-borne propagation is included in Section 5.

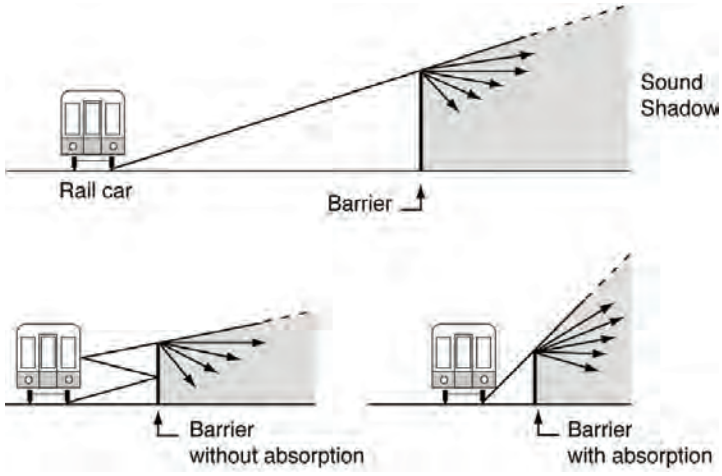


Figure 3-5 Noise Barrier Geometry

3.4 Receiver Response to Transit Noise

This section contains an overview of human receiver response to noise. It serves as background information for the noise impact criteria in Section 4.1.

Noise can interrupt ongoing activities causing community annoyance, especially in residential areas. In general, most residents become highly annoyed when noise interferes considerably with activities such as sleeping, talking, noise-sensitive work, and audio entertainment. In addition, some land uses, such as outdoor concert pavilions, are inherently incompatible with high noise levels.

Annoyance from noise has been investigated and approximate dose-response relationships have been quantified by the U.S. Environmental Protection Agency (EPA).[5] The selection of noise metrics in this manual is largely based upon this EPA work. Beginning in the 1970s, the EPA undertook a number of research and synthesis studies relating to community noise of all types. Results of these studies have been widely published, discussed, and refereed by many professionals in acoustics. Basic conclusions of these studies have been adopted by the Federal Interagency Committee on Noise (FICON),[ii] the U.S. Department of Housing and Urban Development (HUD), the American National Standards Institute, and even internationally[6][7][8][9]. Conclusions from this seminal EPA work remain scientifically relevant today.

Figure 3-6 contains a synthesis of actual case studies of community reaction to newly introduced sources of noise in a residential urban neighborhood.[10] Plotted horizontally in the figure is the increase in noise from new sources above existing noise levels expressed as Day-Night Sound Levels, L_{dn}, discussed in Appendix B.1.4.5. Plotted vertically is the community reaction to this newly introduced noise. As shown in the figure, community reaction varies from no reaction to vigorous action for newly introduced noises averaging from 10 dB below existing to 25 dB above existing. Note the assumptions included in the graphic are associated with the specific data points from the study. These assumptions are generally appropriate to give context to most transit projects, but community reaction may differ for conditions specific to each project.

In many community attitudinal surveys, transportation noise has been ranked among the greatest causes of community dissatisfaction. A synthesis of many such surveys on annoyance is shown in Figure 3-7.[11][12] Noise exposure levels are plotted against the percentage of people who are highly annoyed by the particular level of neighborhood noise. As shown in the figure, the percentage of high annoyance is approximately 0 percent at 45 dB, 10 percent around 60 dB, and increases quite rapidly to approximately 70 percent around 85 dB. The scatter about the synthesis line is due to community variation and wording differences in the surveys. An update of the original research containing additional railroad, transit and street traffic noise surveys generally follows the shape of the original response curve shown in Figure 3-7.[12][13]

As indicated by Figure 3-6 and Figure 3-7, introduction of certain levels of transit noise into a community may have two undesirable effects. First, it may substantially increase noise levels above existing noise levels in a community. This effect is called a relative noise impact. Evaluation of this effect compares new noise levels to the existing levels. Criteria for a relative noise impact evaluation are based upon noise increases above existing levels. Second, newly introduced transit noise may interfere with community activities independent of existing noise levels. For example, it may be too loud to converse or sleep. This effect is called absolute noise impact and is expressed as a fixed level threshold that is not to be exceeded. The fixed level threshold is determined independently of existing noise levels. Relative and absolute noise impacts are discussed in terms of transit noise criteria in Section 4.1, Step 3.

[ii] The Federal Interagency Committee on Aviation Noise (FICAN) is the current version of this group.

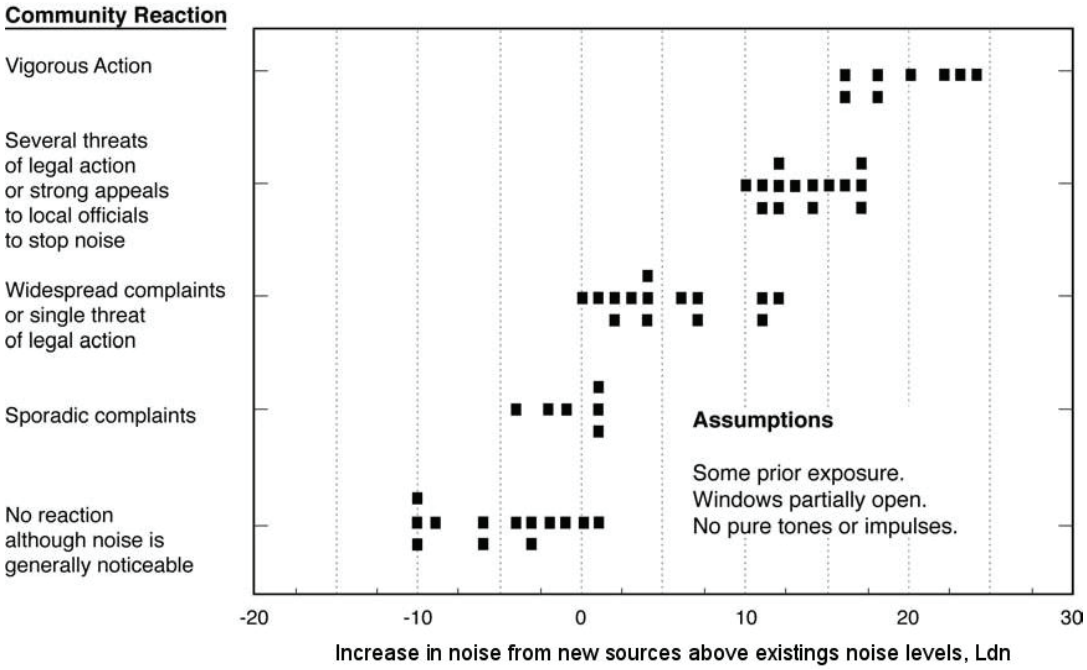


Figure 3-6 Community Reaction to New Noise, Relative to Existing Noise in a Residential Urban Environment

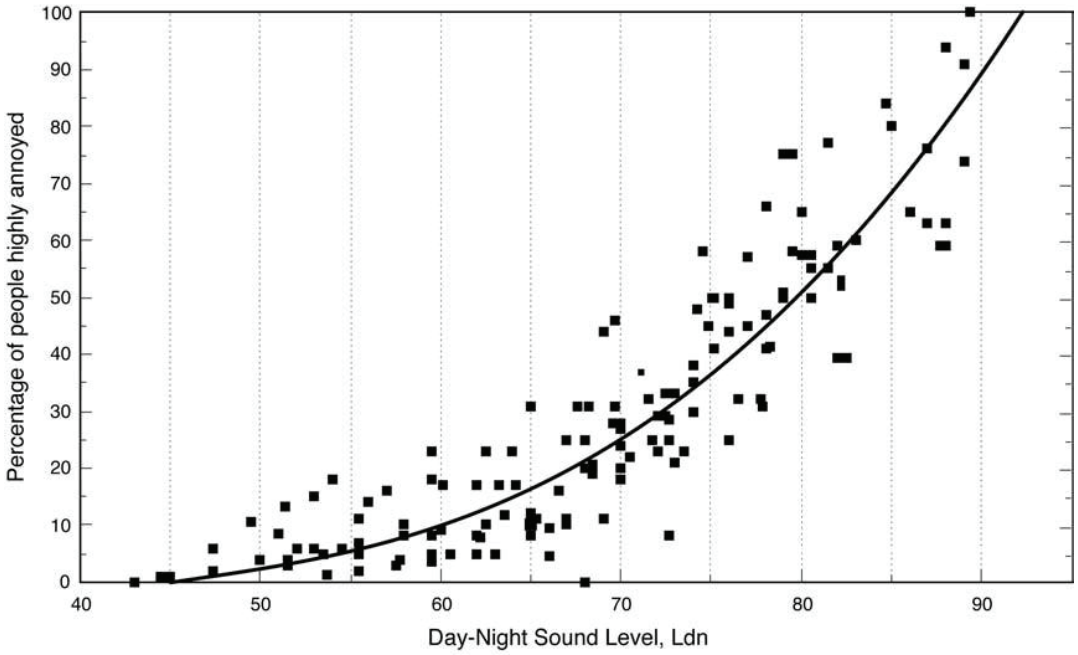


Figure 3-7 Community Annoyance Due to Noise

SECTION 4

Noise Impact Analysis

The FTA noise impact analysis process is a multi-step process used to evaluate the project for potential noise impacts for FTA NEPA approvals. If impact is determined, measures necessary to mitigate adverse impacts must be considered for incorporation into the project.[4] It is recommended that project sponsors develop and formally adopt a policy for determining the need for mitigation for situations that are loosely covered by the impact criteria. Considerations for mitigation policies are included in Section 2.3. The FTA noise impact analysis steps are summarized as follows and are described in the subsequent subsections:

4.1: Determine noise impact criteria.
- **Step 1:** Identify the type of project/dominant noise source (transit or multimodal).
- **Step 2:** Choose land use category for FTA criteria.

4.2: Determine the highest appropriate level of noise analysis for the current stage of project planning or development.

4.3: Evaluate for the potential of impact according to the Noise Screening Procedure.
- **Step 1:** Identify project type.
- **Step 2:** Determine the screening distance.
- **Step 3:** Identify the study area.
- **Step 4:** Locate noise-sensitive land uses.

4.4: Evaluate impact according to the General Noise Assessment and evaluate preliminary mitigation options if impact is found.
- **Step 1:** Identify noise-sensitive receivers.
- **Step 2:** Determine the project noise source reference levels.
- **Step 3:** Estimate project noise exposure by distance.
- **Step 4:** Combine noise exposure from all sources.
- **Step 5**: Measure existing noise exposure.
- **Step 6:** Inventory noise impacts.
- **Step 7:** Determine noise mitigation needs.

4.5: Evaluate for impact according to the Detailed Noise Analysis and evaluate mitigation options if impact is found.
- **Step 1:** Identify noise-sensitive receivers.
- **Step 2:** Determine noise source levels for detailed analysis.
- **Step 3:** Calculate project noise exposure by distance.
- **Step 4:** Combine noise exposure from all sources.
- **Step 5:** Determine existing noise exposure.
- **Step 6:** Assess noise impact.
- **Step 7:** Determine noise mitigation measures.

In addition to analyzing for potential noise impacts, analyze the project for potential vibration impacts according to the process presented in Section 6. After both the noise and vibration analyses have been completed, assess

construction noise and vibration according to Section 7 and document findings according to Section 8.

4.1 Determine Noise Impact Criteria

This section describes the procedure for determining the appropriate criteria for assessing project noise impact based on the type of project and project noise source. Project noise is the new noise or change in noise introduced by the project. Noise impact criteria may vary for different segments of the project. Project segments can be portions of a project with similar characteristics.

The procedure to determine the appropriate impact criteria is described in this section and shown more simply as a flow chart in Figure 4-1. If there is uncertainty in how to determine the appropriate criteria, contact the FTA Regional office.

The selected criteria are used in the analysis procedures discussed in Sections 4.3, 4.4, and 4.5 to identify potential impacts and the level of impact.

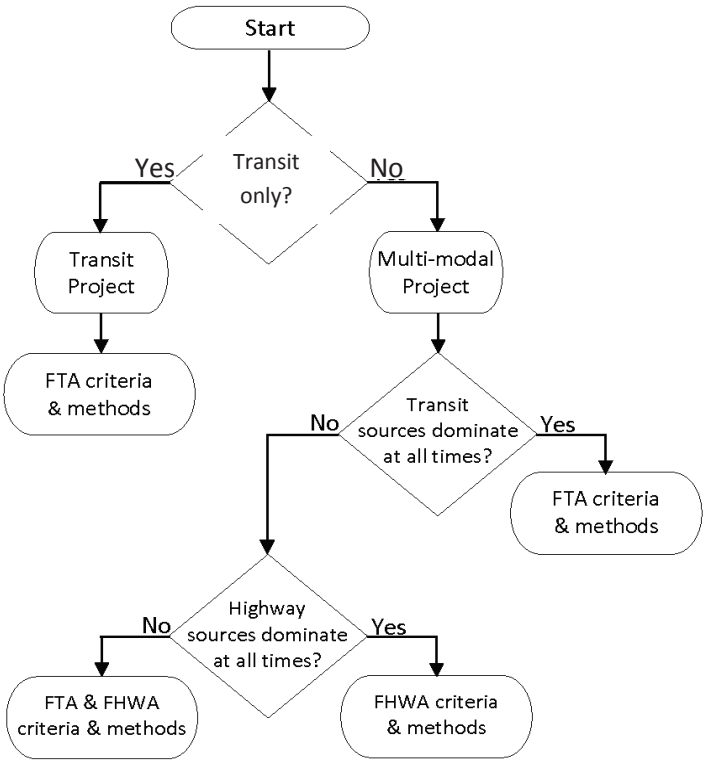


Figure 4-1 Noise Impact Criteria Flow Chart by Project Segment

Step 1: Identify Project Type

Identify the type of project as transit, multimodal (transit and highway), or other multimodal according to the dominant noise source.

Option A: Transit Project (Transit Noise Only) – The transit project category includes all transit projects where the project noise is exclusively due to new transit sources, no changes are made to the highway or to existing highway noise barriers, and the existing noise levels generated by roadway sources will not change because of the project. For these transit projects, FTA is the lead agency conducting the environmental review in cooperation with the transit agency.

Typical examples of transit projects include:

- RRT, LRT, commuter rail, and AGT
- Rail projects built within an existing highway or railroad corridor that do not alter the existing noise levels generated by roadway sources
- Bus facility projects with operations on local streets and highways used to access the facility, where the project does not include roadway construction or modification that changes roadway capacity substantially
- Fixed facilities including storage and maintenance yards, passenger stations and terminals, parking facilities, and substations
- Portions of transit projects not adjacent to highway corridors

FTA impact criteria are appropriate for transit projects, proceed to Step 2.

Option B: Multimodal Project (Transit and Highway Noise) – In this manual, "multimodal" refers to projects that include changes to both transit and highway components, resulting in project noise comprised of both highway and transit noise sources.

Typical examples of multimodal projects include:

- New highway construction providing general-purpose lanes as well as dedicated bus and high occupancy vehicle (HOV) lanes
- Rail transit projects that involve changes to the highway travel lanes or existing highway noise barriers

Evaluate multimodal projects for impact according to the project noise source by project segment. FHWA's noise assessment methods are used to inform FTA's NEPA evaluation only for segments where highway noise levels change due to the transit project. These projects are not necessarily subject to FHWA's procedures at 23 CFR part 772 *(see call out box below*). For segments of the project outside the highway corridor, use FTA's criteria and methods. Use Table 4-1 to determine multimodal project noise.

Once the project noise source(s) is identified**,** determine the appropriate assessment method according to Table 4-2.

Note that a separate noise analysis may be required for FHWA approval of a multimodal project pursuant to 23 CFR part 772. For these projects, it is important to work with FHWA early in the environmental review process to determine how a noise assessment will be completed where FHWA approval is needed for the project.

The determination of whether a project is subject to FHWA procedures at 23 CFR part 772 depends upon the specific circumstances of a project. A proposed transit project that would share an existing highway ROW is not necessarily a FHWA-defined multimodal project. A transit project that meets all three of the following criteria is not considered a multimodal project subject to 23 CFR part 772:

- FTA is the lead agency in the NEPA process and FHWA's limited participation is as a cooperating agency.
- The main transportation purpose of the project, as stated in the purpose and need statement of the environmental document, is transit-related and not highway-related.
- No Federal-aid highway funds are being used to fund the project.

Table 4-1 Multimodal Project Noise Factors

Factor	Description
Volume of Traffic	Major freeways and interstate highways often carry large volumes of traffic throughout the day and night such that the highway noise dominates at all times. Transit noise in this case may be unimportant by comparison, but must still be evaluated using FTA's noise criteria for a potential impact.
Traffic Patterns	Some highways and arterials serve primarily as commuter routes such that nighttime traffic diminishes considerably, while transit systems continue to operate well into the late hours. Here the dominant noise source at times of maximum sensitivity may be transit.
Type of Traffic	Some highways and arterials may serve commuters during the daytime hours, but provide access to business centers by trucks at night. In this case, the roadway noise would likely continue to dominate.
Alignment Configuration	Elevation of the transit mode in the median or beside a busy highway may result in transit noise contributing more noise to nearby neighborhoods than a highway that may be partially shielded by rows of buildings adjacent to the ROW. In this case, both transit and highway noise may be considered dominant.

Table 4-2 Multimodal Project Assessment Methods

Dominant Noise Source	Assessment Method
Transit, at All Times	Use FTA criteria and methods. *Proceed to Step 2.*
Highway, at All Times	Use FHWA criteria and methods to inform FTA's NEPA evaluation. *Contact FHWA directly for assistance using FHWA noise analysis methods and FHWA noise impact criteria.*
Transit and Highway at Different Times	Use both the FHWA and FTA methods to determine if one, both, or neither method determines impact due to the project noise for these segments. Note that the project noise includes both highway and transit sources associated with the project. Both methods are used because the FTA methods consider nighttime sensitivity while the FHWA methods consider the peak traffic hour. *Proceed to Step 2 for FTA criteria. Contact FHWA directly for assistance using FHWA noise analysis methods and FHWA noise impact criteria.*

Option C: Other Multimodal Projects – For projects with components from other modes, contact the FTA Regional office. Additional information on high-speed rail vibration and noise can be found in the Federal Railroad Administration (FRA) "High-Speed Ground Transportation Noise and Vibration Impact Assessment" guidance manual.[14]

Step 2: Choose Land Use Category for FTA Criteria

Determine the appropriate noise-sensitive land use category for the project segment using Table 4-3 and the descriptions below then, proceed to Step 3. FTA criteria are presented by land use.

Table 4-3 Land Use Categories and Metrics for Transit Noise Impact Criteria

Land Use Category	Land Use Type	Noise Metric, dBA	Description of Land Use Category
1	High Sensitivity	Outdoor $L_{eq(1hr)}$*	Land where quiet is an essential element of its intended purpose. Example land uses include preserved land for serenity and quiet, outdoor amphitheaters and concert pavilions, and national historic landmarks with considerable outdoor use. Recording studios and concert halls are also included in this category.
2	Residential	Outdoor L_{dn}	This category is applicable all residential land use and buildings where people normally sleep, such as hotels and hospitals.
3	Institutional	Outdoor $L_{eq(1hr)}$*	This category is applicable to institutional land uses with primarily daytime and evening use. Example land uses include schools, libraries, theaters, and churches where it is important to avoid interference with such activities as speech, meditation, and concentration on reading material. Places for meditation or study associated with cemeteries, monuments, museums, campgrounds, and recreational facilities are also included in this category.

* $L_{eq(1hr)}$ for the loudest hour of project-related activity during hours of noise sensitivity.

Noise-sensitive land use categories are described in in order of sensitivity. Most commercial or industrial uses are not considered noise-sensitive because activities within these buildings are generally compatible with higher noise levels. Business can be considered noise-sensitive if low noise levels are an important part of operations, such as sound and motion picture recording studios.

For residential land use (category 2), apply the noise criteria at the nearest façade of the occupied portion of the building, e.g., not at a garage or porch. The residential criteria should be applied at locations with nighttime sensitivity. For major noise-sensitive outdoor use at non-residential locations, apply the noise criteria at the point of noise-sensitive use nearest the noise source.

Land use categories are evaluated using noise metrics that reflect the noise-sensitive time of day:

- **Categories 1 and 3** – The noise metric, $L_{eq(1hr)}$ is used for all category 1 and 3 land uses where nighttime sensitivity is not a factor. Category 3 land uses are considered less noise-sensitive than category 1 land uses. For transit analyses, $L_{eq(1hr)}$ is computed for the noisiest hour of transit-

related activity during which human activities occur at the noise-sensitive location. See Appendix B.1.4.4 for more information on this metric.

- **Category 2** – The noise metric L_{dn} is a used for all category 2 land uses where nighttime sensitivity is a factor. This noise metric includes a 10-dB penalty for nighttime noise. See Appendix B.1.4.5 for more information on this metric.

Land Use Categories: Special Cases

Historic sites, parks, indoor-only land use, and undeveloped land require special consideration. In addition to NEPA, noise impacts may need to be considered under other environmental laws such as Section 106[15] or Section 4(f).[16] Indoor-only use and undeveloped land should be evaluated on a case-by-case basis to determine noise sensitivity based on how each facility is used or the reason it is protected under the applicable requirement.

Historic Sites – Section 106 requires Federal agencies to evaluate potential effects from projects on historic properties. Per the regulations at 36 CFR part 800,[17] historic properties are defined as any prehistoric or historic district, site, building, structure, or object included in, or eligible for the National Register of Historic Places (NRHP). An adverse effect determination under Section 106 is made when a project may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the National Register in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association.

Under FTA environmental reviews, some structures may be evaluated as noise-sensitive resources per this noise manual and evaluated as historic properties under Section 106. However, because this manual and Section 106 regulations have different criteria for effect, identifying a severe noise impact for a structure under this manual does not necessarily mean there would be an adverse effect under Section 106. It is important to thoroughly document the characteristics of historic properties that qualify for inclusion in the NRHP for evaluation of effect under Section 106.

If a property, for example, is listed on the NRHP under criterion C because the structure possesses high artistic values, but lacks integrity of setting, feeling, or association, it is unlikely that a change in the noise environment would affect the features that qualify the property for listing or eligibility for inclusion in the NRHP.

In the assessment of effects on historic properties, consideration should be given to not just the proposed transit project, but any associated mitigation measures with the transit project. For example, if a transit project would involve noise walls or berms as mitigation, the effect of those structures on the visual setting may need to be considered in a Section 106 analysis.

Parks – Most parks used primarily for active recreation such as sports complexes and bike or running paths are not considered noise-sensitive.

However, some parks (even some in dense urban areas) are primarily used for passive recreation such as reading, conversation, or meditation. These places, which may be valued as havens from the noise and rapid pace of everyday city life, are treated as noise-sensitive, and are included in land use category 3. Consult the state or local agency with jurisdiction over the park on questions about how the park is used, and visit the park to observe its use, if possible.

Indoor-Only Use – The land use categories described in this section correspond with noise impact criteria that provide protection for both outdoor and indoor land uses. For locations where noise impact will be evaluated but there is no outdoor land use such as apartment buildings, hotels or upper levels of multi-story buildings, indoor criteria can be used. In these cases, the criterion for indoor noise levels from project sources is a L_{dn} of 45 dBA.[18] This criterion is consistent with the Federal Aviation Administration (FAA). See Section 4.5 for more information on how indoor criteria apply to noise mitigation consideration.

Undeveloped Land – Undeveloped land may also need to be considered for noise impact assessment and mitigation if plans are under way to develop the land for noise-sensitive use. The policy for considering such land for assessment and mitigation should be determined on a project-specific basis by the project sponsor in consultation with the FTA Regional office.

Step 3: Determine Appropriate FTA Criteria Presentation

FTA criteria for noise impact were developed specifically for transit noise sources operating on fixed-guideways or at fixed facilities in urban areas. These criteria are based on well-documented research on human response to community noise and represent a reasonable balance between community benefit and project costs. These criteria do not reflect specific community attitudinal factors. See Appendix C for additional background information on the development of FTA noise criteria.

The criteria specify a comparison of future project noise with existing noise. Note that projections of future noise exposure without the project (no-build scenario) are not included in this analysis. The criteria also consider land use which is an important factor that reflects noise sensitivity based on activity and time period of concern. The criteria are defined with the expectation that communities already exposed to high levels of noise can only tolerate a small increase. In contrast, if the existing noise levels are low, it is reasonable to allow a greater change in the community noise.

The levels of impact are described in Table 4-4. The criteria at which the levels of impact occur are presented in two ways depending on the relationship of project and existing noise sources.

If the project noise source is a new source of transit noise in the community, such as a new project in an area currently without transit, use the criteria as presented in Option A. If the project noise adds to or changes existing transit noise in the community, use the criteria as presented in Option B.

Table 4-4 Levels of Impact

Level of Impact	Description
No Impact	Project-generated noise is not likely to cause community annoyance. Noise projections in this range are considered acceptable by FTA and mitigation is not required.
Moderate Impact	Project-generated noise in this range is considered to cause impact at the threshold of measurable annoyance. Moderate impacts serve as an alert to project planners for potential adverse impacts and complaints from the community. Mitigation should be considered at this level of impact based on project specifics and details concerning the affected properties.
Severe Impact	Project-generated noise in this range is likely to cause a high level of community annoyance. The project sponsor should first evaluate alternative locations/alignments to determine whether it is feasible to avoid severe impacts altogether. In densely populated urban areas, evaluation of alternative locations may reveal a trade-off of affected groups, particularly for surface rail alignments. Projects that are characterized as point sources rather than line sources often present greater opportunity for selecting alternative sites. This guidance manual and FTA's environmental impact regulations both encourage project sites which are compatible with surrounding development when possible. If it is not practical to avoid severe impacts by changing the location of the project, mitigation measures must be considered.

Option A: Project Noise Impact Criteria Presentation – The impact criteria presentation for evaluating existing noise independently to project noise is presented in this option.

The noise levels at which impacts occur are presented in Figure 4-2 and Table 4-5. Equations for the impact criteria are presented in Appendix C. If impact is determined, measures necessary to mitigate impacts are to be considered for incorporation into the project.[3]

Figure 4-2 presents the existing noise exposure on the horizontal axis and project noise on the vertical axis. Category 1 and 2 land uses have the same criteria for project noise and are on the primary vertical axis. Category 3 land use criteria are presented on the secondary vertical axis. Note that project noise for category 1 and 3 land uses is expressed as $L_{eq(1hr)}$, whereas project noise for category 2 land use is expressed as L_{dn}. Also, note that project noise criteria are 5 dB higher for category 3 land uses in Figure 4-2 since these types of land use are less noise-sensitive than those in categories 1 and 2.

Note that for projects in locations with existing noise levels below 55 dBA, the project noise exposure is allowed some increase over the existing noise exposure before it is considered to cause impact. For category 1 and 2 land uses, the maximum project noise level to be considered to cause no impact is 65 dBA ($L_{eq(1hr)}$ or L_{dn}) regardless of the existing noise. Note that no impact at 65 dBA aligns with other Federal agencies in that a L_{dn} of 65 dBA is a standard limit for an acceptable living environment among some Federal agencies.[19] [20] Project noise levels above the top curve are considered to cause severe impact. The upper limit of the severe impact range is 75 dBA for category 1 and 2 land uses. The upper limit of 75 dBA is associated with an unacceptable living environment. Project noise between the two curves is considered to have moderate impact on the community.

The criteria are also tabulated in Table 4-5. Figure 4-2 and the equations that correspond with this figure in Appendix C are the precise definition of the criteria. The values in Table 4-5 can be used for illustrative purposes and should only be used if all numbers are rounded up to the nearest decibel.

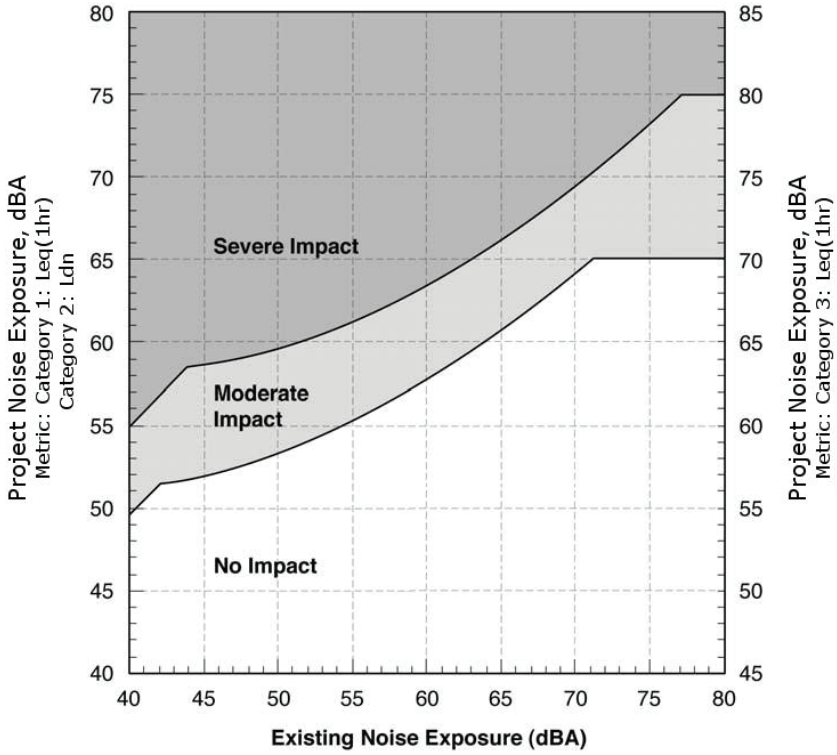


Figure 4-2 Noise Impact Criteria for Transit Projects

Table 4-5 Noise Levels Defining Impact for Transit Projects

Existing Noise Exposure, dBA	Project Noise Impact Exposure, dBA					
	Category 1 ($L_{eq(1hr)}$) or 2 (L_{dn}) Sites			Category 3 Sites ($L_{eq(1hr)}$)		
$L_{eq(1hr)}$ or L_{dn}	No Impact	Moderate Impact	Severe Impact	No Impact	Moderate Impact	Severe Impact
<43	< Ambient+10	Ambient +10 to 15	> Ambient+15	< Ambient+15	Ambient +15 to 20	> Ambient+20
43	<52	52-58	>58	<57	57-63	>63
44	<52	52-58	>58	<57	57-63	>63
45	<52	52-58	>58	<57	57-63	>63
46	<53	53-59	>59	<58	58-64	>64
47	<53	53-59	>59	<58	58-64	>64
48	<53	53-59	>59	<58	58-64	>64
49	<54	54-59	>59	<59	59-64	>64
50	<54	54-59	>59	<59	59-64	>64
51	<54	54-60	>60	<59	59-65	>65
52	<55	55-60	>60	<60	60-65	>65
53	<55	55-60	>60	<60	60-65	>65
54	<55	55-61	>61	<60	60-66	>66
55	<56	56-61	>61	<61	61-66	>66
56	<56	56-62	>62	<61	61-67	>67
57	<57	57-62	>62	<62	62-67	>67
58	<57	57-62	>62	<62	62-67	>67
59	<58	58-63	>63	<63	63-68	>68
60	<58	58-63	>63	<63	63-68	>68
61	<59	59-64	>64	<64	64-69	>69
62	<59	59-64	>64	<64	64-69	>69
63	<60	60-65	>65	<65	65-70	>70
64	<61	61-65	>65	<66	66-70	>70
65	<61	61-66	>66	<66	66-71	>71
66	<62	62-67	>67	<67	67-72	>72
67	<63	63-67	>67	<68	68-72	>72
68	<63	63-68	>68	<68	68-73	>73
69	<64	64-69	>69	<69	69-74	>74
70	<65	65-69	>69	<70	70-74	>74
71	<66	66-70	>70	<71	71-75	>75
72	<66	66-71	>71	<71	71-76	>76
73	<66	66-71	>71	<71	71-76	>76
74	<66	66-72	>72	<71	71-77	>77
75	<66	66-73	>73	<71	71-78	>78
76	<66	66-74	>74	<71	71-79	>79
77	<66	66-74	>74	<71	71-79	>79
>77	<66	66-75	>75	<71	71-80	>80

Option B: Cumulative Noise Impact Criteria Presentation

The impact criteria presentation for evaluating existing noise to project noise cumulatively is presented in this option.

In certain cases, the cumulative form of the noise criteria shown in Figure 4-3 can be used. These cases involve projects where changes are proposed to an existing transit system, as opposed to a new project in an area previously without transit. Such changes might include operations of a new type of vehicle, modifications of track alignments within existing transit corridors, or changes in facilities that dominate existing noise levels. In these cases, the existing noise

sources change because of the project, and so it is not possible to define project noise separately from existing noise. An example would be a commuter rail corridor where the existing noise along the alignment is dominated by diesel locomotive-hauled trains, and where the project involves electrification with the resulting replacement of some of the diesel-powered locomotives with electric trains operating at increased frequency of service and higher speeds on the same tracks. In this case, the existing noise can be determined and a new future noise can be calculated, but it is not possible to describe what constitutes the "project noise." For example, if the existing noise dominated by trains was measured to be an L_{dn} of 63 dBA at a particular location, and the new combination of diesel and electric trains is projected to be an L_{dn} of 65 dBA, the change in the noise exposure due to the project would be 2 dB. Referring to Figure 4-3, a 2-dB increase with an existing noise exposure of 63 dBA would be rated as a moderate impact. Normally the project noise is added to the existing noise to come up with a new cumulative noise, but in this case, the existing noise was dominated by a source that changed due to the project, so it would be incorrect to add the project noise to the existing noise. Consequently, the existing noise determined by measurement is compared with a new calculated future noise, but a description of what constitutes the actual project is complex.

Another example would be a rail corridor where a track is added and grade crossings are closed, potentially resulting in a change in train location and horn operation. Here the "project noise" results from moving some trains closer to some receivers, away from others, and elimination of horns. In this case, the change in noise level is more readily determined than the noise from the actual project elements. In all cases, Figures 4-3 and 4-4 for changes in a transit system results in the same assessment of impact as Figure 4-2 for development of transit facilities in a new area.

The noise impact criteria in Figure 4-3 and Figure 4-4 are presented as an increase in cumulative noise level between the existing and project conditions. The horizontal axis represents the existing noise exposure and the vertical axis is the increase in cumulative noise level due to the transit project. Note that noise exposure is expressed as $L_{eq(1hr)}$ for category 1 and 3 land uses and L_{dn} for category 2 land use. Since $L_{eq(1hr)}$ and L_{dn} are measures of total acoustic energy, any new noise sources in a community will cause an increase, even if the new source level is the same or less than the existing noise level (refer to decibel addition in Appendix B). As shown in Figure 4-3, the criterion for moderate impact is a noise exposure increase of 10 dB for an existing noise exposure level of 42 dBA or less, but only a 1-dB increase when the existing noise exposure is 70 dBA.

As the existing level of ambient noise increases, the allowable level of transit noise increases, but the total amount that community noise exposure is allowed to increase is reduced. This accounts for the unexpected result that a project exposure which is less than the existing noise exposure can still cause impact. This is clearer from the examples listed in Table 4-6 which indicate the level of transit noise allowed for different existing levels of exposure. Any increase greater than shown in the table will cause moderate impact.

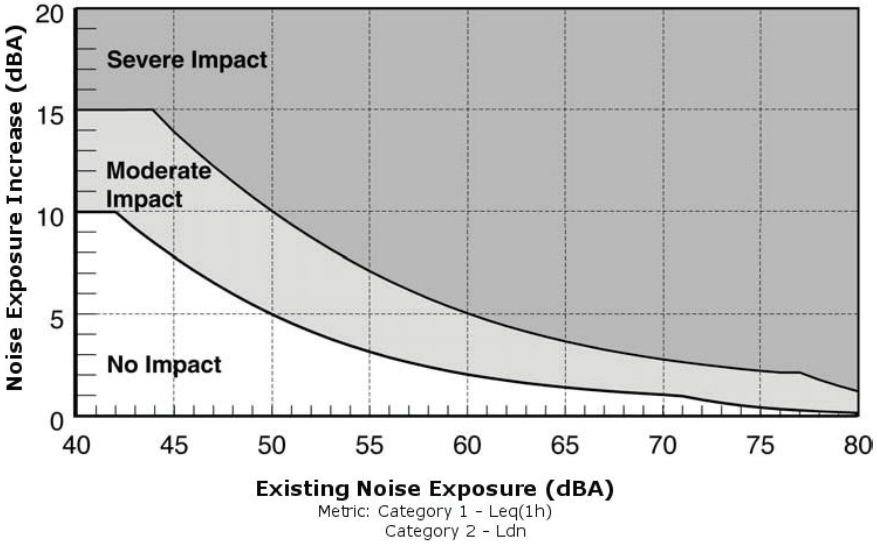


Figure 4-3 Increase in Cumulative Noise Levels Allowed by Criteria (Land Use Cat. 1 & 2)

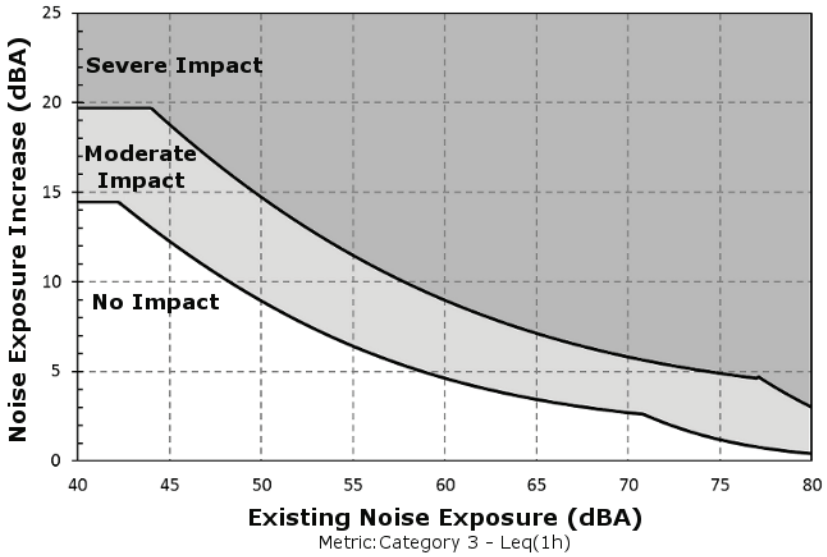


Figure 4-4 Increase in Cumulative Noise Levels Allowed by Criteria (Land Use Cat. 3)

This table shows that as the existing noise exposure increases from 45 dBA to 75 dBA, the allowed project noise exposure increases from 51 dBA to 65 dBA. However, the allowed increase in the cumulative noise level decreases from 7 dB to 0 dB (rounded to the nearest whole decibel). The justification for this is that people already exposed to high levels of noise should be expected to tolerate only a small increase in the amount of noise in their community. In contrast, if the existing noise levels are quite low, it is reasonable to allow a greater change in the community noise for the equivalent difference in annoyance.

Note that Table 4-6 was developed for illustrative purposes and the official criteria are included in Figure 4-3 and Figure 4-4 and the associated equations.

Table 4-6 Noise Impact Criteria: Effect on Cumulative Noise Exposure

L_{dn} or $L_{eq(1hr)}$ in dBA (rounded to nearest whole decibel)			
Existing Noise Exposure	**Allowable Project Noise Exposure Before Moderate Impact**	**Allowable Combined Total Noise Exposure**	**Allowable Noise Exposure Increase Before Moderate Impact**
45	51	52	7
50	53	55	5
55	55	58	3
60	57	62	2
65	60	66	1
70	64	71	1
75	65	75	0

4.2 Determine Noise Analysis Level

There are three levels of analysis to evaluate noise on a transit project based on the type and scale of the project, stage of project development, and environmental setting. These levels, described below, are the Noise Screening Procedure, the General Noise Assessment and the Detailed Noise Analysis.

The Noise Screening Procedure, conducted first, defines the study area of any subsequent noise impact assessment. Where there is potential for noise impact, the General Noise Assessment and Detailed Noise Analysis procedures are used to determine the extent and severity of impact. In some cases, a General Noise Assessment may be all that is needed. However, if the proposed project is near noise-sensitive land uses, and it appears at the outset that the impact would be substantial, it is prudent to conduct a Detailed Noise Analysis.

Conduct the noise screening procedure and then determine the appropriate noise analysis option.

Noise Screening Procedure – The Noise Screening Procedure is a simplified method of identifying study area receivers or locations where a project may have the potential for noise impacts from transit projects. This procedure accounts for impact criteria, the type of project, and noise-sensitive land uses. If no noise-sensitive land uses or receivers are present in the analysis area, then no further noise assessment is needed. If noise-sensitive receivers are identified, then proceed to conduct a General Assessment and/or a Detailed Assessment.

The Noise Screening Procedure steps are provided in Section 4.3.

General Noise Assessment – The General Noise Assessment is used to examine potentially impacted areas identified in the screening step by examining the location and estimated severity of noise impacts. This procedure considers noise source and land use information likely to be available at an early stage in the project development process. Estimates are made of project noise levels and of existing noise conditions to model the location of a noise impact contour

that defines the outer limit of an impact corridor or area. This modeling method uses transit-specific noise and adjustment data (in tabular and graphical form) for the noise computations.

For many smaller projects, this assessment may be sufficient to define impacts and determine whether noise mitigation is necessary. The procedure can be used in conjunction with established highway noise prediction procedures to compare highway, transit, and multimodal alternatives. If an assessment is needed to inform the decision on transit mode and general alignment in a corridor, the General Noise Assessment procedures should be used, and not the Detailed Noise Analysis, which requires more detailed information.

The General Noise Assessment procedure is provided in Section 4.4. FTA has also developed an Excel spreadsheet to more simply conduct the General Noise Assessment. It is on FTA's website at http://www.fta.dot.gov/12347_2233.html.

Detailed Noise Analysis – The Detailed Noise Analysis procedure is a comprehensive assessment method that produces the most accurate estimates of noise impacts for a proposed project. It is important to recognize that use of the Detailed Noise Analysis methods will not provide more accurate results than the General Noise Assessment unless more detailed and case-specific input data are used.

The project must be defined to the extent that location, alignment, transit mode, hourly operational schedules during day and night, speed profiles, plan and profiles of guideways, locations of access roads, and landform topography (including terrain and building features) are determined. A detailed Noise Analysis is often accomplished at the development of the final environmental impact statement (FEIS), record of decision (ROD), or combined FEIS/ROD in the NEPA process, when the preferred alternative is undergoing refinements to mitigate its adverse impacts. However, these project details may not be available until the final design phase, requiring that the detail noise analysis be conducted after the NEPA process is complete. However, it is recommended that the detailed analysis be conducted earlier for controversial projects or projects with highly noise-sensitive sites close to tracks.

A Detailed Noise Analysis may be warranted as part of the development of an environmental assessment (EA) if there are potentially severe impacts due to the proximity of noise-sensitive land uses.

In some cases, decisions on appropriate noise mitigation measures can be made based on the results of the General Noise Assessment. But if costly measures may be needed, it is generally recommended that a Detailed Noise Analysis be conducted to verify the need and design of the noise mitigation. The Detailed Noise Analysis is always appropriate under two sets of circumstances:

- For a major transit project with likely noise impacts after the preferred alternative has been selected.
- For any other transit project where potentially severe impacts are identified at an early stage.

Noise impacts may occur for relatively minor transit projects when the project is near noise-sensitive sites, particularly residences. In this case, completing a Detailed Noise Analysis is recommended. Some examples include:

- A terminal or station sited adjacent to a residential neighborhood
- A maintenance facility located near a school
- A storage yard adjacent to residences
- An electric substation located adjacent to a hospital

The Detailed Noise Analysis procedure is provided in Section 4.5.

4.3 Evaluate Impact: Noise Screening Procedure

Identify the potential for impact using the Noise Screening Procedure described below.

Step 1: Identify Project Type

Identify the project type using Table 4-7 and confirm the assumptions in Table 4-8 are appropriate for the project.

The noise screening procedure is intended to be conservative to broadly capture the potential for impact with minimal effort. To make the procedure conservative, the project system must be assumed to be operating under relatively high-capacity conditions, which would produce more noise than normal operating conditions. In addition, the assumptions in Table 4-8 were made using the lowest threshold of impact (50 dBA) from the criteria curves in Figure 4-2. Clarification can be obtained from FTA on special cases that are not represented in this section.

If the assumptions in Table 4-8 are not appropriate for the project, make adjustments to the screening distances in Table 4-8 according to the methodology in Section 4.4 or the FTA spreadsheet model.

Step 2: Determine the Screening Distance

Determine the appropriate screening distance considering the type of project and shielding from intervening buildings.

2a. Determine the appropriate screening distance column in Table 4-7.

> **Option A: Buildings in the Sound Paths –** Use the screening distances in the "Intervening Buildings" column.
>
> **Option B: Buildings Not in the Sound Paths –** Use the distances in the "Unobstructed" column.

2b. Adjust these distances according to the methodology in Section 4.4, or the FTA spreadsheet model, if the assumptions in Table 4-8 are not appropriate for the project. The appropriate screening distance is where the project noise reaches 50 dBA for the appropriate metric. If the assumptions in Table 4-8 are not appropriate for a commuter rail grade crossing project where horns and

warning bells are used, use the FRA horn noise model available from the FRA website to develop the screening distance distance (49 CFR § 222).[21]

Step 3: Identify Study Area

Apply the screening distances as follows to identify the study area. The study area is intended to be sufficiently large to encompass all potentially impacted locations.

Option A: Fixed Guideway Transit Sources – Apply the screening distance from the guideway centerline.

Option B: Highway/Transit Sources (e.g., Bus) – Apply the screening distance from the nearest ROW line on both sides of a highway or access road.

Option C: Small Stationary Facilities – Apply the screening distance from the center of the noise-generating activity.

Option D: Stationary Facility Spread Over a Large Area – Apply the screening distance from the outer boundary of the proposed project site.

Step 4: Locate Noise-Sensitive Land Uses

Locate all noise-sensitive land uses within the study area using Table 4-3.

See Section 4.1 for more information on noise-sensitive land uses. Include all categories of noise-sensitive land uses in this step.

If no noise-sensitive land uses are identified, no further noise analysis is needed. If one or more of the noise-sensitive land uses are in the study area, proceed to Section 4.4 and complete a General Noise Assessment.

Table 4-7 Screening Distance for Noise Assessments

Project Systems		Screening Distance, ft*	
		Unobstructed	Intervening Buildings
Fixed-Guideway Systems			
Commuter Rail Mainline		750	375
Commuter Rail Station	With Horn Blowing	1,600	1,200
	Without Horn Blowing	250	200
Commuter Rail Road Crossing with Horns and Bells		1,600	1,200
RRT		700	350
RRT Station		200	100
LRT		350	175
Streetcar		200	100
Access Roads to Stations		100	50
Low and Intermediate Capacity Transit	Steel Wheel	125	50
	Rubber Tire	90	40
	Monorail	175	70
Yards and Shops		1000	650
Parking Facilities		125	75
Access Roads to Parking		100	50
Ancillary Facilities: Ventilation Shafts		200	100
Ancillary Facilities: Power Substations		250	125
Bus Systems			
Busway		500	250
Bus Rapid Transit (BRT) on exclusive roadway		200	100
Bus Facilities	Access Roads	100	50
	Transit Mall	225	150
	Transit Center	225	150
	Storage & Maintenance	350	225
	Park & Ride Lots w/Buses	225	150
Ferry Boat Terminals		300	150

*Measured from centerline of guideway for fixed-guideway sources, from the ROW on both sides of the roadway for highway/transit sources, from the center of noise-generating activity for stationary sources, or from the outer boundary of the proposed project site for fixed facilities spread out over a large area.

Table 4-8 Assumptions for Screening Distances for Noise Assessments

Type of Project		Operations	Speeds*	Metric**
Fixed-Guideway Systems				
Commuter Rail Mainline		66 day /12 night; 1 loco, 6 cars	55 mph	L_{dn}
Commuter Rail Station	With Horn Blowing	22 day / 4 night	N/A	L_{dn}
	Without Horn Blowing	22 day / 4 night	N/A	L_{dn}
Commuter Rail-Highway Crossing with Horns and Bells		22 day / 4 night	55 mph	L_{dn}
RRT		220 day / 24 night; 6-car trains	50 mph	L_{dn}
RRT Station		220 day / 24 night	20 mph	L_{dn}
LRT		150 day / 18 night; 2 artic veh.	35 mph	L_{dn}
Streetcar		150 day / 18 night	25 mph	L_{dn}
Access Roads to Stations		1000 cars, 12 buses	35 mph	$L_{eq(1hr)}$
Low and Intermediate Capacity Transit	Steel Wheel	220 day / 24 night	30 mph	L_{dn}
	Rubber Tire	220 day / 24 night	30 mph	L_{dn}
	Monorail	220 day / 24 night	30 mph	L_{dn}
Yards and Shops		20 train movements	N/A	$L_{eq(1hr)}$
Parking Facilities		1000 cars	N/A	$L_{eq(1hr)}$
Access Roads to Parking		1000 cars	35 mph	$L_{eq(1hr)}$
Ancillary Facilities: Ventilation Shafts		Rapid Transit in Subway	50 mph	L_{dn}
Ancillary Facilities: Power Substations		Sealed shed, air conditioned	N / A	L_{dn}
Bus Systems				
Busway		30 buses, 120 automobiles	50 mph	$L_{eq(1hr)}$
BRT on exclusive roadway		30 buses	35 mph	$L_{eq(1hr)}$
Bus Facilities	Access Roads	1000 cars	35 mph	$L_{eq(1hr)}$
	Transit Mall	20 buses	N/A	$L_{eq(1hr)}$
	Transit Center	20 buses	N/A	$L_{eq(1hr)}$
	Storage & Maintenance	30 buses	N/A	$L_{eq(1hr)}$
	Park & Ride Lots w/Buses	1000 cars, 12 buses	N/A	$L_{eq(1hr)}$
Ferry Boat Terminals		8 boats with horns used in normal docking cycle	N/A	$L_{eq(1hr)}$

*N/A = not applicable

**$L_{eq(1hr)}$ = the loudest hour of project related activity during hours of noise sensitivity.

4.4 Evaluate Impact: General Noise Assessment

The General Noise Assessment should be completed after the Noise Screening Procedure (Section 4.3), through which noise-sensitive receivers have been identified. This can be completed either by using the General Noise Assessment Procedure described below or using the FTA General Noise Assessment Spreadsheet found on the following FTA website: http://www.fta.dot.gov/12347_2233.html.

Assumptions are used throughout the General Noise Assessment. If the listed assumptions are not appropriate for the project and good engineering judgement cannot be used by following the General Noise Assessment procedure, proceed to a Detailed Noise Analysis or consult with the FTA Regional office.

Major steps in the General Noise Assessment procedure and recommended workflow are shown in Figure 4-5 and listed below. Four examples of General Noise Assessments are given at the end of this section. Many of these concepts are explained in greater detail in the context of a Detailed Noise Analysis in Section 4.5.

Step 1: Identify Noise-Sensitive Receivers – Identify noise-sensitive receivers (Section 4.3) and their proximity to the project and major noise sources.

Step 2: Determine Project Noise Source Reference Levels – Determine the project noise sources and reference levels. Then, estimate the project noise exposure at the reference distance of 50 ft considering operational characteristics with preliminary estimations of the effect of mitigation.

Step 3: Estimate Project Noise Exposure by Distance – Estimate project noise exposure at distances beyond 50 ft considering propagation characteristics using a simplified procedure.

Step 4: Combine Noise Exposure from All Sources – Combine all sources associated with the project to predict the total project noise at the receivers.

Step 5: Measure Existing Noise Exposure – Measure the existing noise or estimate the existing noise exposure using a simplified procedure.

Step 6: Inventory Impacts

> **Option A:** Tabulate the change in noise (existing vs. estimated project noise) at each noise-sensitive receiver or cluster, identifying all moderate and severe impacts.
>
> **Option B:** Take inventory of noise-sensitive receivers that fall within the moderate and severe noise contours.

Step 7: Determine Noise Mitigation Needs – Evaluate the need for mitigation and repeat the General Noise Assessment with proposed mitigation.

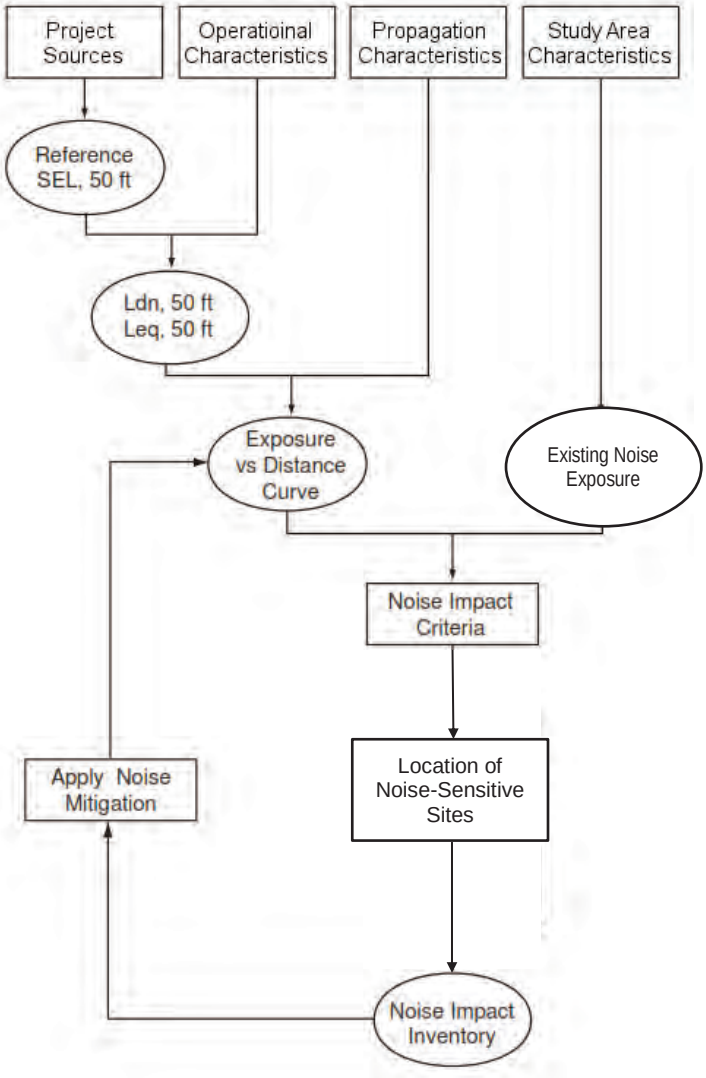


Figure 4-5 Procedure for General Noise Assessment

Step 1: Identify Noise-Sensitive Receivers

Determine the proximity of noise-sensitive land uses identified in Section 4.3 to the project and to the nearest major roadways and railroad lines.

1a. When necessary, use windshield surveys or detailed land use maps to confirm the location of noise-sensitive land uses.

1b. For land uses more than 1,000 ft from major roadways or railroad mainlines, obtain an estimate of the population density in the immediate area, expressed in people per square mile. Distances to roadways or railroads, or population density, will be used later to estimate the existing

noise level. Coordinate with the Metropolitan Planning Organization (MPO) for population densities at an appropriate level of detail.

Step 2: Determine Project Noise Source Reference Levels

Determine the general source reference level for each project noise source.

Classify all project noise sources as fixed-guideway transit, highway/transit, or stationary facility and determine the source reference levels. Note that a major fixed-guideway system will have stationary facilities associated with it and that a stationary facility may have highway/transit elements associated with it.

Option A: Fixed-guideway Transit Sources – For this manual, fixed-guideway transit sources include commuter rail, RRT, LRT, streetcar, AGT, monorail, and magnetically levitated vehicles (maglev). For commuter railroads and LRT systems, the crossing of streets and highways at-grade is likely, and in that case, warning devices should be included in the assessment. At an early project stage, the information available for a General Noise Assessment includes:

- Candidate transit mode
- Guideway options
- Time of operation
- Operational headways
- Design speed
- Alternative alignments

This information is not sufficient to predict noise levels at all locations along the ROW. Therefore, use conservative estimates (e.g., maximum (expected) design speeds and operations at design capacities) to estimate worst-case noise levels.

First choose the appropriate fixed-guideway transit source reference level and then predict the noise exposure at 50 ft in terms of $L_{eq(1hr)}$ and L_{dn}.

A.i. Choose the reference source noise levels 50 ft from the track for one vehicle in terms of Sound Exposure Level (SEL) using Table 4-9. See Appendix B for a detailed explanation of SEL. Note that the SEL reference speed is 50 mph, unless otherwise noted.

Table 4-9 Reference SEL's 50 ft from Track and at 50 mph, One Vehicle

Source	Type	Reference Conditions	Reference SEL (SEL_{ref}), dBA
Commuter Rail, At-Grade	*Locomotives*	Diesel-electric, 3000 hp, throttle 5	92
		Electric	90
	Diesel Multiple Unit (DMU)	Diesel-powered, 1200 hp	85
	Horns	Within ¼ mile of grade crossing	110
	Cars	Ballast, welded rail	82
Rail Transit and Streetcars at 50 mph		At-grade, ballast, welded rail	82
Rail Transit and Streetcars at 25 mph		At-grade, ballast, welded rail	76
Transit whistles / warning devices		Within 1/8 mile of grade crossing	93
AGT	*Steel Wheel*	Aerial, concrete, welded rail	80
	Rubber Tire	Aerial, concrete guideway	78
Monorail		Aerial straddle beam	82
Maglev		Aerial, open guideway	72

A.ii. Collect the following data:

- Number of train passbys during the day (7 a.m. to 10 p.m.) and night (10 p.m. to 7 a.m.) for category 2 land uses
- Maximum number of train passbys during hours that category 1 or category 3 land uses are normally in use (typically the peak hour train volume)
- Number of vehicles per train for each time period for category 2 land uses (if this number varies during the day or night, take the average)
- Maximum number of vehicles per train during hours that category 1 or category 3 land uses are normally in use (typically the peak hour train volume)
- Train speed in mph (maximum expected)
- Guideway configuration
- Location of highway and street grade crossings, if any
- If this process is repeated to estimate the effect of proposed noise mitigation, include the noise barrier location

A.iii. Calculate the noise exposure at 50 ft in terms of $L_{eq(1hr)}$:

- Calculate $L_{eq(1hr)}$ for each source using the appropriate equations in Table 4-10.
- Compute $L_{eq(1hr).Combo}$ using Eq. 4-6. It may be necessary to compute the combined totals with and without warning horns. Some neighborhoods along the corridor may be exposed to horn noise, but some may not.

A.iv. Calculate the noise exposure at 50 ft in terms of L_{dn}:

- If the project noise will affect any residential receivers, calculate the L_{dn} using the combined $L_{eq(1hr)}$ for both the daytime and nighttime periods separately, using the appropriate equations in Table 4-10.
- It may be necessary to calculate L_{dn} with and without warning horns, as in the previous step.

Note that the equations in Table 4-10 include terms to account for a difference in speed from the 50 mph reference speed and a numerical adjustment to account for the one-hour time period for this metric. For

more information on the numerical adjustment to represent the time period of interest, see Appendix B.1.4.4.

Table 4-10 presents an estimate of the noise reduction potentially provided by wayside noise barriers that can be used when assessing mitigation options in a General Noise Assessment. If impact is determined during the General Noise Assessment, repeat the procedure and include proposed mitigation according to Section 4.4, Step 7. See Section 4.5, Step 7 for a complete description of the benefits resulting from various noise mitigation measures that can be evaluated with a Detailed Noise Analysis.

Table 4-10 Computation of Noise Exposure at 50 ft for Fixed-Guideway General Noise Assessment

Locomotives* $L_{eq(1hr)}$ at 50 ft	$L_{eq.Loco(1hr)} = SEL_{ref} + 10\,log(N_{Loco}) + Klog(\frac{S}{50}) + 10\,log(V) - 35.6$	**Eq. 4-1**
Locomotive Warning Horns** $L_{eq(1hr)}$ at 50 ft	$L_{eq.LHorns(1hr)} = SEL_{ref} + 10\,log(V) - 35.6$	**Eq. 4-2**
Rail Vehicles† $L_{eq(1hr)}$ at 50 ft	$L_{eq.RCars(1hr)} = SEL_{ref} + 10\,log(N_{Cars}) + 20\log(\frac{S}{50}) + 10\,log(V) - 35.6 + Adj_{track}$	**Eq. 4-3**
Streetcars (25 mph or slower) $L_{eq(1hr)}$ at 50 ft	$L_{eq.SCars(1hr)} = SEL_{ref} + 10\,log(N_{Cars}) + 2\log(\frac{S}{25}) + 10\,log(V) - 35.6 + Adj_{track}$	**Eq. 4-4**
Transit Warning Horns $L_{eq(1hr)}$ at 50 ft	$L_{eq.THorns(1hr)} = SEL_{ref} - 10\,log(\frac{S}{50}) + 10\,log(V) - 35.6$	**Eq. 4-5**
Combined Locomotive and transit†† $L_{eq(1hr)}$ at 50 ft	$L_{eq.Combo(1hr)} = 10\log(10^{(L_{eq.Loco(1hr)}/10)} + 10^{(L_{eq.RCars(1hr)}/10)} + 10^{(L_{eq.SCars(1hr)}/10)} + 10^{(L_{eq.LHorns(1hr)}/10)} + 10^{(L_{eq.THorns(1hr)}/10)})$	**Eq. 4-6**
Daytime L_d at 50 ft	$L_d = L_{eq(1hr)}$ where V = V_d, N_{Loco} = N_d (loco events), and N_{Cars} = N_d (car events)	**Eq. 4-7**
Nighttime L_n at 50 ft	$L_n = L_{eq(1hr)}$ where V = V_n, N_{Loco} = N_d (loco events), and N_{Cars} = N_d (car events)	**Eq. 4-8**
Day/Night L_{dn} at 50 ft	$L_{dn} = 10log(15 \times 10^{(L_d/10)} + 9 \times 10^{((L_n+10)/10)}) - 13.8$	**Eq. 4-9**

N_{Loco} = average number of locomotives per train

K = constant
- -10 for passenger diesel
- 0 for DMUs
- +10 for electric

S = train speed, mph

V = average hourly volume of train traffic, trains per hour

N_{Cars} = average number of cars per train

Adj_{track} = constant
- +5 for jointed track or for a crossover within 300 ft
- +4 for aerial structure with slab track (except AGT and monorail)
- +3 for embedded track on grade
- -5 if a noise barrier blocks the line of sight

V_d = average hourly daytime volume of train traffic, trains per hour

$= \frac{number\ of\ trains, 7\ a.m.\ to\ 10\ p.m.}{15}$

V_n = average hourly nighttime volume of train traffic, trains per hour

$= \frac{number\ of\ trains, 10\ p.m.\ to\ 7a.m.}{9}$

N_d = average hourly number of events that occur during daytime (7 a.m. to 10 p.m.)

$= \frac{number\ of\ events\ between\ 7\ a.m.\ to\ 10\ p.m.}{15}$

N_n = average hourly number of events that occur during nighttime (10 p.m. to 7 a.m.)

$= \frac{number\ of\ events\ between\ 10\ p.m.\ to\ 7\ a.m.}{9}$

* Assumes a diesel locomotive power rating at approximately 3000 hp.

** Based on FRA's horn noise model (http://www.fra.dot.gov/eLib/Details/L04091).

† Includes all commuter rail cars, transit cars, streetcars above 25 mph, AGT and monorail.

† † Only include appropriate terms.

Option B: Highway/Transit Sources – The highway/transit type sources include most transit modes that do not require a fixed-guideway. Examples are high-occupancy vehicles, such as buses, commuter vanpools and carpools. Use the instructions below to estimate source noise levels for projects that involve these types of vehicles and are using FTA's environmental review procedures. At an early project stage, the information available for a General Noise Assessment includes:

- Vehicle type
- Transitway design options
- Time of operation
- Typical headways
- Design speed
- Alternative alignments

This information is not sufficient to predict noise levels at all locations along the ROW; therefore, use of conservative estimates (e.g., maximum (expected) design speeds and operations at design capacities) to estimate worst-case noise impact levels is recommended. The procedure is consistent with FHWA's highway noise prediction method. The reference SEL levels in Table 4-11 correspond to FHWA's source emission levels and speed coefficients for buses and automobiles.[22]

B.i. Using Table 4-11, choose the appropriate reference source noise levels 50 ft from the roadway in terms of SEL. Note that the SEL reference speed is 50 mph, unless otherwise noted.

Table 4-11 Source Reference Levels at 50 ft from Roadway, 50 mph

Source*	Reference SEL, dBA
Automobiles and Vans	74
Buses (diesel-powered)	82
Buses (electric)	80
Buses (hybrid)	83**

* Assumes normal roadway surface conditions.
** For hybrid buses, determine Reference SEL on a case-by-case basis because they vary, and data are scarce.

B.ii. Collect the following data:

- Number of vehicle passbys during the day (7 a.m. to 10 p.m.) and night (10 p.m. to 7 a.m.) for each vehicle type in Table 4-11, if a category 2 land use is present
- Number of vehicle passbys during hours that category 1 or category 3 land uses are normally in use, each vehicle type in Table 4-11
- Speed (maximum expected)
- Transitway configuration (with or without noise barrier)

B.iii. Calculate the noise exposure at 50 ft in terms of $L_{eq(1hr)}$. Calculate $L_{eq(1hr)}$ for each source using the appropriate equations in Table 4-12.

B.iv. Calculate the noise exposure at 50 ft in terms of L_{dn}. If the project noise will affect any residential receivers, calculate the L_{dn} using the combined $L_{eq(1hr)}$ for both the daytime and nighttime periods separately, using the appropriate equations in Table 4-12.

Note that the equations in Table 4-12 include terms to account for a speed other than the 50 mph reference speed and a numerical adjustment to account for the one-hour time period for this metric. For more information on the numerical adjustment to represent the time period of interest, see Appendix B.1.4.4.

Table 4-12 presents an estimate of noise reduction potentially provided by wayside noise barriers. This is considered illustrative given that barriers are the most common noise mitigation measure. See Section 4.5, Step 7 for a complete description of the benefits resulting from noise mitigation. If impact is determined during the General Noise Assessment without mitigation, repeat the procedure and include proposed mitigation.

Table 4-12 Computation of $L_{eq(1hr)}$ and L_{dn} at 50 ft for Highway/Transit General Noise Assessment

$L_{eq(1hr)}$ at 50 ft	$L_{eq(1hr)} = SEL_{ref} + 10\,log(V) + C_S log(\frac{S}{50}) - 35.6$	**Eq. 4-10**
Daytime L_d at 50 ft	$L_d = L_{Aeq(1hr)}$ where V = V_d	**Eq. 4-11**
Nighttime L_n at 50 ft	$L_n = L_{Aeq(1hr)}$ where V = V_n	**Eq. 4-12**
L_{dn} at 50 ft	$L_{dn} = 10log(15 \times 10^{(L_d/10)} + 9 \times 10^{((L_n+10)/10)}) - 13.8$	**Eq. 4-13**
Barrier Adjustment	= -5 for noise barriers	

V = hourly volume of vehicles, vehicles per hour

C_S = Speed constant
15 for diesel buses
28 for electric buses
21 for hybrid buses[23]
30 for automobile and van pools

S = average vehicle speed, mph

V_d = average hourly daytime volume of vehicles, vehicles per hour
$= \frac{total\ number\ of\ vehicles, 7\ a.m.\ to\ 10\ p.m.}{15}$

V_n = average hourly nighttime volume of vehicles, vehicles per hour
$= \frac{total\ number\ of\ vehicles, 10\ p.m.\ to\ 7\ a.m.}{9}$

Option C: Stationary Sources – Stationary sources include fixed transit system facilities. New transit facilities undergo a site review for best location that considers the noise sensitivity of surrounding land uses. Although many facilities such as bus maintenance garages are usually located in industrial and commercial areas, some facilities such as bus terminals, ferry terminals, train stations, and park-and-ride lots may be placed near residential neighborhoods where noise impact may occur. Access roads to some of these facilities may also

pass through noise-sensitive areas. Noise from access roads is treated according to the procedures described in the Highway/Transit Sources category. In a General Noise Assessment, only the prominent features of each fixed facility are considered in the noise analysis.

C.i. For small facilities, using Table 4-13, determine the reference source noise levels 50 ft from the center of the site in terms of SEL. The source reference levels given in the table are based on measurements for the peak hour of operation of a typical stationary source of the noted type and size.

A large facility, such as a rail yard, is spread out over considerable area with various noise sources with different noise levels depending on the layout of the facility. Specifying a single reference SEL for the facility at 50 ft from the center of the site could be misleading if all of these different noise sources are not represented. Therefore, the reference distance should be the equivalent distance of 50 ft, which is determined by estimating the noise levels from the center of the site at a distance far enough to capture all noise sources and projecting back to 50 ft from the center of the site. This approach allows for a conservative estimate of noise for all surrounding areas and the equivalent noise can be considered as concentrated at the center of the site. If the location of noise sources is known, then the distance should be taken from the point of the noisiest activity on the site (e.g., the dock in the case of ferry boat operations) instead of the center of the site.

Table 4-13 Source Reference Levels at 50 ft from Center of Site, Stationary Sources

Source	Reference SEL, dBA	Reference Conditions
Rail System		
Yards and shops	118	20 train movements in peak activity hour
Layover tracks (commuter rail)	109	1 train with diesel locomotive idling for 1 hour
Crossing signals	109	3600 second duration
Bus System		
Storage yard	111	100 buses accessing facility in peak activity hour
Operating facility	114	100 buses accessing facility, 30 buses serviced and cleaned in peak activity hour
Transit center	101	20 buses in peak activity hour
Ferry Terminal		
Ferry boat (no fog horn sounded)	97	4 ferry boat landings in 1 hour
Ferry boat (fog horn sounded)	100	
Parking Garage	92	1000-car capacity in peak activity hour
Park & Ride Lot	101	12 buses, 1000 cars in peak activity hour

C.ii. Collect the following data:

- Number of layover tracks and hours of use
- Number of buses, if different from assumed reference conditions (if this number varies during the day or night, take the average)
- Number of ferry boat landings, if different from assumed reference conditions (if this number varies during the day or night, take the average)
- Actual capacity of parking garage or lot

C.iii. Calculate $L_{eq(1hr)}$ at 50 ft. Calculate $L_{eq(1hr)}$ for each source using the appropriate equations in Table 4-14.

C.iv. Calculate L_{dn} at 50 ft. If the project noise will affect any residential receivers, calculate the L_{dn} using the combined $L_{eq(1hr)}$ for both the daytime and nighttime periods separately, using the appropriate equations in Table 4-14.

The equations in Table 4-14 include a numerical adjustment to account for the one-hour time period for this metric. See Appendix B.1.4.4 for more information on the numerical adjustment.

Table 4-14 presents an estimate of noise reduction potentially provided by noise barriers at the property line. Only approximate locations and lengths for barrier or other noise mitigation measures are developed during a General Noise Assessment to provide a preliminary indication of the costs and benefits of mitigation. A Detailed Noise Analysis of the preferred alternative is usually warranted following the General Noise Assessment (if it predicts any impacts) to verify impacts and design the mitigation.

Table 4-14 Computation of $L_{eq(1hr)}$ and L_{dn} at 50 ft for Stationary Source General Noise Assessment*

$L_{eq(1hr)}$ at 50 ft	$L_{eq(1hr)} = SEL_{ref} + C_N - 35.6$	**Eq. 4-14**
Daytime L_d at 50 ft	$L_d = 10\log((\frac{1}{15}) \sum_{7am-10pm} 10^{(L_{Aeq(1hr)}/10)})$	**Eq. 4-15**
Nighttime L_n at 50 ft	$L_n = 10\log((\frac{1}{9}) \sum_{10pm-7am} 10^{(L_{Aeq(1hr)}/10)})$	**Eq. 4-16**
L_{dn} at 50 ft	$L_{dn} = 10\log(15 \times 10^{(L_d/10)} + 9 \times 10^{((L_n+10)/10)}) - 13.8$	**Eq. 4-17**
Barrier Adjustment	= -5 for noise barrier at property line	
Volume Adjustment	$= C_N$	
	$= 10\log(\frac{N_T}{20})$	Rail yards and shops
	$= 10\log(N_T)$	Layover tracks
	$= 10\log(\frac{N_B}{100})$	Bus storage yard
	$= 10\log(\frac{N_B}{200} + \frac{N_S}{60})$	Bus operating facility
	$= 10\log(\frac{N_B}{20})$	Bus transit center
	$= 10\log(\frac{N_F}{4})$	Ferry terminal
	$= 10\log(\frac{N_A}{1000})$	Parking garage
	$= 10\log(\frac{N_A}{2000} + \frac{N_B}{24})$	Park & ride lot
	$= 10\log(\frac{E}{3600})$	Crossing signals
	N_T = average number of trains per hour during the day (7AM to 10PM) or night (10PM to 7AM) N_B = average number of buses per hour during the day or night N_F = average number of ferry boat landings per hour during the day or night N_S = average number of buses serviced and cleaned per hour during the day or night N_A = average number of automobiles per hour during the day or night E = average hourly duration of events, sec during the day or night	

* If any of these numbers is zero, omit that term.

Step 3: Estimate Project Noise Exposure by Distance

Estimate the project noise exposure for locations beyond the reference distance, such as for noise-sensitive land uses.

In the previous step, noise exposure at the reference distance of 50 ft was calculated for the various noise sources. This step describes how to estimate the project noise exposure beyond (or, if needed, closer than) the reference distance, such as at noise-sensitive land uses locations. This procedure estimates the source's noise exposure as a function of distance. Adjustments are provided to account for shielding attenuation from rows of buildings.

3a. Select the appropriate distance correction curve (Fixed-Guideway & Highway or Stationary) from Figure 4-6. The Fixed-Guideway & Highway curve refers to line sources while the Stationary curve is refers to point sources. The distance correction factor ($C_{distance}$) is 0 dB at 50 ft.

3b. Choose a distance other than 50 ft, such as the distance to a receiver. Determine the correction factor using Figure 4-6 or calculate using the equations in Table 4-15.[iii] For distances beyond 1,000 ft, the equations in Table 4-15 can be used; however, ground effects have an upper limit and atmospheric conditions may affect propagation characteristics. More detailed calculation methods may be required to account for those effects beyond 1,000 ft.

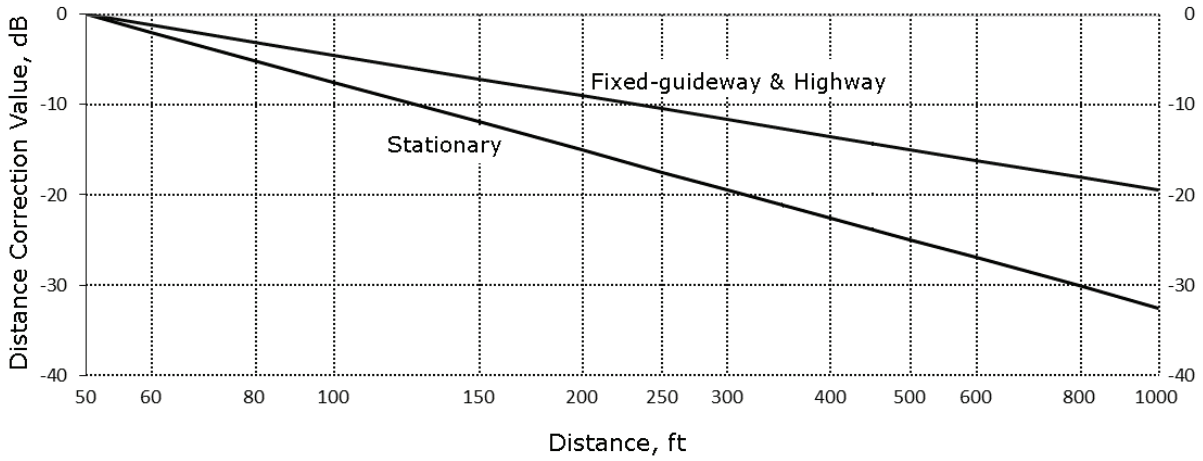


Figure 4-6 Curves for Estimating Exposure vs. Distance in General Noise Assessment

[iii] Note that the curves and equations assume acoustically soft ground beyond a distance of 50 ft. See Table 4-27 for more detailed calculation of ground attenuation.

Table 4-15 Distance Correction Factor Equations for General Noise Assessment

Source	Equation	
Stationary Sources	$C_{distance} = -25\log(\frac{D}{50})$	**Eq. 4-18**
Fixed-guideway and Highway	$C_{distance} = -15\log(\frac{D}{50})$	**Eq. 4-19**
D = distance, ft		

3c. Apply the distance correction ($C_{distance}$) to the project noise exposure at 50 ft (Section 4.4, Step 2) using the following equation:

$$L_{distance} = L_{50} + C_{distance} \quad \textbf{Eq. 4-20}$$

where:

$L_{distance}$ = L_{dn} or $L_{eq(1hr)}$ at the new distance in feet
L_{50} = L_{dn} or $L_{eq(1hr)}$ at 50 ft

3d. Repeat Step 3c for each source-receiver distance from the project. A noise exposure vs. distance curve can be created, if desired, by calculating the noise exposure for all distances of interest and plotting a curve. This curve can be used to assist in determining the noise impact contour for the first row of unobstructed buildings. This plot can be used to display noise from both unmitigated and mitigated conditions to assess the potential benefits from mitigation measures.

For second row receivers and beyond, it is necessary to account for shielding attenuation from rows of intervening buildings. Without accounting for shielding, impacts may be substantially overestimated. Use the following general rules to account for the effect of shielding from intervening rows of buildings:

- Assign 4.5 dB of shielding attenuation for the first row of intervening buildings only.
- Assign 1.5 dB of shielding attenuation for each subsequent row, up to a maximum total attenuation of 10 dB.

Step 4: Combine Noise Exposure from All Sources

Combine all sources to predict the total project noise at the receivers using the equations in Table 4-16, once propagation adjustments have been made for the noise exposure from each source separately (fixed-guideway, highway/transit, and stationary).

Table 4-16 Computing Total Noise Exposure

Total $L_{eq(t)}$ from all sources for the hour of interest:	$L_{eq.total(1hr)} = 10\log(\sum_{all\ sources} 10^{Leq/10})$	**Eq. 4-21**
Total L_{dn} from all sources	$L_{dn.total} = 10\log(\sum_{all\ sources} 10^{Ldn/10})$	**Eq. 4-22**

Step 5: Estimate Existing Noise Exposure

Measure the existing noise or estimate the existing noise exposure using a simplified procedure.

Existing noise in the project vicinity must be quantified and compared to the project noise to determine the potential noise impact. It is generally recommended to measure existing noise, especially at locations known to be noise-sensitive, but if measurement results are not available then they must be estimated. In the Detailed Noise Analysis, the existing noise exposure is usually based on noise measurements at representative locations in the community.

It is not necessary or recommended that existing noise exposure be determined by measuring at every noise-sensitive location in the project area. Rather, the recommended approach is to characterize the noise environment for "clusters" of sites based on measurements or estimates at representative locations in the community. Because of the sensitivity of the noise criteria to the existing noise exposure, careful characterization of pre-project ambient noise is important. Guidelines for selecting representative receiver locations and determining ambient noise are provided in Appendix D and Appendix E, respectively.

Changes to Existing Transit
For projects that propose changes to an existing transit system, such as a rehabilitation project, the project noise can include changes to the existing noise because of the project, and so it is not possible to define project noise separately. For these projects, refer to Section 4.1, Step 3 – Option B, on using the cumulative noise criteria.

This section describes how to estimate the existing noise in the project study area from general data available early in project planning. The procedure uses Table 4-17, where a neighborhood's existing noise exposure is based on proximity to nearby major roadways or railroads, or on population density. For areas near major airports, published aircraft noise contours can also be used to estimate the existing noise exposure. The process is as follows:

5a. Obtain scaled mapping and aerial photographs showing the project location and alternatives. A scale of 1 inch = 200 or 400 ft is convenient for the accuracy needed in the noise assessment. The size of the base map should be sufficient to show distances of at least 1000 ft from the center of the alignment or property center, depending on whether the project is a line source (fixed guideway/ roadway) or a stationary facility. These data are commonly available from local transit agencies and a number of publicly available online tools.

5b. Estimate the existing noise exposure by estimating the noise from major roads and railroad lines or by population density. First, evaluate the site's proximity to major roads and railroad lines including those that are included in the project. If these noise sources are far enough away that ambient noise is dominated by local streets and community activities, estimate the existing noise based on population density. To choose the appropriate existing noise exposure, compare noise levels from each of the three categories—Roadways, Railroads, and Population Density—and select the lowest level. In case of a

lightly used railroad (one train per day or less) select the Population Density category. Existing noise levels are presented in Table 4-17. Refer to Section 4.1, Step 3 – Option B, on using the cumulative noise criteria for projects that propose changes to an existing transit system, such as a rehabilitation project.

Option A: Roadways – Major roadways are separated into two categories for a general noise assessment. Roadways that cannot be described by these two categories are not considered major roadways and would use the Population Density method described below. The roadway categories are as follows:

- Interstate highway—roadways with 4 or more lanes that allow trucks
- Other roadway—parkways without trucks and city streets with the equivalent of 75 or more heavy trucks per hour or 300 or more medium trucks per hour

The estimated roadway noise levels in Table 4-17 are based on data for light to moderate traffic on typical highways and parkways using FHWA highway noise prediction procedures. Where a range of distances is given, the noise exposure estimates are given at the larger distance (note that the traffic noise at the smaller distance is underestimated). For highway noise, distances are measured from the centerline of the near lane for roadways with two lanes, while for roadways with more than two lanes the distance is measured from the geometric mean of the roadway. This distance is computed as follows:

$$D_{GM} = \sqrt{(D_N)(D_F)} \qquad \textbf{Eq. 4-23}$$

where:

D_{GM} = distance to the geometric mean in feet
D_N = distance to the nearest lane centerline in feet
D_F = distance to the farthest lane centerline in feet

Option B: Railroad Lines – For railroads, the estimated noise levels are based on an average train traffic volume of 5–10 trains per day at 30–40 mph for main line railroad corridors and the noise levels are provided in terms of L_{dn} only. Distances are referenced to the track centerline, or in the case of multiple tracks, to the centerline of the rail corridor. Because of the intermittent nature of train operations, train noise will affect the $L_{eq(1hr)}$ only during certain hours of the day, and these hours may vary from day to day. Therefore, to avoid underestimating noise impact when using $L_{eq(1hr)}$, it is recommended that sites near rail lines are estimated based on nearby roadways or population density unless very specific train information is available.

Option C: Population Density – In areas away from major roadways, noise from local streets or in neighborhoods is estimated using a relationship determined during a research program by EPA.[24] EPA determined that ambient noise can be related to population density in locations away from transportation corridors, such as airports, major roads and railroad tracks, according to the following relation:

$$L_{dn} = 22 + 10\log(p) \qquad \textbf{Eq. 4-24}$$

where:

L_{dn} = in dBA
p = population density in people per square mile

In areas near major airports, published noise contours can be used to estimate the existing noise exposure. The L_{dn} from such contours should be applied if greater than the estimates of existing noise from other sources at a given location.

Table 4-17 Estimating Existing Noise Exposure for General Noise Assessment

Dominant Existing Noise Source	Distance from Major Noise Source, ft*	Population Density, people per sq. mi.	*Noise Exposure Estimates*			
			L_{eq} Day	L_{eq} Evening	L_{eq} Night	L_{dn}
Interstate Highway**	10–50		75	70	65	75
	50–100		70	65	60	70
	100–200		65	60	55	65
	200–400		60	55	50	60
	400–800		55	50	45	55
	800 and up		50	45	40	50
Other Roadway†	10–50		70	65	60	70
	50–100		65	60	55	65
	100–200		60	55	50	60
	200–400		55	50	45	55
	400 and up		50	45	40	50
Railway††	10–30		--	--	--	75
	30–60		--	--	--	70
	60–120		--	--	--	65
	120–240		--	--	--	60
	240–500		--	--	--	55
	500–800		--	--	--	50
	800 and up		--	--	--	45
Population		1–100	35	30	25	35
		100–300	40	35	30	40
		300–1000	45	40	35	45
		1000–3000	50	45	40	50
		3000–10000	55	50	45	55
		10000–30000	60	55	50	60
		30000 and up	65	60	55	65

* Distances do not include shielding from intervening rows of buildings. Generally, for estimating shielding attenuation in populated areas, assume 1 row of buildings every 100 ft, 4.5 dB for the first row, and 1.5 dB for every subsequent row up to a maximum of 10 dB attenuation.
** Roadways with 4 or more lanes that permit trucks, with traffic at 60 mph.
† Parkways with traffic at 55 mph, but without trucks, and city streets with the equivalent of 75 or more heavy trucks per hour and 300 or more medium trucks per hour at 30 mph.
†† Main line railroad corridors typically carrying 5-10 trains per day at speeds of 30-40 mph.

Step 6: Inventory Noise Impacts

Inventory the potential noise impacts either by comparing the project and existing noise at each noise-sensitive land use or by developing noise impact contours.

Use land use information and assumptions for shielding attenuation from rows of buildings. In some cases, it may be necessary to supplement the land use information or determine the number of dwelling units within a multi-family building with a visual survey. If the objective is to compare major alignment options, it may not be necessary to identify every different type of noise-

sensitive land use. The inventory may include a subset of land uses, including residential and public institutional uses.

Option A is the preferred method as it quantifies the noise impact at each noise-sensitive land use indicating the severity of the impact. Option B may be useful for comparing and narrowing down major alignment options with numerous noise-sensitive land uses.

Option A: Compare existing noise to project noise at each noise-sensitive land use.

A1. Tabulate each individual noise-sensitive land use building and site within the identified screening distance (Section 4.3).

A2. Determine for each noise-sensitive land use the existing noise (Section 4.4, Step 5), the project noise (Section 4.4, Step 3) and the resulting change in noise.

A3. Designate each noise-sensitive land use with either a no, moderate, or severe noise impact based on the criteria in Section 4.1.

A4. Identify all moderate and severe impacts on a project map.

Option B: Develop noise impact contours.

B1. Determine the noise level thresholds at which the project noise would cause moderate and severe impacts using the estimated existing noise exposure from Section 4.4, Step 5 and the noise impact criteria in Figure 4-2.

B2. Determine the distances from the project boundary to the two impact levels using the noise exposure vs. distance curves or equations in Section 4.4, Step 3.

B3. Plot points on a project land use map that correspond to the distances determined in Section 4.4, Step 3. Continue this process for all areas surrounding the project. Connect the plotted points to represent the noise impact contours.

B4. Tabulate all noise-sensitive land use buildings and sites that lie between the impact contours and the project boundary. For residential buildings, an estimate of the number of dwelling units is satisfactory.

B5. Prepare summary tables showing the number of buildings (and estimated dwelling units, if available) within both impact categories.

Specific decibel level noise contours, for example, 65 dBA, can also be plotted if desired. The distances can be determined using the procedure in Section 4.4, Step 3 by substituting the desired decibel level for the impact threshold.

Locations of points will change with respect to the project boundary as the existing ambient exposure changes, the project source levels change, and as shielding effects change. It is recommended to plot points close together to

draw a smooth curve. For a General Noise Assessment, the contours may be drawn through buildings and terrain features as if they were not present. This practice is acceptable considering the level of detail associated with a project in its early stages of development. Example 4-1 and Example 4-4 describe the development of noise contours with illustrations.

Step 7: Determine Noise Mitigation Needs

Apply estimates of the noise reduction from proposed mitigation measures (Section 4.4, Step 2), where the assessment shows either severe or moderate impact, and repeat the tabulation of noise impacts.

Note that noise barriers are the only form of mitigation available in a General Noise Assessment. The other mitigation measures are available for a Detailed Noise Analysis. The approximate noise barrier lengths and locations developed in a General Noise Assessment provide a preliminary basis for evaluating the costs and benefits of impact mitigation. This evaluation will provide a conservative estimate of the effect of the mitigation on the identified impacts.

In general, it is recommended to complete a Detailed Noise Analysis for final mitigation measures. However, if impact is identified through a General Noise Assessment and can be mitigated to a level of no impact using the noise reduction estimates included in the General Noise Assessment, a Detailed Noise Analysis may not be needed. Mitigation assumed in the assessment used for the NEPA evaluation must be included in the project as a commitment. Consult with the FTA Regional office to determine if a Detailed Noise Analysis is required for final mitigation measures.

The following examples illustrate how to complete general noise assessments for varying project types including commuter rail, highway/transit, BRT system, and a transit center.

Example 4-1 General Noise Assessment – Commuter Rail

General Noise Assessment for a Commuter Rail System in an Existing Abandoned Railroad Right-of-Way

The following example illustrates the General Noise Assessment procedure for a new fixed-guideway project. The hypothetical project is a commuter rail system to be built within the abandoned ROW of a railroad. The example covers a segment of the corridor that passes through a densely developed area with population density of 25,000 people per square mile in mixed single- and multi-family residential land uses as shown in Figure 4-7. The example is presented in two parts: first, a segment where the rail line is grade-separated and a horn is not sounded; and second, an at-grade street-rail crossing where the horn is sounded.

Assumptions

- **Project Corridor**
  Existing population density is 25,000 people per square mile.
- **Commuter Rail System**
  Commuter train with one locomotive and a three-car consist on a double-track at-grade system with welded rail. Trains operate with 20-minute headways during peak hours and 1-hour headways during off-peak. Speeds are approximately 40 mph along the corridor.

Operating Schedule

	Period	Headway (minutes)		Trains per hour			Period Total
		Inbound	Outbound	Inbound	Outbound	Total	
Daytime	7 a.m. – 8 a.m.	20	20	3	3	6	6
	8 a.m. – 4 p.m.	60	60	1	1	2	16
	4 p.m. – 6 p.m.	20	20	3	3	6	12
	6 p.m. – 10 p.m.	60	60	1	1	2	8
Nighttime	10 p.m. – 11 p.m.	60	60	1	1	2	2
	11 p.m. – 5 a.m.	--	--	--	--	--	--
	5 a.m. – 6 a.m.	60	60	1	1	2	2
	6 a.m. – 7 a.m.	20	20	1	1	2	2

Part 1: Grade-Separated Street Crossing

Determine Project Source Reference Levels at 50 ft

Classify the noise source: Fixed-Guideway Transit
Determine noise source reference level from Table 4-9:
Locomotive: 92 dBA
Cars: 82 dBA

Estimate Project Noise Exposure at 50 ft

Determine average hourly daytime and nighttime volumes of train traffic.

Daytime (7 a.m. – 10 p.m.)

$$V_d = \frac{42\ trains}{15\ hours} = 2.8\ trains/hour$$

Nighttime (10 p.m. – 7 a.m.)

$$V_n = \frac{6\ trains}{9\ hours} = 0.7\ trains/hour$$

Use Eq. 4-1 and Eq. 4-3 to calculate the daytime $L_{eq(1hr)}$ at 50 ft for the locomotives and rail cars.

$$\begin{aligned} L_{d.Locos} &= SEL_{ref} + 10log(N_{Locos}) + Klog(\frac{S}{50}) + 10log(V_d) - 35.6 \\ &= 92 + 10log(1) - 10log(\frac{40}{50}) + 10log(2.8) - 35.6 \\ &= 61.8\ dBA \text{ at 50 ft} \end{aligned}$$

$$\begin{aligned} L_{d.RCars} &= SEL_{ref} + 10log(N_{Cars}) + 20log(\frac{S}{50}) + 10log(V_d) - 35.6 \\ &= 82 + 10log(3) + 20log(\frac{40}{50}) + 10log(2.8) - 35.6 \\ &= 53.7\ dBA \text{ at 50 ft} \end{aligned}$$

Calculate the total daytime L_d for the locomotive and rail cars using Eq. 4-7.

$$\begin{aligned} L_{d.Combo} &= 10log(10^{L_{d.Loco}/10} + 10^{L_{d.RCars}/10}) \\ &= 10log(10^{61.8/10} + 10^{53.7/10}) \\ &= 62.4\ dBA \text{ at 50 ft} \end{aligned}$$

Calculate the nighttime $L_{eq(1hr)}$ at 50 ft for the locomotives and rail cars.

$$L_{n.Locos} = SEL_{ref} + 10\log(N_{Locos}) + K\log(\frac{S}{50}) + 10\log(V_n) - 35.6$$
$$= 92 + 10\log(1) - 10\log(\frac{40}{50}) + 10\log(0.7) - 35.6$$
$$= 55.8\ dBA \text{ at 50 ft}$$

$$L_{n.RCars} = SEL_{ref} + 10\log(N_{Cars}) + 20\log(\frac{S}{50}) + 10\log(V_n) - 35.6$$
$$= 82 + 10\log(3) + 20\log(\frac{40}{50}) + 10\log(0.7) - 35.6$$
$$= 47.7\ dBA \text{ at 50 ft}$$

Calculate the total nighttime L_n for the locomotive and rail cars using Eq. 4-8.

$$L_{n.Combo} = 10log(10^{L_{n.Locos}/10} + 10^{L_{n.RCars}/10})$$
$$= 10log(10^{55.8/10} + 10^{47.7/10})$$
$$= 56.4\ dBA \text{ at 50 ft}$$

Calculate L_{dn} at 50 ft for the project using Eq. 4-9.

$$L_{dn.Combo} = 10log\ (15 \times 10^{(L_{d.Combo}/10)} + 9 \times 10^{((L_{n.Combo}+10)/10)}) - 13.8$$

Estimate Existing Noise Exposure

Estimate existing noise at noise-sensitive sites. Since the existing alignment is on an abandoned railroad, the dominant existing noise source can be described by a generalized noise level to characterize a large area. Use Table 4-17 and population density of 25,000 people per square mile to determine the existing noise level. Unobstructed residences range from 100 to 200 ft from the rail line.

According to Table 4-17: L_{dn} = 60 dBA

Determine Noise Level and Distance for the Onset Of Impact

Determine the noise level for the onset of moderate and severe impact using Figure 4-2 and the existing noise level of 60 dBA. Note that this project is land use category 2 and the appropriate metric is L_{dn}.

Existing Noise L_{dn}	Onset of Moderate Impact L_{dn}	Onset of Severe Impact L_{dn}
60 dBA	58 dBA	64 Dba

Determine the distance from the project noise sources to the noise impact contours using the fixed-guideway curve in Figure 4-6 (or the equations in Table 4-15) and the project impact thresholds obtained above. The project noise level at 50 ft is approximately 64 dBA.

Moderate impact (58 dBA)

$$58 - 64 = -6\ dB$$

According to Figure 4-6, the distance correction is approximately -6 dB at 120 ft.
Severe Impact (64 dBA)

$$64 - 64 = 0\ dB$$

According to Figure 4-6, the distance correction is less than 0 dB at approximately 51 ft.

Project Level L_{dn}	Onset of Moderate Impact Distance	Onset of Severe Impact Distance
64 dBA	120 ft	51 ft

Develop Noise Impact Contours

Draw contours for each affected land use, based on the above table and its distance from the rail line (Figure 4-7). Note that the impact distances listed are in terms of distance to the centerline of the Commuter Rail corridor.

Inventory of Noise Impact

There are six residential buildings within the contours defining moderate impact (shaded in Figure 4-7).

Noise Mitigation

The procedure is repeated assuming a noise barrier to be placed at the railroad ROW line. The barrier serves to reduce project noise from the commuter rail by at least 5 dB. Note that the barrier does not affect the project criteria to be used in determining impact, and the same existing noise levels (as the case without a barrier) are used to determine these thresholds.

In this example, the noise barrier decreases the distance to moderate impact from 120 to 60 ft and eliminates all residential noise impact for this segment of the project area.

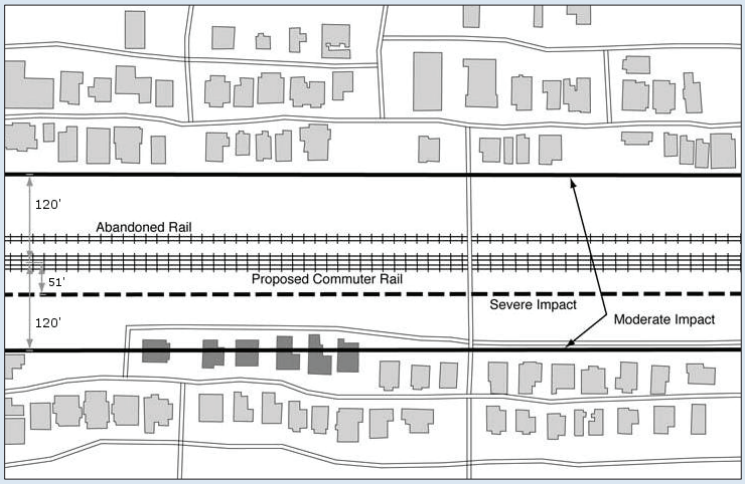


Figure 4-7 Noise Impacts of Hypothetical Commuter Rail

Part 2: At-Grade Crossing with Horn Blowing

Now consider the case of an active street crossing of the commuter railroad tracks. The General Noise Assessment method includes source reference levels for horns on moving trains and warning bells (crossing signals) at the street crossing. According to Table 4-9, the horn noise applies to track segments within ¼ mile of the grade crossing.

Estimate Project Noise Exposure at 50 ft

Using the train volumes from Part 1 and the information in Table 4-9 and Table 4-10, determine the day and nighttime $L_{eq(1hr)}$ from sounding the horns at 50 ft.

$$\begin{aligned} L_{d.LHorns} &= SEL_{ref} + 10\log(V_d) - 35.6 \\ &= 110 + 10\log(2.8) - 35.6 \\ &= 78.9\ dBA \end{aligned}$$

$$L_{n.LHorns} = SEL_{ref} + 10\log(V_n) - 35.6$$
$$= 110 + 10\log(0.7) - 35.6$$
$$= 72.9\ dBA$$

Calculate the L_{dn} at 50 ft from train horns using Eq. 4-9 :

$$L_{dn.LHorns} = 10\log(15 \times 10^{(L_{d.LHorns}/10)} + 9 \times 10^{((L_{n.LHorns}+10)/10)}) - 13.8$$
$$= 81\ dBA$$

At-grade street crossings will have warning bells, typically sounding for 20 seconds for every train passby. The total daytime and nighttime durations are as follows:

E_d = average daytime hourly duration
=20 seconds X 2.8 trains/hour = 56 seconds/hour

E_n = average nighttime hourly duration
=20 seconds X 0.7 trains/hour = 14 seconds/hour

From Table 4-14:

$$L_{d.WBell} = SEL_{ref} + 10\log(\frac{E_d}{3600}) - 35.6$$
$$= 109 + 10\log(\frac{56}{3600}) - 35.6$$
$$= 55.3\ dBA$$

$$L_{n.WBell} = SEL_{ref} + 10\log(\frac{E_n}{3600}) - 35.6$$
$$= 109 + 10\log(\frac{14}{3600}) - 35.6$$
$$= 49.3\ dBA$$

Calculate L_{dn} at 50 ft. from the warning bells using Eq. 4-17:

$$L_{dn.WBell} = 10\log(15 \times 10^{(L_{d.WBell}/10)} + 9 \times 10^{((L_{n.WBell}+10)/10)}) - 13.8$$
$$= 57.3\ dBA$$

Compared to horn blowing, the crossing signal warning bell noise is negligible, but still must be included in the evaluation.

Estimate Existing Noise Exposure

From Part 1, the existing noise level is 60 dBA.

Determine Noise Level and Distance for the Onset Of Impact

As in Part 1, the existing noise level (60 dBA) is used to determine the onset of moderate and severe impacts:

Existing Noise L_{dn}	Onset of Moderate Impact L_{dn}	Onset of Severe Impact L_{dn}
60 dBA	58 dBA	64 dBA

Determine the distance from the project noise sources to the impact contours using the fixed-guideway curve in Figure 4-6 (or the equations in Table 4-15) and the project impact thresholds obtained above. The project noise at 50 ft is approximately 81 dBA. However, there are at least two intervening rows of buildings, which will provide 6 dB (4.5 dB for the first row and 1.5 dB for the second row) of shielding.

Moderate impact (58 dBA)

$$58 - (81 - 6) = -17\ dB$$

According to Figure 4-6, the distance correction is approximately -17 dB at 715 ft.

Severe Impact (64 dBA)

$$64 - (81 - 6) = -11\ dB$$

According to Figure 4-6, the distance correction is approximately -11 dB at 265 ft.

Project Level L_{dn}	Onset of Moderate Impact Distance	Onset of Severe Impact Distance
81 dBA	715 ft	265 ft

Draw Noise Impact Contours

Contours can be drawn as in Part 1 for ¼ mile on either side of the grade crossing.

Example 4-2 General Noise Assessment – Highway/Transit

General Noise Assessment Example of Highway/Transit Corridor Projects

This example illustrates a highway/transit project where the highway noise dominates and the FHWA assessment methods should be used to inform the FTA process according to the impact criteria in Section 4.1.

Case 1: Highway Dominates

A new LRT system is planned for the median of a major highway that carries heavy traffic both day and night. The noise levels at the first row of houses along the highway were measured during peak hour, mid-day and nighttime with hourly $L_{eq(1hr)}$ readings of 65 dBA, 63 dBA, and 60 dBA, respectively. The LRT tracks will be 125 ft from the first row of houses. The LRT operations during peak hour will be 4-car trains at 45 mph, with 5-minute headways in both directions. Nighttime service decreases to 2-car trains and 20 minute headways.

FTA is providing a share of the funding for the LRT project, but the State DOT and the FHWA are co-lead agencies because the median requires considerable preparation for the tracks, including replacing bridge piers of street crossings and moving some highway lanes.

Assumptions

SEL_{ref} = 82 dBA
Nd = 4 cars per train
Nn = 2 cars per train
S = 45 mph
V_d = 24 trains per hour
V_n = 6 trains per hour

Estimate Project Noise Exposure at 50 ft

Use Table 4-9 and Table 4-10 to determine the peak hour $L_{eq(1hr)}$ for the rail vehicles.

Use Eq. 4-3 to calculate the LRT peak-hour noise level.

$$L_{d.RCars}(h) = SEL_{ref} + 10\,log(N_{cars}) + 20\log(\frac{S}{50}) + 10\,log(V) - 35.6$$
$$= 82 + 10\,log(4) + 20\log(\frac{45}{50}) + 10\,log(24) - 35.6$$
$$= 65 \text{ dBA at 50 ft}$$

Use Eq. 4-3 to calculate the LRT late evening hourly noise level.

$$L_{n.RCars}(h) = SEL_{ref} + 10\,log(N_{cars}) + 20\log(\tfrac{S}{50}) + 10\,log(V) - 35.6$$
$$= 82 + 10\,log(2) + 20\log(\tfrac{45}{50}) + 10\,log(6) - 35.6$$
$$= 56 \text{ dBA at 50 ft}$$

Estimate Project Noise Exposure at 125 ft

Since the LRT tracks will be 125 ft from the first row of houses, use Figure 4-6 to determine the level at 125 ft.

At 125 ft, the distance correction is 5 dB.
Peak hour:

$$65 - 5 = 60\ dBA\ at\ 125\ ft$$

Night hourly:

$$56 - 5 = 51\ dBA\ at\ 125\ ft$$

In this case, the highway dominates the noise environment in the area both day and night, by 5 dB during peak hour and 9 dB at night. According to Section 4.1 and Table 4-2, use the FHWA assessment methods.

Example 4-3 General Noise Assessment – BRT System

General Noise Assessment for a BRT System in an Existing Railroad Right-of-Way

This example for a simple BRT project illustrates using the FTA procedures for a new BRT corridor planned in an existing abandoned railroad ROW.

Assumptions

SEL_{ref} = 82 for buses
S = 25 mph
V_d = (344 buses) / (15 hours) = 22.9 buses per hour
V_n = (116 buses) / (9 hours) = 12.9 buses per hour

Estimate Project Noise Exposure

Use the information and equations in Table 4-12 to calculate the daytime and nighttime $L_{eq(1hr)}$ at 50 ft.

C_S = 15 for buses

$$L_{d.Bus} = SEL_{ref} + 10\,log(V_d) + C_S\log(\tfrac{S}{50}) - 35.6$$
$$= 82 + 10\,log(22.9) + 15log(\tfrac{25}{50}) - 35.6$$
$$= 55 \text{ dBA at 50 ft}$$

$$L_{n.Bus} = SEL_{ref} + 10\,log(V_n) + C_S\log(\tfrac{S}{50}) - 35.6$$
$$= 82 + 10\,log(12.9) + 15log(\tfrac{25}{50}) - 35.6$$
$$= 53 \text{ dBA at 50 ft}$$

Calculate L_{dn} at 50 ft for the project using Eq. 4-13.

$$L_{dn.Bus} = 10\log(15 \times 10^{(L_{d.Bus}/10)} + 9 \times 10^{((L_{n.Bus}+10)/10)}) - 13.8$$
$$= 60 \text{ dBA at 50 ft}$$

Estimate Existing Noise Exposure

The surrounding area is residential with 2,500 people per square mile starting approximately 100 ft away from the proposed alignment. Determine the existing noise using Table 4-17.

L_{dn} = 50 dBA

Determine Noise Level and dIstance for the Onset of Impact

Determine the noise level for the onset of moderate and severe impact using Figure 4-2 and the existing noise level of 50 dBA. Note that this project is land use category 2 and the appropriate metric is L_{dn}.

Existing Noise L_{dn}	Onset of Moderate Impact L_{dn}	Onset of Severe Impact L_{dn}
50 dBA	54 dBA	59 dBA

Determine the distance to the noise impact contours using the fixed-guideway & highway curve in Figure 4-6 (or the equations in Table 4-15) and the project impact thresholds obtained above. The project noise level at 50 ft is approximately 60 dBA.

Moderate impact (54 dBA)

$$54 - 60 = -6\,dB$$

According to Figure 4-6, the distance correction is approximately -6 dB at 125 ft.

Severe Impact (59 dBA)

$$59 - 60 = -1\,dB$$

According to Figure 4-6, the distance correction is less than -1 dB at approximately 60 ft.

Project Level L_{dn}	Onset of Moderate Impact Distance	Onset of Severe Impact Distance
60 dBA	125 ft	60 ft

Inventory of Noise Impact

Since there are residential land uses approximately 100 ft away from the proposed alignment and the onset of moderate impact is at 125 ft, there are possible moderate impacts to the residences.

Noise Mitigation

A barrier is proposed for mitigation between the BRT system and the residences. The analysis is repeated and results in a predicted new project level of 55 dBA and the following impact distances:

Mitigated Project Level L_{dn}	Onset of Moderate Impact Distance	Onset of Severe Impact Distance
55 dBA	60 ft	N/A

With a noise barrier in place between the BRT system and the residences, it is predicted that the onset of moderate impact would occur approximately 60 ft away from the BRT system. Since the residential area begins approximately 100 ft away from the BRT system, which is beyond the distance of moderate impact (60 ft), a noise barrier would provide the appropriate noise mitigation for the predicted moderate impact. The onset of severe impact is listed as N/A because with a noise barrier, the severe impact criterion is not exceeded by the project.

Example 4-4 General Noise Assessment – Transit Center

General Noise Assessment for a Transit Center

The following example illustrates the procedure for performing a General Noise Assessment for a stationary source. The example represents a typical FTA-assisted project in an urban area, the siting of a busy transit center in a mixed commercial and residential area, as shown in Figure 4-8.

Assume that the Noise Screening Procedure has already been done for this project and the nearest residence has been identified approximately 140 ft from the center of the proposed transit center. Recall that if any residential or other noise-sensitive land use is identified within 150 ft of a transit center during the Noise Screening Procedure, additional analysis is required.

Assumptions

- **Main Street Traffic**
  Peak hour traffic of 1200 autos, 20 heavy trucks, 300 medium trucks.

- **Population Density**
  12 houses per block, single family homes, 3 people per family.
  - Block area 78,750 square ft.
  - Population density = 9,750 people/square mile.

- **Bus Traffic**

Period	Hours	Buses per Hour
Peak, Morning	7 a.m.–9 a.m.	30
Peak, Afternoon	4 p.m.–6 p.m.	30
Mid-day	9 a.m.–4 p.m.	
Evening	6 p.m.–10 p.m.	12
Early Morning (Night)	6 a.m.–7 a.m.	15
Late Night	10 p.m.–1 a.m.	

Estimate Project Noise Exposure at 50 ft

Determine the hourly volume of buses during day and night.

Daytime (7 a.m. – 10 p.m.)

$$V_d = \frac{273\ buses}{15\ hours} = 18.2\ buses/hour$$

Nighttime (10 p.m. – 7 a.m.)

$$V_n = \frac{27\ buses}{9\ hours} = 3\ buses/hour$$

Calculate the daytime and nighttime $L_{eq(1hr)}$ at 50 ft for the bus transit center using the reference levels in Table 4-13 and the equations in Table 4-14.

$$\begin{aligned} L_{d.BTCenter} &= SEL_{ref} + C_N - 35.6 \\ &= 101 + 10\log(\frac{18.2}{20}) - 35.6 \\ &= 65\ dBA \text{ at 50 ft} \end{aligned}$$

$$L_{n.BTCenter} = SEL_{ref} + C_N - 35.6$$

$$= 101 + 10\log(\frac{3}{20}) - 35.6$$
$$= 57\ dBA \text{ at } 50 \text{ ft}$$

Calculate L_{dn} at 50 ft for the project using Eq. 4-17.

$$L_{dn.BTCenter} = 10\log(15 \times 10^{(L_{d.BTCenter}/10)} + 9 \times 10^{((L_{n.BTCenter}+10)/10)})\text{-}13.8$$
$$= 66\ dBA \text{ at } 50 \text{ ft}$$

Estimate Existing Noise Exposure

Estimate existing noise at noise-sensitive sites from the dominant noise source, and either major roadways or local streets (population density).

Roadway Noise Estimate – The traffic on Main Street qualifies this street for the Other Roadway category in Table 4-17. According to the map, the nearest residence is 275 ft from the edge of Main Street. The table shows existing L_{dn} = 55 dBA at this distance for representative busy city street traffic.
Population Density Noise Estimate – Noise from local streets is estimated from the population density of 9,750 people/square mile. Table 4-17 confirms that the L_{dn} is approximately 55 dBA.

In this example, the existing noise level by both the roadway and population density estimates are the same, but that is not always the case. If the levels are different, use the lower noise level. The existing noise level associated with the residential neighborhood in this example is L_{dn} = 55 dBA.

Determine Noise Level and Distance for the Onset of Impact

Determine the noise level for the onset of moderate and severe impact using Figure 4-2 and the existing noise level of 55 dBA. Note that this project is land use category 2 and the appropriate metric is L_{dn}.

Existing Noise L_{dn}	Onset of Moderate Impact L_{dn}	Onset of Severe Impact L_{dn}
55 dBA	56 dBA	62 dBA

Determine the distances from the center of the property to the noise impact contours using the stationary curve in Figure 4-6. The project noise level at 50 ft is 66 dBA.

Moderate impact (56 dBA)

$$56 - 66 = -10\ dB$$

According to Figure 4-6, the distance correction is approximately -10 dB at 125 ft.

Severe impact (62 dBA)

$$62 - 66 = -4\ dB$$

According to Figure 4-6, the distance correction is -4 dB at approximately 70 ft.

Project Noise L_{dn}	Onset of Moderate Impact Distance	Onset of Severe Impact Distance
66 dBA	125 ft	70 ft

Draw Noise Impact Contours

Draw lines at 70 ft and 125 ft from the center of the property of the proposed transit center. These lines represent the noise impact contours. (Note that in Figure 4-8 the severe impact contour is not drawn for clarity. The contour is just within the dashed line representing the moderate impact contour after mitigation).

Inventory of Noise Impact

Within, or touching, the contour defining moderate impact are three residential buildings (shaded in Figure 4-8). No residences are within the severe impact contour.

Noise Mitigation

The process is repeated with a hypothetical noise barrier at the property line on the residential side of the transit center. This would consist of a wall approximately 15 ft high partially enclosing the transit center, sufficient to screen the residences but not the commercial block facing Main Street. According to Table 4-14, the approximate noise barrier effect is -5 dB. Repeating the procedure above, the noise barrier will reduce the moderate impact contour to 80 ft and the severe impact contour to 45 ft (note that at 50 ft the distance correction is 0), which in this example eliminates all potential impacts on the residences.

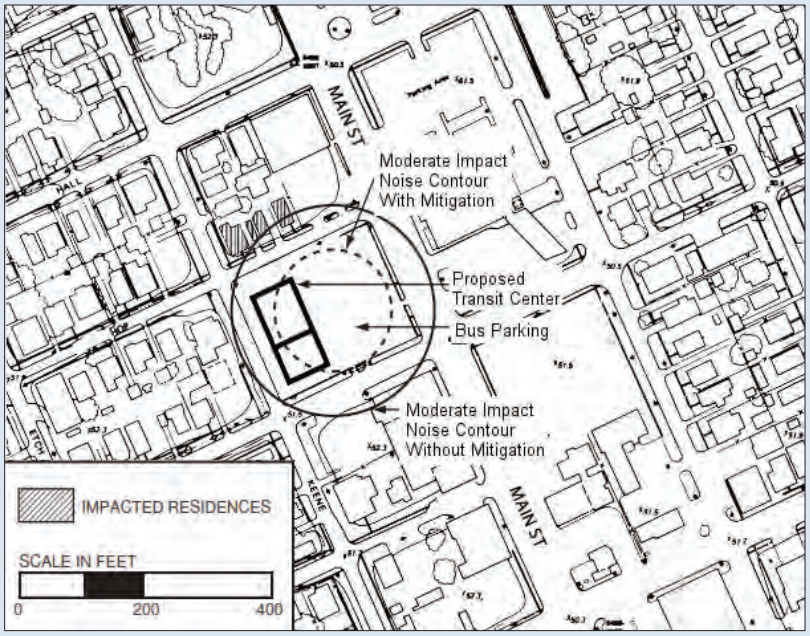


Figure 4-8 Example of Project for General Noise Assessment: Siting of Transit Center in Mixed Commercial/Residential Area

4.5 Evaluate Impact: Detailed Noise Analysis

Evaluate for impact using the Detailed Noise Analysis procedure in this section, if appropriate. For guidelines on when the Detailed Noise Analysis is appropriate, review Section 4.2.

The steps in the Detailed Noise Analysis (Figure 4-9) parallel the steps in the General Noise Assessment, though the Detailed Noise Analysis employs equations for computations rather than graphs or tables. Each step in the Detailed Noise Analysis is more refined in the prediction of project noise and subsequent evaluation of mitigation measures. Noise projections from the project must be determined for each receiver.

- **Step 1: Identify Noise-Sensitive Receivers**
  Identify the noise-sensitive receivers of interest in the impact analysis study, including clustering noise-sensitive areas. This identification is usually based

on the Screening Procedure and General Noise Assessment previously conducted.

- **Step 2: Determine Project Noise Source Reference Levels**
  Determine the project noise sources and reference levels. Then, estimate the project noise exposure at the reference distance of 50 ft, considering operational characteristics. When appropriate, measurements may be used to determine noise source reference levels.

- **Step 3: Determine Propagation Characteristics**
  Estimate project noise exposure as a function of distance, accounting for shielding and propagation along the path.

- **Step 4: Combine Noise Exposure from All Sources**
  Combine all sources to predict the total project noise at receivers.

- **Step 5: Determine Existing Noise Exposure**
  Determine the existing noise exposure. Measurements are used to determine the existing noise exposure. When measurements are unavailable, a simplified procedure to estimate existing noise exposure may be used with a clear justification to and approval by the FTA Regional office.

- **Step 6: Assess Noise Impact**
  Assess the noise impact at each receiver of interest using separate procedures for transit only and multimodal transportation projects.

- **Step 7: Determine Noise Mitigation Measures**
  Evaluate the need for mitigation and repeat the Detailed Noise Analysis with proposed mitigation.

When situations arise that are not explicitly covered in the Detailed Noise Analysis, professional judgment, in consultation with the FTA Regional office, may be used to extend these methods to cover these unique cases, when appropriate. Appendix G provides information on developing and using non-standard modeling procedures.

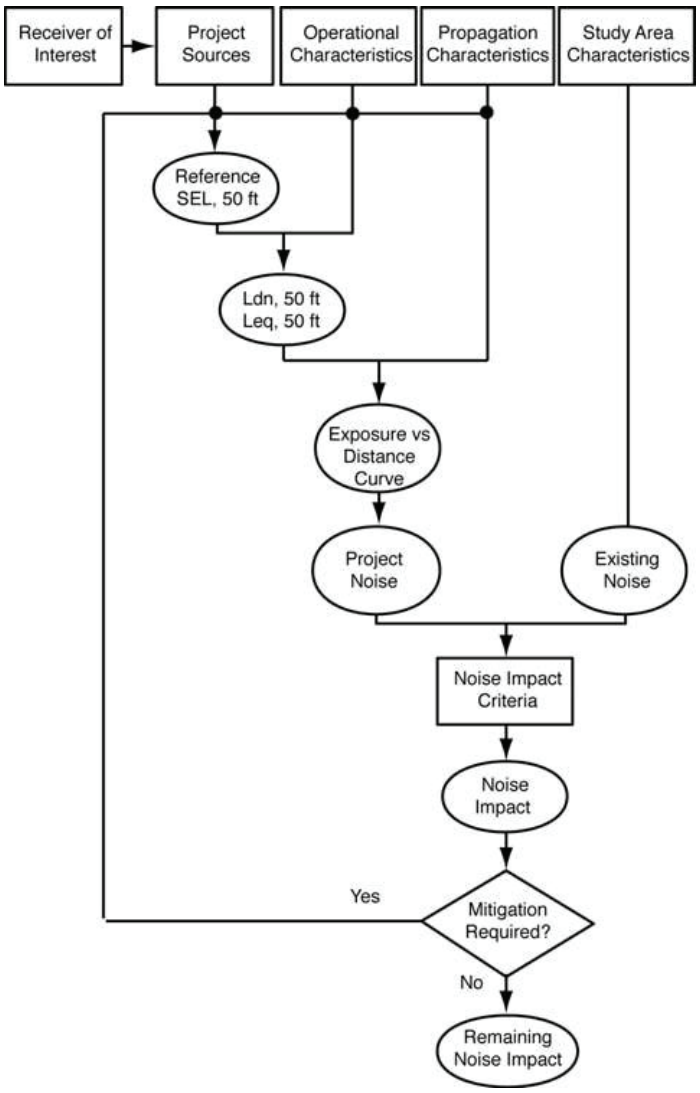


Figure 4-9 Procedure for Detailed Noise Analysis

Step 1: Identify Noise-Sensitive Receivers

Select the noise-sensitive receivers of interest, the number of which will depend upon the land use in the vicinity of the proposed project and the extent of the study area defined by the Noise Screening Procedure in Section 4.3 and the results of the General Noise Assessment in Section 4.4.

The steps in identifying the noise-sensitive receivers of interest, both the number of receivers needed and their locations, shown in Figure 4-10, include:

1a. Identify all noise-sensitive land uses.
1b. Select individual receivers of interest.
1c. Cluster residential neighborhoods and other large noise-sensitive areas.

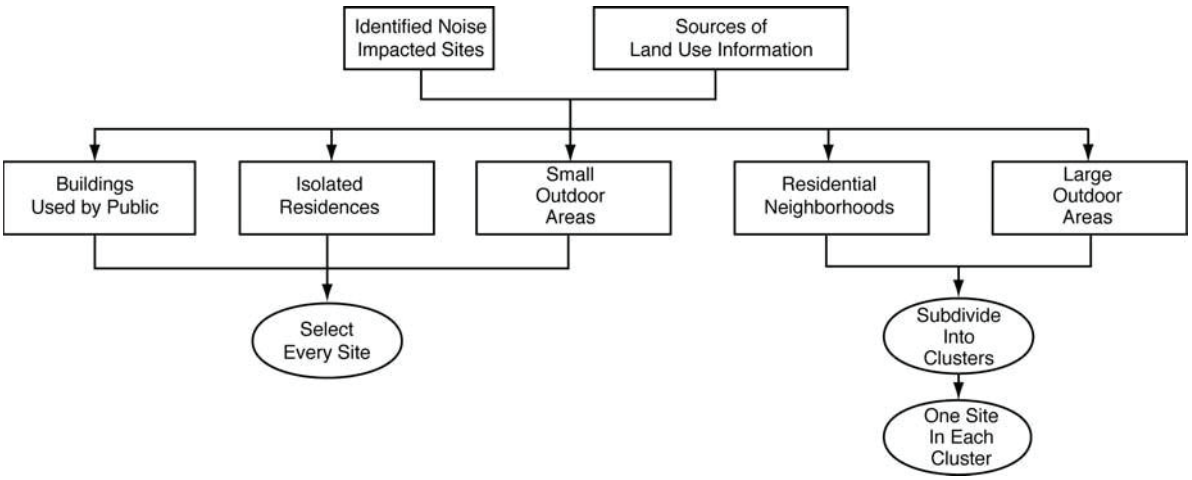


Figure 4-10 Guide to Selecting Noise-Sensitive Receivers of Interest

1a. Identify all noise-sensitive land uses where impact is identified by the General Noise Assessment in Section 4.4. If a General Noise Assessment has not been done, include all noise-sensitive sites according to the Noise Screening Procedure in Section 4.3. In areas where ambient noise is low, include land uses that are farther from the proposed project than for areas with higher ambient levels.

Recommended materials and methods that can assist in locating noise-sensitive land uses near the proposed project include:

- **Land use maps** prepared by regional or local planning agencies or by the project staff. Area-wide maps often do not have sufficient detail to be of much use. But they can provide broad guidance and may suggest residential pockets hidden within otherwise commercial zones. Of more use are project-specific maps that provide building-by-building detail on the land near the proposed project.

- **Road and town maps** can supplement other maps, are generally more up-to-date, and may be of larger scale.

- **Aerial photographs,** when current, especially those of 400-ft scale or better, are valuable in locating all potential noise-sensitive land uses close to the proposed project. In addition, they can be useful in determining the distances between receivers and the project.

- **Windshield survey,** in which the corridor is driven and land uses are annotated on base maps, may be used for definitive identification of noise-sensitive sites. The windshield survey, supplemented by footwork where needed, is especially useful in identifying newly-constructed sites and in confirming land uses very close to the proposed project. In addition, maps and aerial photos typically reveal only horizontal distances, not vertical distances. Houses on a hill overlooking the project may need a barrier of unacceptable height for its attenuation to be effective, and the greater vertical distance between source and receiver may eliminate the impact entirely. The windshield survey would reveal where vertical contour maps

or other means may be needed so that vertical distances can be determined.

- **Geographic Information Systems (GIS)** provides electronic mapping needed for identifying noise-sensitive land uses. GIS data may include land parcels, building structures, aerial photography, and project-specific information. These data may be obtained during the project study or from local or regional agencies that store and maintain GIS data. Using electronic GIS data has advantages over paper mapping with respect to automating the process of identifying noise-sensitive land uses and accurately being able to determine their distances to the project alignment

Table 4-18 contains three types of *land uses of interest* and provides guidelines as to when receivers should be analyzed individually and when they can be clustered.

Table 4-18 Land Uses of Interest

Land Uses	Specific Use	Selecting Receivers
Residences	Isolated single family residences Neighborhoods (single and multi-family residences, apartment buildings, duplexes, etc.)	Select each isolated residence as a receiver of interest. For residential areas, cluster by proximity to project sources, proximity to ambient-noise sources, and location along project line. Choose one receiver of interest (closest to the project noise source and at an intermediate distance from the predominant sources of existing noise) in each cluster (i.e., Balance the distance between the receiver and the new noise source and the receiver and the existing noise source). Multiple clusters in one location may be needed to fully characterize the area.
Indoor noise-sensitive sites	Places of worship Schools Hospitals/nursing homes Libraries Public meeting halls Concert halls/auditoriums/theaters Recording/broadcast studios Museums and certain historic buildings Hotels and motels Other public buildings with noise- sensitive indoor use	Select noise-sensitive buildings as separate receivers of interest.
Outdoor noise-sensitive areas	Certain parks Historic sites used for interpretation Amphitheaters Passive recreation areas Cemeteries Other outdoor noise-sensitive areas	For relatively small noise-sensitive areas, select noise-sensitive sites as separate receivers of interest. For relatively large areas (e.g. a cemetery, etc.), cluster by proximity to project noise sources, proximity to ambient-noise sources, and location along project line. Choose one receiver of interest (closest to the project noise source and at an intermediate distance from the predominant sources of existing noise) in each cluster.

1b. Select the following types of noise-sensitive receivers within the noise study area, per Table 4-18, to be evaluated as individual receivers:

- Every major noise-sensitive public building
- Every isolated residence
- Every relatively small outdoor noise-sensitive area

Use judgment to avoid analyzing noise where such analysis is obviously not needed. Areas that are considered particularly noise-sensitive by the community, but do not meet the criteria in Table 4-3, should be considered on a case-by-case basis as discussed in Section 4.1.

1c. Residential neighborhoods and relatively large outdoor noise-sensitive areas can often be clustered, simplifying the analysis that is required without compromising the accuracy of the analysis. Subdivide all such neighborhoods/areas into clusters of approximately uniform noise, each containing a collection of noise-sensitive sites. Strive to obtain uniformity of both project noise and ambient noise using the following guidelines:

- In general, project noise reduces (drops off) with distance from the project. For this reason, project noise uniformity requires nearly equal distances between the project noise source and all sites within the cluster. Clusters are typically shaped as long narrow strips parallel to the transit corridor and/or circling project point sources such as maintenance facilities. It is suggested to cluster sites where the project noise varies over a range of 5 dB or less.

- Note that noise drops off approximately 3 dB per doubling of distance for line sources and approximately 6 dB per doubling of distance for point sources over open terrain. This reduction in noise will occur over a shorter distance in areas containing obstacles blocking the path of sound propagation, such as rows of buildings.

- Ambient noise usually drops off from non-project sources in the same manner as noise from project sources. For this reason, clustering for uniform ambient noise will usually result in long narrow strips parallel to major roadways or circling major point sources of ambient noise, such as manufacturing facilities. It is suggested to cluster sites where the ambient noise varies over a range of 5 dB or less. Ambient noise levels may be difficult to judge without measurements. In areas without predominant sources of noise, like highways, ambient noise can be considered to vary with population density, which is often uniform along the corridor. In situations where ambient noise tends to be uniform, the clusters can encompass relatively large areas.

After defining clusters, select one representative receiver in each cluster. It is recommended to choose the receiver closest to the project noise source and at an intermediate distance from the predominant sources of existing noise. See Appendix D for additional guidance and examples on clustering receivers, as well as an example.

Assess each identified cluster representative and individual noise-sensitive receiver of interest using the Detailed Noise Analysis as presented in the following steps.

Step 2: Determine Project Noise Source Reference Levels

Identify the major project noise sources near the noise-sensitive receivers of interest, group them by source type, and determine reference levels to compute project noise at 50 ft, as shown in Figure 4-11.

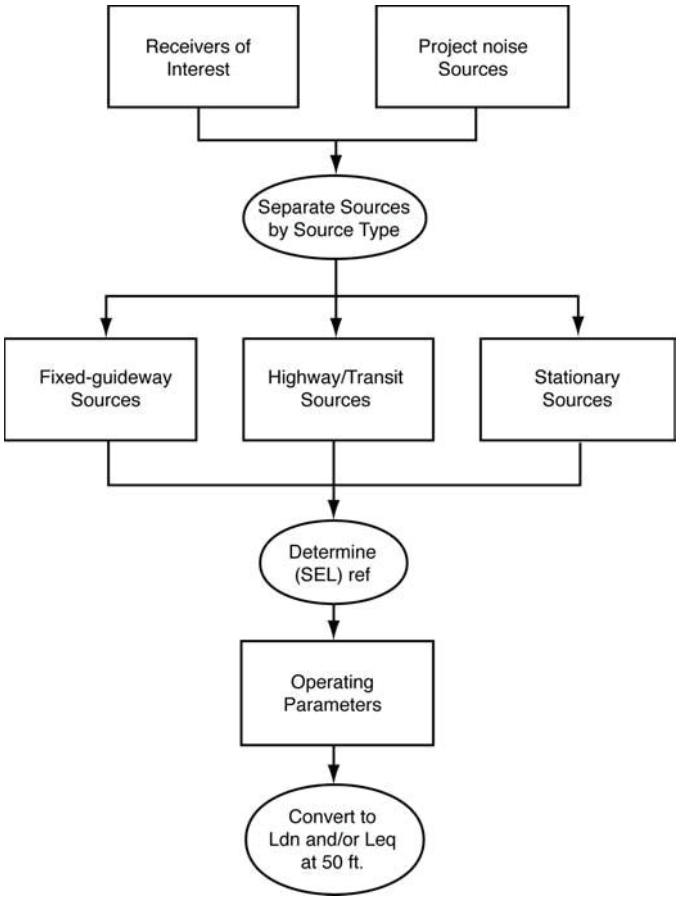


Figure 4-11 Flow Diagram for Determining Project Noise at 50 ft

2a. Identify the major project noise sources near receivers of interest according to Table 4-19. The right-hand column of the table indicates if each source is considered as a major contributor to the overall noise impact. Note that some noise sources can create high noise levels but are not indicated as major contributors. Although such sources are loud, they rarely stay in a neighborhood for more than a day or two; therefore, the overall noise exposure is relatively minor. Computations are required for all major noise sources in this table.

Table 4-19 Sources of Transit Noise

Project Type	Source Type	Actual Source	Major?
Commuter Rail Light Rail Streetcars RRT	Fixed-Guideway	Locomotive and rail car passbys	Yes
		Horns and whistles	Yes
		Crossing signals	Yes
		Crossovers/switches	Yes
		Squeal on tight curves	Yes
		Track-maintenance equipment	No
	Stationary	Substations	Yes
		Chiller plants	No
Busways Bus Transit Malls	Highway/Transit	Bus passbys	Yes
		Buses parking	No
	Stationary	Buses idling	Yes
AGT	Fixed-Guideway	Vehicle passbys	Yes
Monorail	Miscellaneous	Line equipment	No
Terminals Stations Transit Centers	Fixed-Guideway	Locomotive and rail car passbys	Yes
		Crossovers/switches	Yes
		Squeal on tight curves	Yes
	Highway/Transit	Bus passbys	Yes
		Buses parking	No
		Automobile passbys	No
	Stationary	Locomotives idling	Yes
		Buses idling	Yes
		Ferry boats landing, idling, and departing at dock	Yes
		HVAC equipment	No
		Cooling towers	No
		P/A systems	No
Park-and-Ride Lots	Highway/Transit	Bus passbys	Yes
		Buses idling	Yes
		Automobile passbys	No
	Stationary	P/A systems	No
Traffic Diversion Projects	Highway/Transit	Highway vehicle passbys	Yes
Storage Facilities Maintenance Facilities	Fixed-Guideway	Locomotive and rail car passbys	Yes
		Locomotives idling	Yes
		Squeal on tight curves	Yes
		Horns, warning signals, coupling/ uncoupling, auxiliary equipment, crossovers/ switches, brake squeal, and air release	Yes
	Highway/Transit	Bus passbys	Yes
	Stationary	Buses idling	Yes
		Yard/shop activities	No
		Car washes	No
		HVAC Equipment	No
		P/A Systems	No

2b. Separate the major noise sources by source type: fixed-guideway transit, highway/transit or stationary facility. Note that a major fixed-guideway system will usually have stationary facilities associated with it, and that a stationary facility may have highway/transit elements associated with it. Then use the instructions in the following source type options below to:

2c. Determine the source reference levels for the all project noise sources. Each source reference level pertains to reference operating conditions for stationary sources or one vehicle passby under reference operating conditions.

These reference levels should incorporate source-noise mitigation only if such mitigation will be considered for incorporation into the system specifications. The source levels used in this manual are typical of systems designed according to current engineering practice, but they do not include special noise control features that could be incorporated in the specifications at extra cost. If special features that result in noise reductions are included in any of the predictions, the Federal environmental documents must include a commitment by the project sponsor to adopt such treatments before the project is approved for construction. For example, if the specifications include vehicle noise limits that may not be exceeded, these limits should be used to determine the reference level, and this level should be used in the analysis rather than the standard, tabulated reference level.

2d. Convert the source reference level to noise exposure in terms of $L_{eq(1hr)}$ or L_{dn} under project operating conditions using the appropriate equations depending upon the type of source. The noise exposure is determined at the reference distance of 50 ft.

Option A. Fixed-guideway Sources – Compute project noise at 50 ft for fixed-guideway sources as identified in the second column of Table 4-19.

A.i. Reference SEL Levels

Determine the reference SEL at 50 ft for each major fixed-guideway noise source, either by measurement according to Appendix F or by referencing Table 4-20. The table provides guidance on which method is preferred for each source type. The "NO" designation implies that the source levels given in the table are appropriate to use in the analysis, and the "YES" designation implies that measurements are preferred over the data given in the table. In general, measurements are preferred for source types that vary considerably from project to project, including any emerging technology sources. The data in the table are adequate for source types that do not vary considerably from project to project.

For sources where measurements are preferred, refer to Appendix F for guidance on measurement procedures and methods for conversion of these measurements to the reference conditions of Table 4-20. For projects where source-noise specifications have been defined (e.g., noise limits are usually included in the specifications for purchase of new transit vehicles), these specifications may be used instead of measurements after conversion to reference conditions using the equations in Appendix F. This is only appropriate when there is a firm commitment to adopt the noise specifications in the vehicle

procurement documents during the engineering phase and to adhere to the specifications throughout the procurement, delivery, and testing of the vehicles.

Approximate L_{max} values are provided in the table for general user information. As discussed in Appendix B.1.4.2, L_{max} is not used directly in the evaluation of noise impact.

Table 4-20 Source Reference SELs at 50 ft: Fixed-Guideway Sources at 50 mph

Source	Reference SEL, dBA	Approximate L_{max}, dBA	Prefer Measurements? *
Rail cars	82	80	No
Streetcars**	76	74	No
Locomotives – diesel	92	88	No
Locomotives – electric	90	86	No
Diesel multiple unit (DMU)	85	81	Yes
Agt – steel wheel	80	78	Yes
Agt – rubber tire	78	75	Yes
Monorail	82	80	Yes
Maglev	72	70	Yes
Transit car horns (emergency)	93	90	No
Transit car whistles	81	78	No
Locomotive horns			
At-grade crossing	113	110	No
From crossing to 1/8 mile	†	110	
From 1/8 mile to 1/4 mile	110	110	

* "No" implies that the source levels given in the table are appropriate to use in the analysis and "Yes" implies that measurements are preferred over the data given in the table.
** The reference speed for streetcars is 25 mph. For streetcar speeds above 25 mph, use the "Rail Cars" reference level and 50 mph for the reference speed.
† Use the following equation for locomotive horns from crossing to 1/8 mile:

$$SEL_{Ref} = 113 - 3 \times (\frac{D_P}{660})$$

where:
D_P= distance from grade crossing parallel to tracks

A.ii. Estimate Noise Exposure at 50 ft – Use the reference SELs in Table 4-20, operating conditions, and the equations in Table 4-21 to predict the noise exposure at 50 ft expressed in terms of $L_{eq(1hr)}$ and L_{dn}. Follow the steps below:

1. **Identify operating conditions** – Trains with different numbers of cars or operating conditions produce different noise exposure levels and should be converted from SEL to L_{dn} separately. Use the following guidelines to determine if sources should be converted separately. These differences in operating conditions will produce an approximate 2-decibel change in noise exposure:
    - 40 percent change in number of locomotives or cars per train.
    - 40 percent change in number of trains per hour.
    - 40 percent change in number of trains per day, or per night (for computation of L_{dn}).
    - 15 percent change in train speed.
    - Change of one notch in diesel locomotive throttle setting (e.g., from notch 5 to notch 6).

2. **Establish relevant time periods** – For each of these source types and conditions, determine the relevant time periods for all receivers that may be affected by this source.
   - For residential receivers, the time periods of interest for computation of L_{dn} are: daytime (7 a.m. to 10 p.m.) and nighttime (10 p.m. to 7 a.m.).
   - If the source will affect non-residential receivers, the time period of interest is the loudest hour of project-related activity during hours of noise sensitivity. Several different hours may be of interest for non-residential receivers depending on the hours the facility is used.

3. **Collect input data**
   - Source reference SELs for locomotives, rail cars, and warning horns.
   - Number of rail cars in the train (if this number varies during the day, take the average for the daytime and nighttime periods separately for category 2 land uses, and use the maximum number during the period of interest for category 1 or 3 land uses).
   - Number of locomotives in the train, if any.
   - Train speed, in miles per hour (maximum expected).
   - Average throttle setting of the train's locomotive(s) for diesel-powered locomotives and DMU's only.[iv] If this input is not available, assume a throttle setting of 8 for locations where the vehicle would accelerate and 5 for all other locations.[25]
   - For residential receivers of interest:
     - Average hourly train volume during daytime hours (the total number of train passbys between 7 a.m. and 10 p.m., divided by 15 hours);
     - Average hourly train volume during nighttime hours (the total number of train passbys between 10 p.m. and 7 a.m., divided by 9 hours);
   - For non-residential receivers of interest, number of events that occur during each hour of interest in trains per hour; and
   - Track type (continuously welded or jointed) and profile (at-grade or elevated).

4. **Calculate $L_{eq(1hr)}$ at 50 ft**
   - Calculate $L_{eq(1hr)}$ using the appropriate equations in Table 4-21 for each hour of interest.
   - Compute the combined $L_{eq(1hr)}$. It may be necessary to compute the combined totals with and without the warning horns; some neighborhoods along the corridor may be exposed to the horn noise and some may not.

5. **Calculate L_{dn} at 50 ft**
   - If the project noise will affect any residential receivers, calculate the L_{dn} using the combined day $L_{eq(1hr)}$ and the combined night $L_{eq(1hr)}$.
   - It may be necessary to calculate L_{dn} with and without the warning horns, as above.

[iv] Omit this term if not applicable from the equation in Table 4-21 for other vehicle types.

Note that the equations in Table 4-21 include terms to account for a difference in speed from the reference speed of 50 mph and a numerical adjustment to account for the one-hour time period for this metric. For more information on the numerical adjustment to represent the time period of interest, see Appendix B.1.4.4.

Table 4-21 Computation of $L_{eq(1hr)}$ and L_{dn} at 50 ft: Fixed-Guideway Sources

Locomotives* $L_{eq(1hr)}$ at 50 ft	$L_{eq.Loco(1hr)} = SEL_{ref} + 10\,log(N_{Loco}) + C_T + Klog(\frac{S}{50}) + 10\,log(V) - 35.6$	**Eq. 4-25**
Locomotive Warning Horns** $L_{eq(1hr)}$ at 50 ft	$L_{eq.LHorns(1hr)} = SEL_{ref} + 10\,log(V) - 35.6$	**Eq. 4-26**
Rail Vehicles† $L_{eq(1hr)}$ at 50 ft	$L_{eq.RCars(1hr)} = SEL_{ref} + 10\,log(N_{Cars}) + 20\log(\frac{S}{50}) + 10\,log(V) - 35.6 + Adj_{track}$	**Eq. 4-27**
Streetcar (25 mph or slower) $L_{eq(1hr)}$ at 50 ft	$L_{eq.SCars(1hr)} = SEL_{ref} + 10\,log(N_{Cars}) + 2\log(\frac{S}{25}) + 10\,log(V) - 35.6 + Adj_{track}$	**Eq. 4-28**
Transit Warning Horns** $L_{eq(1hr)}$ at 50 ft	$L_{eq.THorns(1hr)} = SEL_{ref} - 10\,log(\frac{S}{50}) + 10\,log(V) - 35.6$	**Eq. 4-29**
Combined Locomotive and transit†† $L_{eq(1hr)}$ at 50 ft	$L_{eq.Combo(1hr)} = 10\log(10^{(L_{eq.Loco(1hr)}/10)} + 10^{(L_{eq.RCars(1hr)}/10)} + 10^{(L_{eq.SCars(1hr)}/10)} + 10^{(L_{eq.LHorns(1hr)}/10)} + 10^{(L_{eq.THorns(1hr)}/10)})$	**Eq. 4-30**
Daytime L_d at 50 ft	$L_d = L_{eq(1hr)}$ where V = V_d, N_{Loco} = N_d (loco events), and N_{Cars} = N_d (car events)	**Eq. 4-31**
Nighttime L_n at 50 ft	$L_n = L_{eq(1hr)}$ where V = V_n, and N_{Loco} = N_d (loco events), and N_{Cars} = N_d (car events)	**Eq. 4-32**
Day/Night L_{dn} at 50 ft	$L_{dn} = 10\log(15 \times 10^{(L_d/10)} + 9 \times 10^{((L_n+10)/10)}) - 13.8$	**Eq. 4-33**

N_{Loco} = average number of locomotives per train

C_T = $0\ for\ T < 6$
$2(T-5)\ for\ T \geq 6$
where
T = average throttle setting for diesel-powered locomotives and DMUs only

K = -10 for passenger diesel
0 for DMUs[Ŧ]
+10 for electric

N_{Cars} = average number of cars per train

V = average hourly volume of train traffic, trains per hour

S = train speed, mph

Adj_{track} = constant
+5 for jointed track or for a crossover within 300 ft
+4 for aerial structure with slab track (except AGT and monorail)
+3 for embedded track on grade

V_d = average hourly daytime volume of train traffic, trains per hour
$= \frac{number\ of\ trains, 7\ a.m.\ to\ 10\ p.m.}{15}$

V_n = average hourly nighttime volume of train traffic, trains per hour
$= \frac{number\ of\ trains, 10\ p.m.\ to\ 7a.m.}{9}$

N_d = average hourly number of events that occur during daytime (7 a.m. to 10 p.m.)
$= \frac{number\ of\ events\ between\ 7\ a.m.\ to\ 10\ p.m.}{15}$

N_n = average hourly number of events that occur during nighttime (10 p.m. to 7 a.m.)
$= \frac{number\ of\ events\ between\ 10\ p.m.\ to\ 7\ a.m.}{9}$

* Assumes a diesel locomotive power rating at approximately 3000 hp ** Based on FRA's horn noise model (www.fra.dot.gov/Elib/Document/2681
† Includes all commuter rail cars, transit cars, streetcars above 25 mph, AGT and monorail. †† Only include appropriate terms.
Ŧ Because of the wide range of vehicle types that qualify as a DMU, measurements are preferred for the reference level and speed coefficient. If no measurements are conducted, use the reference level in Table 4-20 and a speed coefficient of 0.

Example 4-5 Detailed Noise Analysis – Fixed Guideway Noise Sources

Computation of $L_{eq(1hr)}$ and L_{dn} at 50 ft for Fixed-Guideway Source

A commuter train with 1 diesel locomotive and 6 cars will pass close to a residential area at a grade crossing. The track is jointed.

Assumptions

SEL_{ref} = 92 for diesel locomotives
= 82 for rail cars
= 113 for locomotive warning horns at-grade crossing
N_{Cars} = 6
N_{Loco} = 1
S = 43 mph
T = 8
V_d = $40\ trains/15\ hours = 2.667\ trains\ per\ hour$
V_n = $2\ trains/9\ hours = 0.222\ trains\ per\ hour$

Use the equations in Table 4-21 to determine the daytime $L_{eq(1hr)}$ for each source and the combined daytime $L_{eq(1hr)}$ at 50 ft.

$$L_{d.Locs(1hr)} = SEL_{ref} + 10\,log(N_{Loco}) + C_T + Klog(\frac{S}{50}) + 10\,log(V_d) - 35.6$$
$$= 92 + 10\,log(1) + 6 + (-10)log(\frac{43}{50}) + 10\,log(2.667) - 35.6$$
$$= 67.3\ dBA \text{ at 50 ft}$$

$$L_{d.RCars(1hr)} = SEL_{ref} + 10\,log(N_{Cars}) + 20log\left(\frac{S}{50}\right) + 10\,log(V_d) - 35.6 + Adj_{track}$$
$$= 82 + 10\,log(6) + 20log\left(\frac{43}{50}\right) + 10\,log(2.667) - 35.6 + 5$$
$$= 62.1\ dBA \text{ at 50 ft}$$

$$L_{d.LHorn(1hr)} = SEL_{ref} + 10\,log(V_d) - 35.6$$
$$= 113 + 10\,log(2.667) - 35.6$$
$$= 81.7\ dBA \text{ at 50 ft}$$

$$L_{d.Combo(1hr)} = 10log\left[10^{(L_{d.Locos(1hr)}/10)} + 10^{(L_{d.RCars(1hr)}/10)} + 10^{(L_{d.LHorn(1hr)}/10)}\right]$$

With horn:
$= 81.9\ dBA$ in neighborhoods where the horn is sounded

Without horn:
$$= 10log\left[10^{(L_{d.Locos(1hr)}/10)} + 10^{(L_{d.RCars(1hr)}/10)}\right]$$
$= 68.4\ dBA$ in neighborhoods where the horn is not sounded

Use the same equations as above to determine the nighttime $L_{eq(1hr)}$ at 50 ft. Use V_n instead of V_d.

$L_{n.Locos(1hr)}$ = 56.5 for locomotives
$L_{n.RCars(1hr)}$ = 51.3 for cars
$L_{n.LHorn(1hr)}$ = 70.9 for horns
$L_{n.Combo(1hr)}$ = 71.1 in neighborhoods where the horn is sounded
= 57.6 in neighborhoods where the horn is not sounded

Calculate the L_{dn} with and without horns.

$$L_{dn.Combo} = 10log\left[15 \times 10^{(L_{d.Combo}/10)} + 9 \times 10^{((L_{n.Combo}+10)/10)}\right] - 13.8$$

With horn: = 81.6 at 50 ft in neighborhoods where horns are sounded
Without horn: = 68.1 at 50 ft in neighborhoods where horns are not sounded

Note: Computation results should always be rounded to the nearest decibel at the end of the computation. In all examples of this section, however, the first decimal place is retained for readers to precisely match their own computations against the example computations.

Option B. Highway/Transit Sources – Compute project noise at 50 ft for highway/transit noise sources as identified in the second column of Table 4-19. Use the instructions below to estimate source noise levels for projects following FTA's procedures that involve highway vehicles.

This method is based on the original FHWA highway noise prediction model, with updated noise emission levels.[26] The vehicle equations are applicable to speeds typical of freely-flowing traffic on city streets and access roads.

B.i. Reference SEL Levels – Determine the reference SEL at 50 ft for each major highway/transit source, either by measurement according to Appendix F or by using Table 4-22.[v] The table provides guidance on which method is preferred for each source type. "NO" implies that the source levels given in the table are appropriate to use in the analysis, and "YES" implies that measurements are preferred over the data given in the table. For sources where measurements are preferred, refer to Appendix F for guidance on measurement procedures and methods for conversion of measurement data to the reference conditions in Table 4-20.

Approximate L_{max} values are provided in the table for general user information. As discussed in Appendix B.1.4.2, L_{max} is not used directly in the evaluation of noise impact.

Table 4-22 Source Reference SELs at 50 ft: Highway/Transit Sources at 50 mph

Source	Reference SEL, dBA	Approximate L_{max}, dBA	Prefer Measurements?*
Automobiles	74	70	No
Buses (diesel)	82	79	No
Buses (electric trolleybus)	80	77	No
Buses (hybrid)**	83	80	Yes

* "No" implies that the source levels given in the table are appropriate to use in the analysis and "Yes" implies that measurements are preferred over the data given in the table.
** Hybrid bus with full-time diesel engine and electric drive motors.

[v] Idling buses are considered stationary sources.

B.ii. Noise Exposure at 50 ft – Use the reference SELs in Table 4-22, operating conditions, and the equations in Table 4-23 to predict the noise exposure at 50 ft expressed in terms of $L_{eq(1hr)}$ and L_{dn}. Follow the steps below:

1. **Identify operating conditions** – Noise emission from most transit buses is not dependent upon whether the buses are accelerating or cruising. However, accelerating suburban buses are substantially louder than cruising suburban buses. For this reason, suburban buses require separate calculation along roadway stretches where they are accelerating. Separate calculation is also needed for all highway/transit vehicles at different speeds, since speed affects noise emissions. Use the following guidelines to determine if sources should be calculated separately. These differences in operating conditions will produce an approximate 2-decibel change in noise exposure:
    - 40 percent change in number of vehicles per hour;
    - 40 percent change in number of vehicles per day, or per night (for computation of L_{dn}); or
    - 15 percent change in vehicle speed.

2. **Establish relevant time periods** – For each of these source types and conditions, determine the relevant time periods for all receivers that may be affected by this source.
    - For residential receivers, the time periods of interest for computation of L_{dn} are: daytime (7 a.m. to 10 p.m.) and nighttime (10 p.m. to 7 a.m.).
    - If the source will affect non-residential receivers, the time period of interest is the loudest hour of project related activity during hours of noise sensitivity. Several different hours may be of interest for non-residential receivers depending on the hours the facility is used.

3. **Collect input data**
    - Source reference SELs for the vehicle types of concern
    - Average running speed in miles per hour
    - For residential receivers of interest:
        - Average hourly vehicle volume during daytime hours (total number of vehicle passbys between 7 a.m. and 10 p.m., divided by 15).
        - Average hourly vehicle volume during nighttime hours (total number of vehicle passbys between 10 p.m. and 7 a.m., divided by 9).
    - For non-residential receivers of interest, number of events that occur during each hour of interest, in vehicles per hour

4. **Calculate $L_{eq(1hr)}$ at 50 ft – Calculate $L_{eq(1hr)}$ using the appropriate** equations in Table 4-23 for each hour of interest.

5. **Calculate L_{dn} at 50 ft –** If the project noise will affect any residential receivers, calculate the L_{dn} using the day $L_{eq(1hr)}$ and night $L_{eq(1hr)}$.

Note that the equations in Table 4-23 include terms to account for a difference in speed from the reference speed of 50 mph and a numerical adjustment to

account for the one-hour time period for this metric. For more information on the numerical adjustment to represent the time period of interest, see Appendix B.1.4.4.

Table 4-23 Computation of $L_{eq(1hr)}$ and L_{dn} at 50 ft: Highway/Transit Sources

$L_{eq(1hr)}$ at 50 ft	$L_{eq(1hr)} = SEL_{ref} + 10\,log(V) + C_{emissions} - 10\log(\frac{S}{50}) - 35.6$	**Eq. 4-34**
Daytime L_d at 50 ft	$L_d = L_{eq(1hr)}$ where V = V_d	**Eq. 4-35**
Nighttime L_n at 50 ft	$L_n = L_{eq(1hr)}$ where V = V_n	**Eq. 4-36**
L_{dn} at 50 ft	$L_{dn} = 10log(15 \times 10^{(L_d/10)} + 9 \times 10^{((L_n+10)/10)}) - 13.8$	**Eq. 4-37**
Adjustments	= -3 for automobiles, open-graded asphalt = +3 for automobiles, grooved pavement	

V = average hourly volume of vehicles, vehicles per hour

$C_{emissions}$ = $25\log(\frac{S}{50})$ for buses
$31\log(\frac{S}{50})$ for hybrid buses [23]
1.6 for accelerating 3-axle commuter buses
$40\log(\frac{S}{50})$ for automobiles

S = average vehicle speed, mph (distance divided by time, excluding stop time at red lights)

V_d = average hourly daytime volume of vehicles of this type, vehicles per hour
$= \frac{total\ vehicle\ volume, 7\ a.m.\ to\ 10\ p.m.}{15}$

V_n = average hourly nighttime volume of vehicles, vehicles per hour
$= \frac{total\ vehicle\ volume, 10\ p.m.\ to\ 7\ a.m.}{9}$

Example 4-6 Detailed Noise Analysis – Highway Transit Noise Sources

Computation of $L_{eq(1hr)}$ and L_{dn} at 50 ft for Highway/Transit Source

A bus route with city buses will pass close to a school that is in session from 8 a.m. to 4 p.m. on weekdays. Within this time period, the hour of greatest activity for this bus route is 8 a.m. to 9 a.m.

Assumptions

SEL_{ref} = 82 dBA
S = 40 mph
V = 30 buses per hour

Use the equations in Table 4-23 to determine the hourly $L_{eq(1hr)}$ at 50 ft.

$$L_{d.Bus} = SEL_{ref} + 10\,log(V) + C_{emissions} - 10\log(\frac{S}{50}) - 35.6$$
$$= 82 + 10\,log(30) + 6 + 25 \times log(\frac{40}{50}) - 10\log(\frac{40}{50}) - 35.6$$
$$= 59.7\ dBA \text{ at 50 ft}$$

This same bus also passes close to a residential area with the following operating conditions:

$$V_d = 200\ buses/15\ hours = 13.33\ buses\ per\ hour$$
$$V_n = 20\ buses/9\ hours = 2.22\ buses\ per\ hour$$

Calculate the daytime and nighttime $L_{eq(1hr)}$ at 50 ft.

$$L_{d.Bus} = 82 + 10\,log(13.33) + 6 + 25 \times log(\frac{40}{50}) - 10\log(\frac{40}{50}) - 35.6$$
$$= 56.2\ dBA \text{ at } 50 \text{ ft}$$

$$L_{n.Bus} = 82 + 10\,log(2.22) + 6 + 25 \times log(\frac{40}{50}) - 10\log(\frac{40}{50}) - 35.6$$
$$= 48.4\ dBA \text{ at } 50 \text{ ft}$$

Calculate L_{dn} at 50 ft.

$$L_{dn.Bus} = 10log(15 \times 10^{(L_{d.Bus}/10)} + 9 \times 10^{((L_{n.Bus}+10)/10)}) - 13.8$$
$$= 57.2\ dBA \text{ at } 50 \text{ ft}$$

Note: Computation results should always be rounded to the nearest decibel at the end of the computation. In all examples of this section, however, the first decimal place is retained for readers to precisely match their own computations against the example computations.

Option C. Stationary Sources – Compute project noise at 50 ft for stationary sources as identified in the second column of Table 4-19.

C.i. Determine Reference SEL Levels – Determine the reference SEL at 50 ft for each major stationary source, either by measurement according to Appendix F or by using Table 4-24. The table provides guidance on which method is preferred for each source type. "NO" implies that the source levels given in the table are appropriate to use in the analysis, and "YES" implies that measurements are preferred over the data given in the table. In general, measurements are preferred for source types that vary considerably from project to project. For example, curve squeal is highly variable depending on weather conditions, curve radius, and train speed. The data in the table are adequate for source types that do not vary considerably from project to project (crossing signals, for example). For sources where measurements are preferred, refer to Appendix F for guidance on measurement procedures and methods for conversion of these measurements to the reference conditions of Table 4-24.

Layover facilities and transit centers can be the sources of low-frequency noise from idling diesel engines. Sounds with considerable low-frequency components can cause greater annoyance than would be expected based on their A-weighted levels. Low-frequency sounds often cause windows and walls to vibrate resulting in secondary effects in buildings such as rattling of dishes in cupboards and wall-mounted pictures. The reference levels in Table 4-24 are adjusted to take increased annoyance into account. For a Detailed Noise Analysis at locations where such idling takes place for an extended period, use the method described in ANSI Standard S12.9-Part 4, Annex D.[27]

Approximate L_{max} values are provided in the table for general user information. As discussed in Appendix B.1.4.2, L_{max} is not used directly in the evaluation of noise impact.

Table 4-24 Source Reference SELs at 50 ft: Stationary Sources

Source	Reference SEL, dBA	Approximate L_{max}, dBA	Prefer Measurements?*
Auxiliary Equipment	101	65	Yes
Locomotive Idling	109	73	No
Rail Transit Idling	106	70	No
Buses Idling	111	75	No
Ferry Boat Landing**, Idling, and Departing	91	78	No
Ferry Boat Fog Horn	90	84	No
Track Curve Squeal	136	100	Yes
Car Washes	111	75	Yes
Crossing Signals	109	73	No
Substations	99	63	No

*"No" implies that the source levels given in the table are appropriate to use in the analysis, and "YES" implies that measurements are preferred over the data given in the table.

**Ferry boat landings are included in the stationary source category because the noise from the landing remains in one area even though the boats move in and out.

C.ii. Estimate Noise Exposure at 50 ft – Use the reference SELs in Table 4-24, operating conditions, and the equations in Table 4-25 to predict the noise exposure at 50 ft expressed in terms of $L_{eq(1hr)}$ and L_{dn}. Follow the steps below:

1. **Identify operating conditions** – Identify actual source durations and numbers of events. Sources with different operating conditions should be converted from SEL to L_{dn} separately. Use the following guidelines to determine if sources should be converted separately. These differences in operating conditions will produce an approximate 2-dB change in noise exposure:
   - 40 percent change in event duration (e.g., from 30 to 42 minutes), or
   - 40 percent change in number of events per hour (e.g., from 10 to 14 events per hour).

2. **Establish relevant time periods** – For each of these source types and conditions, determine the relevant time periods for all receivers that may be affected by this source.
   - For residential receivers, the time periods of interest for computation of L_{dn} are: daytime (7 a.m. to 10 p.m.) and nighttime (10 p.m. to 7 a.m.).
   - If the source will affect non-residential receivers, the time period of interest is the loudest hour of project related activity during hours of noise sensitivity. Several different hours may be of interest for non-residential receivers depending on the hours the facility is used.

3. **Collect input data**
   - Source reference SELs for each relevant source
   - Average duration of one event, in seconds
   - For residential receivers of interest:
     - Average number of events per hour that occur during the daytime (the total number of events between 7 a.m. and 10 p.m., divided by 15).

    - Average number of events per hour that occur during the nighttime (the total number of events between 10 p.m. and 7 a.m., divided by 9).
  - For non-residential receivers of interest, number of events that occur during each hour of interest in events per hour

4. **Calculate $L_{eq(1hr)}$ at 50 ft** – Calculate $L_{eq(1hr)}$ using the appropriate equations in Table 4-25 for each hour of interest.

5. **Calculate L_{dn} at 50 ft** – If the project noise will affect any residential receivers, calculate the L_{dn} using the day $L_{eq(1hr)}$ and night $L_{eq(1hr)}$.

Note that the equations in Table 4-25 include a numerical adjustment to account for the one-hour time period for this metric. For more information on the numerical adjustment to represent the time period of interest, see Appendix B.1.4.4.

Table 4-25 Computation of $L_{eq(1hr)}$ and L_{dn} at 50 ft: Stationary Sources

$L_{eq(1hr)}$ at 50 ft	$L_{eq(1hr)} = SEL_{ref} + 10\,log(N) + 10\log(\frac{E}{3600}) - 35.6$	**Eq. 4-38**
Daytime L_d at 50 ft	$L_d = L_{eq(1hr)}$ where N = N_d	**Eq. 4-39**
Nighttime L_n at 50 ft	$L_n = L_{eq(1hr)}$ where N = N_n	**Eq. 4-40**
L_{dn} at 50 ft	$L_{dn} = 10\log(15 \times 10^{(L_d/10)} + 9 \times 10^{((L_n+10)/10)}) - 13.8$	**Eq. 4-41**

N = number of events of this type that occur during one-hour

E* = duration of one event, sec

N_d = average hourly number of events that occur during daytime (7 a.m. to 10 p.m.)

$= \frac{number\ of\ events\ between\ 7\ a.m.\ to\ 10\ p.m.}{15}$

N_n = average hourly number of events that occur during nighttime (10 p.m. to 7 a.m.)

$= \frac{number\ of\ events\ between\ 10\ p.m.\ to\ 7\ a.m.}{9}$

*Omit the term containing E for ferry boat, and fog horn noise sources.

Example 4-7 Detailed Noise Analysis – Stationary Noise Sources

Computation of $L_{eq(1hr)}$ and L_{dn} at 50 ft for Stationary Sources

A signal crossing lies close to a school that is in session from 8 a.m. to 4 p.m. on weekdays. Within this time period, the hour of greatest activity for the signal crossing is 8 a.m. to 9 a.m.

Assumptions

SEL_{ref} = 109 dBA
E = 25 seconds (counting both cycles of the signal)
N = 22

Use the equations in Table 4-25 to determine the hourly $L_{eq(1hr)}$ at 50 ft.

$$L_{d.Cross} = SEL_{ref} + 10log(N) + 10log\left(\frac{E}{3600}\right) - 35.6$$
$$= 109 + 10log(22) + 10log(\frac{25}{3600}) - 35.6$$
$$= 65.2\ dBA \text{ at 50 ft}$$

This same signal crossing lies close to a residential area with the following operating conditions:

N_d = $200\ /15\ hours = 13.3\ events\ per\ hour$
N_n =$12\ /9\ hours = 1.33\ events\ per\ hour$

Calculate the daytime and nighttime $L_{eq(1hr)}$ at 50 ft.

$$L_{d.Cross} = 109 + 10log(13.3) + 10log(\frac{25}{3600}) - 35.6$$
$$= 63.1\ dBA \text{ at 50 ft}$$
$$L_{n.Cross} = 109 + 10log(1.33) + 10log(\frac{25}{3600}) - 35.6$$
$$= 53.1\ dBA \text{ at 50 ft}$$

Calculate L_{dn} at 50 ft.

$$L_{dn} = 10log(15 \times 10^{(L_{d.Cross}/10)} + 9 \times 10^{((L_{n.Cross}+10)/10)}) - 13.8$$
$$= 63.1\ dBA \text{ at 50 ft}$$

Note: Computation results should always be rounded to the nearest decibel at the end of the computation. In all examples of this section, however, the first decimal place is retained for readers to precisely match their own computations against the example computations.

Step 3: Determine Propagation Characteristics

Determine the combined propagation characteristics between each source and receiver of interest.

3a. Calculate project noise exposure as a function of distance. *Calculate the project noise exposure at distances other than 50 ft, such as at receiver locations, as a function of distance accounting for shielding and ground effects along the path*. See Example 4-8 below.

1. Determine the topography of the ground within the transit corridor using the figures in Table 4-26 as a guide. It is not necessary to represent the transit corridor with an extreme number of changes in topography. Often, several typical sections will suffice throughout the transit corridor.

2. Use the equations in Table 4-26 to determine ground factor (G) based on the effective path height (Heff) for each identified terrain feature. Standard source heights are included at the bottom of the table. Assume receiver heights of 5 ft for both outdoor receivers and first-floor receivers. Note that larger ground factors correspond to larger amounts of ground attenuation with increasing distance from the source. For acoustically "hard" (e.g., non-absorptive) ground conditions, G should be taken to be zero.

3. Determine the distance correction factor using the ground factor and another distance, such as the distance to a receiver, and the equations in Table 4-27.

4. Apply the distance correction ($C_{distance}$) to the project noise exposure at 50 ft (Section 4.5, Step 2) using the following equation:

$$L_{distance} = L_{50ft} + C_{distance} \quad \textbf{Eq. 4-42}$$

where:

$L_{distance}$ = L_{dn} or $L_{Aeq(1hr)}$ at the new distance, ft

L_{50ft} = L_{dn} or $L_{Aeq(1hr)}$ at 50 ft

5. Plot noise exposure as a function of distance if desired.

Table 4-26 Ground Factor G, for Ground Attenuation

Ground Factor

Soft Ground:

$$G = \begin{cases} 0.66, & H_{eff} \le 5 \\ 0.75(1 - \frac{H_{eff}}{42}), & 5 < H_{eff} < 42 \\ 0, & H_{eff} \ge 42 \end{cases}$$ **Eq. 4-43**

H_{eff} = sum of average path heights on either side of the barrier, see below.

Hard Ground: $G = 0$



Figure 4-12 Flat Ground

$$H_{eff} = \frac{H_s + 2H_b + H_r}{2}$$ **Eq. 4-44**

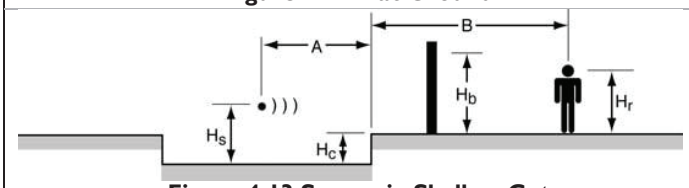


Figure 4-13 Source in Shallow Cut

$$H_{eff} = \frac{H_s + 2H_b + H_c + H_r}{2} \quad for\ B \le \frac{A}{2}$$

Use **Eq. 4-44** $\quad for\ B > \frac{A}{2}$

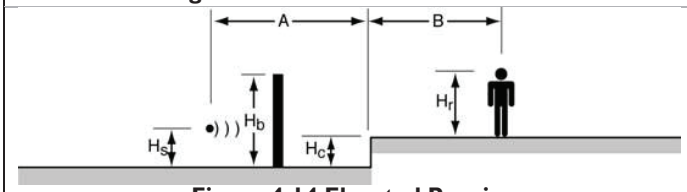


Figure 4-14 Elevated Receiver

$$H_{eff} = \frac{H_s + H_c + H_r}{2} \quad for\ H_b \le H_c$$

$$H_{eff} = \frac{H_s + 2H_b - H_c + H_r}{2} \quad for\ H_b > H_c$$

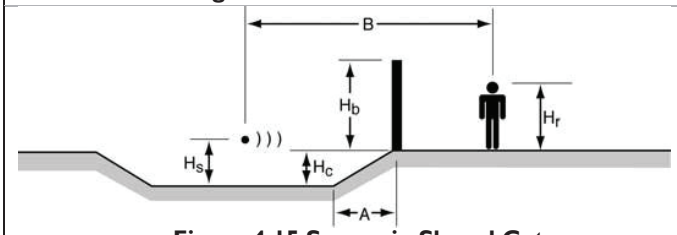


Figure 4-15 Source in Sloped Cut

Use **Eq. 4-44** $\quad for\ A \le \frac{B}{2}$

$$H_{eff} = \frac{H_s + 2H_b + H_c + H_r}{2} \quad for\ A > \frac{B}{2}$$

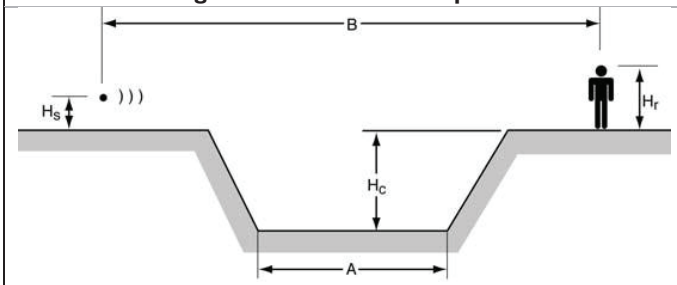


Figure 4-16 Source and Receiver Separated by Trench

$$H_{eff} = \frac{H_s + H_r}{2} \quad for\ A \le \frac{B}{2}$$

$$H_{eff} = \frac{H_s + 2H_c + H_r}{2} \quad for\ A > \frac{B}{2}$$

H_s = 8 ft for trains with diesel-electric locomotives
= 2 ft for trains without diesel-electric locomotives
= 0 ft for automobiles
= 3 ft for 2-axle city buses
= 8 ft for 3-axle commuter buses

Note: Equations for H_{eff} remain valid when $H_b = 0$

Table 4-27 Distance Correction Factor Equations for Detailed Noise Analysis

Source	Equation*	
Stationary Sources	$C_{distance} = -20\log(\frac{D}{50}) - 10Glog(\frac{D}{50})$	**Eq. 4-45**
Fixed-guideway rail car passbys	$C_{distance} = -10\log(\frac{D}{50}) - 10Glog(\frac{D}{42})$	**Eq. 4-46**
Fixed-guideway locomotive and rubber-tired vehicle passbys, highway vehicle passbys and horns	$C_{distance} = -10\log(\frac{D}{50}) - 10Glog(\frac{D}{29})$	**Eq. 4-47**
D = distance, ft G = ground factor, see Table 4-26		

*These equations assume the distance between the source and receiver is approximately 300 ft or less. At longer distances, ground effects have an upper limit and atmospheric conditions may affect propagation characteristics. Therefore, more detailed calculation methods may be required to account for those effects.

Example 4-8: Detailed Noise Analysis – Exposure vs. Distance Curve

Exposure vs. Distance Curve for Fixed-Guideway Source

Plot an exposure vs. distance curve for a diesel-electric commuter train that does not sound the horn in this area.

Assumptions

The terrain is flat grassland without a noise barrier.

$L_{eq.Loco}\ (8-9am)$ = 72 dBA at 50 ft
$L_{dn.Loco}$ = 68 dBA at 50 ft
H_r = 5 ft
H_b = 0 ft (for a "no noise barrier" case)
H_s = 8 ft (for a diesel-electric commuter train)

Calculate H_{eff} using the equations in Table 4-26.

$$H_{eff} = \frac{H_s + 2H_b + H_r}{2}$$
$$= \frac{8 + 0 + 5}{2}$$
$$= 6.5 \text{ ft}$$

Determine the ground factor using Eq. 4-43.

$$G = 0.75(1 - \frac{H_{eff}}{42})$$
$$= 0.63$$

Use Eq. 4-45 to determine noise vs. exposure equations for $L_{d.loco}$ and $L_{dn.loco}$.

$$L_{eq.Loco} = 72 - 10\log(\frac{D}{50}) - 6.3\log(\frac{D}{42})$$

$$L_{dn.Loco} = 68 - 10\log(\frac{D}{50}) - 6.3\log(\frac{D}{42})$$

Plot the two equations (see example in Figure 4-17). From these curves, the noise levels due to this train operation can be determined for a receiver of interest at any distance without shielding.

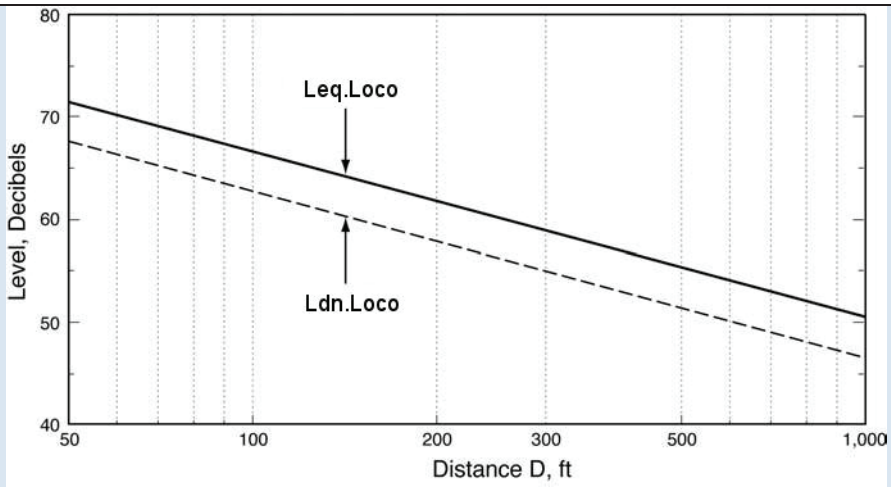


Figure 4-17 Example Exposure vs. Distance Curves

3b. Calculate the attenuation due to shielding for each distance of interest from Step 3a, using the following equation and Tables 4-26 through 4-30 and as illustrated in Example 4-9. If the conditions described in the tables are not met, the attenuation due to shielding is considered zero. Shielding can be due to intervening noise barriers, terrain features, rows of buildings, and dense tree zones.

$$A_{shielding} = \max\{IL_{barrier} \; or \; A_{buildings} \; or \; A_{trees}\} \qquad \textbf{Eq. 4-48}$$

where:

$IL_{barrier}$ = barrier insertion loss, see Table 4-28

$A_{buildings}$ = attenuation due to buildings, see Table 4-29

A_{trees} = attenuation due to trees, see Table 4-30

Table 4-28 Barrier Insertion Loss

Barrier Insertion Loss	$IL_{barrier} = \max\{0 \text{ or } (A_{barrier} - 10(G_{NB} - G_B)\log(\frac{D}{50}))\}$ **Eq. 4-49**	
$A_{barrier}$	$= \min\{12 \; or \; [5.3\log(P) + 6.7]\}$	For non-absorptive transit barriers within 5 ft of the rail
	$= \min\{15 \; or \; (5.3\log(P) + 9.7)\}$	For absorptive transit barriers within 5 ft of the rail
	$= \min\{15 \text{or} (20\log(\frac{2.51\sqrt{P}}{\tanh(4.46\sqrt{P})}) + 5)\}$	For all other barriers, and for protrusion of terrain above the line of sight
P	= path length difference, ft (see figure 4-18)*	
D	= closest distance between the receiver and the source, ft	
G_{NB}	= ground factor G computed without barrier (see Table 4-26)	
G_B	= ground factor G computed with barrier (see Table 4-26)	

* If the source height (exhaust outlet) for diesel-electric locomotives is not available, assume 15 ft.

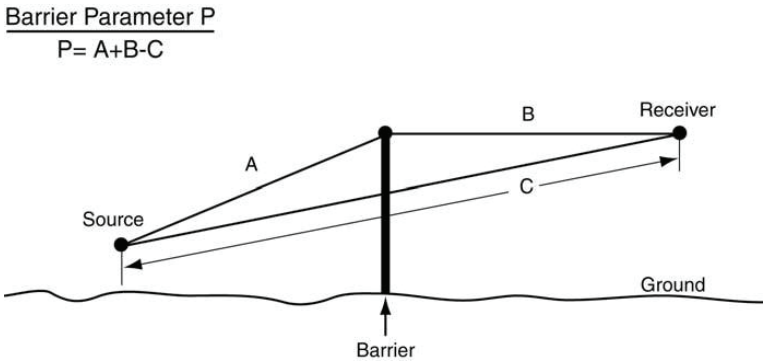


Figure 4-18 Noise Barrier Parameter "P"

Table 4-29 Attenuation due to Buildings

Condition	Equation	
Gaps in the row of buildings constitute less than 35% of the length of the row	$A_{buildings} = \min\{10 \; or \; [1.5\,(R-1)+5]\}$	**Eq. 4-50**
Gaps in the row of buildings constitute 35 to 65% of the length of the row	$A_{buildings} = \min\{10 \; or \; [1.5\,(R-1)+3]\}$	**Eq. 4-51**
Gaps in the row of buildings constitute more than 65% of the length of the row	$A_{buildings} = 0$	
R = number of rows of houses that intervene between the source and receiver		

Table 4-30 Attenuation due to Trees

Condition	Equation	
At least 100 ft of trees intervene between the source and receiver with no clear line-of-sight between source and receiver, and the trees extend 15 ft or more above the line-of-sight	$A_{trees} = \min\left\{10 \; or \; \frac{W}{20}\right\} \; where \; W \geq 100ft$ $= 0 \; where \; W < 100ft$	**Eq. 4-52**
W = width of tree zone along the line-of-site between the source and receiver in feet		

Example 4-9: Detailed Noise Analysis – Shielding

Computation of Shielding

The following features are between the rail corridor and a receiver of interest. Calculate the attenuation due to shielding.

1. A 15-foot high noise barrier is 40 ft from the closest track and 130 ft from the receiver
2. A dense tree zone 100 ft thick that extends 15 ft above the line-of-sight

Assumptions

H_s = 8 ft
H_r = 5 ft

Barrier dimensions

A = 40.61 ft
B = 130.38 ft
C = 170.03 ft

Barrier

Calculate H_{eff} with and without the barrier using the equations in Table 4-26.

$$H_{eff.NoBarrier} = \frac{H_s + 2H_b + H_r}{2}$$

$$= \frac{8 + 0 + 5}{2}$$
= 6.5 ft

$$H_{eff.Barrier} = \frac{H_s + 2H_b + H_r}{2}$$
$$= \frac{8 + 15 + 5}{2}$$
= 21.5 ft

Determine the ground factor with and without the barrier using Eq. 4-43.

$$G_{NoBarrier} = 0.75\left(1 - \frac{H_{eff}}{42}\right)$$
$$= 0.63$$

$$G_{Barrier} = 0.75\left(1 - \frac{H_{eff}}{42}\right)$$
$$= 0.37$$

Calculate the barrier insertion loss using Table 4-28 and Figure 4-18.

$$P = A + B - C$$
$$= 0.96 \text{ ft}$$

$$A_{barrier} = \min\{15 \text{or} (20 \log(\frac{2.51\sqrt{P}}{\tanh(4.46\sqrt{P})}) + 5)\}$$
= 12.8 dB
$$= \min\{15 \; or \; 12.8\}$$
= 12.8 dB

$$IL_{barrier} = \max\{0 \text{ or } (A_{barrier} - 10(G_{NoBarrier} - G_{Barrier}) \log(\frac{D}{50}))\}$$
$$= 12.8 - 10(0.63 - 0.37) \log(\frac{170}{50})$$
= 11.4 dB

Trees

Determine the attenuation due to trees using Table 4-30.

$$A_{trees} = \min\{10 \; or \; \frac{W}{20}\}$$
$$= 5 \text{ dB}$$

Total Shielding

The total shielding is the maximum of the barrier and tree zone shielding, 11.4 dB.

$$A_{shielding} = \max\{IL_{barrier} \; or \; A_{buildings} \; or \; A_{trees}\}$$
$$= \max\{11.4 \; or \; 0 \; or \; 5\}$$
= 11.4 dB

Note: Computation results should always be rounded to the nearest decibel at the end of the computation. In all examples of this section, however, the first decimal place is retained for readers to precisely match their own computations against the example computations.

3c. Combine the two propagation characteristics.
Combine the results from Steps 3a and 3b to determine the noise at the receiver considering the propagation characteristics of distance and shielding by applying the distance correction and attenuation due to shielding to the project noise exposure level at 50 ft.

The equations in Table 4-31 combine the equations in Steps 3a and 3b.

Table 4-31 Calculate L_{dn} or $L_{eq(1hr)}$

Source	Equation*	
Stationary Sources	$L_{DistShield} = L\ -20\log(\frac{D}{50}) - 10Glog(\frac{D}{50}) - A_{shielding}$	**Eq. 4-53**
Fixed-guideway rail car passbys	$L_{DistShield} = L\ -10\log(\frac{D}{50}) - 10Glog(\frac{D}{42}) - A_{shielding}$	**Eq. 4-54**
Fixed-guideway locomotive and rubber-tired vehicle passbys, highway vehicle passbys and horns	$L_{DistShield} = L\ -10\log(\frac{D}{50}) - 10Glog(\frac{D}{29}) - A_{shielding}$	**Eq. 4-55**
L = L_{dn} *or* L_{eq} D = distance, ft G = ground factor, see Section 4.5, Step 3a $A_{shielding}$ = attenuation due to shielding, see Section 4.5, Step 3b.		

*These equations assume the distance between the source and receiver is approximately 300 ft or less. At longer distances, ground effects have an upper limit and atmospheric conditions may affect propagation characteristics. Therefore, more detailed calculation methods may be required to account for those effects.[28, 29]

Step 4: Combine Noise Exposure from All Sources

Combine all sources to predict the total project noise at the receivers using the equations in Table 4-32 after propagation adjustments have been made for the noise exposure from each source separately.

Table 4-32 Computing Total Noise Exposure

Total $L_{eq(1hr)}$ from all sources for the hour of interest:	$L_{eq.total(1hr)} = 10\log(\sum_{all\ sources} 10^{L_{Aeq(1hr)}/10})$	**Eq. 4-56**
Total L_{dn} from all sources	$L_{dn.total} = 10\log(\sum_{all\ sources} 10^{L_{dn}/10})$	**Eq. 4-57**

Example 4-10 Detailed Noise Analysis – Combine Sources

Computation of Total Exposure from Combined Sources

Combine the noise exposure from the commuter train and light rail system to estimate the total noise exposure at the receiver.

Assumptions
A commuter train operation produces the following levels at a receiver of interest:

$L_{eq.Commuter}$ = 72 dBA
$L_{dn.Commuter}$ = 68 dBA

A light rail system produces the following levels at the same receiver:

$L_{eq.LightRail}$ = 69 dBA

$L_{dn.LightRail}$ = 70 dBA

No other project sources affect this receiver.

Calculate the total noise exposure at the receiver using the equations in Table 4-32.

$$L_{eq.total} = 10\log(10^{(72/10)} + 10^{(69/10)})$$
$$= 73.8 \text{ dBA}$$
$$L_{dn.total} = 10\log(10^{(68/10)} + 10^{(70/10)})$$
$$= 72.1 \text{ dBA}$$

Note: Computation results should always be rounded to the nearest decibel at the end of the computation. In all examples of this section, however, the first decimal place is retained for readers to precisely match their own computations against the example computations.

Step 5: Determine Existing Noise Exposure

Choose the appropriate method for characterizing noise and then determine the existing noise at each identified noise-sensitive receiver. The existing noise is needed to determine the noise impact according to the criteria described in Section 4.1, Step 2. Recall that impact is assessed based on a comparison of the existing ambient noise exposure and the additional noise exposure that will be caused by the project. The existing noise exposure must be estimated for all receivers of interest identified in Section 4.5, Step 1.

For a Detailed Noise Analysis, it is recommended to measure existing noise at each receiver of interest identified in Section 4.5, Step 1, for the most precise assessment of existing noise and conclusions concerning noise impact. However, measurements are expensive, often thwarted by weather, and take considerable time in the field. If taking measurements at each identified receiver is not possible, other less precise methods are available. Different methods may be used at different receivers along the project. However, it is important to recognize the correlation between the precision of measurements and the confidence in the impact assessment. Especially in a Detailed Noise Analysis, avoid using less precise methods of measuring existing noise just for the sake of convenience or expediency. The use of less precise methods must be clearly justified.

Option A. Noise Exposure Measurements – Full one-hour measurements are the most appropriate way to determine ambient noise exposure for non-residential receivers with the level of precision expected in a Detailed Noise Analysis**.** For residential receivers, full 24-hour measurements are more appropriate. These full-duration measurements are preferred over other methods of characterizing existing noise where time and study funds allow.

Follow the procedures below for these full-duration ambient noise exposure measurements:

Ai. Non-residential land uses – Measure a full hour $L_{eq(1hr)}$ at the receiver of interest on at least two non-successive weekdays (generally between noon on Monday and noon on Friday). Select the hour of the day when the maximum project activity is expected to occur.

A.ii. Residential land uses – Measure a full 24-hour L_{dn} at the receiver of interest for a single weekday (generally between noon on Monday and noon on Friday).

A.iii. Microphone position – The location of the microphone at the receiver depends upon the proposed location of the transit noise source, so use good technical judgment in positioning the measurement microphone. If, for example, a new rail line will be in front of the house, do not locate the microphone in the backyard behind the house where the line of sight between the noise source and receiver is obstructed. Figure 4-19 illustrates recommended measurement positions for various locations of the project, with respect to the house and the existing source of ambient noise.

A.iv. Measurement guidelines – Undertake all measurements in accordance with good engineering practice following guidelines given in ASTM and ANSI standards.[30][31]

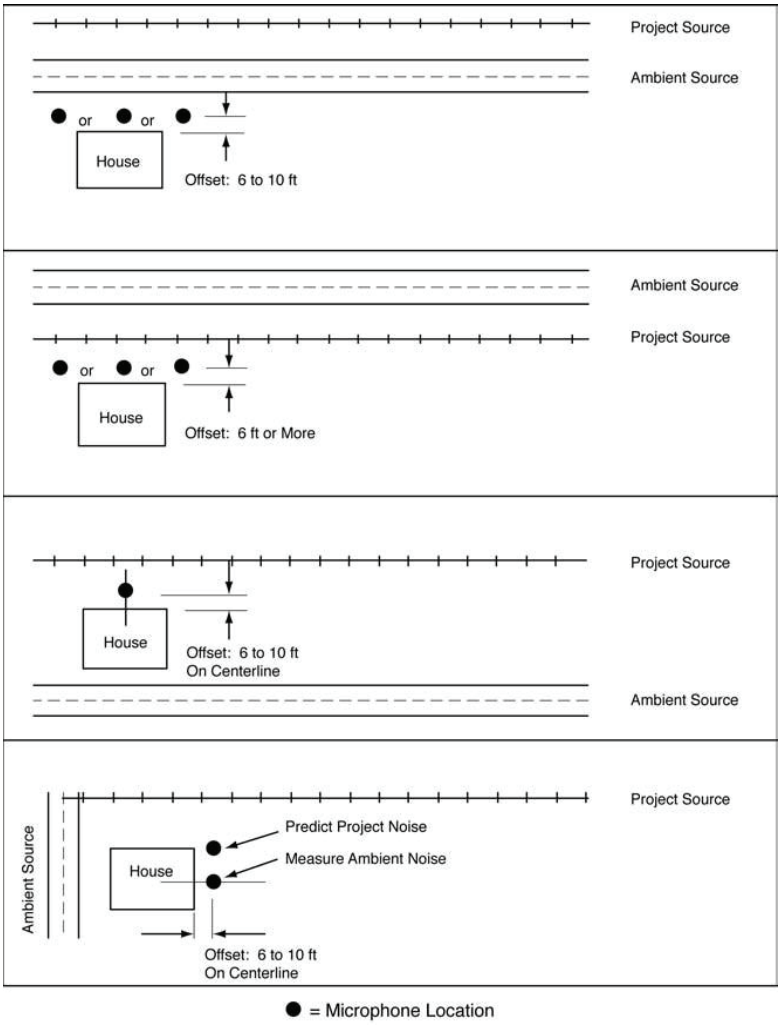


Figure 4-19 Recommended Microphone Locations for Existing Noise Measurements

Option B. Noise Exposure Computations from Partial Measurements – Often, measurements can be made at some of the receivers of interest and used to estimate noise exposure at nearby receivers. In other situations, several $L_{eq(1hr)}$ measurements can be taken at a receiver and then the L_{dn} computed from these. Both options require experience and knowledge of acoustics to select representative measurement sites. If using this method to compute an Ldn, a minimum time period of one hour should be used for each measurement period. It is unacceptable to extrapolate a one hour measurement from a shorter measurement period.

Measurements at one receiver can be used to represent the noise environment at other sites, but only when proximity to major noise sources is similar among the sites. Residential neighborhoods with otherwise similar homes may have greatly varying noise environments. For example, one area of the neighborhood may be located where the ambient noise is clearly due to highway traffic. A second area toward the interior of the neighborhood may have highway noise as a factor, but also include other noise sources from the community. A third area located deep into the residential area could have local street traffic and other community activities dominate the ambient noise. In this example, three or more measurement sites would be required to represent the varying ambient noise conditions in a single neighborhood.

Typical situations where representative measurement sites can be used to estimate noise levels at other sites occur when both share the following characteristics:

- Proximity to the same major transportation noise sources, such as highways, rail lines and aircraft flight patterns
- Proximity to the same major stationary noise sources, such as power plants, industrial facilities, rail yards and airports
- Similar type and density of housing, such as single-family homes on quarter-acre lots and multi-family housing in apartment complexes

Acoustical professionals are often adept at such computations from partial data and are encouraged to use their experience and judgment in fully utilizing the measurements in their computations. This does necessitate a conservative estimate (underestimate) of existing noise to account for reduced precision from partial data as compared to full noise measurements.

Those without a background in acoustics are encouraged to use the procedures in Appendix E to compute existing noise from partial measurements. These methods include a factor to conservatively estimate (underestimate) existing noise to account for reduced precision from partial data as compared to full noise measurements.

Option C. Estimating Existing Noise Exposure – The least precise way to determine noise exposure is to estimate it from a table. This method is often used for the General Noise Assessment, but it is not recommended for a Detailed Noise Analysis. It can be used, however, in the absence of better data for locations where roadways or railroads are the predominant ambient noise source. Table 4-17 presents these existing levels. The levels in Table 4-17 are

conservative and underestimate existing noise to account for reduced precision compared to full noise measurements. If a simplified procedure to estimate existing noise exposure is chosen it must be clearly justified and receive approval by the FTA Regional office.

While measurements are considered the most precise method, there is one situation where it may be more accurate to estimate rather than measure the existing noise exposure, which is in areas near major airports where aircraft noise is dominant. Because airport noise is highly variable based on weather conditions and corresponding runway usage, it is preferable in such cases to base the existing noise exposure on published aircraft noise contours in terms of Annual Average L_{dn}.

Step 6: Assess Noise Impact

Assess noise impact at each receiver of interest identified in Section 4.5, Step 1 using the noise impact criteria in Section 4.1 and the procedures in this step. Choose the appropriate noise impact assessment procedure for a transit project or multimodal project.

Option A. Transit Projects – For transit projects, noise impact is assessed at each receiver of interest using the criteria for transit projects described in Section 4.1. The noise impact assessment procedure is as follows:

A.i. Tabulate existing ambient noise exposure (rounded to the nearest whole decibel) at all receivers identified Section 4.5, Step 1. In cases where large residential buildings are exposed to noise on one side only, the receivers on that side are included in the analysis.

A.ii. Tabulate project noise exposure at these receivers from Section 4.5, Step 4.

A.iii. Determine the level of noise impact (no impact, moderate impact, or severe impact) according to Section 4.1.

A.iv. Document the results in noise-assessment inventory tables. Include the following information:

- Receiver identification and location
- Land use description
- Number of noise-sensitive sites represented (number of dwelling units in residences or acres of outdoor noise-sensitive land)
- Closest distance to the project
- Existing noise exposure
- Project noise exposure
- Level of noise impact (no impact, moderate impact, or severe impact)
- A sum of the total number of receivers and numbers of dwelling units predicted to experience moderate impact or severe impact

A.v. Illustrate the areas of moderate impact and severe impact. Two methods of displaying impact are labeling and contouring.

- In a Detailed Noise Analysis, the most accurate indication of impact is to label each impacted building or cluster identified in the inventory table.
- A less precise illustration of impacted areas is a plot of project noise contours on the maps or aerial photographs, along with shaded impact areas. Use the procedures in Section 4.4, Step 6 and the levels from Section 4.5, Step 2 to develop these contours.

Note that it is difficult to position noise contours in urban areas due to shielding, terrain features, and other propagation anomalies. If noise contours are used, they should be considered illustrative rather than definitive. If desired to conform to the practices of another agency, the contouring may perhaps include several contour lines of constant project noise, such as L_{dn} 65, L_{dn} 70, and L_{dn} 75 dBA.

A.vi. Including information on the magnitude of the impacts is an essential part of the assessment. The magnitude of noise impact is defined by the two threshold curves delineating onset of moderate impact and severe impact.

Option B. Multimodal Projects – For multimodal projects, project noise comprised of both highway and transit noise sources that are assessed according to the FTA noise impact criteria (see Table 4-2), use the procedure in Option A above. For multimodal projects that require FHWA's noise assessment methods to inform FTA's evaluation (see Section 4.1, Step 1 - Option B), follow the FHWA guidance.[32] In general, the appropriate calculation method is to use the current version of FHWA's Traffic Noise Model (TNM).[22] TNM is a state-of-the-art computer program used for predicting noise impacts near highways.

TNM allows for a detailed assessment at each receiver of interest by separately calculating the noise contribution of each roadway segment. For each roadway segment, the noise from each vehicle type is computed from reference noise levels, adjusted for:

- Vehicle volume
- Vehicle speed
- Grade
- Roadway segment length
- Source-to-receiver distance

Further adjustments needed to accurately model the sound propagation from source to receiver include:

- Shielding provided by rows of buildings,
- Effects of different ground types,
- Source and receiver elevations, and
- Effect of any intervening noise barriers.

TNM sums the noise contributions of each vehicle type for a given roadway segment at the receiver. TNM then repeats this process for all roadway segments, summing their contributions to generate the predicted noise level at each receiver.

Step 7: Determine Noise Mitigation Measures

Evaluate alternative mitigation measures where the Detailed Noise Analysis shows either severe or moderate impact, and it is not feasible to change the alignment or location of the project to avoid impact. Project noise that is found to cause no impact does not generally require any mitigation.

Mitigation of noise impact from transit projects may involve treatments at the three fundamental components of the noise problem: at the noise source, along the source-to-receiver propagation path, or at the receiver. Generally, the transit property has authority to treat the source and some elements of the propagation path, but may have little or no authority to modify anything at the receiver. After mitigation options have been determined, repeat the project noise computations including the adopted mitigation and reassess the remaining noise impact.

Approximate costs for noise control measures are documented in a report from the Transit Cooperative Research Program (TCRP)[33] and are also presented in this section. These costs reflect the noise mitigation costs available in 1997 (unless otherwise noted), which are the most recent data available as of this publication, and should only be used as representative estimates when considering noise mitigation options. Current noise mitigation costs should be researched before decisions on noise mitigation options are finalized, and then they should be documented according to Section 8.

7a. Evaluate Source Treatments – The most effective noise mitigation treatments are applied at the noise source. This is the preferred approach to mitigation when possible. Common source treatments and their estimated acoustical effectiveness are included in Table 4-33 and described below. It is important to note that the values below are estimates and should be applied with good engineering judgement. It also important to note that these mitigation measures should not be applied as a reduction in the reference SEL values for a vehicle that already incorporates that measure as a feature, such as vehicle skirts. Measurements to determine the reference SEL source level are required in those instances.

Table 4-33 Transit Noise Mitigation Measures – Source Treatments

Mitigation Measure		Effectiveness
Stringent Vehicle & Equipment Noise Specifications		Varied
Operational Restrictions†		Varied
Resilient or Damped Wheels*	For rolling noise on tangent track:	2 dB
	For wheel squeal on curved track:	10-20 dB
Vehicle Skirts*		6-10 dB
Undercar Absorption*		5 dB
Quiet Fan Design and Fan Placement*		Varied
Preventative Maintenance on Rail Systems*		Varied
Resurfacing Roads**		10 dB
Guideway Support for Buses**		10 dB
Turn Radii Greater than 1000 ft*		Avoids Squeal
Rail Lubrication on Sharp Curves*		Reduces Squeal
Movable-Point Frogs (reduce rail gaps at crossovers)*		Reduces Impact Noise
Engine Compartment Treatments		6-10 dB
Quiet Zones*		Reduces occurrence of horn noise

†FTA does not normally accept operational restrictions as a noise mitigation measure – see below.
* Applies to rail projects only.
** Applies to bus projects only.

- **Stringent Vehicle and Equipment Noise Specifications**
  - **Vehicles** – Among the most effective noise mitigation treatments is noise control during the specification and design of the transit vehicle. Such source treatments apply to all transit modes. By developing and enforcing stringent but achievable noise specifications, the transit property takes a major step in controlling noise everywhere on the system. It is important to ensure that the noise levels quoted in the specifications are achievable with the application of best available technology during the development of the vehicle and reasonable considering the noise reduction benefits and costs.

    Effective enforcement includes penalties for non-compliance with the specifications. The noise mitigation achieved by source treatment is dependent on the quality of installation and maintenance. Vehicles failing to meet the noise specification could result in complaints from the public and require additional noise mitigation measures applied along the path or at receivers.

  - **Stationary sources** – Stringent but achievable noise specifications for stationary sources are also an effective approach for mitigating noise impacts. Typical equipment includes fixed plant equipment such as transformers and mechanical equipment, as well as grade-crossing signals. For example, it may be possible to reduce noise impact from grade-crossing signals in some areas by specifying equipment that sets the level of the warning signal lower in locations where ambient noise is lower to minimize the signal noise in the direction of noise-sensitive receivers.

- **Operational Restrictions** – Changes in operations that can mitigate noise include the lowering of speed, the reduction of nighttime (10 p.m. to 7 a.m.) operations, and reduction of warning horns and signals.

  - **Speed reduction** – Because noise from most transit vehicles is dependent on speed, a reduction of speed results in lower noise levels. The effect can be considerable. For example, the speed dependency of steel-wheel/steel-rail systems for $L_{eq(1hr)}$ and L_{dn} (Table 4-21) results in a 6-dB reduction when reducing the speed to half of the original speed.

    Although there are tangible benefits from speed reductions during the most noise-sensitive time periods, FTA does not ordinarily accept speed reduction as a noise mitigation measure for two important reasons: speed reduction is unenforceable and negated if vehicle operators do not adhere to established policies, and it is contrary to the purpose of the transit investment by FTA, which is to move as many people as possible as efficiently and safely as possible.

  - **Reduction of nighttime operations** – Complete elimination of nighttime operations has a strong effect on reducing the L_{dn}, because nighttime noise is increased by 10 dB when calculating L_{dn}. But restrictions on operations are usually not feasible because of service demands. FTA generally does not pursue restrictions on operations as a

noise reduction measure. However, if early morning idling can be curtailed to the minimum necessary, however, this can have a measurable effect on L_{dn}.

While there are tangible benefits from limits on operations during the most noise-sensitive time periods, FTA does not recommend limits on operations as a way to reduce noise impacts because it is contrary to the purpose of the transit investment by FTA which is to move as many people as possible as efficiently and safely as possible.

- **Reduction of warning horns and signals** – Minimizing or eliminating horns and other warning signals at gate crossings can reduce noise impact for light rail and commuter rail systems. Although these mitigation options are limited by safety considerations, they can be effective in the right circumstances. For examples, see quiet zones below and wayside horns in Step 7b.

- **Wheel Treatments (Rail)** – A major source of noise from steel-wheel and steel-rail systems is the wheel/rail interaction that can produce three distinctive sounds: roar, impact, and squeal (as discussed in Section 3.2). Roar is the rolling noise caused by small-scale roughness on the wheel tread and rail running surface. Impacts are caused by discontinuities in the running surface of the rail or by a flat spot on the wheels. Squeal occurs when a steel-wheel tread or its flange rubs across the rail, resulting in resonant vibrations in the wheel that creates a screeching sound. Various wheel designs and other mitigation measures exist to reduce the noise from each of these three mechanisms.

  - **Resilient wheels** – Resilient wheels are effective in eliminating wheel squeal on tight turns with reductions of 10 to 20 dB in the high-frequency range where squeal noise occurs. Rolling noise is also slightly reduced with resilient wheels and typically achieves a 2-dB reduction on tangent track. The costs for resilient wheels are approximately $2000 to $3000 per wheel, as compared to about $400 to $700 for standard steel wheels.[vi]

  - **Damped wheels** – Damped wheels, like resilient wheels, are effective in eliminating wheel squeal on tight turns with reductions of 5 to 15 dB in the high-frequency range where squeal occurs. Rolling noise is also slightly reduced by approximately 2 dB on tangent track. This treatment involves attaching vibration absorbers to standard steel wheels. The costs for damped wheels add approximately $500 to $1000 to the normal $700 for each steel wheel.

[vi] Assumes 8 wheels per vehicle.

- **Vehicle Treatments** – Vehicle noise mitigation measures are applied to the various mechanical systems associated with propulsion, ventilation, and passenger comfort. Propulsion systems of transit vehicles include diesel engines, electric motors, and diesel-electric combinations. Noise from the propulsion system depends on the type of unit and how much noise mitigation is built into the design. Mufflers on diesel engines are generally required to meet noise specifications; however, mufflers are generally practical only on buses, not on locomotives. Control of noise from engine casings may require shielding the engine by body panels without louvers, dictating other means of cooling, and ventilation.

  Ventilation requirements for vehicle systems are related to the noise generated by a vehicle. Fan noise often remains a major noise source after other mitigation measures have been instituted because of the need to have direct access to cooling air. This applies to heat exchangers for electric traction motors, diesel engines, and air-conditioning systems. The mitigation options for these systems include:

  - **Quiet fan design and placement** – Fan noise can be reduced by installation of quiet, efficient fans. Forced-air cooling on electric traction motors can be quieter than self-cooled motors at operating speeds. Placement of fans on the vehicle can make a considerable difference in the noise radiated to the wayside or to patrons on the station platforms.

  - **Vehicle skirts and undercar absorption** – The vehicle body design can provide shielding and absorption of the noise generated by the vehicle components. Acoustical absorption under the car has been demonstrated to provide up to 5 dB of mitigation for wheel/rail noise and propulsion-system noise on rapid transit trains. Similarly, vehicle skirts over the wheels can provide more than 5 dB of mitigation. By carrying their own noise barriers, vehicles with these features can provide cost-effective noise reduction. The cost for vehicle skirts will add approximately $5000 to $10000 per vehicle. Undercar absorption will add approximately $3500 per vehicle, assuming that 50% of the underside of the floor is treated.

- **Preventative Maintenance (Rail)** – Preventative maintenance is the best strategy to minimize rail and wheel deterioration. While these are not mitigation measures in the traditional sense and should not be included as mitigation in an environmental document, they can help to keep both noise and vibration levels at a "like-new" level or reduce both noise and vibration in systems with deferred maintenance. This can be accompanied by considerable life cost benefits for the transit system.

  - **Spin-slide control systems** – Similar to anti-locking brake systems (ABS) on automobiles, spin-slide control systems reduce the incidence of wheel flats, a major contributor of impact noise. Trains with smooth wheel treads can be up to 20 dB quieter than those with wheel flats. To be effective, the anti-locking feature should be in operation during all braking phases, including emergency braking. Wheel flats are more likely

to occur during emergency braking than during dynamic braking. The cost of slip-slide control may be incorporated in the new vehicle costs, but may be between $5,000 and $10,000 per vehicle with a maintenance cost of $200 per year.

- **Wheel truing** – Maintenance of wheels by truing eliminates wheel flats from the treads and restores the wheel profile. As discussed above, wheel flats are a major source of impact noise. As a guideline, it is recommended that wheel sets match within approximately ±0.01 inch and all wheels on the same truck should match within ±0.02 inches to minimize damage and wear to wheels and rails.[34] A wheel truing machine costs approximately $1 million, including associated maintenance materials and labor costs. The TCRP report estimates a system with 700 vehicles would incur a yearly cost of $300,000 to $400,000 for a wheel truing program.

  It is recommended to install wheel-flat detector systems to identify vehicles that are most in need of wheel truing. These systems are becoming more common on railroads and intercity passenger systems, but are relatively rare on transit systems.

- **Rail grinding** – The smoothness of the running surface is critical in the mitigation of noise from a moving vehicle. Mill scale grinding before commencement of pre-revenue service train operations is critical. Experience shows that grinding new rails after approximately 3 months of train operations and scheduling routine grinding at approximate intervals of 2 years in the problem areas would minimize noise problems related to corrugation in most cases. Grinding with small machines when the corrugation depth is still small is a reasonable approach. As a guideline, it is recommended to spot-grind at locations where corrugation occurs before corrugation grows to 0.02 inches (32).

  Periodic rail grinding can result in a net savings per year on wheel and rail wear. Most transit systems contract out rail grinding, although some of the larger systems make the investment of approximately $1 million for the equipment and do their own grinding. Contractors typically charge a fixed amount per day for the equipment on site, plus an amount per pass-mile (one pass of the grinding machine for one mile). Typical rail grinding cost would be approximately $7,000 to $10,000 per pass-mile.

- **Wheel and rail profile matching** – It is important to consider the wheel and rail profile compatibility when truing wheels and grinding rails. If the profiles do not match, the benefits of this kind of preventative maintenance will not be achieved.

  It is equally important to consider initial wheel and rail profile compatibility. Work with track designers and vehicle suppliers early in the design process to ensure wheel and rail profile compatibility. Profiles should be defined during the design phase and should be in

place when system opens.[32] The cost of wheel and rail profile matching may be incorporated in the new vehicle and new rail costs.

Profile grinding of the rail head in combination with a wheel truing program may be the most practical approach to controlling and reducing noise and vibration where such practices are not normally conducted.

- **Maintenance program** – Clearly defined maintenance specifications should be developed during design phase of the project. The specifications should define rail and wheel profiles, include detailed guidance for pre-revenue mill scale grinding, address issues related to healthy rail-wheel interface, and include a mechanism for periodic monitoring of wheel and rail condition and verification for compliance.[32] A diligent maintenance program can often resolve or reduce rail noise issues before they occur. Vehicle reconditioning programs should also be developed particularly for components such as suspension system, brakes, wheels, and slip-slide detectors.

- **Guideway Support (Bus)** – The smoothness of the running surface is critical in the mitigation of noise from a moving vehicle.
  - **Resurfacing roads** – Roughness on the guideway can be eliminated by resurfacing roads, thereby reducing noise levels by up to 10 dB.

  - **Bridge expansion joint angles and design** – Bridge expansion joints are also a source of noise for rubber-tire vehicles. This source of noise can be reduced by placing expansion joints on an angle or by specifying the serrated type rather than joints with right-angle edges.

- **Turn Radii and Rail Lubrication** – For steel-wheel/steel-rail systems with non-steerable trucks and sharp turns, squeal can typically be eliminated by designing all turn radii to be greater than 1000 ft, or 100 times the truck wheelbase, whichever is less. If this is not possible, squeal can be mitigated by installation of lubricators (though the potential environmental impacts of lubricant application should be factored into this decision).Rail lubricators cost approximately $10,000 - $40,000 per curve.

- **Movable-point and Spring-rail Frogs** – Frogs with spring-loaded mechanisms and frogs with movable points can reduce impact noise near crossovers. According to the TCRP report, a spring frog costs approximately $12,000, twice the cost of a standard frog. A movable point frog involves elaborate signal and control circuitry resulting in higher costs of approximately $200,000.

- **Use of Locomotive Horns at-grade Crossings and Quiet Zones** – In cases where commuter rail operations share tracks or ROW with freight or intercity passenger trains that are part of the general railroad system, the safety rules of the FRA, including the Train Horn Rule, apply.[35] The Train Horn Rule requires that locomotive horns be sounded at public highway grade crossings, although some exceptions are allowed in carefully defined circumstances. Locomotive horns are often a major contributor in

projections of adverse noise impact, in the community from proposed commuter rail projects. Since noise barriers are not feasible at highway-rail grade crossings, the establishment of quiet zones could be considered.

Quiet zones can be established in which supplemental safety measures (SSMs) are used in place of the locomotive horn to provide an equivalent level of safety at-grade crossings.[vii] By adopting an approved SSM at each public grade crossing, a quiet zone of at least a half-mile long can be established. These measures are in addition to the standard safety devices required at most public grade crossings (e.g., stop signs, reflectorized crossbucks, flashing lights with gates that do not completely block travel over the tracks). Below are four SSMs that have been predetermined by the FRA to fully compensate for the lack of a locomotive horn:

- **Temporary closure of a public highway-rail grade crossing** – This measure requires closure of the grade crossing for one period each 24 hours, and the closure must occur at the same time each day.
- **Four-quadrant gate system** – This measure involves the installation of at least one gate for each direction of traffic to fully block vehicles from entering the crossing.
- **Gates with medians or channelization devices** – This measure keeps traffic in the proper travel lanes as it approaches the crossing. This denies the driver the option of circumventing the gates by traveling in the opposing lane.
- **One-way street with gates** – This measure consists of one-way streets with gates installed, so that all approaching travel lanes are completely blocked.

In addition to the pre-approved SSMs, the FRA rule also identifies a range of other measures that may be used in establishing a quiet zone. These could include modified SSMs or non-engineering types of measures, such as increased monitoring by law enforcement for grade crossing violations or instituting public education and awareness programs that emphasize the risks associated with grade crossings and applicable requirements. These alternative safety measures (ASMs) require approval by FRA based on a demonstration that public safety would not be compromised by eliminating horn usage.

The lead agency for designating a quiet zone is the local public authority responsible for traffic control and law enforcement on the roads crossing the tracks. To satisfy the FRA regulatory requirements, the public transit agency must work closely with this agency while also coordinating with any freight or passenger railroad operator sharing the ROW. The final environmental document should discuss the main considerations in adopting the quiet zone including: the engineering feasibility, receptiveness of the local public authority, consultation with the railroad, preliminary cost estimates, and evidence of the planning and interagency coordination that has occurred to date. If a quiet zone will be relied on as a mitigation measure, the final environmental document should provide reasonable

[vii] For more information on quiet zones, visit: https://www.fra.dot.gov/Page/P0889.

assurance that any remaining issues can and will be resolved. For more information on documentation requirements see Section 8.

The cost of establishing a quiet zone varies considerably, depending on the number of intersections that must be treated and the specific SSMs, ASMs, or combination of measures that are used. The FRA gives a cost estimate of $15,000 per crossing for installing two 100-foot-long, non-traversable medians that prevent motorists from driving around closed gates. A typical installation of a four-quadrant gate system is in the range of $175,000–$300,000 per crossing.(36) Who pays for the installation of modifications can become a major consideration in a decision to pursue a quiet zone designation, especially in cases where noise from preexisting railroad operations is controversial in the community. In many cases where a quiet zone would mitigate a severe impact caused by the proposed transit project, the costs are covered by the project sponsor and FTA in the same proportion as the overall cost-sharing for the project.

7b. Evaluate Path Treatments – When noise mitigation treatments cannot be applied at the noise source or additional mitigation is required after treating the source, the next preferred placement of noise mitigation is along the noise propagation path between the source and receiver. Common path treatments and their estimated acoustical effectiveness are included in Table 4-34 and described below.

Table 4-34 Transit Noise Mitigation Measures – Path Treatments

Mitigation Measure	Effectiveness
Noise barriers close to vehicles	6-15 dB
Noise barriers at row line	3-15 dB(37)
Alteration of horizontal & vertical alignments	Varied
Wayside horns	Varied
Acquisition of buffer zones	Varied
Ballast on at-grade guideway*	3 dB
Ballast on aerial guideway*	5 dB
Resilient track support on aerial guideway	Varied
Vegetation and trees	Varied, see Table 4-30

* Applies to rail projects only.

- **Noise Barriers** – Noise barriers are effective in mitigating noise when they break the line-of-sight between source and receiver. The mechanism of sound shielding is described in Section 3.3. The necessary height of a barrier depends on the source height and the distance from the source to the barrier, see Table 4-28 and Figure 4-18.
  - **Noise barriers close to vehicles** – Barriers located very close to a rapid transit train, for example, may only need to be approximately 3 to 4 ft above the top of rail to be effective. Standard barriers close to vehicles can provide noise reductions of 6 to 10 dB.
  - **Noise barriers at ROW line –** Barriers on the ROW line or for trains on the far track, the height must be increased to provide equivalent effectiveness to barriers located close to the vehicles. Otherwise, the effectiveness can drop to 3 dB or less, even if the barrier breaks the line-of-sight.

All barrier effectiveness can be increased by as much as 5 dB by applying sound-absorbing material to the inner surface of the barrier. The length of the barrier wall is also important to its effectiveness. The barrier must be long enough to block noise from a moving train along most of its visible path. This is necessary so that train noise from beyond the ends of the barrier will not severely compromise noise-barrier performance at noise-sensitive locations. The barrier length can be refined in the engineering phase, closely examining the predicted sound level exceedances at specific receivers, site geometries, and the contribution of barrier flanking noise, then adjusting the length as appropriate.

Noise barriers can be made of any outdoor weather-resistant solid material that meets the minimum sound transmission loss required by the project. Materials that are commonly used for noise barriers include 16-gauge steel, 1-inch thick plywood, and any reasonable thickness of concrete. Typically, a surface density of 4 pounds per square foot is required. Areas with strong winds may require more stringent structural requirements. It is critical to seal any gaps between barrier panels and between the barrier and the ground or elevated guideway deck for maximum performance.

Costs for noise barriers (based on highway installations) range from $20 to $25 per square foot of installed noise barrier at-grade with additional cost for design and inspection.[38] Installation on aerial structures could be twice the amount of installation at-grade, especially if the structure has to be strengthened to accommodate the added weight and wind load.

As described in Section 3.3, noise barriers, if not designed and sited carefully, can reduce visibility of trains for pedestrians and motorists, which causes safety concerns. It is important to consult with safety experts in choosing and siting a noise barrier.

- **Alteration of Horizontal and Vertical Alignments** – Transit alignment in a cut as part of grade separation can accomplish the same result as installation of a noise barrier at-grade or on aerial structure. The walls of the cut serve the same function as barrier walls in breaking the line-of-sight between source and receiver.

- **Wayside Horns** – The sounding of a locomotive horn as the train approaches an at-grade intersection produces a very wide noise footprint in the community. Using wayside horns at these intersections instead of the locomotive horn can substantially reduce the noise footprint without compromising safety at the grade crossing.

  A wayside horn does not need to be as loud as a locomotive horn, and the warning sound is focused only on the area where it is needed. These are pole-mounted horns used in conjunction with flashing lights and gates at the intersection, with a separate horn oriented toward each direction of oncoming vehicle traffic. Noise levels in nearby residential and business areas can be reduced substantially with wayside horns, depending on the location with respect to the grade crossing.

A plan to use wayside horns in place of the locomotive horn at public grade crossings must be coordinated with several public and private entities, notably the local agency having responsibility for traffic control and law enforcement on the road crossings, the state agency responsible for railroad safety, any railroads that share the ROW, and FRA. Public notification must also be given. Preliminary cost information from testing programs indicates a wayside horn system at a railroad/highway grade crossing costs approximately $50,000.

- **Buffer Zones** – Because noise levels attenuate with distance, one noise mitigation option is to increase the distance between noise sources and the closest noise-sensitive receivers. This can be accomplished by locating alignments away from noise-sensitive sites. Acquisition of land or purchasing easements for noise buffer zones is an option that may be considered if appropriate for the project.

- **Ground Absorption – Ballast on Guideways** – Propagation of noise over ground is affected by whether the ground surface is absorptive or reflective. Noise from vehicles on the surface is strongly affected by the character of the ground in the immediate vicinity of the vehicle. Roads and streets for buses are hard and reflective, but the ground at the side of a road has a substantial effect on the propagation of noise to greater distance. Guideways for rail systems can be either reflective or absorptive, depending on whether they are concrete or ballast. Ballast on a guideway can reduce train noise 3 dB at-grade and up to 5 dB on an aerial structure.

- **Vegetation and Trees** – In almost all cases, vegetation and trees are ineffective at providing noise mitigation. Vegetation and Trees can provide some mitigation if at least 100 ft of trees intervene between the source and receiver, if no clear line-of-sight exists between the source and receiver, and if the trees extend 15 ft or more above the line-of-sight as described in Section 4.5, Step 3b. This is generally not a recommended form of mitigation to pursue.

7c. Evaluate Receiver Treatments – Consider treatments to the receivers when noise mitigation treatments cannot be applied at the source or along the propagation path, or if combinations of treatments are required. Common receiver treatments and their estimated acoustical effectiveness are included in Table 4-35 and are described in this section.

Table 4-35 Transit Noise Mitigation Measures – Receiver Treatments

Mitigation Measure	Effectiveness
Acquisition of Property Rights for Construction of Noise Barriers	5-10 dB
Building Noise Insulation	5-20 dB

- **Noise Barriers** – In certain cases, it may be possible to acquire limited property rights for the construction of noise barriers at the receiver. As discussed above, barriers need to break the line-of-sight between the noise source and the receiver to be effective and are most effective when they are

closest to either the source or the receiver. See Section 3.3 for more information on noise barriers.

- **Building Insulation** – In cases where noise barriers are not feasible—such as multi-story buildings, buildings very close to the ROW, or grade crossings—the only practical noise mitigation measure may be to provide sound insulation for the buildings. In these cases, the need for mitigation at locations where impact has been identified will depend on the use (outdoor vs. indoor), any existing outdoor to indoor reduction in noise levels, and the feasibility of constructing effective noise barriers for second stories and above.

  Depending on the quality of the original building façade, especially windows and doors, sound insulation treatments can improve the noise reductions from transit noise by 5 to 20 dB. To be considered cost-effective, a treatment should provide a minimum reduction of 5 dB in the interior of the building and meet the L_{dn} 45 dBA interior criterion. For more information, see Section 4.1.

  In many cases, especially in locations with high ambient noise levels, the existing sound insulation of a building may already meet the 45 dBA L_{dn} interior noise criterion. It is recommended that sound insulation testing be conducted to determine if the existing sound insulation is sufficient or what additional measures would be required to meet the interior criterion. Effective treatments include:
  - Caulking and sealing gaps in the building façade; and
  - Installation of new doors and windows that are specially designed to meet acoustical transmission-loss requirements:
    - Exterior doors facing the noise source should be replaced with well-gasketed, solid-core wood doors and well-gasketed storm doors.
    - Acoustical windows are typically made of multiple layers of glass with air spaces between to provide noise reduction. Acoustical performance ratings are published in terms of Sound Transmission Class (STC) for these windows. It is recommended to use a minimum STC rating of 39 on any window exposed to the noise source.

  These treatments are beneficial for heat insulation as well as for sound insulation, but acoustical windows are typically non-operable and central ventilation or air conditioning is needed. Residents' preferences should be considered.

  If needed, additional building sound insulation can be provided by sealing vents and ventilation openings and relocating them to a side of the building away from the noise source. In cases where the noise sources is low-frequency noise from diesel locomotives, it may be necessary to increase the mass of the building façade for wood-frame houses by adding a layer of sheathing to the exterior walls.

Examples of residential sound insulation for rail or highway projects are limited. However, much practical experience with sound insulation of buildings has been gained through grants for noise mitigation to local airport authorities by FAA.

SECTION

5

Transit Vibration

This section presents the basic concepts of transit ground-borne vibration, also referred throughout this manual as simple "vibration," and low-frequency groundborne-noise that sometimes results from vibration. The steps for the screening and assessing of potential vibration impacts of transit projects for FTA NEPA approval are described in the following sections.

The Source-Path-Receiver framework for ground-borne vibration for a rail system illustrated in Figure 5-1 is central to all environmental vibration studies. The train wheels rolling on the rails create vibration energy that is transmitted through the track support system into the transit structure. The vibration of the transit structure excites the adjacent ground, creating vibration waves that propagate through the ground and into nearby buildings creating ground-borne vibration effects that potentially interfere with activities. The vibrating building components may radiate sound, which this manual refers to as ground-borne noise. Airborne noise from transit sources is covered in Sections 2.3–4.5 of this manual. Ground-borne noise refers to the noise generated by ground-borne vibration.

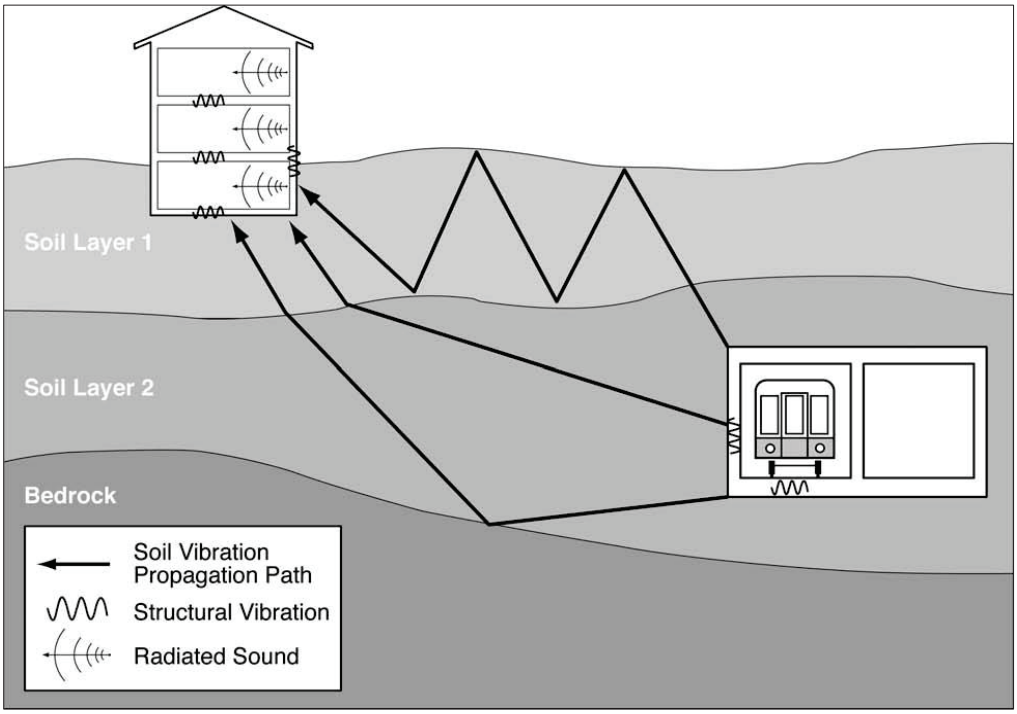


Figure 5-1 Propagation of Ground-Borne Vibration into Buildings

This section contains the following:

- Section 5.1 The ground-borne vibration and noise metrics used in this manual
- Section 5.2 An overview of transit vibration sources

- Section 5.3 An overview of transit vibration paths
- Section 5.4 An overview of receiver factors of transit vibration and a discussion of the technical background for ground-borne noise criteria

5.1 Ground-Borne Vibration and Noise Metrics

Vibration is an oscillatory motion that can be described in terms of the displacement, velocity, or acceleration. Because the motion is oscillatory, there is no net movement of the vibration element and the average of any of the motion metrics is zero. Displacement is the most intuitive metric. For a vibrating floor, the displacement is simply the distance that a point on the floor moves away from its static position. The velocity represents the instantaneous speed of the floor movement and acceleration is the rate of change of the speed.

Although displacement is easier to understand than velocity or acceleration, it is rarely used for describing ground-borne vibration. Most transducers used for measuring ground-borne vibration use either velocity or acceleration. Furthermore, the response of humans, buildings, and equipment to vibration is more accurately described using velocity or acceleration.

This manual uses the metrics outlined in Table 5-1 for transit ground-borne vibration and noise measurements, computations, and assessment. These metrics are consistent with common usage in the United States.

Table 5-1 Ground-borne Vibration and Noise Metrics

Metric	Abbreviation	Definition
Vibration Decibels	VdB	The vibration velocity level in decibel scale.
Peak Particle Velocity	PPV	The peak signal value of an oscillating vibration velocity waveform. Usually expressed in inches/second in the United States.
Root Mean Square	rms	The square root of the arithmetic average of the squared amplitude of the signal.
A-weighted Sound Level	dBA	A-weighted sound levels represent the overall noise at a receiver that is adjusted in frequency to approximate typical human hearing sensitivity. This unit is used to characterize ground-borne noise.

The metrics in the table above are illustrated in Figure 5-2. The components in the figure include:

- **Raw signal** – This curve shows the instantaneous vibration velocity, which fluctuates positively and negatively about the zero point.

- **Peak particle velocity (PPV)** – PPV is the maximum instantaneous positive or negative peak of the vibration signal. PPV is often used in monitoring of construction vibration (such as blasting) since it is related to the stresses that are experienced by buildings and is not used to evaluate human response.

- **Root mean square (rms) velocity** – Because the net average of a vibration signal is zero, the rms amplitude is used to describe smoothed vibration amplitude. The rms of a signal is the square root of the

average of the squared amplitude of the signal. The average is typically calculated over a one-second period. The rms amplitude is always less than the PPV[viii] and is always positive. The rms amplitude is used to convey the magnitude of the vibration signal felt by the human body, in inches/second.

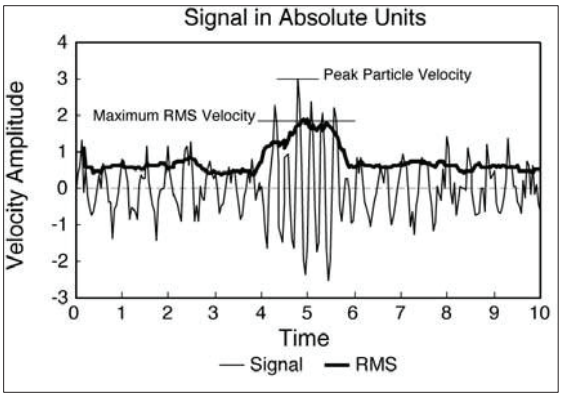


Figure 5-2 Vibration Signal in Absolute Units

The PPV and rms velocity are described in inches per second in the United States and meters per second internationally (with several different reference values). Although it is not universally accepted, vibration is commonly expressed in decibel notation. The decibel scale compresses the range of numbers required to describe vibration.

The graph in Figure 5-3 shows the rms curve from Figure 5-2 expressed in decibels.

Vibration velocity level in decibels is defined as:

$$L_v = 20 \log\left(\frac{v}{v_{ref}}\right) \qquad \textbf{Eq. 5-1}$$

where:

L_v = velocity level, VdB
v = rms velocity amplitude
v_{ref} = 1 x 10^{-6}in/sec in the USA
= 1 x 10^{-8}m/sec internationally*

*Because of the variations in the reference quantities, it is important to be clear about what reference quantity is being used when specifying velocity levels. All vibration levels in this manual are referenced to 1x10^{-6} inches/second.

[viii] The ratio of PPV to maximum rms amplitude is defined as the crest factor for the signal. The crest factor is typically greater than 1.41, although a crest factor of 8 or more is not unusual for impulsive signals. For ground-borne vibration from trains, the crest factor is usually 4 to 5.

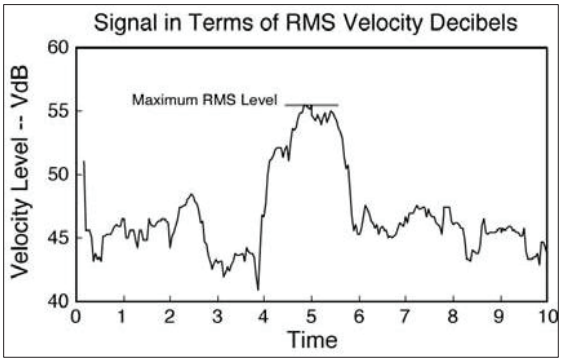


Figure 5-3 Vibration Signal in RMS Velocity Decibels

Ground-borne noise occurs when vibration radiates through a building interior and creates a low-frequency sound, often described as a rumble, as a train passes by. The annoyance potential of ground-borne noise is typically characterized with the A-weighted sound level. Although the A-weighted sound level is typically used to characterize community noise, characterizing low-frequency noise using A-weighting can be challenging because the non-linearity of human hearing causes sounds dominated by low-frequency components to seem louder than broadband sounds (sounds consisting of many frequency components, with no dominant frequencies) that have the same A-weighted level. The result is that ground-borne noise with a level of 40 dBA sounds louder than 40 dBA broadband noise. Because ground-borne noise sounds louder than broadband noise at the same noise level, the limits for ground-borne noise are lower (i.e., stricter) than would be the case for broadband noise.

5.2 Sources of Transit Ground-borne Vibration and Noise

Ground-borne vibration can be a concern for nearby neighbors of a transit system route or maintenance facility. However, in contrast to airborne noise, ground-borne vibration is not a common environmental problem. It is unusual for vibration from sources such as buses and trucks to be perceptible, even in locations close to major roads. This section discusses common sources of ground-borne vibration and noise.

Most perceptible indoor vibration is caused by sources within buildings such as operation of mechanical equipment, movement of people, or slamming of doors. Typical outdoor sources of vibration waves that propagate through the ground and create perceptible ground-borne vibration in nearby buildings include construction equipment, steel-wheeled trains, and traffic on rough roads. If the roadway is fairly smooth, the vibration from rubber-tired traffic is rarely perceptible. Building damage due to vibration is also rare for typical transportation projects; but in extreme cases, such as during blasting or pile-driving during construction, vibration could cause damage to buildings.

Figure 5-4 illustrates common vibration sources and the human and structural response to ground-borne vibration ranging from approximately 50 VdB (below

perceptibility) to 100 VdB (the threshold of potential damage). The background vibration velocity level in residential areas is usually 50 VdB or lower,[ix] and the threshold of perception for humans is approximately 65 VdB. A vibration level of 85 VdB in a residence can result in strong annoyance.

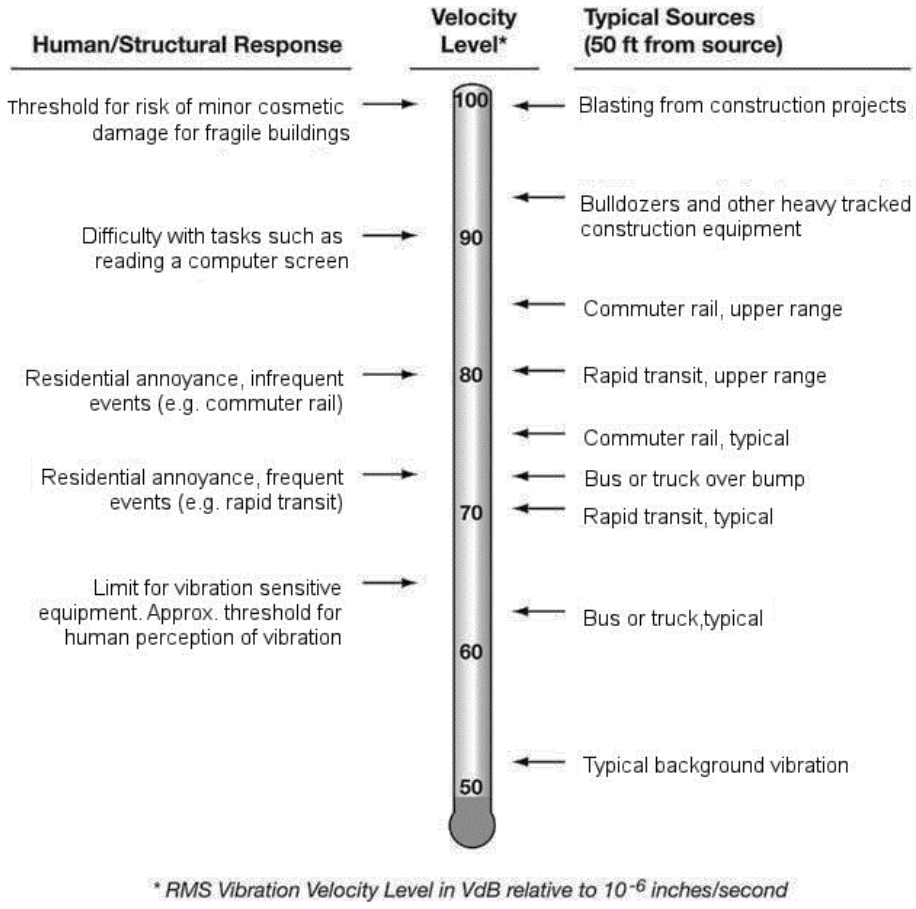


Figure 5-4 Typical Levels of Ground-Borne Vibration

Rapid transit or light rail systems typically generate vibration levels of 70 VdB or more near their tracks, while buses and trucks rarely create vibration that exceeds 70 VdB unless there are bumps due to frequent potholes in the road. Heavy locomotives on diesel commuter rail systems create vibration levels approximately 5 to 10 dB higher than rail transit vehicles.

Vibration from trains is strongly dependent on factors such as how smooth the wheels and rails are, as well as the resonance frequencies of the vehicle suspension system and the track support system. These systems, like all mechanical systems, have resonances that result in increased vibration response at certain frequencies, called natural frequencies. Unusually rough road or track, steel-wheel flats, geologic conditions that promote efficient propagation of vibration, or vehicles with very stiff suspension systems could increase typical

[ix] Background vibration is typically well below the threshold of human perception and is of concern only when the vibration affects very sensitive manufacturing or research equipment. Electron microscopes and high-resolution lithography equipment are examples of equipment that is highly sensitive to vibration.

vibration levels by approximately 10 VdB. Common factors that contribute to ground-borne vibration and noise at the source are presented in Table 5-2. These factors are discussed in more detail throughout this Section.

Table 5-2 Factors that Influence Levels of Ground-Borne Vibration and Noise at the Source

Category	Factors	Influence
Operations and Vehicles	Speed	Higher speeds result in higher vibration levels. Doubling speed results in a vibration level increase of approximately 4 to 6 dB.
	Vehicle Suspension	Stiff suspension in the vertical direction can increase the effective vibration forces. On transit cars, the primary suspension has the largest effect on vibration levels.
	Wheel Condition and Type	Wheel flats and general wheel roughness are major sources of vibration from steel wheel/steel rail systems. Resilient wheels on rail transit systems can provide some vibration reduction over solid steel wheels, but are usually too stiff to provide substantial reduction. For more information, see Section 6.4, Step 2.
Guideway	Track/Roadway Surface	Rough track or rough roads are often sources of excessive vibration. Maintaining a smooth surface will reduce vibration levels.
	Track Support System	On rail systems, the track support system is one of the major components in determining the levels of vibration. The highest vibration levels are created by track that is rigidly attached to a concrete trackbed (e.g., track on wood half-ties embedded in the concrete). The vibration levels are much lower when special vibration control track systems such as resilient fasteners, ballast mats, and floating slabs are used.
	Transit Structure	Heavier transit structures typically result in the lower vibration levels. The vibration levels from a lightweight bored tunnel will usually be higher than from a poured concrete box subway.
	Transit System Elevation	A rail system guideway will be either underground (subway), at-grade, or elevated, with substantial differences in the vibration characteristics at each elevation. ▪ Underground: vibration is typically the most important environmental factor of interest. ▪ At-grade: airborne noise is typically the dominant factor, although vibration and noise can be a problem, particularly at interior locations well isolated from exterior noise. ▪ Elevated: it is rare for vibration to be an issue with elevated railways except when guideway supports are located within 50 ft of buildings.

Brief discussions of ground-borne vibration and noise sources for different modes of transit are provided below.

At-Grade Heavy Rail and Light Rail

Ground-borne vibration and noise from urban heavy rail and LRT is common when there is less than 50 ft between the track and building foundations. Local geology and structural details of the building determine if the source of complaints is due to perceptible vibration or audible ground-borne noise. Complaints about ground-borne vibration from surface track are more common than ground-borne noise complaints. A substantial percentage of complaints about both ground-borne vibration and noise correlate with proximity of special track work, rough or corrugated track, or wheel flats. Light rail systems tend to generate fewer complaints than heavy rail due to lower operating speeds.

Commuter and Intercity Passenger Trains

There is the potential for vibration-related issues when new commuter or intercity rail passenger service (including electric multiple units (EMUs) and diesel multiple units (DMUs)) powered by either diesel or electric locomotives is introduced in an urban or suburban area. Commuter and intercity passenger trains have similar characteristics, but commuter trains typically operate on a more frequent schedule. These passenger trains often share track with freight trains, which have different vibration characteristics as discussed below.

Freight Trains

Local and long-distance freight trains are similar in that they both are diesel-powered and have the same types of cars. They differ in their overall length, number and size of locomotives, and number of heavily loaded cars. However, because locomotive suspensions are similar, the maximum vibration levels of local and long-distance freights are similar. Locomotives and rail cars with wheel flats are the sources of the highest vibration levels.

If the transit project does not in any way change the freight service, tracks, etc., then vibration from the freight line would be part of the existing conditions and need to be considered in terms of cumulative impacts (see Section 6.2, Step 3 on how to consider cumulative impacts). If the project results in changes to the freight path, operations, frequency, etc. (e.g., relocating freight tracks within the ROW to make room for the transit tracks) then those potential impacts and mitigation should be evaluated as part of the proposed project. However, note that vibration mitigation is very difficult to implement on tracks where freight trains with heavy axle loads operate.

High-Speed Passenger Trains

Passenger trains travelling at high speeds, 90 to 250 miles per hour, have the potential for creating high levels of ground-borne vibration. Ground-borne vibration should be anticipated as one of the major environmental impacts of any trains travelling at high speeds located in an urban or suburban area.[x] For projects that are specifically high-speed transportation refer to the FRA "High-Speed Ground Transportation Noise and Vibration Impact Assessment" guidance manual.[39]

AGT Systems

AGT systems include a wide range of transportation vehicles that provide local circulation in downtown areas, airports, and theme parks. Because AGT systems normally operate at low speeds, have lightweight vehicles, run on elevated structures, and rarely operate in vibration-sensitive areas, ground-borne vibration problems are very rare.

Subway and At-grade Track

While ground-borne vibration produced from trains operating subway and at-grade track have very different characteristics, they have comparable overall vibration velocity levels. Complaints about ground-borne vibration are often more common near subways than near at-grade track. This is not because

[x] Amtrak trains (branded Acela at the time of publication) on the Northeast Corridor between Boston and Washington, DC, which attain moderate to high speeds in some sections with improved track, fit into this category.

subways create higher vibration levels than at-grade systems, rather because subways are usually located in more densely developed areas in closer proximity to building foundations, and the airborne noise is usually a more serious problem for at-grade systems than the ground-borne vibration. Another difference between subway and at-grade track is that the ground-borne vibration from subways tends to be higher frequency than the vibration from at-grade track, which makes the ground-borne noise more noticeable.

Streetcars

Complaints about ground-borne vibration from street cars are uncommon given that streetcars typically operate at very low speeds (less than 25 mph).

Buses

Because the rubber tires and suspension systems of buses provide vibration isolation, it is unusual for buses to cause ground-borne vibration or noise problems. For most issues with bus-related vibration, such as rattling of windows, the cause is almost always airborne noise and directly related to running surface conditions such as potholes, bumps, expansion joints, or other discontinuities in the road surface (usually resolved by smoothing the discontinuities).

Buses operating inside buildings will likely cause vibration concerns for other building inhabitants. An example of this situation is a bus transfer station in the same building as commercial office space. Sudden loading of a building slab by a heavy moving vehicle or by vehicles running over lane divider bumps can cause intrusive building vibration.

5.3 Paths of Transit Ground-Borne Vibration and Noise

Vibration travels from the source through the transit structure and excites the adjacent ground, creating vibration waves that propagate through soil layers and rock strata to the foundations of nearby buildings. The vibration then propagates from the foundation throughout the remainder of the building structure. The vibration of the building structure and room surfaces can radiate a low-frequency rumble called ground-borne noise (Figure 5-1).

Soil and subsurface conditions are known to have a strong influence on the levels of ground-borne vibration. Among the most important factors are the stiffness and internal damping of the soil and the depth to bedrock. Vibration propagation is more efficient in stiff clay soils. Shallow rock may concentrate the vibration energy close to the surface, resulting in ground-borne vibration problems at large distances from the track. Factors such as soil layers and depth to water table can have substantial effects on the propagation of ground-borne vibration. These factors are summarized in Table 5-3.

Table 5-3 Factors that Influence Levels of Ground-borne Vibration and Noise along Path

Geology Factors	Influence
Soil type	Vibration levels are generally higher in stiff clay-type soil than in loose sandy soil.
Rock layers	Vibration levels are usually high near at-grade track when the depth to bedrock is 30 ft or less. Subways founded in rock will result in lower vibration amplitudes close to the subway. Vibration levels do not attenuate as rapidly in rock as in soil.
Soil layering	Soil layering can have a substantial effect on the vibration levels since each stratum can have considerably different dynamic characteristics.
Depth to water table	The presence of the water table may have a substantial effect on vibration, but a definite relationship has not been established.

5.4 Receiver Factors that Influence Ground-Borne Vibration and Noise

Ground-borne vibration is a concern almost exclusively inside buildings. Train vibration may be perceptible to people who are outdoors, but it is very rare for outdoor vibration to cause complaints.

The vibration levels inside a building are dependent on the vibration energy that reaches the building foundation, coupling of the building foundation to the soil, and propagation of the vibration through the building. In general, the heavier a building is, the lower the response will be to the incident vibration energy. Common factors that contribute to ground-borne vibration and noise at the receiver are presented in Table 5-4.

Table 5-4 Factors that Influence Levels of Ground-Borne Vibration and Noise at the Receiver

Receiver Building Factors	Influence
Foundation type	The heavier the building foundation, the greater the coupling loss as the vibration propagates from the ground into the building.
Building construction	Each building has different characteristics relative to structure-borne vibration, but, in general, the heavier the building, the lower the levels of vibration. The maximum vibration amplitudes of the floors and walls of a building will often occur at the resonance frequencies of the components of the building.
Acoustical absorption	The more acoustically absorptive materials in the receiver room, the lower the ground-borne noise level. Note that because ground-borne noise usually is a low-frequency phenomenon, it is affected by low-frequency absorption (e.g., below 250 Hz).

5.5 Human Response to Transit Ground-borne Vibration and Noise

This section contains an overview of human receiver response to ground-borne vibration and noise. It serves as background information for the vibration impact criteria in Section 6.2.

The effects of ground-borne vibration can include perceptible movement of floors in buildings, rattling of windows, shaking of items on shelves or hanging on walls, and low-frequency noise (ground-borne noise). Building damage is not a

factor for typical transportation projects, but in extreme cases, such as during blasting or pile-driving during construction, vibration could cause damage to buildings. Although the perceptibility threshold is approximately 65 VdB, human response to vibration is not usually substantial unless the vibration exceeds 70 VdB (Figure 5-4). A vibration level that causes annoyance is well below the damage risk threshold for typical buildings (100 VdB).

Ground-borne vibration is almost never a problem outdoors. Although the motion of the ground may be perceived, without the effects associated with the shaking of a building, the motion does not provoke the same adverse human reaction. Ground-borne noise that accompanies the building vibration is usually perceptible only inside buildings and typically is only an issue at locations with subway or tunnel operations where there is no airborne noise path or for buildings with substantial sound insulation such as a recording studio.

One of the challenges in developing suitable criteria for ground-borne vibration is that there has been relatively little research into human response to vibration and, specifically, human annoyance with building vibration. The American National Standards Institute (ANSI) developed criteria for evaluation of human exposure to vibration in buildings in 1983,[40] and the International Organization for Standardization (ISO) adopted similar criteria in 1989[41] and revised them in 2003.[42] The 2003 version of ISO 2631-2 acknowledges that "human response to vibration in buildings is very complex." It further indicates that the degree of annoyance cannot always be explained by the magnitude of the vibration alone. In some cases, complaints are associated with measured vibration that is lower than the perception threshold. Other phenomena such as ground-borne noise, rattling, visual effects such as movement of hanging objects, and time of day (e.g., late at night) all play some role in the response of individuals. To understand and evaluate human response, which is often measured by complaints, all of these related effects need to be considered.

Figure 5-5 illustrates the relationship between the vibration velocity level measured in 22 homes and the general response of the occupants to the vibration from measurements performed for several transit systems along with subjective ratings by researchers and residents. These data are published in the "State-of-the-Art Review of Ground-borne Noise and Vibration."[43] The figure also includes a curve representing the percent of people annoyed by vibration from high-speed trains from a Japanese study for comparison.[44]

Both the occupants and the people who performed the measurements agreed that floor vibration in the Distinctly Perceptible range is unacceptable for a residence. The data indicates that residential vibration exceeding 75 VdB is unacceptable for a repetitive vibration source such as rapid transit trains that pass every 5 to 15 minutes. The results from the Japanese study confirm the conclusion that at a vibration velocity level of 75 to 80 VdB, many people will find the vibration annoying. A Transportation Research Board (TRB) study of human response to vibration from 2009 also supports this finding and indicates that incidence of complaints fall rapidly with a level decreasing below 72 VdB.[42][45]

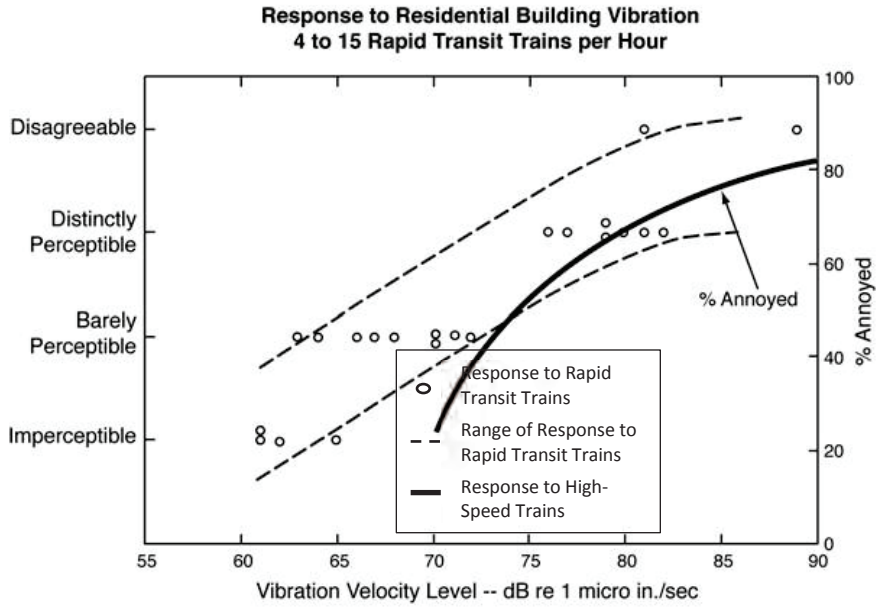


Figure 5-5 Response to Transit-Induced Residential Vibration

Table 5-5 presents the human response to different levels of ground-borne vibration and noise on which the criteria presented in Section 6.2 are based. The vibration level (VdB) is presented with the corresponding frequency assuming that the vibration spectrum peaks at 30 Hz or 60 Hz.[xi] The ground-borne noise levels (dBA) are estimated for the specified vibration velocity with a peak vibration spectrum of 30 Hz (Low Freq) and 60 Hz (Mid Freq). Note that the human response differs for vibration velocity level based on frequency. For example, the noise caused by vibrating structural components may cause annoyance even though the vibration cannot be felt. Alternatively, a low-frequency vibration can cause annoyance while the ground-borne noise level it generates does not.

[xi] The A-weighted level of ground-borne noise can be estimated by applying A-weighting to the vibration velocity spectrum and by subtracting an additional 5 dB for a room with average acoustical absorption. Since the A-weighting at 31.5 Hz is -39.4 dB, if the vibration spectrum peaks at 30 Hz, the A-weighted sound level will be approximately 40 dB lower than the velocity level. If the vibration spectrum peaks at 60 Hz, the A-weighted sound level will be approximately 25 dB lower than the velocity level.

Table 5-5 Human Response to Different Levels of Ground-Borne Vibration and Noise

Vibration Velocity Level	Noise Level		Human Response
	Low Freq*	Mid Freq**	
65 VdB	25 dBA	40 dBA	Approximate threshold of perception for many humans. Low-frequency sound: usually inaudible. Mid-frequency sound: excessive for quiet sleeping areas.
75 VdB	35 dBA	50 dBA	Approximate dividing line between barely perceptible and distinctly perceptible. Many people find transit vibration at this level annoying. Low-frequency noise: tolerable for sleeping areas. Mid-frequency noise: excessive in most quiet occupied areas.
85 VdB	45 dBA	60 dBA	Vibration tolerable only if there are an infrequent number of events per day. Low-frequency noise: excessive for sleeping areas. Mid-frequency noise: excessive even for infrequent events for some activities.

*Approximate noise level when vibration spectrum peak is near 30 Hz.
**Approximate noise level when vibration spectrum peak is near 60 Hz.

SECTION 6

Vibration Impact Analysis

The FTA vibration impact analysis process is a multi-step process used to evaluate a project for potential vibration impacts. If impact is determined, measures necessary to mitigate adverse impacts are to be considered for incorporation into the project.[3]

The FTA vibration impact analysis steps are summarized as follows and are described in the following sections:

6.1 Determine vibration analysis level.

6.2 Determine vibration impact criteria.
- **Option A:** General Vibration Assessment Criteria
- **Option B:** Vibration Impact Criteria for a Detailed Vibration Analysis

6.3 Evaluate Impact: Vibration Screening Procedure
- **Step 1:** Classify project vehicles.
- **Step 2:** Determine project type.
- **Step 3:** Determine screening distance.
- **Step 4:** Identify vibration-sensitive land uses.

6.4 Evaluate Impact: General Vibration Assessment.
- **Step 1:** Select base curve for ground surface vibration level.
- **Step 2:** Apply adjustments.
- **Step 3:** Inventory vibration impact.

6.5 Evaluate Impact: Detailed Vibration Analysis
- **Step 1:** Characterize Existing Vibration
- **Step 2:** Estimate Vibration Impact
- **Step 3:** Assess Vibration Impacts
- **Step 4:** Determine Vibration Mitigation Measures

A similar process for the noise impact analysis is presented in Section 4. After the noise and vibration analyses have been completed, assess construction noise and vibration according to Section 7 and document findings according to Section 8.

6.1 Determine Vibration Analysis Level

There are three levels of analysis to assess the potential ground-borne vibration and noise impacts resulting from a public transportation project. The appropriate level of analysis varies by project based on the type and scale of the project, the stage of project development, and its environmental setting. These three levels are: the Vibration Screening Procedure, the General Vibration Assessment, and the Detailed Vibration Analysis. These levels of vibration analysis mirror the levels of noise analysis discussed in Section 4.2.

The Vibration Screening Procedure, performed first, defines the study area of any subsequent vibration impact assessment. Where there is potential for

impact, the General Vibration Assessment and Detailed Vibration Analysis procedures are used to determine the extent and severity of impact. In some cases, a General Vibration Assessment may be all that is needed. However, if the proposed project is near noise-sensitive land uses and it appears at the outset that the impact would be substantial, it is prudent to conduct a Detailed Vibration Analysis.

The methods for analyzing transit vibration are consistent with those described in recognized handbooks and international standards.[46][47]

Conduct the vibration screening procedure and then determine the appropriate vibration analysis option:

Vibration Screening Procedure – The Vibration Screening Procedure is a simplified method of identifying the potential for vibration impact from transit projects. The Vibration Screening Procedure is applicable to all types of transit projects and does not require any specific knowledge about the vibration characteristics of the system or the geology of the area. This procedure uses simplified assumptions and considers the type of project and the presence or absence of vibration-sensitive land uses within a screening distance that has been developed to identify most potential vibration impacts. If no vibration-sensitive land uses are present within the defined screening distance, then no further vibration assessment is necessary.

The Vibration Screening Procedure steps are provided in Section 6.3, Step 1.

General Vibration Assessment – The General Vibration Assessment is used to examine potential impacts to vibration-sensitive land use areas identified in the screening step more closely. It uses generalized information likely to be available at an early stage in the project development process and during the development of most environmental documents.

Vibration levels at receivers are determined by estimating the overall vibration velocity level and A-weighted ground-borne noise levels as a function of distance from the track and applying adjustments to account for factors such as track support systems, vehicle speed, type of building, and track and wheel conditions.

A General Vibration Assessment is sufficient for the environmental review of many projects, including projects that compare transit modal alternatives or relocate a crossover or turnout. The General Vibration Assessment may also be sufficient if it results in a commitment to mitigation that eliminates the vibration impacts, such as a change in transit mode or alignment. However, if impact is identified through the General Vibration Assessment procedures and not mitigated, a Detailed Vibration Analysis of the selected alternative must be completed. Most vibration mitigation measures can only be specified after a Detailed Vibration Analysis has been done.

The General Vibration Assessment procedure is provided in Section 6.3, Step 2.

Detailed Vibration Analysis – The Detailed Vibration Analysis procedure is a comprehensive assessment method that produces the most accurate estimates

of vibration impact for a proposed project and is often accomplished during the engineering phase of a project when there are sufficient data identifying potential adverse vibration impacts from the project. However, a Detailed Vibration Analysis may be warranted earlier in the environmental review process if there are potentially severe impacts due to the proximity of vibration-sensitive land uses. This type of assessment requires professionals with experience in performing and interpreting vibration propagation tests.

A Detailed Vibration Analysis may not be necessary for all segments of a project. Generalized prediction curves from the General Vibration Assessment procedures may be sufficient for most of the alignment, and the Detailed Vibration Analysis procedure may only need to be applied to particularly sensitive receivers (Section 6.3). Note that a Detailed Vibration Analysis is typically required when designing special track-support systems such as floating slabs or ballast mats. These and other costly vibration mitigation measures can only be specified after a Detailed Vibration Analysis has been done in the engineering phase of the project.

The Detailed Vibration Analysis procedure is presented in Section 6.3, Step 3.

6.2 Determine Vibration Impact Criteria

Use the FTA criteria presented in this section when conducting a General Vibration Assessment or a Detailed Vibration Assessment. Like noise, the sensitivity to vibration varies by land use type, and the criteria represent these sensitivities. These criteria are based on national and international standards,[38][39][48] as well as experience on human response to building vibration. See Section 5.5 for additional background information on the development of FTA vibration criteria. The criteria for environmental impact from ground-borne vibration and noise are based on the maximum root-mean-square (rms) vibration velocity levels for repeated events of the same source.

Determine the appropriate criteria based on the level of analysis (Section 6.1). The impact criteria for the General Vibration Assessment are presented in Option A, and the impact criteria for the Detailed Vibration Analysis are presented in Option B.

Option A: General Vibration Assessment Criteria

Determine the land use according to Step 1 and the frequency of events according to Step 2. The impact criteria for the General Vibration Analysis are presented in Step 3.

Step 1: Land Use Categories

Determine the appropriate land use category for the receiver of vibration impacts of the project or project segment. Sensitive land use categories for vibration assessment are presented in Table 6-1 in order of sensitivity. Consider indoor use of the buildings when determining land use categories for ground-borne vibration and noise, since impact is experienced indoors.

Table 6-1 Land Use Categories for General Vibration Assessment Impact Criteria

Land Use Category	Land Use Type	Description of Land Use Category
-	Special Buildings	This category includes special-use facilities that are very sensitive to vibration and noise that are not included in the categories below and require special consideration. However, if the building will rarely be occupied when the source of the vibration (e.g., the train) is operating, there is no need to evaluate for impact. Examples of these facilities include concert halls, TV and recording studios, and theaters.
1	High Sensitivity	This category includes buildings where vibration levels, including those below the threshold of human annoyance, would interfere with operations within the building. Examples include buildings where vibration-sensitive research and manufacturing* is conducted, hospitals with vibration-sensitive equipment, and universities conducting physical research operations. The building's degree of sensitivity to vibration is dependent on the specific equipment that will be affected by the vibration. Equipment moderately sensitive to vibration, such as high resolution lithographic equipment, optical microscopes, and electron microscopes with vibration isolation systems are included in this category.** For equipment that is more sensitive, a Detailed Vibration Analysis must be conducted.
2	Residential	This category includes all residential land use and buildings where people normally sleep, such as hotels and hospitals. Transit-generated ground-borne vibration and noise from subways or surface running trains are considered to have a similar effect on receivers.***
3	Institutional	This category includes institutions and offices that have vibration-sensitive equipment and have the potential for activity interference such as schools, churches, doctors' offices. Commercial or industrial locations including office buildings are not included in this category unless there is vibration-sensitive activity or equipment within the building. As with noise, the use of the building determines the vibration sensitivity.

* Manufacturing of computer chips is an example of a vibration-sensitive process.
** Standard optical microscopes can be impacted at vibration levels below the threshold of human annoyance.
*** Even in noisy urban areas, the bedrooms will often be in quiet buildings with effective noise insulation. However, ground-borne vibration and noise are experienced indoors, and building occupants have practically no means to reduce their exposure. Therefore, occupants in noisy urban areas are just as likely to be exposed to ground-borne vibration and noise as those in quiet suburban areas.

- **Ground-borne Vibration** – Locations with equipment that is highly-sensitive to vibration should be included in category 1 or assessed using the Detailed Vibration Analysis procedures (Section 6.3, Step 3) and criteria (Section 6.2, Option B) or specific criteria of the equipment manufacturer.

  Most computer installations or telephone switching equipment is not considered sensitive to vibration. Although the owners of this type of equipment often are concerned with the potential for ground-borne vibration interrupting smooth operation of their equipment, it is rare for computer or other electronic equipment to be particularly sensitive to vibration. This type of equipment is typically designed to operate in common building environments where the equipment may experience occasional disturbances and continuous background vibration caused by other equipment.

- **Ground-borne Noise** – Ground-borne noise is typically only assessed at locations with subway or tunnel operations where there is no airborne noise path, or for buildings with substantial sound insulation such as a recording studio. For typical buildings with at-grade or elevated transit operations, the interior airborne noise levels are often higher than the

ground-borne noise levels. For interior rooms or other special cases, ground-borne noise may need to be assessed.

Step 2: Identify Event Frequency

Determine the appropriate frequency of events for the project or project segment.

Community response to vibration correlates with the frequency of events and, intuitively, more frequent events of low vibration levels may evoke the same response as fewer high vibration level events. This effect is accounted for in the ground-borne vibration and noise impact criteria by characterizing projects by frequency of events. Event frequency definitions are presented in Table 6-2.

Table 6-2 Event Frequency Definitions

Category	Definition	Typical Project Types
Frequent Events	More than 70 events per day	Most rapid transit
Occasional Events	30–70 events per day	Most commuter trunk lines
Infrequent Events	Fewer than 30 events per day	Most commuter rail branch lines

Step 3: Apply Impact Criteria by Land Use and Event Frequency

Select the appropriate impact criteria for ground-borne vibration and noise based on the previously identified land use categories and frequency of events. It is also important to consider the time of vibration sensitivity. If the building is not typically occupied when the vibration source (e.g., train) is operating, it is not necessary to consider impact.

The criteria in this section are appropriate for assessing human annoyance or interference with vibration-sensitive equipment for common projects. While not typical, existing conditions, freight train operations, and building damage may require consideration.

- **Existing Conditions** – The criteria in this section do not consider existing conditions. In most cases, the existing environment does not include a substantial number of perceptible ground-borne vibration or noise events. However, existing conditions must be evaluated in some cases, such as for projects located in an existing rail corridor. For criteria considering existing conditions, see Step 3b.

- **Freight Train Operations** – The criteria are primarily based on experience with passenger train operations. Passenger train operations (rapid transit, commuter rail, and intercity passenger railroad) create vibration events that last approximately 10 seconds or less while a typical line-haul freight train event lasts approximately two minutes. This manual is oriented to transit projects. However, situations will occur when freight train operations must be evaluated, such as when freight train tracks are relocated for a transit project within a railroad ROW. Guidelines on applying these criteria to freight train operations are presented in Step 3c.

- **Building Damage** – It is extremely rare for vibration from train operations to cause substantial or even minor cosmetic building damage. However, damage to fragile historic buildings located near the ROW may be of concern. Even in these cases, damage is unlikely except when the track is located very close to the structure. Damage thresholds that apply to these structures are discussed in Section 7.2, Step 4 on Construction Vibration Impacts.

3a. Choose the impact criteria by land use category and event frequency. The criteria for ground-borne vibration and noise land use categories 1-3 are presented in Table 6-3. The criteria are presented in terms of acceptable indoor ground-borne vibration and noise levels. Impact will occur if these levels are exceeded. Criteria for ground-borne vibration are expressed in terms of rms velocity levels in VdB, and criteria for ground-borne noise are expressed in terms of A-weighted sound pressure levels in dBA.

Table 6-3 Indoor Ground-Borne Vibration (GBV) and Ground-Borne Noise (GBN) Impact Criteria for General Vibration Assessment

Land Use Category	GBV Impact Levels (VdB re 1 micro-inch /sec)			GBN Impact Levels (dBA re 20 micro Pascals)		
	Frequent Events	Occasional Events	Infrequent Events	Frequent Events	Occasional Events	Infrequent Events
Category 1: Buildings where vibration would interfere with interior operations.	65 VdB*	65 VdB*	65 VdB*	N/A**	N/A**	N/A**
Category 2: Residences and buildings where people normally sleep.	72 VdB	75 VdB	80 VdB	35 dBA	38 dBA	43 dBA
Category 3: Institutional land uses with primarily daytime use.	75 VdB	78 VdB	83 VdB	40 dBA	43 dBA	48 dBA

* This criterion limit is based on levels that are acceptable for most moderately sensitive equipment such as optical microscopes. For equipment that is more sensitive, a Detailed Vibration Analysis must be performed.
** Vibration-sensitive equipment is generally not sensitive to ground-borne noise; however, the manufacturer's specifications should be reviewed for acoustic and vibration sensitivity.

The criteria for ground-borne vibration and noise for special land uses are presented in Table 6-4. The criteria are presented in terms of acceptable indoor ground-borne vibration and noise levels. Impact will occur if these levels are exceeded. As for the other land uses, the criteria for ground-borne vibration are expressed in terms of rms velocity levels in VdB, and criteria for ground-borne noise are expressed in terms of sound pressure levels in dBA.

Table 6-4 Indoor Ground-Borne Vibration and Noise Impact Criteria for Special Buildings

Type of Building or Room	Ground-Borne Vibration Impact Levels (VdB re 1 micro-inch/sec)		Ground-Borne Noise Impact Levels (dBA re 20 micro-Pascals)	
	Frequent Events	Occasional or Infrequent Events	Frequent Events	Occasional or Infrequent Events
Concert halls	65 VdB	65 VdB	25 dBA	25 dBA
TV studios	65 VdB	65 VdB	25 dBA	25 dBA
Recording studios	65 VdB	65 VdB	25 dBA	25 dBA
Auditoriums	72 VdB	80 VdB	30 dBA	38 dBA
Theaters	72 VdB	80 VdB	35 dBA	43 dBA

3b. Consider the presence of existing vibration conditions.
When the project will cause vibration more than 5 dB above the existing vibration, the existing source can be ignored, and the standard vibration criteria in Step 3a are appropriate. When the project will cause vibration less than 5 dB above the existing vibration level, use the instructions presented in this section to determine the appropriate impact criteria for the project. For information on characterizing existing vibration conditions, see Section 6.2, Step 3.

Use Table 6-5 and Figure 6-1 to determine the appropriate impact criteria. Sources of existing vibration are typically longer in duration than the events introduced into the environment due to the project. The frequency of use in the rail corridor is also a factor in characterizing the existing conditions. Both factors are considered in the process of determining appropriate impact criteria in Table 6-5 and Figure 6-1.
Examples of projects considering the existing vibration conditions in Table 6-5 and Figure 6-1 include:

- An automated people mover system planned for a corridor with an existing rapid transit service with 220 trains per day that did not have a significant increase in events from the existing 220 trains per day and that is not 3 dB above the existing vibration level would cause no additional impact.
- Where a new commuter rail line shares a heavily-used corridor with a rapid transit system, the project vibration exceeds the existing vibration level, there is not a significant increase in the number of events, and the project vibration exceeds the existing vibration level by 3 dB or more, the projected vibration levels must be evaluated using the standard impact criteria to determine impact.
- If a new transit project will use an existing railroad ROW and the location of existing railroad tracks are shifted, existing vibration can be substantial. The track relocation and reconstruction can result in lower vibration levels that would benefit the receivers and not introduce any adverse impact. However, if the track relocation causes higher vibration levels at vibration-sensitive receivers, then the projected vibration levels must be evaluated using the standard impact criteria to determine impact.

Table 6-5 Impact Criteria Considering Existing Conditions

Category	Number of Operations (At present – without project)	Criteria
Heavily Used	More than 12 trains per day	Use the standard vibration criteria in Section 6.2, Step 3a for the following scenarios: ▪ The existing vibration does not exceed the standard vibration criteria. ▪ The existing vibration exceeds the standard vibration criteria and there is a significant increase in events.* ▪ The existing vibration exceeds the standard vibration criteria, and the project vibration is 3 dB or more above the existing vibration. The project has no impact if the existing vibration exceeds the standard vibration criteria, the number of events does not increase significantly, and the project vibration does not exceed the existing vibration by 3 dB or more.
Moderately Used	5 – 12 trains per day	Use the standard vibration criteria in Section 6.2 Step 3a for the following scenarios: ▪ The existing vibration does not exceed the standard vibration criteria. ▪ The existing vibration exceeds the standard vibration criteria, and the project vibration is not 5 dB or more below the existing vibration. The project has no impact if the existing vibration exceeds the standard vibration criteria and the project vibration is at least 5 dB below the existing vibration.
Infrequently Used	Fewer than 5 trains per day	The standard vibration criteria in Section 6.2, Step 3a apply.

* Approximately doubling the number of events is required for a significant increase.

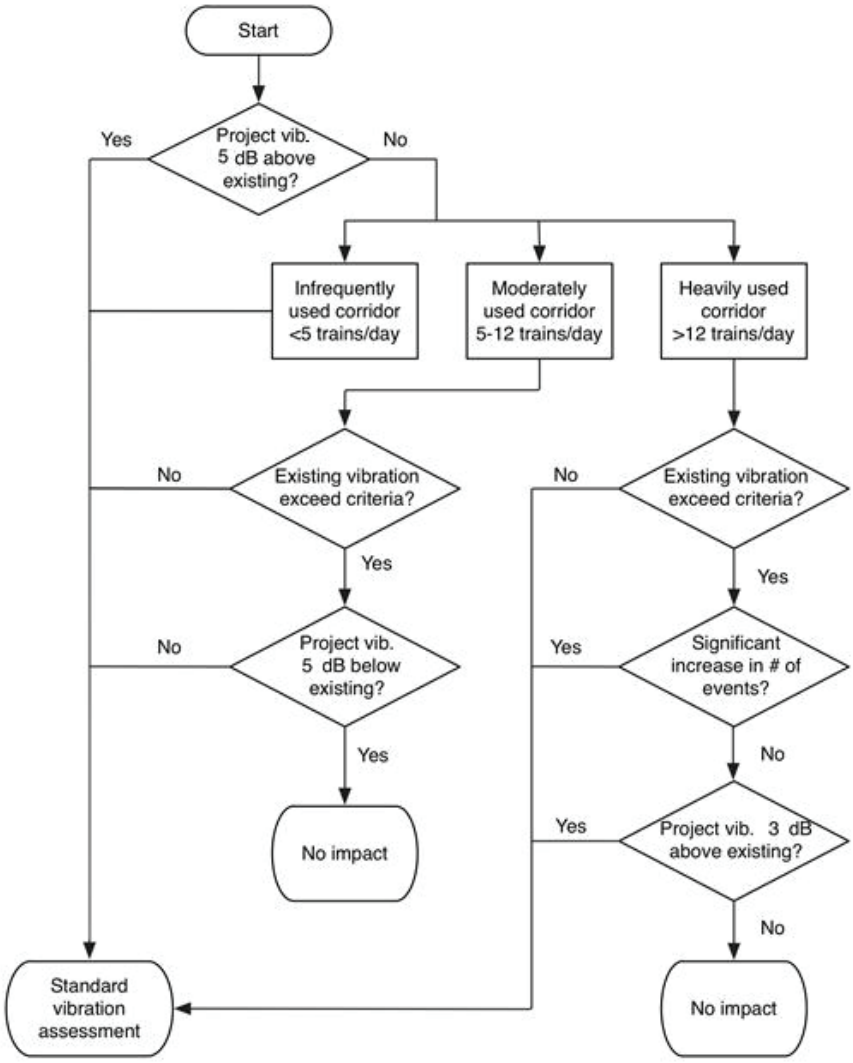


Figure 6-1 Existing Vibration[xii] Criteria Flow Chart

3c. Apply criteria to freight trains if part of the project.

Use the criteria presented in Step 3a to assess the vibration from freight trains in shared ROW scenarios because no specific impact criteria exist for freight railroads. It is important to consider that freight operations occur over substantially greater distances than passenger train operations and have different weight and axle loads.

When assessing vibration from freight train operations, consider the locomotive and rail car vibration separately. Since locomotive vibration lasts for a very short time, it can be characterized by the infrequent events category in Table 6-2. Rail car vibration from a typical line-haul freight train usually lasts for several minutes and can be characterized by the frequent events category in Table 6-2. Note

[xii] Vibration is abbreviated as "vib." in this flowchart.

that locomotives often create vibration levels that are 3 to 8 dB higher than those created by rail cars.

Use good engineering judgment to confirm the approach is reasonable for each project. For example, some spur rail lines carry very little rail traffic (sometimes only one train per week) or have short trains, in which case it may not be necessary to evaluate for impact. If there is uncertainty in how to determine the appropriate criteria, contact the FTA Regional office.

Decisions to relocate freight tracks closer to vibration-sensitive sites should be made with the understanding that increased vibration due to freight rail may not be possible to mitigate. Freight rail vibration may not always be successfully mitigated by the same methods as rail transit systems.

Option B: Vibration Impact Criteria for a Detailed Vibration Analysis

Determine the appropriate impact criteria for ground-borne vibration and ground-borne noise for a Detailed Vibration Analysis.

Step 1: Ground-Borne Vibration

Choose the appropriate criteria based on Figure 6-2 and Table 6-6.

Ground-borne vibration criteria presented in this section are more detailed than in the General Vibration Assessment. The criteria are based on international standards for the effects of vibration on people related to annoyance and interference with activities in buildings[39] as well as industry standards for vibration-sensitive equipment.[46] The criteria in this section are used to assess the potential for interference or annoyance from building response and to determine performance of vibration reduction methods. Note that for highly-sensitive equipment, specific vibration criteria provided by the manufacturer supersede the criteria in this section.

The criteria are presented by category in Figure 6-2 and are defined by international and industry standards.[39][46] These criteria define limits for acceptable maximum rms vibration velocity level with a one-second averaging time at the floor of the receiving building in terms of a one-third octave band frequency spectrum. Band levels that exceed a particular criterion curve indicate impact; and therefore, mitigation options should be evaluated considering the specific frequency range in which the treatment is most effective. Interpretations of the criteria are presented in Table 6-6.

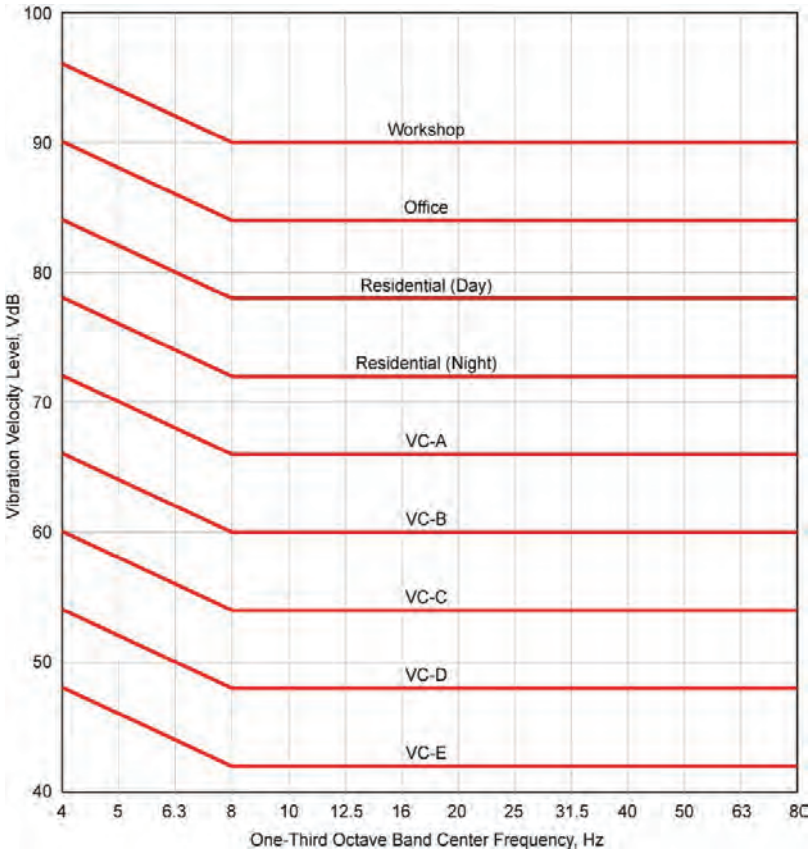


Figure 6-2 Criteria for Detailed Vibration Analysis

Table 6-6 Interpretation of Vibration Criteria for Detailed Vibration Analysis

Criterion Curve	Max Lv,* VdB	Description of Use
Workshop (ISO)	90	Vibration that is distinctly felt. Appropriate for workshops and similar areas not as sensitive to vibration.
Office (ISO)	84	Vibration that can be felt. Appropriate for offices and similar areas not as sensitive to vibration.
Residential Day (ISO)	78	Vibration that is barely felt. Adequate for computer equipment and low-power optical microscopes (up to 20X).
Residential Night, Operating Rooms (ISO)	72	Vibration is not felt, but ground-borne noise may be audible inside quiet rooms. Suitable for medium-power optical microscopes (100X) and other equipment of low sensitivity.
VC-A	66	Adequate for medium- to high-power optical microscopes (400X), microbalances, optical balances, and similar specialized equipment.
VC-B	60	Adequate for high-power optical microscopes (1000X) and inspection and lithography equipment to 3-micron line widths.
VC-C	54	Appropriate for most lithography and inspection equipment to 1-micron detail size.
VC-D	48	Suitable in most instances for the most demanding equipment, including electron microscopes operating to the limits of their capabilities.
VC-E	42	The most demanding criterion for extremely vibration-sensitive equipment.

* As measured in 1/3-octave bands of frequency over the frequency range 8 to 80 Hz.

In addition to the uses described in Table 6-6, the detailed vibration criteria can be applied to the three land use categories presented in Table 6-3.

- For residential land uses (category 2), use the residential night criterion curve in Table 6-6.
- For institutional uses (category 3), use the residential day criterion curve in Table 6-6.
- For category 1, the specific use of the building should be matched to the appropriate criterion curve in Table 6-6.
- For special buildings, such as those found in Table 6-4, either the criteria in Table 6-4 or specific criteria presented by the building operator should be used.

These criteria use a frequency spectrum because vibration-related problems generally occur due to resonances of the structural components of a building or vibration-sensitive equipment. Resonant response is frequency-dependent. A Detailed Vibration Analysis can provide an assessment that identifies potential problems resulting from resonances.

The detailed vibration criteria are based on generic cases when people are standing or equipment is mounted on the floor in a conventional manner. Consequently, the criteria are less stringent at very low frequencies below 8 Hz. Where special vibration isolation has been provided in the form of pneumatic isolators, the resonant frequency of the isolation system is very low. Consequently, in this special case, the curves may be extended flat at lower frequencies.

Step 2: Ground-borne Noise

Ground-borne noise impacts are assessed based on criteria for human annoyance and activity interference. The Detailed Vibration Analysis procedure provides vibration spectra inside a building. To evaluate ground-borne noise, convert these vibration spectra to sound pressure level spectra in the occupied spaces using the method described in Section 6.5 and compare to the criteria as follows:

- For residential buildings, use the criteria presented in Table 6-3.
- For special buildings listed in Table 6-4, A-weighted noise may not be sufficient to assess activity interference for a Detailed Vibration Analysis. Each special building may have a unique specification for acceptable noise levels and criteria must be determined on a case-by-case basis. For example, a recording studio may have stringent requirements for allowable noise in each frequency band.

6.3 Evaluate Impact: Vibration Screening Procedure

Determine the potential for impact using the Vibration Screening Procedure by identifying any vibration-sensitive land uses (Table 6-1) within the appropriate screening distance.

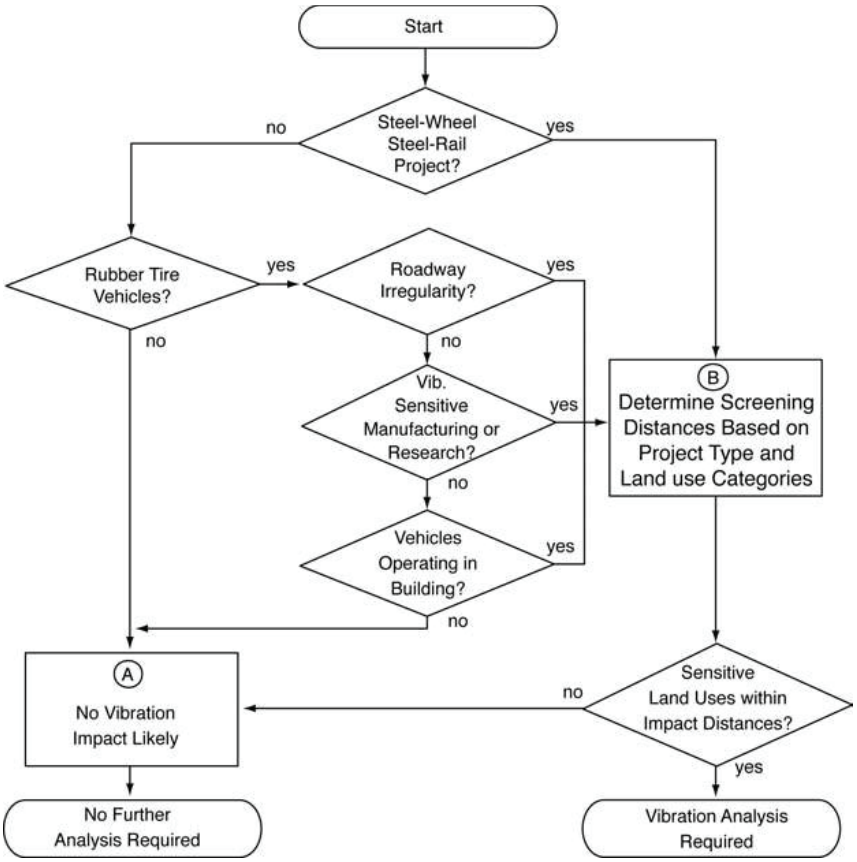


Figure 6-3 Flow Chart of Vibration Screening Process

Step 1: Classify Project Vehicles

Determine the project type and the next step based on the guidelines below.

Option A: No Vehicles – Transit projects that do not involve vehicles do not have potential for vibration impact and do not require further analysis (Box A in Figure 6-3).

Many smaller FTA-funded projects, such as bus terminals, park-and-ride lots, and station rehabilitation are in this category, and do not require further analysis of ground-borne vibration impact. However, if track systems are modified (e.g., tracks moved or switches modified), *proceed to Step 2*.

Option B: Steel-wheeled/Steel-rail Vehicles – Transit projects with steel-wheeled/steel-rail vehicles have potential for vibration impact (Box B in Figure 6-3); *proceed to Step 2*. These rail systems include urban rapid transit, LRT, commuter rail, and steel-wheel intermediate capacity transit (ICT) systems.

Option C: Rubber-tire Vehicles – For projects that involve rubber-tire vehicles and do not meet the following conditions, vibration impact is unlikely, and no further analysis is needed. *Proceed to Step 2* for projects that involve rubber-tire vehicles and meet the following conditions (Box A in Figure 6.3):

- **Roadway irregularity** – Expansion joints, speed bumps, or other design features that result in unevenness in the road surface can result in perceptible ground-borne vibration at distances up to 75 ft away.

- **Operation close to vibration-sensitive buildings** – Buses, trucks, or other heavy vehicles operating close to a vibration-sensitive building (within approximately 100 ft from the property line) may impact vibration-sensitive activities, such as research that uses electron microscopes or manufacturing of computer chips.

- **Vehicles operating within buildings** – Special considerations are often required for shared use facilities where vehicles operate inside or directly underneath buildings such bus stations located inside an office building complex.

Step 2: Determine Project Type

Determine the project type according to Table 6-7.

Table 6-7 Project Types for Vibration Screening Procedure

Project Type Number	Project Type	Description
1	Conventional Commuter Railroad	Both locomotives and passenger vehicles create vibration. For commuter trains, the highest vibration levels are typically created by the locomotives. Electric commuter rail vehicles create levels of ground-borne vibration that are comparable to electric rapid transit vehicles.
2	RRT	Ground-borne vibration impact from rapid transit trains is one of the major environmental issues for new systems. Ground-borne vibration is usually a major concern for subway operations. It is less common for at-grade and elevated rapid transit lines to create intrusive ground-borne vibration and noise since air-borne noise typically dominates.
3	LRT and Streetcars	The ground-borne vibration characteristics of light rail systems are very similar to those of rapid transit systems. Because the speeds of light rail systems are usually lower, typical vibration levels are usually lower. Steel-wheel/steel-rail AGT is included in either this category or the ICT category depending on the level of service and train speeds.
4	Intermediate Capacity Transit	Because of the low operating speeds of most ICT systems, vibration problems are not common. However, steel-wheel ICT systems that operate close to* vibration-sensitive buildings have the potential of causing intrusive vibration. With a stiff suspension system, an ICT system could create intrusive vibration.
5	Bus and Rubber-Tire Transit Projects	This category encompasses most projects that do not include steel-wheel trains of some type. Examples include diesel buses, electric trolley buses, and rubber-tired people movers. Most projects that do not include steel-wheel trains do not cause vibration impacts.**

*See the screening distances for category 1 land uses in Table 6-8.

** Most complaints about vibration caused by buses and trucks are related to rattling of windows or items hung on the walls. These vibrations are usually the result of airborne noise and not ground-borne vibration. In the case where ground-borne vibration is the source of the complaint, the vibration can usually be attributed to irregularities in the road.

Step 3: Determine Screening Distance

Determine the appropriate screening distances based on land use and project type according to Table 6-8.

The distances are based on the criteria presented in Section 6.3, the procedures in Section 6.4 assuming normal vibration propagation, and include a 5-dB factor of safety. Even so, areas with very efficient vibration propagation can have substantially higher vibration levels.

Because of the 5-decibel safety factor, the screening distances will identify most of the potentially impacted areas, even for areas with efficient propagation. However, when there is evidence of efficient propagation, such as previous complaints about existing transit facilities or a history of problems with construction vibration, increase the distances in Table 6-8 by a factor of 1.5.

Table 6-8 Screening Distances for Vibration Assessments

Type of Project	Critical Distance for Land Use Categories* Distance from ROW or Property Line, ft		
	Land Use Cat. 1	Land Use Cat. 2	Land Use Cat. 3
Conventional Commuter Railroad	600	200	120
RRT	600	200	120
LRT and Streetcars	450	150	100
ICT	200	100	50
Bus Projects (if not previously screened out)	100	50	--

*For the Vibration Screening Procedure, evaluate special buildings as follows: Category 1 - concert halls and TV studios, Category 2 - theaters and auditoriums

Step 4: Identify Vibration-Sensitive Land Uses

Identify all vibration-sensitive land uses (Table 6-1) within the chosen screening distance. If no vibration-sensitive land uses are identified, no further vibration analysis is needed. If one or more of the vibration-sensitive land uses are in the screening distance, complete a General Vibration Assessment (Section 6.4) or a Detailed Vibration Analysis (Section 6.5).

6.4 Evaluate Impact: General Vibration Assessment

Evaluate for impact using the General Vibration Assessment procedure if the Vibration Screening Procedure (Section 6.3) identified vibration-sensitive receivers within the screening distance of the transit vibration source.

For guidelines on when the General Vibration Assessment is appropriate, review Section 6.1.

The basic approach for the General Vibration Assessment is to define a curve or set of curves that predicts the overall ground-borne vibration as a function of distance from the source, then apply adjustments to these curves to account for factors such as vehicle speed, geologic conditions, building type, and receiver location within the building. When the vehicle type is not covered by the curves included in this section, it will be necessary to define an appropriate curve either by extrapolating from existing information or performing measurements at an existing facility.

Step 1: Select Base Curve for Ground Surface Vibration Level

Select a standard vibration curve to represent general vibration characteristics for the source.

The curves presented in Figure 6-4 are based on measurements of ground-borne vibration at representative North American transit systems and can be used to represent vibration characteristics for standard transportation systems in the General Vibration Assessment.

These curves assume typical ground-borne vibration levels, equipment in good condition, and speeds of 50 mph for the rail systems and 30 mph for buses. Adjustments to account for differences in speed and geologic conditions are included in Step 2.

Select a base curve from Figure 6-4 according to the guidelines in Table 6-9. Equations for the curves in Figure 6-4 are included in Table 6-10. Additional considerations for selecting a base curve for systems not included in Table 6-9 are presented below by transit mode.

Table 6-9 Ground Surface Vibration Level Base Curve Descriptions

Curve	Description
Locomotive-Powered Passenger or Freight Curve	Appropriate for vehicles powered by diesel or electric locomotives including intercity passenger trains and commuter rail trains.
Rapid Transit or Light Rail Vehicles Curve	Appropriate for both heavy and light-rail vehicles on at-grade and subway track.
Rubber-Tired Vehicles Curve	Appropriate for rubber-tire vehicles. These types of vehicles rarely create ground-borne vibration problems unless there is a discontinuity or bump in the road that causes the vibration. This curve represents the vibration level for a typical bus operating on smooth roadway.

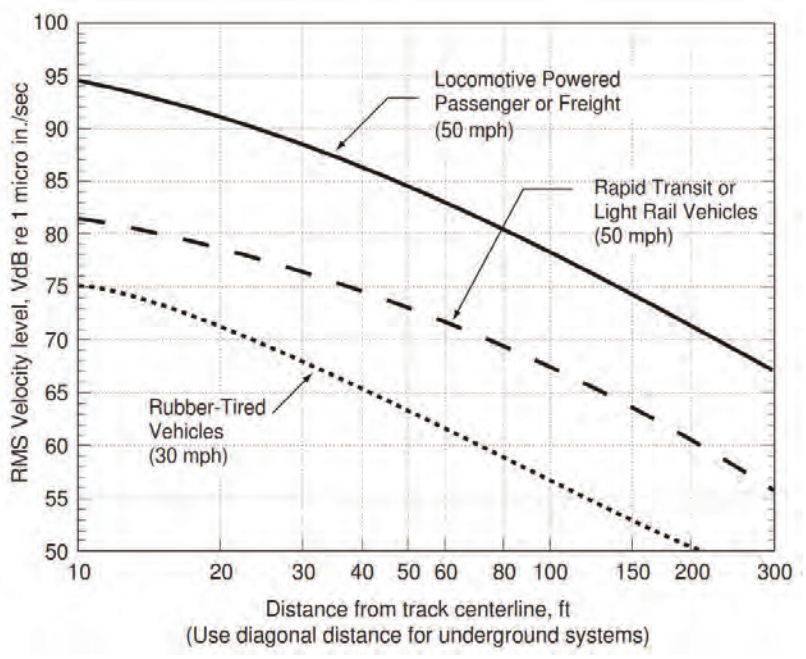


Figure 6-4 Generalized Ground Surface Vibration Curves

Table 6-10 Generalized Ground Surface Vibration Equations

Curve	Equation	
Locomotive Powered Passenger or Freight Curve	$L_v = 92.28 + 14.81\log(D) - 14.17\log(D)^2 + 1.65\log(D)^3$	**Eq. 6-1**
Rapid Transit or Light Rail Vehicles Curve	$L_v = 85.88 - 1.06\log(D) - 2.32\log(D)^2 - 0.87\log(D)^3$	**Eq. 6-2**
Rubber-Tired Vehicles Curve	$L_v = 66.08 + 34.28\log(D) - 30.25\log(D)^2 + 5.40\log(D)^3$	**Eq. 6-3**
L_v = velocity level, VdB D = distance, ft		

Considerations for selecting a base curve for different transit modes include:

- **Intercity passenger trains** – Although intercity passenger trains can be an important source of environmental vibration, it is rare that they are considered for FTA-funded projects unless a new transit mode uses an existing rail alignment. When a new transit line uses an existing rail alignment, changes in the intercity passenger traffic can result in either positive or negative impacts. Use the locomotive-powered passenger or freight curve for intercity passenger trains unless there are specific data available on the ground-borne vibration created by the new train operations.

- **Locomotive-powered commuter rail** – Use the locomotive-powered passenger or freight curve for all commuter rail system powered by either diesel or electric locomotives.

- **Electric multiple unit (EMU)** – Use the rapid transit or light rail vehicles curve for self-powered electric commuter rail trains.

- **Diesel multiple unit (DMU)** – Self-powered DMUs create vibration levels somewhere between rapid transit vehicles and locomotive-powered passenger trains. A vibration curve for DMUs can be estimated by lowering the locomotive-powered passenger or freight curve by 5 dB.

- **Subway heavy rail or light rail** – Use the rapid transit or light rail vehicles curve for subway heavy rail and subway light rail. Although vibrations from subway and at-grade tracks have very different characteristics, the overall vibration velocity levels are comparable. When applied to subways, the rapid transit or light rail vehicles curve assumes a relatively lightweight bored concrete tunnel in soil. The vibration levels will be lower for heavier subway structures such as cut-and-cover box structures and stations.

- **At-grade heavy rail or light rail** – Use the rapid transit or light rail vehicles curve for at-grade heavy rail or light rail. Heavy rail and LRT vehicles have similar suspension systems and axle loads and create similar levels of ground-borne vibration.

- **Elevated guideways or aerial structures** – Vibration from operations on an elevated structure is typically not an issue unless the guideway is supported by a building or located very close to buildings. Apply the appropriate adjustment for the aerial structures (Section 6.4, Step 2).

- **Streetcars** – Use the rapid transit or light rail vehicles curve for street cars.

- **ICT** – Use the rapid transit or light rail vehicles curve for ICT systems with steel wheels and the rubber-tired vehicles curve for ICT systems with rubber tires.

- **Other vehicle types** – For less common modes such as magnetically-levitated vehicles (maglev), monorail, or AGT, use good engineering judgment to choose a standard curve to best fit the mode or if a new curve needs to be developed, as a function of distance from the track. Examples include:
  - Vibration from a rubber-tire monorail operating on aerial guideway can be approximated using the rubber-tired vehicles curve with the appropriate adjustment for the aerial structure (Section 6.4, Step 2).
  - Most of the data available on the noise and vibration characteristics of maglev vehicles comes from high-speed systems intended for inter-city service. Even though there is no direct contact between the vehicle and the guideway, the dynamic loads on the guideway can generate ground-borne vibration. Measurements on a German high-speed maglev resulted in ground-borne vibrations at 75 mph which is comparable to the base curve for rubber-tired vehicles at 30 mph.[49]

Step 2: Apply Adjustments

Apply project-specific adjustments to the standard vibration curve.

Once the base curve has been selected, use the adjustments in the following instructions to develop project-specific vibration projections at each receiver. All adjustments are given as single numbers to add to, or subtract from, the base level.

Adjustments are separated by source, path, and receiver and include speed, wheel and rail type and condition, type of track support system, type of building foundation, and number of floors above the basement level. Calculate the appropriate adjustments to the base level. An example of the General Vibration Assessment is provided at the end of this Section.

It should be recognized that many of these adjustments are strongly dependent on the frequency spectrum of the vibration source and the frequency dependence of the vibration propagation. The adjustments in this section are suitable for generalized evaluation of the vibration impact and vibration

mitigation measures because they are based on typical vibration spectra. However, these adjustments are not adequate for detailed evaluations of impact of vibration-sensitive buildings or for detailed specification of mitigation measures.

2a. Apply source adjustments to the base curve using Table 6-11 and the descriptions below to account for the project-specific source characteristics.

Table 6-11 Source Adjustment Factors for Generalized Predictions of GB Vibration and Noise

Source Factor	Adjustment to Propagation Curve		Comment
Speed	Reference Speed		Vibration level is approximately proportional to 20log(speed/speed$_{ref}$), see Eq. 6-4.
	Vehicle Speed	50 mph / 30 mph	
	60 mph	+1.6 dB / +6.0 dB	
	50 mph	0.0 dB / +4.4 dB	
	40 mph	-1.9 dB / +2.5 dB	
	30 mph	-4.4 dB / 0.0 dB	
	20 mph	-8.0 dB / -3.5 dB	
Vehicle Parameters (not additive, apply greatest value only)			
Vehicle with stiff primary suspension	+8 dB		Transit vehicles with stiff primary suspensions have been shown to create high vibration levels. Include this adjustment when the primary suspension has a vertical resonance frequency greater than 15 Hz.
Resilient Wheels	0 dB		Resilient wheels do not generally affect ground-borne vibration except at frequencies greater than about 80 Hz.
Worn Wheels or Wheels with Flats	+10 dB		Wheel flats or wheels that are unevenly worn can cause high vibration levels.
Track Conditions (not additive, apply greatest value only)			
Worn or Corrugated Track	+10 dB		Corrugated track is a common problem. Mill scale* on new rail can cause higher vibration levels until the rail has been in use for some time. If there are adjustments for vehicle parameters and the track is worn or corrugated, only include one adjustment.
Special Trackwork within 200 ft	+10 dB (within 100 ft) +5 dB (between 100 and 200 ft)		Wheel impacts at special trackwork will greatly increase vibration levels. The increase will be less at greater distances from the track. Do not include an adjustment for special trackwork more than 200 ft away.
Jointed Track	+5 dB		Jointed track can cause higher vibration levels than welded track.
Uneven Road Surfaces	+5 dB		Rough roads or expansion joints are sources of increased vibration for rubber-tire transit.
Track Treatments (not additive, apply greatest value only)			
Floating Slab Trackbed	-15 dB		The reduction achieved with a floating slab trackbed is strongly dependent on the frequency characteristics of the vibration.
Ballast Mats	-10 dB		Actual reduction is strongly dependent on frequency of vibration.
High-Resilience Fasteners	-5 dB		Slab track with track fasteners that are very compliant in the vertical direction can reduce vibration at frequencies greater than 40 Hz.

*Mill scale on a new rail is a slightly corrugated condition caused by certain steel mill techniques.

In addition to the comments in Table 6-11, use the following guidelines to select the appropriate adjustment factors. Some adjustments in the same category are not cumulative (additive) and only the greatest applicable adjustment should be applied. The adjustments that are not additive are noted in Table 6-11 and in the descriptions below. Note that some adjustments are not additive across multiple categories and are noted in the comments of Table 6-11. For example, the adjustment for a vehicle with stiff primary suspension is 8 dB, and the adjustment for wheel flats is 10 dB. If the vehicle has a stiff primary suspension and has wheel flats, the projected vibration levels should be increased by 10 dB, not 18 dB.

In addition, some vibration control measures are targeted for specific frequency ranges. The shape of the actual vibration spectra should be considered so that an appropriate vibration control measure may be selected.

- **Speed** – The levels of ground-borne vibration and noise vary, approximately, as 20 times the logarithm of speed. This means that doubling train speed will increase the vibration levels approximately 6 dB, and halving train speed will reduce the levels by 6 dB. The adjustments in Table 6-11 have been tabulated for reference vehicle speeds of 30 mph for rubber-tired vehicles and 50 mph for steel-wheel vehicles. Use the following relationship to calculate the adjustments for other speeds.

  $$Adj_{speed}\ (dB) = 20\log(\frac{speed}{speed_{ref}}) \qquad \textbf{Eq. 6-4}$$

  Variation with speed has been observed to be as low as $15\log(\frac{speed}{speed_{ref}})$, but unless specific speed data for vibration for a vehicle has been obtained, use Eq. 6-4.

- **Vehicle Parameters** – The most important factors for the vehicles are the suspension system, wheel condition, and wheel type. Most new heavy rail and light rail vehicles have relatively soft primary suspensions. However, a stiff primary suspension (vertical resonance frequency greater than 15 Hz) can result in higher levels of ground-borne vibration than soft primary suspensions. Vehicles, for which the primary suspension consists of rubber or neoprene around the axle bearing, usually have a very stiff primary suspension with a vertical resonance frequency greater than 40 Hz or more.

  Deteriorated wheel condition is another factor that increases vibration levels. It can be assumed that a new system has vehicles with wheels in good condition. When older vehicles are used on new track, it is important to consider the condition of the wheels, and it may be appropriate to include an adjustment for the wheel condition.

  Resilient wheels will reduce vibration levels at frequencies greater than the effective resonance frequency of the wheel. When this resonance

frequency is relatively high, greater than 80 Hz, resilient wheels may only have a marginal effect on ground-borne vibration.

The adjustments in this category are not additive; apply the greatest applicable value only.

- **Track Conditions** – This category includes the type of rail (welded, jointed, or special trackwork), the track support system, and the condition of the rail. The base curves assume welded rail in good condition. Jointed rail causes higher vibration levels than welded rail and the increase depends on the condition of the joints.

  Wheel impacts at special trackwork, such as frogs at crossovers, create much higher vibration forces than typical track conditions. Because of the higher vibration levels at special trackwork, crossovers are the principal areas of vibration impact on new systems. Methods of mitigating the vibration impact include modifying the track support system, installing low-impact frogs, or relocating the crossover. Special track support systems such as ballast mats, high-resilience track fasteners, resiliently supported ties, and floating slabs have all been shown to be effective in reducing vibration levels.

  The condition of the running surface of the rails can strongly affect vibration levels. Factors such as corrugations, general wear, or mill scale on new track can cause vibration levels 5 to 15 dB higher than normal. Mill scale will typically wear away after some time in service, but the track must be ground to remove corrugations or to reduce the roughness from wear.

  Roadway surfaces in the rubber-tired vehicle base curve are assumed to be smooth. Rough washboard surfaces, bumps, or uneven expansion joints are the types of running surface defects that cause increased vibration levels over the smooth road condition.

  The adjustments in this category are not additive; apply the greatest applicable value only. If there are adjustments for vehicle parameters and the track is worn or corrugated, only include one adjustment.

2b. Apply path adjustments to the base curve using Table 6-12 and the descriptions below to account for the project-specific path characteristics.

Table 6-12 Path Adjustment Factors for Generalized Predictions of GB Vibration and Noise

Path Factor	Adjustment to Propagation Curve		Comment
Resiliently Supported Ties (Low-Vibration Track, LVT)	-10 dB		Resiliently supported tie systems have been found to provide very effective control of low-frequency vibration.
Track Structure (not additive, apply greatest value only)			
Type of Transit Structure	Relative to at-grade tie & ballast:		In general, the heavier the structure, the lower the vibration levels. Putting the track in cut may reduce the vibration levels slightly. Rock-based subways generate higher-frequency vibration.
	Elevated structure	-10 dB	
	Open cut	0 dB	
	Relative to bored subway tunnel in soil:		
	Station	-5 dB	
	Cut and cover	-3 dB	
	Rock-based	-15 dB	
Ground-borne Propagation Effects			
Geologic conditions that promote efficient vibration propagation	Efficient propagation in soil	+10 dB	Refer to the text for guidance on identifying areas where efficient propagation is possible.
	Propagation in rock layer	Dist. / Adjust.	The positive adjustment accounts for the lower attenuation of vibration in rock compared to soil. It is generally more difficult to excite vibrations in rock than in soil at the source.
		50 ft / +2 dB	
		100 ft / +4 dB	
		150 ft / +6 dB	
		200 ft / +9 dB	
Coupling to building foundation	Wood-Frame Houses	-5 dB	In general, the heavier the building construction, the greater the coupling loss.
	1-2 Story Masonry	-7 dB	
	3-4 Story Masonry	-10 dB	
	Large Masonry on Piles	-10 dB	
	Large Masonry on Spread Footings	-13 dB	
	Foundation in Rock	0 dB	

In addition to the comments in Table 6-12, use the following guidelines to select the appropriate adjustment factors.

- **Track Structure** – The weight and size of a transit structure affects the vibration radiated by that structure. In general, vibration levels are lower for heavier transit structures. Therefore, the vibration levels from a cut-and-cover concrete double-box subway can be assumed to be lower than the vibration from a lightweight concrete-lined bored tunnel.

  The vibration from elevated structures is lower than from at-grade track because of the mass and damping of the structure and the extra distance that the vibration must travel before it reaches the receiver. Elevated structures in AGT applications are sometimes designed to bear on building elements. This is a special case and may require detailed design considerations.

  The adjustments in this category are not additive; apply the greatest applicable value only.

- **Ground-Borne Propagation Effects – Geologic Conditions** – Although it is known that geologic conditions have a considerable effect on the vibration levels, it is rarely possible to develop more than a general understanding of the vibration propagation characteristics for a General Vibration Assessment. One of the challenges with identifying the cause of efficient propagation is the difficulty in determining whether higher than normal vibration levels are due to geologic conditions or due to special source conditions (e.g., rail corrugations or wheel flats).

  Some geologic conditions are repeatedly associated with efficient propagation. Shallow bedrock, less than 30 ft below the surface, is likely to have efficient propagation. Soil type and stiffness are also important factors in determining propagation characteristics. In particular, stiff, clayey soils, consolidated sand, gravel, and glacial till can be associated with efficient vibration propagation. Investigation of soil boring records can be used to estimate depth to bedrock and the presence of problem soil conditions.

  A conservative approach would be to use the 10-dB adjustment for efficient propagation for areas where efficient propagation is likely. However, this adjustment can greatly overstate the potential for vibration impact where efficient propagation is not present and should be applied using good judgment. Review available geological data and any complaint history from existing transit lines and major construction sites near the transit corridor to identify areas where efficient propagation is possible. If there is reason to suspect efficient propagation conditions, conduct a Detailed Vibration Analysis during the engineering phase and include vibration propagation tests at the areas with potential for efficient propagation.

- **Track Structure and Geologic Conditions – Examples**
  - **Subway**
    For a subway, determine if the subway will be founded in bedrock. Bedrock is considered to be hard rock. It is usually appropriate to consider soft siltstone and sandstone to be more like soil than hard rock. Whether a subway is founded in soil or rock can make a 15-dB difference in the vibration levels.

    When a subway structure is founded in rock, include the following Track Structure and Ground-borne Propagation Effects adjustments from Table 6-12:
    - Type of Transit Structure adjustment: Rock-based – 15 dB
    - Geologic Conditions adjustment: Propagation in rock layer for the appropriate distance.

    This adjustment increases with distance because vibration attenuates more slowly in rock than in the soil used as a basis for the reference curve.

- **At-grade** – When considering at-grade vibration sources, determine if the vibration propagation characteristics are typical or efficient. Efficient

vibration propagation results in vibration levels approximately 10 dB higher than typical levels. This more than doubles the potential impact zone for ground-borne vibration.

- **Ground-Borne Propagation Effects – Coupling to Building Foundation** – Since annoyance from ground-borne vibration and noise is an indoor phenomenon, the effects of the building structure on the vibration must be considered. Wood-frame buildings, such as typical residential structures, are more easily excited by ground vibration than heavier buildings. In contrast, large masonry buildings with spread footings have a low response to ground vibration.

  When a building foundation is directly on the rock layer, there is no coupling loss due to the weight and stiffness of the building. Use the standard coupling factors based on building type if there is at least a 10-foot layer of soil between the building foundation and the rock layer.

2c. Apply receiver adjustments to the base curve using Table 6-13 and the descriptions below to account for the project-specific receiver characteristics. The data in Table 6-13 is applicable when the building structural features are known.

For more generic cases that do not have detailed information on individual buildings, use a conservative approach and apply the following adjustments to predict indoor vibration based on the outdoor vibration, instead of using the adjustments in Table 6-13:[43][50]

- Light-weight, wood-frame construction 1st floor: +3 dB
- Light-weight, wood-frame construction 2nd and 3rd floors: +6 dB
- Large buildings: 0 dB
- Small masonry buildings: +3 dB

Table 6-13 Receiver Adjustment Factors for Generalized Predictions of GB Vibration and Noise

Receiver Factor	Adjustment to Propagation Curve		Comment
Floor-to-floor attenuation	1 to 5 floors above grade	-2 dB/floor	This factor accounts for dispersion and attenuation of the vibration energy as it propagates through a building starting with the first suspended floor.*
	5 to 10 floors above grade	-1 dB/floor	
Amplification due to resonances of floors, walls, and ceilings	+6 dB		The actual amplification will vary greatly depending on the type of construction. The amplification is lower near the wall/floor and wall/ceiling intersections.

* Floor-to-floor attenuation adjustments for the first floor assume a basement.

In addition to the comments in Table 6-13, use the following guidelines to select the appropriate adjustment factors. Note that receiver adjustments are additive.

- Vibration generally reduces in level as it propagates through a building. As indicated in Table 6-13, a 1- to 2-decibel attenuation per floor is typically appropriate.
- Resonances of the building structure, particularly the floors, will cause some amplification of the vibration. Consequently, for a wood-frame structure, the building-related adjustments nearly cancel out. Example: All adjustments for the first floor assuming a basement are: -5 dB for the coupling loss; -2 dB for the propagation from the basement to the first floor; and +6 dB for the floor amplification. The total adjustment in this case is -1 dB.

2d. Apply adjustments to the final adjusted curve using Table 6-14 and the descriptions below to convert ground-borne vibration levels to ground-borne noise levels.

Table 6-14 Conversion to Ground-borne Noise

Conversion to Ground-borne Noise			
Noise Level in dBA	Peak frequency of ground vibration:		Use these adjustments to estimate the A-weighted sound level given the average vibration velocity level of the room surfaces. See text for guidelines for selecting low-, mid-, or high-frequency characteristics. Use the high-frequency adjustment for subway tunnels in rock or if the dominant frequencies of the vibration spectrum are known to be 60 Hz or greater.
	Low frequency (<30 Hz)	-50 dB	
	Mid Frequency (peak 30 to 60 Hz)	-35 dB	
	High frequency (>60 Hz)	-20 dB	

Estimate the levels of radiated noise using the average vibration amplitude of the room surfaces (floors, walls, and ceiling), and the total acoustical absorption in the room.

The un-weighted sound pressure level is approximately 5 dB[37][43] less than the vibration velocity level when the velocity level is referenced to 1×10^{-6} inches/sec; but for a better estimate, it is necessary to consider general frequency ranges. Since ground-borne noise is A-weighted, the adjustments vary by frequency range, as described below. See Appendix B.1.4.1 for more information on A-weighting.

To select the appropriate adjustment, classify the frequency characteristics according to the guidelines below.

- **Low Frequency (<30 Hz)** – Low-frequency vibration characteristics can be assumed for the following conditions:
  - Subways surrounded by cohesionless sandy soil
  - Vibration isolation track support systems
  - Most surface track

- **Mid Frequency (peak 30 to 60 Hz)** – The mid-frequency vibration characteristic can be assumed for the following conditions:
  - Subways, unless other information indicates that one of the other assumptions is appropriate,
  - Surface track when the soil is very stiff with high clay content

- **High Frequency (>60 Hz)** – High-frequency characteristics can be assumed for the following conditions:
  - Subways with the transit structure founded in rock
  - Subways, when there is very stiff, clayey soil

Step 3: Inventory of Vibration Impact

Take inventory of vibration-sensitive land uses with impact and determine if a Detailed Vibration Analysis is required.

Compare the projected vibration levels, including all appropriate adjustments in Section 6.4, Step 2, to the criteria to determine if impact from ground-borne vibration or noise is likely. Note that for any transit mode, variation in vibration levels under apparently similar conditions is not uncommon. In the General Vibration Assessment, it is preferable to make a conservative assessment of the impact and include buildings that may ultimately not be subject to impact.

The standard curves in Section 6.4, Step 1, represent the upper range of vibration levels from well-maintained systems. Although actual levels fluctuate widely, it is rare that ground-borne vibration will exceed these curves by more than 1 or 2 dB unless there are extenuating circumstances such as wheel- or running-surface defects. However, because actual levels of ground-borne vibration will sometimes differ substantially from the projections, use the following guidelines to interpret vibration impact:

- **Projected vibration is below the impact threshold** – Vibration impact is unlikely, and the environmental document should state this.

- **Projected ground-borne vibration is 0 to 5 dB greater than the impact threshold** – There is a strong chance that actual ground-borne vibration levels will be below the impact threshold. The environmental document should report impact at these locations as exceeding the applicable threshold, present possible mitigation measures and costs, and commit to conducting more detailed studies to refine the vibration impact analysis during the engineering phase. During the Detailed Vibration Analysis, determine appropriate mitigation, if necessary. A site-specific Detailed Vibration Analysis may show that vibration impacts will not occur and control measures are not needed.

- **Projected ground-borne vibration is 5 dB or greater than the impact threshold** – Vibration impact is probable and Detailed Vibration Analysis must be conducted during the engineering phase to determine appropriate vibration control measures. The environmental document should report impact at these locations as exceeding the applicable threshold, present possible mitigation measures and costs, and commit to conducting more detailed studies to refine the vibration impact analysis during the engineering phase. During the Detailed Vibration Analysis, determine appropriate mitigation, if necessary. A site-specific, Detailed Vibration Analysis may show that very costly vibration mitigation must be incorporated into the project to eliminate the impacts.

FTA recommends the reporting of a vibration level as a single value and not as a range, as ranges tend to confuse the interpretation of impact.

Express the results of the General Vibration Assessment in terms of an inventory with the following components:

- Include all vibration-sensitive land uses as identified in the Vibration Screening Procedure.
- Organize the inventory according to the categories described in Table 6-8.
- Include information on potentially feasible mitigation measures to reduce vibration to acceptable levels based on the generalized reduction estimates provided in this section. To be considered feasible, the measure or combination of measures must provide at least a 5-dB reduction of the vibration levels and be reasonable in terms of cost.

These potential mitigation measures are considered preliminary. Final vibration mitigation measures can only be specified after a Detailed Vibration Analysis has been done; see Section 6.5 for more information. Vibration control is frequency-dependent; therefore, specific recommendations of vibration control measures can only be made after evaluating the frequency characteristics of the vibration.

Example 6-1 General Vibration Assessment – LRT

General Vibration Assessment for an LRT project

The hypothetical project is a LRT system that operates at 40 mph on at-grade, ballast and tie track with welded rail. The first floor of houses is at 125 ft from the LRT tracks and there is efficient propagation through the soil. The houses are constructed with wood frames. The houses will be exposed to 260 train passbys per day. Calculate the ground-borne vibration and assess for impact.

Select Base Curve for Ground Surface Vibration

Determine the appropriate base curve and the RMS velocity level (L_v).

According to Table 6-9, the Rapid Transit or Light Rail Vehicles curve is appropriate.

$L_v = 65\ VdB$ at 125 ft for this curve at 50 mph

Apply Adjustments

Apply the appropriate source adjustments using Table 6-11.

$$Source\ Speed\ Adjustment = 20\log\left(\frac{40}{50}\right) = -1.9\ dB$$
$$L_v = 65 - 1.9 = 63.1\ VdB$$

Apply the appropriate path adjustments using Table 6-12.

$$Efficient\ propagation = +10\ dB$$
$$Coupling\ to\ building\ foundation\ (wood\ frame) = -5\ dB$$
$$L_v = 63.1 + 10 - 5 = 68.1\ VdB$$

Apply the appropriate receiver adjustments using Table 6-13.

$$Amplification\ due\ to\ resonance\ of\ floor = +6\ dB$$
$$First\ floor\ attenuation = -2\ dB$$
$$L_v = 68.1 + 6 - 2 = 72.1\ VdB$$

Assess for Impact
Because there are more than 70 events per day, this project is in the Frequent Events category (Table 6-2). For category 2 land uses (residences) with frequent events, the impact criteria is 72 VdB (Table 6-3). Therefore, according to the General Vibration Assessment, there is potential for impact and a Detailed Vibration Analysis should be completed.

6.5 Evaluate Impact: Detailed Vibration Analysis

Evaluate for impact using the Detailed Vibration Analysis procedure, if appropriate (Section 6.1).

The goal of the Detailed Vibration Analysis is to use all available tools to develop accurate projections of potential ground-borne vibration impact and when necessary, to design mitigation measures. A Detailed Vibration Analysis requires developing estimates of the frequency components of the vibration signal, usually in terms of 1/3-octave-band spectra. The analytical techniques for solving vibration problems are complex, and the technology continually advances. Therefore, the approach presented in this section focuses on the key steps for these analyses. The key elements of the Detailed Vibration Analysis procedure and recommended steps are described below.

The methods in this section generally assume a steel-wheel/rail system. The procedures could be adapted to bus systems. However, this is rarely necessary because vibration impact is very infrequent with rubber-tired transit.

In general, when situations arise that are not explicitly covered in the Detailed Vibration Analysis, professional judgment may be used to extend these methods to cover these unique cases, when appropriate. Appendix G provides information on developing and using non-standard modeling procedures.

Step 1: Characterize Existing Vibration Conditions

Conduct measurements to survey and document the existing vibration conditions.

In contrast to noise impact analysis, the existing ambient vibration is not required to assess vibration impact in most cases; but, it is important to

document general background vibration in the project corridor. Because the existing environmental vibration is usually below human perception, a limited vibration survey is sufficient even for a Detailed Vibration Analysis.

It is particularly valuable to survey vibration conditions at sensitive locations for the following reasons:

- To obtain valuable information on the true sensitivity of the activity to external vibration and obtain a reference condition under which vibration is not problematic.
- To document that existing vibration levels are above or below the normal threshold of human perception for the existing condition.
- To document levels of vibration created by existing rail lines. If vibration from an existing rail line is higher than the proposed train, there may not be impact even if the standard impact criteria are exceeded.
- To use existing vibration sources to characterize propagation. Existing vibration sources such as freight trains, industrial processes, quarrying operations, or normal traffic can be used to characterize vibration propagation. Carefully designed and performed measurements may eliminate the need for more complex propagation tests. See Appendix G for information on using non-standard modeling procedures.
- To identify the potential for efficient vibration propagation. If a measurement site has existing vibration approaching the range of human perception (e.g., the maximum vibration velocity levels are greater than about 65 VdB), then this site should be carefully evaluated for the possibility of efficient vibration propagation.

Conduct measurements to characterize existing vibration conditions. The goal of most ambient vibration measurements is to characterize the rms vertical vibration velocity level at the ground surface. In almost all cases, it is sufficient to measure only vertical vibration and ignore the transverse components of the vibration. Although transverse components[51] can transmit vibration energy into a building, the vertical component typically dominates.

1a. Choose Measurement Locations – Conduct outdoor and/or indoor measurements to characterize existing vibration conditions, as appropriate, for the project. Although ground-borne vibration is almost exclusively a problem inside buildings, it is generally recommended to perform measurements outdoors because equipment inside the building may cause more vibration than exterior sources. Additionally, the building structure and the resonances of the building can have strong effects on the vibration that are difficult to predict. It can also be important to measure and document those indoor sources of vibration. These indoor sources may cause vibration greater than that due to external sources like street traffic or aircraft overflights. When measuring (indoor) floor vibration, take measurements near the center of a floor span where the vibration amplitudes are the highest.

1b. Measurement Considerations

- **Site selection** – Selecting sites for an ambient vibration survey requires good judgment. Sites selected to characterize a transit corridor should be distributed along the entire project where potential for impacts have been identified and should be representative of the types of vibration environments found in the corridor. This would commonly include:
  - Measurements in quiet, residential areas removed from major traffic arterials to characterize low-ambient vibration areas;
  - Measurements along major traffic arterials and highways or freeways to characterize high-ambient vibration areas;
  - Measurements in any area with vibration-sensitive activities; and
  - Measurements at any major existing source of vibration such as railroad lines.

- **Transducer placement** – Place the transducers near the building setback line. For ambient measurements along railroad lines, it is recommended to include:
  - Multiple sites at several distances from the rail line at each site, and
  - 4 to 10 train passbys for each test.

  Because of the irregular schedule for freight trains and the low number of operations each day, it is often impractical to perform tests at more than two or three sites along the rail line or to measure more than two or three passbys at each site.

  Rail type and condition strongly affect the vibration levels. Consequently, it is important to inspect the track to locate any switches, bad rail joints, corrugations, or other factors that could be responsible for higher than normal vibration levels. Locations with these kinds of irregularities should be represented in addition to locations with rail in better condition.

- **Transducer mounting methods** – The way a transducer is mounted can affect the measured levels of ground-borne vibration.
  - Straightforward methods of mounting transducers on the ground surface or on pavement are adequate for vertical vibration measurements for the frequencies of concern for ground-borne vibration (less than about 200 Hz).
  - Quick-drying epoxy, clay, or beeswax can be used to mount transducers to smooth paved surfaces or metal stakes driven into the ground.
  - Rough concrete or rock surfaces require special mountings. One approach is to use a liberal base of epoxy to attach small aluminum blocks to the surface, and then mount the transducers on the aluminum blocks.
  - When in doubt, review the specific transducer documentation and discuss additional mounting guidance with the transducer manufacturer.

1c. Existing Vibration Characterization – The appropriate methods of characterizing ambient vibration are dependent on the type of information required for the analysis. Consider the following when characterizing the existing vibration:

- **Ambient vibration** – Ambient vibration is usually characterized with a continuous 10- to 30-minute measurement of vibration. The rms velocity level of the vibration velocity level over the measurement period provides an indication of the average vibration energy. The rms velocity level over the measurement period is typically equivalent to a long averaging time rms level.

- **Specific events** – Characterize specific events such as train passbys by the rms level over the time that the train passes by. If the locomotives produce vibration levels more than 5 dB higher than the passenger or freight cars, obtain a separate rms level for the locomotives. The locomotives can usually be characterized by the L_{max} during the train passby. The rms averaging time or time constant should be 1 second when determining L_{max}. In some cases, it may be adequate to characterize the train passby using L_{max}, which is simpler to obtain than the rms averaged over the entire train passby.

- **Spectral analysis** – Perform a spectral analysis of vibration propagation data. For example, if vibration transmission of the ground is suspected of having particular frequency characteristics, use 1/3-octave band charts to describe vibration behavior. Narrowband spectra also can be valuable, particularly for identifying discrete frequency components and designing specific mitigation measures.

  Note that it is preferred to characterize existing vibration in terms of the rms velocity level instead of the peak PPV, which is commonly used to monitor construction vibration. As discussed in Section 5.1, rms velocity is considered more appropriate than PPV for describing human response to building vibration.

Step 2: Estimate Vibration Impact

Estimate ground-borne vibration and noise at sites where significant impact is probable and assess for impact.

Predicting ground-borne vibration associated with a transportation project continues to be a developing field. Because ground-borne vibration is a complex phenomenon that is difficult to model and predict accurately, most projection procedures that have been used for transit projects rely on empirical data.

The procedure described in this section is based on site-specific tests of vibration propagation. This procedure was developed under a FTA-funded research contract[52] and is recommended for detailed evaluations of ground-borne vibration. Other approaches to a prediction procedure, such as finite element methods, can be used. See Appendix G for information on using non-standard modeling procedures.

Overview of Prediction Procedure – This procedure was developed to allow the use of data collected in one location to accurately predict vibration levels in another site where the geologic conditions may be completely different. The procedure is based on transfer mobility. Transfer mobility is the complex velocity response produced by a point force as a function of frequency. It represents the relationship between a vibration source that excites the ground and the resulting vibration of the ground surface. It is a function of both frequency and distance from the source. The analyses in this manual focus on transfer mobility magnitude, which is the magnitude for the velocity relative to the force without reference to phase. The transfer mobility level is the level in decibels relative to 1E-6 in/lb-s.

The transfer mobility measured at an existing transit system is used to normalize ground-borne vibration data and remove the effects of geology. The normalized vibration is referred to as the force density. Force density is the force per root distance along the track in $lb/ft^{1/2}$. The force density can be combined with transfer mobility measurements at vibration-sensitive sites along a new project to develop projections of future ground-borne vibration.

The transfer mobility between two points completely defines the composite vibration propagation characteristics between the two points. In most practical cases, receivers are close enough to the train tracks that the vibration cannot be considered as originating from a single point. Therefore, the vibration source must be modeled as a line-source. Consequently, the point transfer mobility must be modified to account for a line-source. The subsequent line-source transfer mobility is given in units of decibels relative to 1e-6 in/s/lb/sqrt(ft).

The prediction procedure considers ground-borne vibration to be divided into several basic components described below and shown in Figure 6-5.

- **Excitation Force (Force Density)** – The vibration energy is created by oscillatory and impulsive forces. Steel wheels rolling on smooth steel rails create random oscillatory forces. When a wheel encounters a discontinuity such as a rail joint, an impulsive force is created. The force excites the transit structure, such as the subway tunnel or the ballast for at-grade track.

  In the prediction method, the combination of the actual force generated at the wheel/rail interface and the vibration of the transit structure are usually combined into an equivalent force density level. The force density level is the level in decibels of the force density relative to 1 $lb/ft^{1/2}$ and describes the force that excites the soil/rock surrounding the transit structure.

- **Vibration Propagation (Transfer Mobility)** – The vibration of the transit structure causes vibration waves in the soil that propagate away from the transit structure. The vibration energy can propagate through the soil or rock in a variety of wave forms. All ground vibration includes shear and compression waves. Rayleigh waves [49] are also created and propagate along the ground surface. These Rayleigh waves can be a

major carrier of vibration energy. The mathematical modeling of vibration is complicated when there are soil strata with different elastic properties, which is common. As indicated in Figure 6-5, the propagation through the soil/rock is modeled using the transfer mobility, which is usually determined experimentally.

The combination of the force density level and the transfer mobility is used to predict the ground- surface vibration. This is the major difference from the General Vibration Assessment, which generalizes estimates of the ground-borne vibration.

- **Building Vibration** – When the ground vibration excites a building foundation, it sets the building into vibratory motion and vibration waves propagate throughout the building structure. The interaction between the ground and the foundation causes some reduction in vibration levels. The amount of reduction is dependent on the mass and stiffness of the foundation. The more massive the foundation, the lower the response to ground vibration. As the vibration waves propagate through the building, they can create vibration that can be felt and cause windows and household items to rattle.

- **Audible Noise** – In addition to vibration that can be felt, the vibration of room surfaces radiates low-frequency sound that may be audible. The sound level is affected by the amount of acoustical absorption in the receiver room.

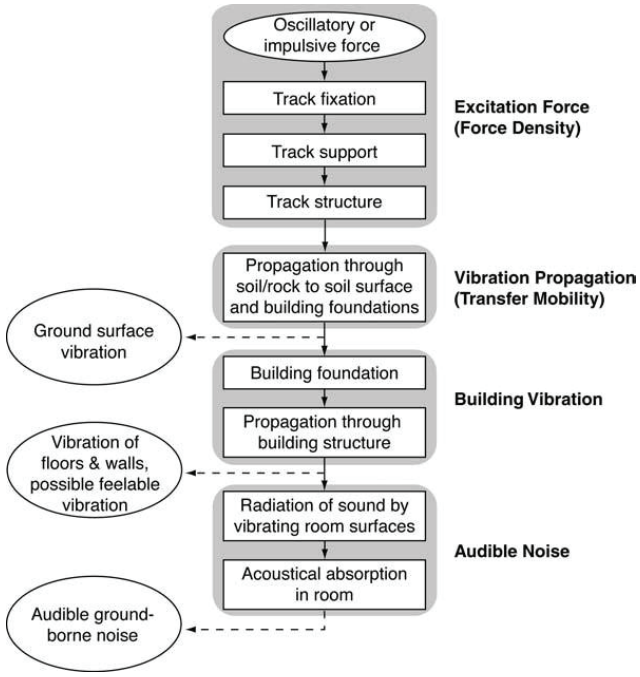


Figure 6-5 Ground-Borne Vibration and Noise Model

A fundamental assumption of the prediction approach outlined in this section is that the force density, transfer mobility, and the building coupling to the ground are all independent factors. The following equations are the basis for the

prediction procedure, where all of the quantities are one-third octave band spectral levels in decibels with consistent reference values:

$$L_v = FDL + LSTM + C_{build} \quad \textbf{Eq. 6-5}$$

$$L_A = L_v + K_{rad} + K_{A-wt} \quad \textbf{Eq. 6-6}$$

where:

L_v = rms vibration velocity level in VdB
FDL = force density level in dB for a line vibration source such as a train
$LSTM$ = line-source transfer mobility level in dB from the tracks to the sensitive site
C_{build} = adjustments to account for ground-building foundation interaction and attenuation of vibration amplitudes as vibration propagates through buildings
L_A = A-weighted sound level
K_{rad} = adjustment to account for conversion from vibration to sound pressure level including accounting for the amount of acoustical absorption inside the room. A value of -5 dB can be used for K_{rad} for typical residential rooms when the decibel reference value for L_v is 1 micro in/sec [37][50]
K_{A-wt} = A-weighting adjustment at the 1/3-octave band center frequency

All of the quantities given above are functions of frequency, and the standard approach is to develop projections on a 1/3-octave band basis using the average values for each 1/3-octave band. The end results of the analysis are the 1/3-octave band spectra of the ground-borne vibration and the ground-borne noise.

The spectra are then compared to the vibration criteria for the Detailed Vibration Analysis. The A-weighted ground-borne noise level can be calculated from the vibration spectrum and compared to the criteria. This more detailed approach differs from the General Vibration Assessment, where the overall vibration velocity level and A-weighted sound level are predicted without any consideration of the particular frequency characteristics of the propagation path.

The key steps in obtaining quantities for Eq. 6-5 and Eq. 6-6 are presented in the following steps and include:

Step 2a. Estimate force density
Step 2b. Measure the point-source transfer mobility
Step 2c. Estimate line-source transfer mobility
Step 2d. Project ground-borne vibration and ground-borne noise

2a. Estimate Force Density – The estimate of force density can be based on previous measurements or a special test program can be designed to measure the force density at an existing facility.

If no suitable measurements are available, conduct testing at a transit facility with equipment similar to the planned vehicles. Adjustments for factors such as train speed, track support system, and vehicle suspension may be needed to match the force density to the conditions at a specific site. Review the report

"State-of- the-Art Review: Prediction and Control of Ground-Borne Noise and Vibration from Rail Transit Trains" [41] for examples of appropriate adjustments.

Force density is not a quantity that can be measured directly; it must be inferred from measurements of transfer mobility and train vibration at the same site. To derive force density, the best results are achieved by deriving line-source transfer mobility from a line of impacts. The standard approach is to average the force density from measurements at three or more positions at one site. If feasible, it is recommended to take measurements at more than one site and at multiple speeds.

If no suitable measurements are available, see Steps 2b and 2c for guidelines on obtaining line-source transfer mobility.

The force density for each 1/3-octave band is as follows:

$$FDL = L_v - LSTM \qquad \textbf{Eq. 6-7}$$

where:

FDL = force density level in dB
L_v = measured train ground-borne vibration level in VdB
$LSTM$ = line-source transfer mobility level in dB

Figure 6-6 shows example trackbed force densities in decibels relative to 1 lb/(ft)$^{1/2}$. These force densities were developed from measurements of vibration from heavy and LRT vehicles and represent an incoherent line of vibration force equal to the length of transit trains. This figure provides a comparison of the vibration forces from heavy commuter trains and LRT vehicles with different types of primary suspensions, illustrating the range of vibration forces commonly experienced in a transit system. A force density of a vehicle includes the characteristics of its track support system at the measurement site. Adjustments must be applied to the force density to account for differences between the facility where the force density was measured and the new system being analyzed.

Figure 6-7 shows typical force densities for rail transit vehicles at 40 mph on ballast and tie tracks, which are approximately within the tolerances shown in Figure 6-6. The force densities should be applied very carefully for other track types and speeds. The embedded tracks, although considerably stiffer than ballast and tie tracks, are expected to show similar force density levels.[53] The curves in Figure 6-7 should also be applied with caution for newer generations of light rail vehicles as well as vehicles that utilize direct fixation tracks. The preferred approach for vibration predictions would be to perform force density measurements at a system with vehicles and operations that are similar to those of the future project.

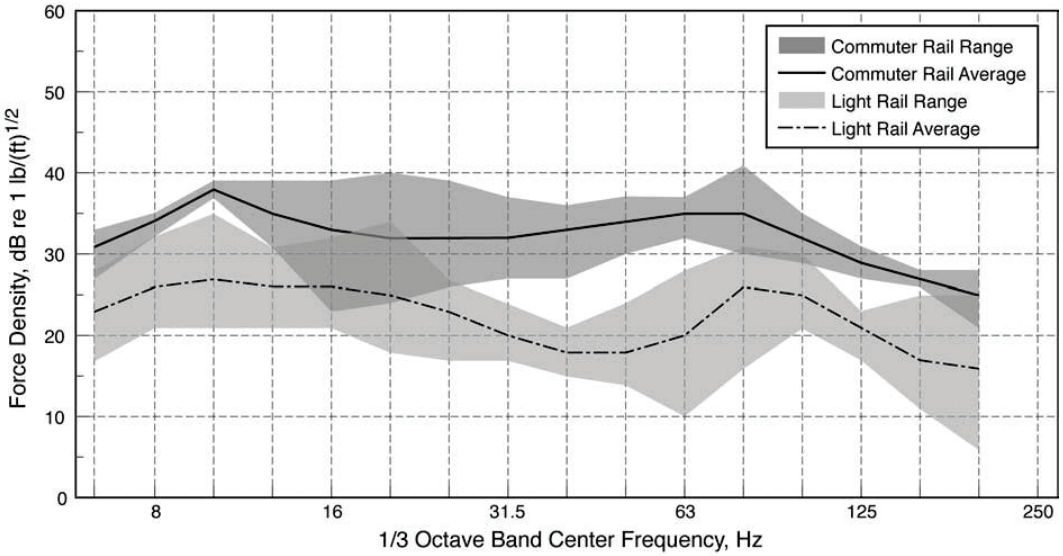


Figure 6-6 Typical Force Densities for Rail Transit Vehicles, 40 mph

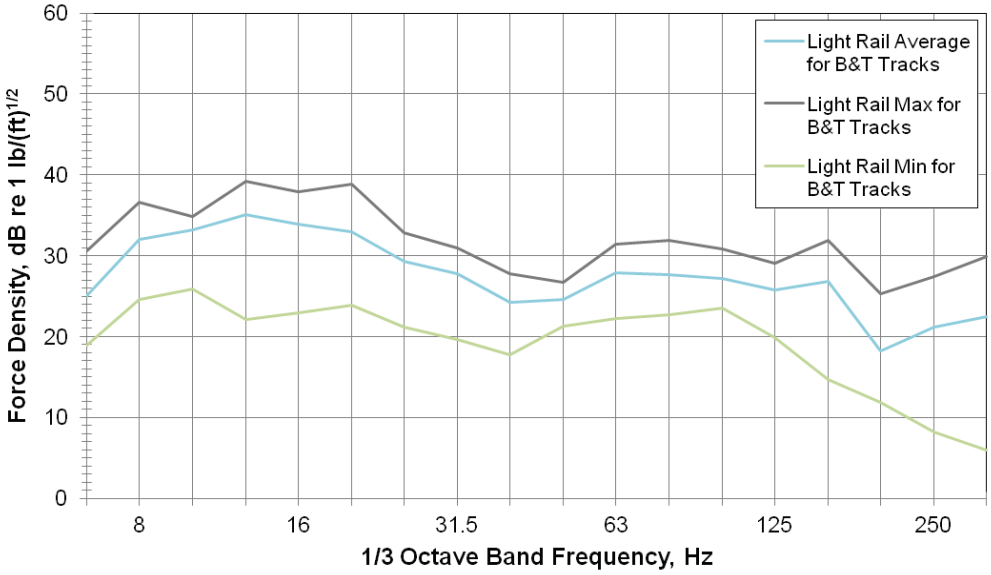


Figure 6-7 Typical Force Densities for LRT Vehicles, 40 mph

2b. Measure Point-Source Transfer Mobility – Using the appropriate instrumentation, measure point-source transfer mobility for sources with short lengths, such as buses or single car vehicles or columns supporting elevated structures. For longer vehicles, see Section 2c for a discussion of measuring line-source transfer mobilities.

The test procedure to measure point-source transfer mobility consists of impacting the ground by dropping a heavy weight and measuring the force into the ground and the response at several distances from the impact. Other excitation sources may include swept sine, sine-dwell, random vibration, and maximum length sequence. The goal of the test is to create vibration pulses that

travel from the source to the receiver using the same path that will be taken by the transit system vibration.

Figure 6-8 illustrates the field procedure for measuring both at-grade and subway testing of transfer mobility. A weight is dropped from a height of 3 to 4 ft onto a force transducer. The responses of the force and vibration transducers are recorded on a multichannel recorder for later analysis in the laboratory. An alternative approach is to set up the analysis equipment in the field and capture the signals directly. This complicates the field testing, but eliminates the laboratory analysis of recorded data.

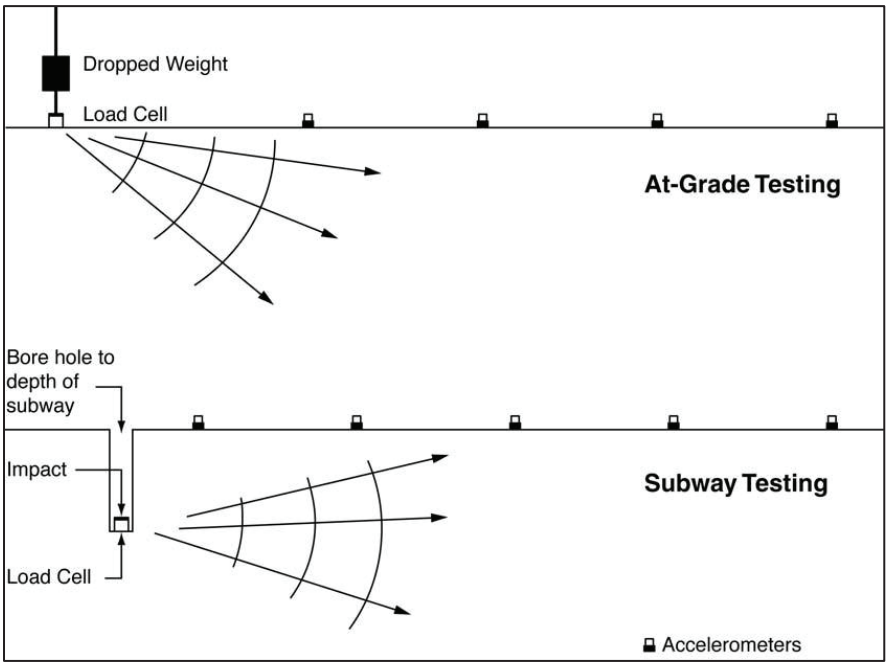


Figure 6-8 Test Configuration for Measuring Transfer Mobility

When the procedure is applied to subways, the force must be located at the approximate depth of the subway. This is done by drilling a bore hole and locating the force transducer at the bottom of the hole. The tests are usually performed while the bore holes are drilled to allow for the use of the soil-sampling equipment on the drill rig for the transfer mobility testing. The force transducer is attached to the bottom of the drill string and lowered to the bottom of the hole. A standard soil sampling hammer is used to excite the ground; typically, a 140-pound weight is dropped 18 inches onto a collar that is attached to the drill string. The force transducer must be capable of operating under water if the water table is near the surface or a slurry drilling process is used.

Standard signal-processing techniques are used to determine the transfer function (frequency response function) between the exciting force and the resultant ground-borne vibration. Numerical regression methods are used to combine a number of two-point transfer functions into a smooth point-source transfer mobility level that represents the average vibration propagation characteristics of a site as a function of both distance from the source and

frequency. The transfer mobility level is usually expressed in terms of a group of 1/3-octave band transfer mobility levels. Figure 6-9 is an example of point-source transfer mobility levels from a series of tests at the Transportation Technology Center in Pueblo, Colorado.[50][54][55][56][57]

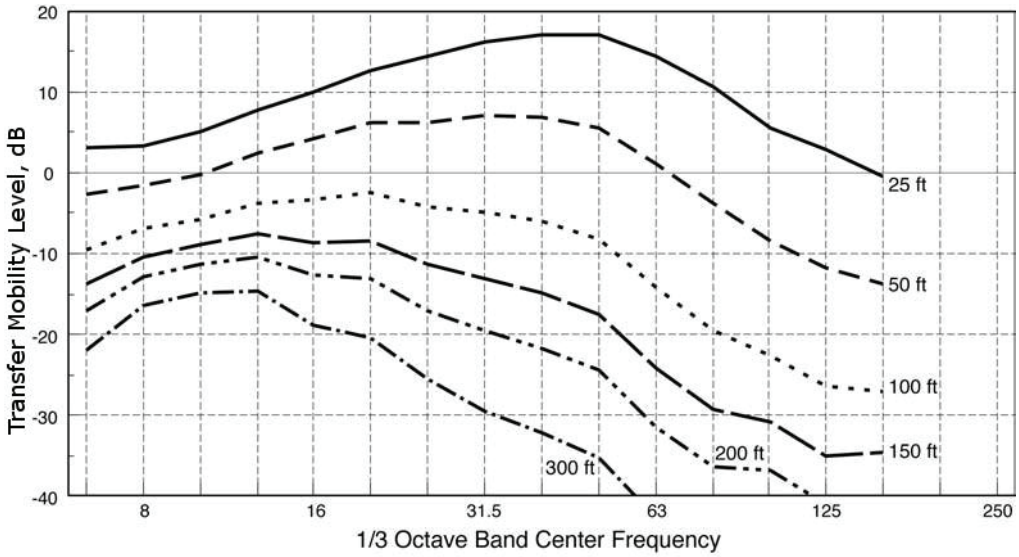


Figure 6-9 Example of Point-Source Transfer Mobility

Instrumentation

Performing a transfer mobility test requires specialized equipment, which is generally available from commercial sources. Typical instrumentation for field-testing and laboratory analysis of transfer mobility is shown in Figure 6-10.

A load cell can be used as the force transducer. The force transducer should be capable of impact loads of 5,000 to 50,000 pounds depending on the hammer used for the impact. For borehole testing, the load cell must be hermetically sealed and capable of being used at the bottom of a 30- to 100-foot-deep hole partially filled with water.

Either accelerometers or geophones can be used as the vibration transducers. Geophones should be carefully mounted so that they are vertical. The requirement is that the transducers with the associated amplifiers be capable of accurately measuring levels of 0.0001 in/sec at 40 Hz and have a flat frequency response from 6 Hz to 400 Hz. Data should be acquired with a digital acquisition system with a flat frequency response over the range of 6 to 400 Hz.

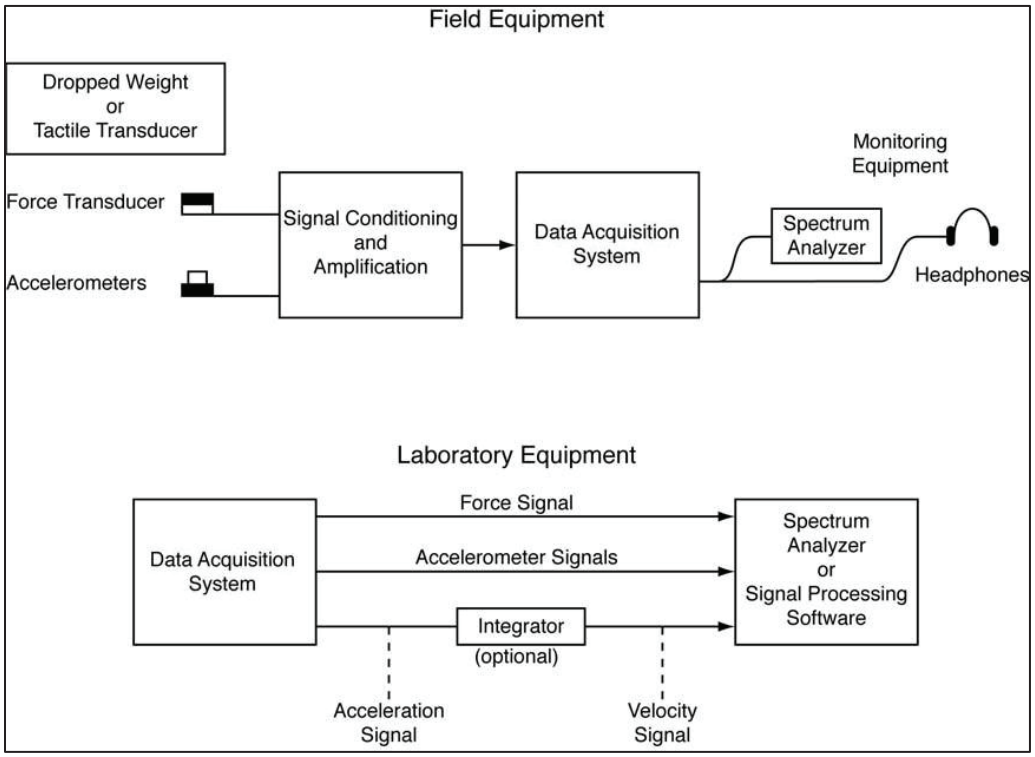


Figure 6-10 Equipment Required for Field Testing and Laboratory Analysis

A narrowband spectrum analyzer or signal-processing software can be used to calculate the transfer function and coherence between the force and vibration data. The analyzer must be capable of capturing impulses from at least two channels to calculate the frequency spectrum of the transfer function between the force and vibration channels. All transfer functions should include the average of at least 20 impulses. Time averaging of the impulses will provide substantial signal enhancement, which is usually required to accurately characterize the transfer function. Signal enhancement is particularly important when the vibration transducer is more than 100 ft from the impact.

Alternative methods of determining transfer mobility may be used, provided that these techniques have been demonstrated to provide the same results as the conventional weight-drop method over the frequency range of 6 Hz to 400 Hz. See Appendix G for information on developing and using non-standard procedures. These methods may include using other impulse-response measurement systems involving the use of shakers or electro-mechanical actuators, stimuli such as sweeps or maximum length sequences (MLS), and various signal processing techniques. A forthcoming ANSI Standard will describe in detail the procedures, methodologies, and reporting requirements for performing ground-borne vibration propagation measurements.

The transfer function can be calculated with either a spectrum analyzer or signal-processing software. Note that transfer functions should include the average of at least 20 impulses. Specialized multi-channel spectrum analyzers have built-in capabilities for computing transfer functions and are computationally efficient. However, signal-processing software can offer more

flexibility in analyzing data signals and allows the use of different digital signal processing methods. Typical measurement programs involve acquisition of data in the field and later processing of the information in a laboratory. However, recent advances in instrumentation and signal-processing software allow data to be collected and analyzed while in the field.

2c. Estimate Line-Source Transfer Mobility – Estimate line-source transfer mobility for long sources such as multi-car trains. Line-source transfer mobilities are used to normalize measured vibration velocity levels from train passbys and to obtain force density. Two different approaches can be used to develop estimates of line-source transfer mobility. The first consists of using lines of transducers and the second consists of a line of impact positions.

Option A: Lines of Transducers – Develop line-source transfer mobility curves from tests using one or more lines of transducers as shown in Figure 6-11 and described below.

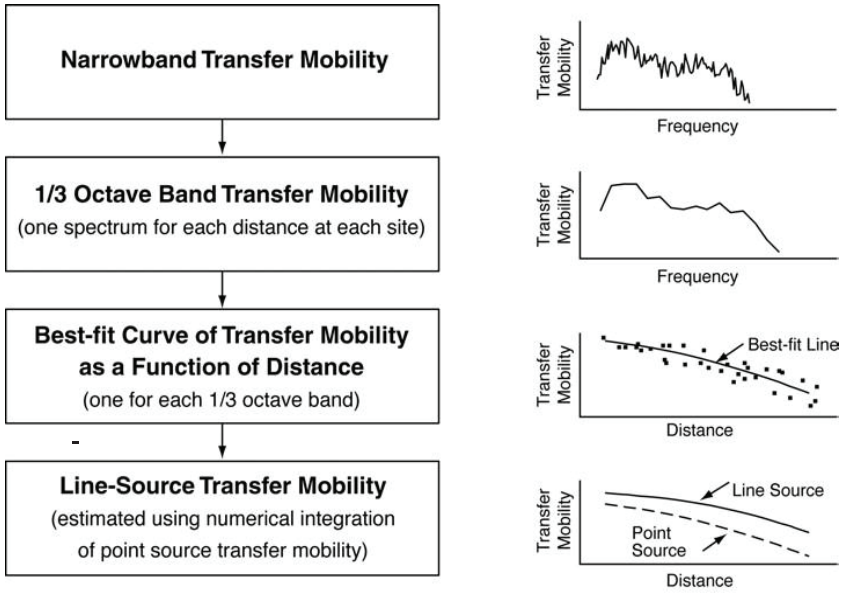


Figure 6-11 Analysis of Transfer Mobility

Ai. Obtain the narrowband transfer function between source and receiver at each measurement position. There should be a minimum of four distances in any test line. Because of the possibility of local variations in propagation characteristics, two or more lines should be used to characterize a site if possible. A total of 10 to 20 transducer positions are often used to characterize a site.

Aii. Calculate the equivalent 1/3-octave band transfer functions, generally between 6 and 400 Hz. This reduces each spectrum to 15 numbers. As shown in Figure 6-11, the 1/3-octave band spectrum is much smoother than the narrowband spectrum.

Aiii. Calculate a best-fit curve of transfer mobility as a function of distance for each 1/3-octave band. When analyzing a specific site, the best-fit curve will be

based on 10 to 20 points. Up to several hundred points could be used to determine average best-fit curves for a number of sites.

Aiv. Apply the best-fit curve to the vibration sources. The 1/3-octave band best-fit curves can be directly applied to point vibration sources. Buses can usually be considered point-sources, as can columns supporting elevated structures. However, for a line vibration source such as a train, numerical integration must be used to calculate the equivalent line-source transfer mobility. The numerical integration procedures are detailed in the TRB publication: "A Prediction Procedure for Rail Transportation Ground-Borne Noise and Vibration."(50)

Option B: Line of Impulses – This second procedure for estimating line-source transfer mobility is best for detailed assessment of specific vibration paths or specific buildings and is a more direct approach.

Bi. Measure multiple point-source transfer mobilities according to the procedures in Step 2b above. The vibration transducers are placed at specific points of interest and a line of impacts is used. For example, a 150-foot train might be represented by a line of 11 impact positions along the track centerline at 15-foot intervals (Figure 6-12).

Bii. Sum the point-source results using Simpson's rule[xiii] for numerical integration to calculate the line-source transfer mobility.

Figure 6-13 shows an example of line-source transfer mobilities that were derived from the point-source transfer mobilities shown in Figure 6-9.

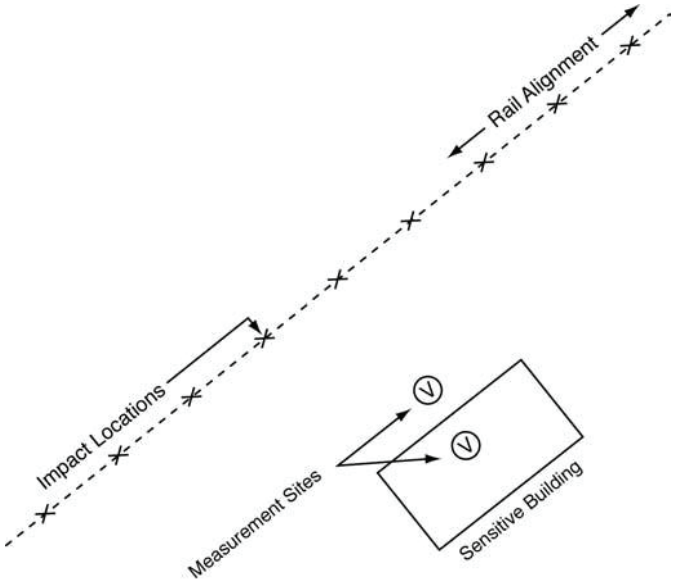


Figure 6-12 Schematic of Transfer Mobility Measurements Using a Line of Impacts

[xiii] Simpson's rule is a method for approximating integrals.

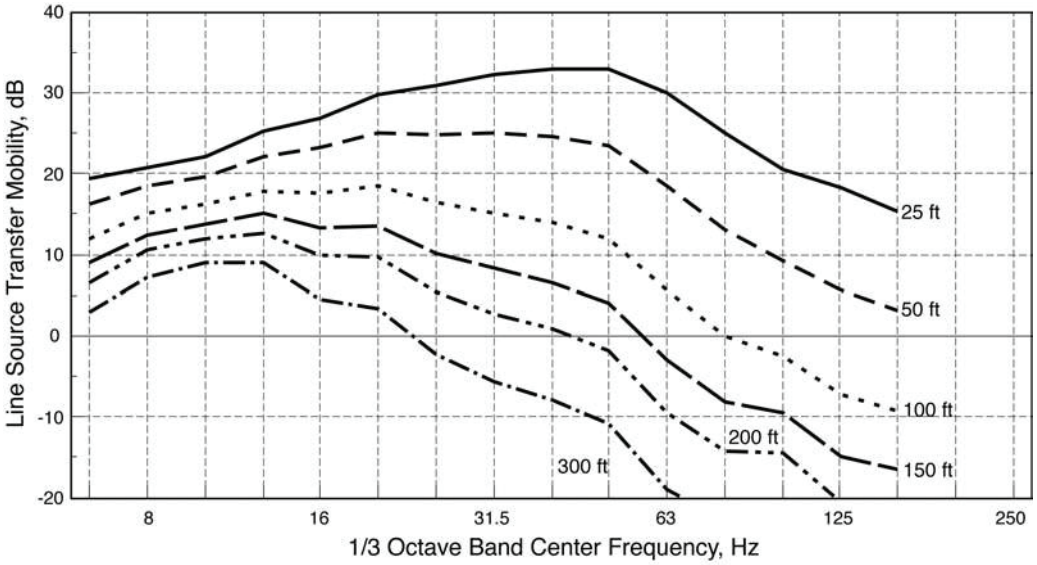


Figure 6-13 Example of Line-source Transfer Mobility

2d. Project Ground-Borne Vibration and Noise – Combine force density and line-source transfer mobility to project ground-borne vibration. Then, apply adjustment factors to estimate the building response to the ground-borne vibration and to estimate the A-weighted sound level inside buildings.

The propagation of vibration from the building foundation to the receiver room is very complex and dependent on the specific design of the building. Detailed evaluation of the vibration propagation would require extensive use of numerical procedures such as the finite element method. Such a detailed evaluation is generally not practical for individual buildings considered in this manual. If the detailed features of the individual buildings are available, the recommended procedure is to estimate the propagation of vibration through a building and the radiation of sound by vibrating building surfaces using simple empirical or theoretical models. The recommended procedures are outlined in the Handbook of Urban Rail Noise and Vibration Control.[44] The approach consists of adding the following adjustments to the 1/3-octave band spectrum of the projected ground-borne vibration:

- **Building response or coupling loss** – This adjustment represents the change in the incident ground-borne vibration due to the presence of the building foundation. The adjustments described in the handbook [44] are shown in Figure 6-14. Note that the correction is zero when estimating basement floor vibration or vibration of at-grade slabs. Measured values may be used in place of these generic adjustments.

- **Transmission through the building** – The vibration amplitude typically decreases as the vibration energy propagates from the foundation through the remainder of the building. The general assumption is that vibration attenuates by 1 to 2 dB for each floor.

- **Floor resonances** – Vibration amplitudes will be amplified because of resonances of the floor/ceiling systems. For a typical wood-frame

residential structure, the fundamental resonance is usually in the 15 to 20 Hz range. Reinforced-concrete slab floors in modern buildings will have fundamental resonance frequencies in the 20 to 30 Hz range. An amplification resulting in a gain of approximately 6 dB should be used in the frequency range of the fundamental resonance.

- **Floor vibration and ground-borne noise** – The projected floor vibration is used to estimate the levels of ground-borne noise. The primary factors affecting noise level are the average vibration level of the room surfaces and the amount of acoustical absorption within the room. The radiation adjustment is -5 dB for typical rooms, [37] [50] which gives:

$$L_A \approx L_V + K_{A-wt} - 5 \qquad \textbf{Eq. 6-8}$$

where:

L_A = A-weighted sound level in a 1/3-octave band
L_v = rms vibration velocity level in that band
K_{A-wt} = A-weighting adjustment at the 1/3-octave band center frequency

The A-weighted levels in the 1/3-octave bands are combined to produce the overall A-weighted sound level.

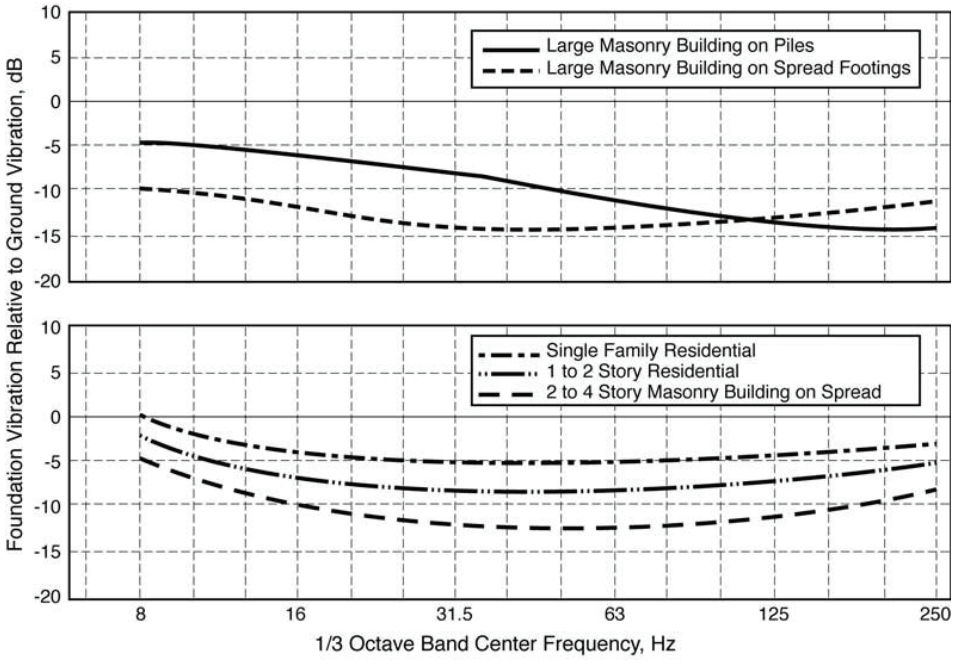


Figure 6-14 Foundation Response for Various Types of Buildings

Where detailed information on the structural features of individual buildings are unavailable and there are no site-specific data on outdoor to indoor propagation characteristics, the preferred approach is to apply a combined factor for the foundation response and the gain from floor resonances. Empirical data based on the TCRP D-12 Project from 34 measurement sites across 5 cities in North

America and other studies suggest that the average change in vibration from outdoor to indoor was 0 dB across all 1/3-octave bands with a standard deviation of approximately 5 to 6 dB in the 31.5 to 63 Hz frequency.[43][48] Therefore, the recommended approach for predicting indoor vibration based on outdoor data is to use an adjustment of +3 to +6 dB for light-weight, wood-frame construction and use an adjustment of 0 dB for heavier buildings.

However, for buildings with high-vibration sensitivity or where there is concern regarding interference with vibration-sensitive equipment, it is advisable to measure the outdoor-indoor response of the building, using the process described in Section 2b or 2c, to determine the actual response of the foundation and building to vibration.

Step 3: Assess Vibration Impact

Take inventory of vibration-sensitive land uses with impact.

Assess vibration impact at each receiver of interest using the impact criteria in Section 6.3. Note that ground-borne vibration and noise levels that exceeded criteria in the General Vibration Assessment may not cause impact according to the more detailed procedures of the Detailed Vibration Analysis; in which case, mitigation is not required. But if projected levels still exceed the criteria, evaluate vibration mitigation measures using the spectra provided by the Detailed Vibration Analysis.

Step 4: Determine Vibration Mitigation Measures

Select practical vibration control measures that will be effective at the dominant vibration frequencies and compatible with the given transit structure and track support system.

The purpose of vibration mitigation is to minimize the adverse effects that the project ground-borne vibration and ground-borne noise will have on sensitive land uses. Because ground-borne vibration is not as common a problem as environmental noise, the mitigation approaches have not been as well defined. In some cases it may be necessary to develop innovative approaches to control the impact. See Appendix G for information on using non-standard methods.

Standard vibration control measures for rail transit systems are discussed in this step. Note that vibration control measures for rail transit systems are not always effective for freight trains.[xiv] Bus systems rarely cause vibration impact, but if impact occurs, roadway roughness or unevenness caused by bumps, pot holes, expansion joints, or driveway transitions are usually the causes. Smoothing the roadway surface is typically the recommended course of action.[xv]

[xiv] The heavy axle loads associated with freight rail are outside the range of applicable design parameters for vibration reduction on lighter rail transit systems. Plans to relocate existing railroad tracks closer to vibration-sensitive sites in order to accommodate a new rail transit line in the ROW must be carefully considered because it may not be possible to mitigate the increased vibration impact from freight trains.

[xv] In cases where a rubber-tired system runs inside a building, such as an airport people mover, vibration control may involve additional measures. Loading and unloading of guideway support beams may generate dynamic forces that transmit into the building structure. Special guideway support systems may be required, similar to the discussion below regarding floating slabs.

Vibration reduction measures incur additional costs to a system. Some of the same treatments for noise mitigation can be considered for vibration mitigation. Costs for noise control measures are documented in a report from the Transit Cooperative Research Program (TCRP).[31] Where applicable to vibration reduction, costs for noise abatement methods from that report are given in the following sections. These costs reflect the noise mitigation costs as of 1997 (unless otherwise noted), and should only be used as representative estimates when considering noise mitigation options. Current noise mitigation costs should be researched before decisions on noise mitigation options are finalized, and then they should be documented according to Section 8.

Mitigation of vibration impacts may involve treatments at the source, along the source-to-receiver propagation path, or at the receiver.

1a. Evaluate Source Treatments – The most effective vibration mitigation treatments are applied at the vibration source. This is the preferred approach to mitigation when possible. Possible source treatments include:

- **Preventative Maintenance** – Effective maintenance programs are essential for controlling ground-borne vibration. Key vibration points are discussed below; see Section 4.5, Step 7 for more detailed information on the benefits of effective maintenance programs on controlling transit noise and vibration. While these are not mitigation measures in the traditional sense, and should not be included as mitigation in an environmental document, they can help to keep both noise and vibration levels at a "like-new" level or reduce both in systems with deferred maintenance.

  - **Rail grinding** is a particularly important practice for vibration mitigation for rail that develops corrugations. The TCRP report notes that periodic rail grinding results in a net savings per year on wheel and rail wear. Most transit systems contract out rail grinding, although some of the larger systems make the investment and do their own grinding. As mentioned in Section 4.5, Step 7, the typical rail grinding cost would be $1000 to $7000 per grinding pass mile, with an additional investment of approximately $1 million for the equipment for a larger transit system to do its own grinding.

  - **Dramatic vibration reduction** results can be achieved by removing wheel flats through **wheel truing**. As mentioned in Section 4.5, Step 7, a wheel truing machine costs approximately $1 million, including associated maintenance, materials, and labor costs. The TCRP report figures a system with 700 vehicles would incur a yearly cost of $300,000 to $400,000 for a wheel truing program.

  - **Profile grinding of the rail head** in combination with a wheel truing program may be the most practical approach to controlling and reducing vibration and noise where such practices are not normally conducted. Profiles should be defined during the design phase and should be in place when system opens.[32] The cost of

wheel and rail profile matching may be incorporated in the new vehicle and new rail costs.

Rough wheels or rails can increase vibration levels by as much as 20 dB in extreme cases, negating the effects of even the most effective vibration control measures. Yet, it is rare that vibration control measures (such as those discussed below) will provide more than 15 to 20 dB attenuation. When there are ground-borne vibration impacts with existing transit equipment, the best vibration control measure often is to implement new or improved maintenance procedures. Grinding rough or corrugated rail and wheel truing to eliminate wheel flats and restore the wheel contour may provide considerable vibration reduction. Regular maintenance may replace the need to modify the existing track system, such as through adding floating slabs.

- **Planning and Design of Special Trackwork** – A large percentage of the vibration impact from a new transit facility is often caused by wheel impacts at special trackwork for turnouts and crossovers. When feasible, the most effective vibration control measure is to relocate the special trackwork to a less vibration-sensitive area. This may require adjusting the location by several hundred feet provided it will not have an adverse impact on the operation plan for the system. Careful review of crossover and turnout locations during the project development phase is an important step to minimizing potential for vibration impact.

  Another approach is to use special devices (frogs) at turnouts and crossovers that incorporate mechanisms to close the gaps between running rails. Frogs with spring-loaded mechanisms and frogs with movable points can substantially reduce vibration levels near crossovers. According to the TCRP report, a spring frog costs about $12,000, twice the cost of a standard frog. A movable point frog involves elaborate signal and control circuitry resulting in higher costs at approximately $200,000.

- **Vehicle Specifications** – The ideal rail vehicle with respect to minimizing ground-borne vibration should have the following characteristics:
  - Low, unsprung weight
  - Soft primary suspension
  - A minimum of metal-to-metal contact between moving parts of the truck
  - Smooth wheels that are perfectly round

  A limit for the vertical resonance frequency of the primary suspension should be included in the specifications for any new vehicle. A vertical resonance frequency of 12 Hz or less is sufficient to control the levels of ground-borne vibration, although some have recommended the vertical resonance frequency be less than 8 Hz.

- **Special Track Support Systems** – When the vibration assessment indicates that vibration levels will be excessive, the track support system is typically modified to reduce the vibration levels.

  Floating slabs, resiliently supported ties, high-resilience fasteners, and ballast mats can be used to reduce the levels of ground-borne vibration. To be effective, all of these measures must be optimized for the frequency spectrum of the vibration. Most of these relatively standard procedures have been successfully used on several subway projects.

  Applications on at-grade and elevated track are less common. This is because vibration impact is less common for at-grade and elevated track. Note that the cost of these types of vibration control measures is a higher percentage of the overall construction costs for at-grade and elevated track, and exposure to the elements can require substantial design modifications.

  Each major vibration control measure for track support is discussed below. Costs for these treatments are not covered by the TCRP report, but are given as estimates based on transit agency experience.

  - **Resilient fasteners** – Resilient fasteners are used to fasten the rail to concrete track slabs. Standard resilient fasteners are very stiff in the vertical direction, usually in the range of 200,000 lb/in, and do provide some vibration reduction compared to the rigid fastening systems used on older systems (e.g., wood half-ties embedded in concrete).

    Special fasteners with vertical stiffness in the range of 30,000 lb/in may reduce vibration by as much as 5 to 10 dB at frequencies above 30 to 40 Hz. These premium fasteners vary in cost and can be priced competitively when purchased in large quantities.

  - **Ballast mats** – A ballast mat consists of a rubber or other type of elastomer pad that is placed under the ballast. In general, the mat must be placed on a concrete pad to be effective. They will not be as effective if placed directly on the soil or the sub-ballast. Consequently, most ballast mat applications are in subway or elevated structures.

    Ballast mats can provide 8 to 12 dB attenuation at frequencies above 25 to 30 Hz.[58] Ballast mats are often a good retrofit measure for existing tie-and-ballast track where there is vibration impact. Installed ballast mats cost approximately $180 per track-foot.

  - **Undertie pads** – Undertie pads (resiliently supported concrete ties) consist of a rubber pad mounted on the bottom of a concrete tie directly on the ballast. The pads provide vibration isolation at frequencies above 25 Hz and are easy to

install or retrofit. Installed undertie pads cost approximately $260 per track-foot.

- **Resiliently supported ties** – The resiliently supported tie system consists of concrete ties supported by rubber pads resting on top of a slab track or subway invert. The rails are fastened directly to the concrete ties using standard rail clips. Resiliently supported ties provide vibration reduction in between 15 to 40 Hz, which is particularly appropriate for transit systems with vibration impact in the 20 to 30 Hz range. A resiliently supported tie system costs approximately $400 per track-foot.

- **Floating slabs** – Floating slabs can be very effective at controlling ground-borne vibration and noise and consist of a concrete slab supported on resilient elements such as rubber or a similar elastomer. Floating slabs are effective at frequencies greater than their single-degree-of-freedom vertical resonance frequency.

  Floating slabs are among the most expensive vibration control treatments. A typical double-tie floating slab system costs approximately 4 times the cost of ballast and tie per track foot. Examples of floating slabs include:
  - Floating slabs used in Washington, DC; Atlanta, GA; and Boston, MA, were all designed to have a vertical resonance in the 14 to 17 Hz range.
  - A special system referred to as the double-tie system was first used in Toronto. It consists of 5-foot-long slabs with four or more rubber pads under each slab. This system was designed with a resonance frequency in the 12 to 16 Hz rang3.
  - Another special floating slab was used in San Francisco's Bay Area Rapid Transit (BART) system. It uses a discontinuous precast concrete double-tie system with a resonance frequency in the 5 to 10 Hz frequency range.

- **Tire-derived aggregate (TDA)** – TDA (shredded tires) consists of a layer of tire shreds wrapped in geotech fabric placed underneath the ballast on hard packed ground. This is a new, low-cost option that can provide reduction in vibration levels at frequencies above 25 Hz. This mitigation measure has proven to be effective for the Denver Regional Transportation District (RTD) light rail system as well as the Santa Clara Valley Transportation Authority (VTA) light rail system,[59] but the effective life of TDA has not been determined. Installed TDA costs approximately $260 per track-foot.

- **Other treatments** – Changing any feature of the track support system can change the levels of ground-borne vibration. Approaches

such as using heavier rail, thicker ballast, or heavier ties can be expected to reduce the vibration levels. There also is some indication that vibration levels are lower with wood ties compared to concrete ties. But there is little confirmation that any of these approaches will make a substantial change in the vibration levels.

- **Operational Changes** – The most effective operational change is to reduce the vehicle speed. Reducing the train speed by a factor of two will reduce vibration levels approximately 6 dB. Other operational changes include:
  - Use of equipment that generates the lowest vibration levels during the nighttime hours when people are most sensitive to vibration and noise.
  - Adjusting nighttime schedules to minimize movements in the most sensitive hours.

While there are tangible mitigation benefits from speed reductions and limits on operations during the most sensitive time periods, FTA does not generally accept speed reduction as a vibration mitigation measure for two important reasons: (1) speed reduction is unenforceable and negated if vehicle operators do not adhere to established policies, and (2) it is contrary to the purpose of the transit investment by FTA, which is to move as many people as possible as efficiently and safely as possible. FTA does not recommend limits on operations as a way to reduce vibration impacts.

1b. Evaluate Path Treatments – When vibration mitigation treatments cannot be applied at the vibration source or additional mitigation is required after treating the source, the next preferred placement of vibration mitigation is along the vibration propagation path between the source and receiver. Possible path treatments include:

- **Trenches** – Use of trenches to control ground-borne vibration is analogous to controlling airborne noise with noise barriers. This approach has not received much attention in the United States, but trenches could be a practical method for controlling transit vibration from at-grade track. A rule-of-thumb given by Richert and Hall[60] is that if the trench is located close to the source, the trench bottom must be at least 0.6 times the Rayleigh wavelength below the vibration source. For most soils, Rayleigh waves travel at around 600 ft/sec, which means that the wavelength at 30 Hz is 20 ft, requiring that a trench be approximately 15 ft deep to be effective at 30 Hz.

  A trench can be effective as a vibration barrier if it is either open or solid. The Toronto Transit Commission tested a trench filled with Styrofoam to keep it open and reported successful performance over a period of at least one year. Solid barriers can be constructed with sheet piling or concrete poured into a trench.

- **Buffer Zones** – Expanding the rail ROW can be the most economical method of reducing the vibration impact by simply increasing the distance between the source and receiver. A similar approach is to

negotiate a vibration easement from the affected property owners (e.g., a row of single-family homes adjacent to a proposed commuter rail line). There may be legal limitations, however, on the ability of funding agencies to acquire land strictly for the purpose of mitigating vibration (or noise) impact.

1c. Evaluate Receiver Treatments – When vibration mitigation treatments cannot be applied at the source or along the propagation path, or if combinations of treatments are required, treatments to the receivers can be considered as described below.

- **Building Modifications** – In some circumstances, it is practical to modify the affected building to reduce the vibration level. Vibration isolation of buildings consists of supporting the building foundation on elastomer pads, similar to bridge bearing pads. Vibration isolation of buildings is seldom an option for existing buildings and is typically only possible for new construction. Vibration impacts on sensitive laboratory instruments, such as electron microscopes, may be controlled with vibration isolation tables.

  This approach is particularly important for shared-use facilities such as an office space above a transit station or terminal. When vibration-sensitive equipment such as electron microscopes will be affected by transit vibration, specific modifications to the building structure may be the most cost-effective method of controlling the impact aside from modification of equipment mounting systems. For example, the floor upon which the vibration-sensitive equipment is located could be stiffened and isolated from the remainder of the building to reduce the vibration. Alternatively, the equipment mounting systems could be modified or the equipment could be relocated to a different building at far less cost.

SECTION 7

Noise and Vibration during Construction

Construction noise and vibration often generates complaints from the community, even when construction is for a limited timeframe. Public concerns about construction noise and vibration increase considerably with lengthy periods of heavy construction on major projects as well as prevalence of nighttime construction (often scheduled to avoid disrupting workday road and rail traffic). Noise and vibration complaints typically arise from interference with people's activities, especially when the adjacent community has no clear understanding of the extent or duration of the construction. Misunderstandings can arise when the community thinks a contractor is being insensitive, and the contractor believes it is performing the work in compliance with local ordinances. This situation underscores the need for early identification and assessment of potential problem areas.

This section outlines the procedures for assessing noise and vibration impacts during construction. The type of assessment (qualitative or quantitative) and the level of analysis are determined based on the scale of the project and surrounding land uses. In cases where a full quantitative assessment is not warranted, a qualitative assessment of the construction noise and vibration environment can lead to greater understanding and tolerance in the community. For major projects with extended periods of construction at specific locations, a quantitative assessment can aid contractors in making bids by allowing changes in construction approach and including mitigation costs before the construction plans are finalized.

Generally, local noise ordinances are not very useful for evaluating construction noise impact. They usually relate to nuisance and hours of allowed activity, and sometimes specify limits in terms of maximum levels, but are generally not practical for assessing the impact of a construction project. Project construction noise criteria should take into account the existing noise environment, the absolute noise levels during construction activities, the duration of the construction, and the adjacent land uses. While it is not the purpose of this manual to specify standardized criteria for construction noise impact, the following guidelines can be considered reasonable criteria for assessment. If these criteria are exceeded, there may be adverse community reaction.

Procedures for assessing construction noise are presented in Section 7.1. Procedures for assessing construction vibration are presented in Section 7.2.

7.1 Construction Noise Assessment

Noise impacts from construction may vary greatly depending on the duration and complexity of the project. The key elements of the Construction Noise Assessment procedure and recommended workflow are as follows.

Step 1: Determine Level of Construction Noise Assessment

Step 2: Use a Qualitative Construction Noise Assessment to Estimate Construction Noise

Step 3: Use a Quantitative Construction Noise Assessment to Estimate Construction Noise

Step 4: Assess Construction Noise Impact

Step 5: Determine Construction Noise Mitigation Measures

If there is uncertainty in how to determine the appropriate level of assessment, contact the FTA Regional office.

Step 1: Determine Level of Construction Noise Assessment

Determine the appropriate level of assessment based on the scale and type of the project and depending on the stage of environmental review.

Consider the following factors:

- Scale of the project
- Proximity of noise-sensitive sites to the construction zones
- Number of noise-sensitive receivers in the project area
- Duration of construction activities near noise-sensitive receivers
- Schedule, including the construction days, hours, and time periods
- Method (e.g., cut-and-cover vs. bored tunneling)
- Concern about construction noise expressed in comments by the general public (e.g., through scoping or public meetings)

1a. Determine if an assessment is required – Construction Noise Assessments are not required for many small projects including:

- Installation of safety features like grade-crossing signals;
- Track improvements within the ROW; or
- Erecting small buildings and facilities which are similar in scale to the surrounding development.

For small projects like these, include descriptions in the environmental document of the length of construction, the loudest equipment to be used, the expected truck access routes, the avoidance of nighttime activity, and any other relevant planned construction method.

1b. Determine whether a qualitative or quantitative assessment is required

- **Qualitative Construction Noise Assessment** – Qualitative Construction Noise Assessments may be required for projects with less than a month of construction time in a noise-sensitive area. See Step 2 for more information on Qualitative Construction Noise Assessments.

- **Quantitative Construction Noise Assessments** – Quantitative Construction Noise Assessments may be required for projects with a month or more of construction in noise-sensitive areas or if particularly noisy equipment will be involved. See Step 3 for more information on Quantitative Construction Noise Assessments.

Step 2: Use a Qualitative Construction Noise Assessment to Estimate Construction Noise

Use a qualitative construction noise assessment to estimate construction noise for appropriate projects per Section 7.1, Step 1b.

Provide qualitative descriptions in the environmental document of the following elements:

- Duration of construction (both overall and at specific locations)
- Equipment expected to be used (e.g., noisiest equipment)
- Schedule with limits on times of operation (e.g., daytime use only)
- Monitoring of noise
- Forum for communicating with the public
- Commitments to limit noise levels to certain levels, including any local ordinances that apply
- Consideration of application of noise control treatments used successfully in other projects

Effective community outreach and relations are important for these projects. Disseminate information to the public early regarding the kinds of construction equipment, expected noise levels, and durations to forewarn potentially affected neighbors about the temporary inconvenience. Including a general description of the variation of noise levels during a typical construction day may also be helpful.

Note that the construction criteria in Step 4 do not apply to qualitative assessments.

Step 3: Use a Quantitative Construction Noise Assessment to Estimate Construction Noise

Use a quantitative construction noise assessment to estimate construction noise for appropriate projects per Section 7.1, Step 1b.

For Quantitative Construction Noise Assessments, follow the recommended procedure in this step and include a description of the planned construction methods and any basic measures that have been identified to reduce the potential impact, such as prohibiting the noisiest construction activities during the nighttime, in the environmental document. It may be prudent, however, to defer final decisions on noise control measures until the project and construction plans are defined in greater detail during the engineering phase.

- **Noise Source Levels from Typical Construction Equipment and Operations** – The noise levels generated by construction

equipment vary greatly on factors such as the type of equipment, the equipment model, the operation being performed, and the condition of the equipment. Typically, the dominant source of noise from most construction equipment is the engine, often a diesel engine, which usually does not have sufficient muffling. In other cases, such as impact pile-driving or pavement-breaking, noise generated by the process dominates. Construction equipment can be considered to operate in the following two modes for Construction Noise Assessments:

- **Stationary** – Stationary equipment operates in one location for one or more days at a time, with either a fixed power operation (pumps, generators, compressors) or a variable noise operation (pile drivers, pavement breakers).
- **Mobile** – Mobile equipment moves around the construction site with power applied in cyclic fashion (bulldozers, loaders), or to and from the site (trucks). Movement around the site is considered in the construction noise prediction procedure.

Variation in power imposes additional complexity in characterizing the noise source level from mobile equipment. Describe the noise at a reference distance from the equipment operating at full power and adjusting it based on the duty cycle of the activity to determine the $L_{eq(t)}$ of the operation.

Typical noise levels from representative equipment are included in Table 7-1. The levels are based on an EPA Report,[61] measured data from railroad construction equipment taken during the 1976 Northeast Corridor Improvement Project, the FHWA Roadway Construction Noise Model, and other measured data.

For equipment that is not represented in Table 7-1, measure the noise levels according to the standard procedures for measuring the exterior noise levels for the certification of mobile and stationary construction equipment by the Society of Automotive Engineers.[62][63]

Table 7-1 Construction Equipment Noise Emission Levels

Equipment	Typical Noise Level 50 ft from Source, dBA
Air Compressor	80
Backhoe	80
Ballast Equalizer	82
Ballast Tamper	83
Compactor	82
Concrete Mixer	85
Concrete Pump	82
Concrete Vibrator	76
Crane, Derrick	88
Crane, Mobile	83
Dozer	85
Generator	82
Grader	85
Impact Wrench	85
Jack Hammer	88
Loader	80
Paver	85
Pile-driver (Impact)	101
Pile-driver (Sonic)	95
Pneumatic Tool	85
Pump	77
Rail Saw	90
Rock Drill	95
Roller	85
Saw	76
Scarifier	83
Scraper	85
Shovel	82
Spike Driver	77
Tie Cutter	84
Tie Handler	80
Tie Inserter	85
Truck	84

3a. Use the metric $L_{eq(t)}$ to assess construction noise. This unit is appropriate because $L_{eq(t)}$ can be used to describe:

- Noise level from operation of each piece of equipment separately, and levels can be combined to represent the noise level from all equipment operating during a given period
- Noise level during an entire phase
- Average noise over all phases of the construction

3b. Use Eq. 7-1 to predict construction noise impact for major transit projects, considering the noise generated by the equipment and noise propagation due to distance. Calculate $L_{eq.equip}$ for all equipment individually, then use decibel addition to sum the $L_{Aeq.equip}$ for all equipment operating during the same time period. See Appendix B.1.1 for information on decibel addition.

$$L_{eq.equip} = L_{emission} + 10\log(Adj_{Usage}) - 20\log(\frac{D}{50}) - 10G\log(\frac{D}{50}) \quad \textbf{Eq. 7-1}$$

where:

$L_{eq,equip}$ = $L_{eq(t)}$at a receiver from the operation of a single piece of equipment over a specified time period, dBA
$L_{emission}$ = noise emission level of the particular piece of equipment at the reference distance of 50 ft, dBA
Adj_{Usage} = usage factor to account for the fraction of time that the equipment is in use over the specified time period
D = distance from the receiver to the piece of equipment, ft
G = a constant that accounts for topography and ground effects

Determine the quantities for Eq. 7-1 based on the level of assessment as described below.

- A general assessment of construction noise is warranted for projects in an early assessment stage when the equipment roster and schedule are undefined and only a rough estimate of construction noise levels is practical.
- A detailed analysis of construction noise is warranted when many noise-sensitive sites are adjacent to a construction project or where contractors are faced with stringent local ordinances or heightened public concerns expressed in early outreach efforts.

Complete the appropriate assessment for each phase of construction. Major construction projects are accomplished in several different phases. Each phase has a specific equipment mix, depending on the work to be accomplished during that phase. As a result of the equipment mix, each phase has its own noise characteristics; some phases have higher continuous noise levels than others, and some have higher impact noise levels than others.

Option A: General Assessment – Determine the quantities for Eq. 7-1 based on the following assumptions for a General Assessment of each phase of construction.

- **Noise emission level ($L_{emission}$)** – Determine the emission level at 50 ft according to noise from typical construction equipment described above and Table 7-1.

- **Usage factor (Adj_{Usage})** – Assume a usage factor of 1. This assumes a time period of one-hour with full power operation. Most construction equipment operates continuously for periods of one-hour or more during the construction period.

  Therefore, 10log(Adj_{usage}) = 0 and can be omitted from the equation.

- **Distance (D)** – Assume that all equipment operates at the center of the project, or centerline for guideway or highway construction project.

- **Ground effect (G)** – G = 0 assuming free-field conditions and ignoring ground effects. If ground effects are of specific importance to the assessment, consider using the Detailed Analysis procedure.

Only determine the $L_{eq.equip}$ for the two noisiest pieces of equipment expected to be used in each phase of construction. Then, sum the levels for each phase of construction using decibel addition.

Option B: Detailed Analysis – Determine the quantities for Eq. 7-1 based on the following assumptions for a Detailed Analysis of each phase of construction. Alternatively, for detailed, long-term, and complex construction projects or projects near a particularly sensitive site, the FHWA's Windows-based screening tool, "Roadway Construction Noise Model (RCNM)," can be used for the prediction of construction noise.(64)

- **Noise emission level ($L_{emission}$)** – Measure or certify the noise emission level for each piece of equipment.

- **Usage factor (Adj_{Usage})** – Long-term construction project noise impact is based on a 30-day average L_{dn}, the times of day of construction activity (nighttime noise is penalized by 10 dB in residential areas), and the percentage of time the equipment is used during a period of time that will affect Adj_{Usage}.

  For example, an 8-hour $L_{eq(t)}$ is determined by making Adj_{Usage} the percentage of time each individual piece of equipment operates under full power in that period. Similarly, the 30-day average L_{dn} is determined from the Adj_{Usage} expressed by the percentage of time the equipment is used during the daytime hours (7 a.m. to 10 p.m.) and nighttime (10 p.m. to 7 a.m.), separately, over a 30-day period. To account for increased sensitivity to nighttime noise, the nighttime noise levels are adjusted by 10 dB in the L_{dn} computation (see Appendix B.1.4.5).

- **Distance (D)** – Determine the location of each piece of equipment during operation and the distance to each receiver.

- **Ground effect (G)** – Use Table 4-26 in Section 4.5, Step 3 to calculate G to account for the site topography, natural and man-made barriers, and ground effects.

  Compute the 8-hour $L_{eq(t)}$ ($L_{eq.equip(8hr)}$) and the 30-day average L_{dn} ($L_{dn.equip(30day)}$) for all equipment expected to be used in each phase of construction separately. Then, sum the levels for each phase of construction using Eq. 4-56 and Eq. 4-57 in Table 4-32.

Step 4: Assess Construction Noise Impact

Compare the predicted noise levels from the Quantitative Construction Noise Assessment with impact criteria to assess impact from construction noise for each phase of construction.

No standardized criteria have been developed for assessing construction noise impact. Consequently, criteria must be developed on a project-specific basis unless local ordinances apply. As stated earlier in this section, local noise ordinances are typically not very useful in evaluating construction noise. They usually relate to nuisance and hours of allowed activity, and sometimes specify limits in terms of maximum levels, but are generally not practical for assessing the impact of a construction project. Project construction noise criteria should account for the existing noise environment, the absolute noise levels during construction activities, the duration of the construction, and the adjacent land use. While it is not the purpose of this manual to specify standardized criteria for construction noise impact, the following guidelines can be considered reasonable criteria for assessment. If these criteria are exceeded, there may be adverse community reaction.

The construction impact guidelines are presented based on the level of quantitative assessment.

Option A: General Assessment – Compare the combined $L_{eq.equip(1hr)}$ for the two noisiest pieces of equipment for each phase of construction determined in Section 7.1, Step 3 to the criteria below. Then, identify locations where the level exceeds the criteria.

Table 7-2 General Assessment Construction Noise Criteria

Land Use	$L_{eq.equip(1hr)}$, dBA	
	Day	Night
Residential	90	80
Commercial	100	100
Industrial	100	100

Option B: Detailed Analysis – Compare the combined $L_{eq.equip(1hr)}$ and the combined $L_{dn.equip(30day)}$ for all equipment for each phase of construction determined in Section 7.1, Step 3 to the criteria below. Then, identify locations where the level exceeds the criteria.

Table 7-3 Detailed Analysis Construction Noise Criteria

Land Use	$L_{eq.equip(8hr)}$, dBA		$L_{dn.equip(30day)}$, dBA
	Day	Night	30-day Average
Residential	80	70	75
Commercial	85	85	80*
Industrial	90	90	85*

*Use a 24-hour $L_{eq(24hr)}$ instead of $L_{dn.equip(30day)}$.

Step 5: Determine Construction Noise Mitigation Measures

Evaluate the need for mitigation and select appropriate mitigation measures.

Where potential impacts have been identified according to Section 7.1, Step 4, evaluate appropriate control measures. Include descriptions of how each affected location will be treated with one or more mitigation measures in the environmental document.

5a. Determine the appropriate approach for construction noise control. Categories of approaches include:

- **Design considerations and project layout**
  - Construct noise barriers, such as temporary walls or piles of excavated material, between noisy activities and noise-sensitive receivers.
  - Re-route truck traffic away from residential streets. Select streets with the fewest homes if no alternatives are available.
  - Site equipment on the construction lot as far away from noise-sensitive sites as possible.
  - Construct walled enclosures around especially noisy activities or clusters of noisy equipment. For example, shields can be used around pavement breakers, and loaded vinyl curtains can be draped under elevated structures.

- **Sequence of operations**
  - Combine noisy operations to occur in the same time period. The total noise level produced will not be substantially greater than the level produced if the operations were performed separately.
  - Avoid nighttime activities. Sensitivity to noise increases during the nighttime hours in residential neighborhoods.

- **Alternative construction methods**
  - Avoid impact pile-driving where possible in noise-sensitive areas. Drilled piles or the use of a sonic/vibratory pile driver or push pile driver are quieter alternatives where the geological conditions permit their use.
  - Use specially-quieted equipment, such as quieted and enclosed air compressors and properly-working mufflers on all engines.
  - Select quieter demolition methods. For example, sawing bridge decks into sections that can be loaded onto trucks results in lower cumulative noise levels than impact demolition by pavement breakers.

Include descriptions of how each impacted location will be treated with one or more mitigation measures in the environmental impact assessment when possible.

5b. Describe and commit to a mitigation plan that will be developed later when the information is available to make final decisions (not often available during the project development phase) on all specific mitigation measures. This may be the case for large, complex projects. The objective of the plan should be to minimize construction noise using all reasonable (e.g., cost vs. benefit) and feasible (e.g., possible to construct) means available.

Components of a mitigation plan may include some or all of the following provisions, which should also be specified in construction contracts:

- **Equipment noise emission limits** – Equipment noise limits are absolute noise limits applied to generic classes of equipment at a reference distance (typically 50 ft). The limits should be set no higher than what is reasonably achievable for well-maintained equipment with effective mufflers. Lower limits that require source noise control may be appropriate for certain equipment when needed to minimize community noise impact, if reasonable and feasible. Provisions could also be included to require equipment noise certification testing prior to use on-site.

- **Lot-line construction noise limits** – Lot-line construction noise limits are noise limits that apply at the lot-line of specific noise-sensitive properties. The limits are typically specified in terms of both noise exposure (usually $L_{eq(t)}$ over a 20-30-minute period) and maximum noise level. They should be based on local noise ordinances if applicable, as well as pre-construction baseline noise levels (usually 3 to 5 dB above the baseline).

- **Operational and/or equipment restrictions** – It may be necessary to prohibit or restrict certain construction equipment and activities near residential areas during nighttime hours. This is particularly true for activities that generate tonal, impulsive, or repetitive sounds, such as back-up alarms, hoe ram demolition, and pile-driving.

- **Noise abatement requirements** – In some cases, specifications may be provided for particular noise control treatments based on the results of the design analysis and/or prior commitments made to the public by civic authorities. An example would be the requirement for a temporary noise barrier to shield a particular community area from noisy construction activities.

- **Noise monitoring plan requirements** – Plans can be developed for pre-project noise monitoring to establish baseline noise levels at sensitive locations, as well as for periodic equipment and lot-line noise monitoring during the construction period. The plan should outline the measurement and reporting methods that will be used to demonstrate compliance with the project noise limits.

- **Noise control plan requirements** – For major construction projects, preparation and submission of noise control plans on a periodic basis (e.g., every six months) are generally required. These plans should predict the construction noise at noise-sensitive receiver locations based on the proposed construction equipment and methods. If the analysis predicts that the specified noise limits will be exceeded, the plan should specify the mitigation measures that will be applied and should demonstrate the expected noise reductions these measures will achieve. The objective of this proactive approach is to minimize the

likelihood of community noise complaints by ensuring that any necessary mitigation measures are included in the construction plans.

- **Compliance enforcement program** – If construction noise is an issue in the community, it is important that a program be implemented to monitor contractor compliance with the noise control specifications and mitigation plan. It is recommended that this function be performed by a construction management team on behalf of the public agency.

- **Public information and complaint response procedures** – To maintain positive community relations, it is recommended to keep the public informed about the construction plans and efforts to minimize noise, and procedures should be established for prompt response and corrective action to noise complaints during construction.

Most of these provisions are appropriate for large-scale projects, where construction activity will continue for many months, if not years. The linked references contain more information on construction noise for major transportation projects.[60][65]

7.2 Construction Vibration Assessment

Construction activity can result in varying degrees of ground vibration, depending on the equipment and methods employed. Operation of construction equipment causes ground vibrations that spread through the ground and diminish in strength with distance. Buildings founded on the soil near the construction site respond to these vibrations with varying results, ranging from no perceptible effects at the lowest levels, low rumbling sounds and perceptible vibrations at moderate levels, and slight damage at the highest levels.

While ground vibrations from construction activities do not often reach the levels that can damage structures, fragile buildings must receive special consideration. The construction vibration criteria include consideration of the building condition.

The key elements of the Construction Vibration Assessment procedures and recommended workflow are as follows:

Step 1: Determine level of construction vibration assessment

Step 2: Use a qualitative construction vibration assessment

Step 3: Use a quantitative construction vibration assessment

Step 4: Assess construction vibration impact

Step 5: Determine construction vibration mitigation measures

Step 1: Determine Level of Construction Vibration Assessment

Determine the appropriate level of assessment based on the scale and type of the project and the stage of environmental review.

1a. Determine if an assessment is required.
Construction Vibration Assessments are not required for many small projects including:

- Installation of safety features like grade-crossing signals
- Track improvements within the ROW
- Erecting small buildings and facilities, which are similar in scale to the surrounding development

1b. Determine whether a qualitative or quantitative assessment is required.

- **Qualitative Construction Vibration Assessment** – A qualitative construction vibration assessment is appropriate for projects where prolonged annoyance or damage from construction vibration is not expected. For example, equipment that generates little or no ground vibration—such as air compressors, light trucks, and hydraulic loaders—only require qualitative descriptions. See Section 7.2, Step 2 for more information on qualitative construction vibration assessments.

- **Quantitative Construction Vibration Assessment** – A quantitative construction vibration analysis is appropriate for projects where construction vibration may result in building damage or prolonged annoyance. For example, activities such as blasting, pile-driving, vibratory compaction, demolition, and drilling or excavation near sensitive structures require a quantitative analysis. See Section 7.2, Step 3 for more information on quantitative construction vibration assessments.

If there is uncertainty in how to determine the appropriate level of assessment, contact the FTA Regional office.

Step 2: Use a Qualitative Construction Vibration Assessment

Use a qualitative construction vibration assessment to estimate vibration for appropriate projects per Section 7.2, Step 1b.

Provide qualitative descriptions in the environmental document of the following elements:

- Duration of construction (both overall and at specific locations)
- Equipment expected to be used
- Description of how ground-borne vibration will be maintained at an acceptable level

Note that the criteria in Section 7.2, Step 4 do not apply to qualitative assessments.

Step 3: Use a Quantitative Construction Vibration Assessment

Use a quantitative construction vibration assessment to estimate vibration for appropriate projects per Section 7.2, Step 1b.

For quantitative construction vibration assessments, follow the recommended procedure in this step. Vibration source levels from typical construction equipment and operations are provided below, and procedures on how to estimate construction vibration for damage and annoyance are provided in Steps 3a and 3b, respectively.

- **Vibration Source Levels from Construction Equipment** – Table 7-4 presents average source levels in terms of velocity for various types of construction equipment measured under a wide variety of construction activities. The approximate rms vibration velocity levels were calculated from the PPV limits using a crest factor of 4, representing a PPV-rms difference of 12 dB. Note that although the table gives one level for each piece of equipment, there is considerable variation in reported ground vibration levels from construction activities. The data in Table 7-4 provide a reasonable estimate for a wide range of soil conditions.[66][67][68][69]

Table 7-4 Vibration Source Levels for Construction Equipment

Equipment		PPV at 25 ft, in/sec	Approximate Lv* at 25 ft
Pile Driver (impact)	upper range	1.518	112
	typical	0.644	104
Pile Driver (sonic)	upper range	0.734	105
	typical	0.17	93
Clam shovel drop (slurry wall)		0.202	94
Hydromill (slurry wall)	in soil	0.008	66
	in rock	0.017	75
Vibratory Roller		0.21	94
Hoe Ram		0.089	87
Large bulldozer		0.089	87
Caisson drilling		0.089	87
Loaded trucks		0.076	86
Jackhammer		0.035	79
Small bulldozer		0.003	58

* RMS velocity in decibels, VdB re 1 micro-in/sec

3a. Damage Assessment

Assess for building damage for each piece of equipment individually. Construction vibration is generally assessed in terms of peak particle velocity (PPV), as described in Section 5.1.

- Determine the vibration source level (PPV_{ref}) for each piece of equipment at a reference distance of 25 ft as described above and in Table 7-4.
- Use Eq. 7-2 to apply the propagation adjustment to the source reference level to account for the distance from the equipment to the receiver. Note that the equation is based on point sources with normal propagation conditions.

$$PPV_{equip} = PPV_{ref} \times (\frac{25}{D})^{1.5} \quad \textbf{Eq. 7-2}$$

where:

PPV_{equip} = the peak particle velocity of the equipment adjusted for distance, in/sec
PPV_{ref} = the source reference vibration level at 25 ft, in/sec
D = distance from the equipment to the receiver, ft

3b. Annoyance Assessment

Assess for annoyance for each piece of equipment individually. Ground-borne vibration related to human annoyance is related to rms velocity levels, expressed in VdB as described in Section 5.1.

Estimate the vibration level (L_v) using Eq. 7-3.

$$L_{v.distance} = L_{vref} - 30log(\frac{D}{25}) \quad \textbf{Eq. 7-3}$$

where:

$L_{v.distance}$ = the rms velocity level adjusted for distance, VdB
L_{vref} = the source reference vibration level at 25 ft, VdB
D = distance from the equipment to the receiver, ft

Step 4: Assess Construction Vibration Impact

Compare the predicted vibration levels from the Quantitative Construction Vibration Assessment with impact criteria to assess impact from construction vibration.

Assess potential damage effects from construction vibration for each piece of equipment individually. Note that equipment operating at the same time could increase vibration levels substantially, but predicting any increase could be difficult. The criteria presented in this section should be used during the environmental impact assessment phase to identify problem locations that must be addressed during the engineering phase.

Compare the PPV and approximate L_v for each piece of equipment determined in Section 7.2, Step 3 to the vibration damage criteria in Table 7-5, which is presented by building/structural category, to assess impact.[70][71] The approximate rms vibration velocity levels were calculated from the PPV limits using a crest factor of 4.

Table 7-5 Construction Vibration Damage Criteria

Building/ Structural Category	PPV, in/sec	Approximate L_v*
I. Reinforced-concrete, steel or timber (no plaster)	0.5	102
II. Engineered concrete and masonry (no plaster)	0.3	98
III. Non-engineered timber and masonry buildings	0.2	94
IV. Buildings extremely susceptible to vibration damage	0.12	90

*RMS velocity in decibels, VdB re 1 micro-in/sec

Compare the L_v determined in Section 7.2, Step 3 to the criteria for the General Vibration Assessment in Section 6.2 to assess annoyance or interference with vibration-sensitive activities due to construction vibration.

Step 5: Determine Construction Vibration Mitigation Measures

Evaluate the need for mitigation and select appropriate mitigation measures where potential human impacts or building damage from construction vibration have been identified according to Section 7.2, Step 4.

5a. Determine the appropriate approach for construction vibration mitigation considering equipment location and processes.

- **Design considerations and project layout**
  - Route heavily-loaded trucks away from residential streets. Select streets with the fewest homes if no alternatives are available.
  - Operate earth-moving equipment on the construction lot as far away from vibration-sensitive sites as possible.

- **Sequence of operations**
  - Phase demolition, earth-moving, and ground-impacting operations so as not to occur in the same time period. Unlike noise, the total vibration level produced could be substantially less when each vibration source operates separately.
  - Avoid nighttime activities. Sensitivity to vibration increases during the nighttime hours in residential neighborhoods.

- **Alternative construction methods**
  - Carefully consider the use of impact pile-driving versus drilled piles or the use of a sonic/vibratory pile driver or push pile driver where those processes might create lower vibration levels if geological conditions permit their use.
    - Pile-driving is one of the greatest sources of vibration associated with equipment used during construction of a project. The source levels in Table 7-4 indicate that sonic pile drivers may provide substantial reduction of vibration levels compared to impact pile drivers. But, there are some additional vibration effects of sonic pile drivers that may limit their use in sensitive locations.
    - A sonic pile driver operates by continuously shaking the pile at a fixed frequency, literally vibrating it into the ground. Continuous operation at a fixed frequency may, however, be more

noticeable to nearby residents, even at lower vibration levels. Furthermore, the steady-state excitation of the ground may induce a growth in the resonant response of building components. Resonant response may be unacceptable in cases of fragile buildings or vibration-sensitive manufacturing processes. Impact pile drivers, however, produce a high vibration level for a short time (0.2 seconds) with sufficient time between impacts to allow any resonant response to decay.

- Select demolition methods involving little to no impact, where possible. For example, sawing bridge decks into sections that can be loaded onto trucks results in lower vibration levels than impact demolition by pavement breakers. Milling generates lower vibration levels than excavation using clam shell or chisel drops.
- Avoid vibratory rollers and packers near sensitive areas.

5b. Describe and commit to a mitigation plan that will be developed and implemented during the engineering and construction phase when the information available during the project development phase will not be sufficient to define specific construction vibration mitigation measures. The objective of the plan should be to minimize construction vibration damage using all reasonable and feasible means available. The plan should include the following components:

- A procedure for establishing threshold and limiting vibration values for potentially affected structures, based on an assessment of each structure's ability to withstand the loads and displacements due to construction vibrations
- A commitment to develop a vibration monitoring plan during the engineering phase and to implement a compliance monitoring program during construction

SECTION

8

Documentation of Noise and Vibration Assessment

The level of required documentation is determined according to the project class of action. Section 2.1 covers the appropriate class of action (EIS, EA, or CE) for different projects. If there is uncertainty in the appropriate level of documentation, contact the FTA Regional office.

The noise and vibration analysis must be articulated to the public in a clear, comprehensive manner for all levels of documentation. The technical data and information necessary to withstand scrutiny in the environmental review process must be documented in a way that remains intelligible to the public. Justification for all assumptions used in the analysis, such as selection of representative measurement sites and all baseline conditions, must be presented for review.

A separate technical report or memorandum is often prepared as a supplement to the environmental document. A technical report is appropriate in cases when including the data from the assessment would create an unreasonably long environmental document. The details of the analysis are important for establishing the basis for the assessment. Therefore, all details in the technical report should be contained in a well-organized format for easy access to the information.

For large-scale projects, the environmental document should contain a summary of the essential analysis information to provide subject matter context and the analysis findings. For these projects, separate technical reports are usually prepared as supplements to the EIS or EA and referred to in the environmental document. For smaller projects, or projects with minimal noise or vibration impact, all of the technical information may be presented in the environmental document itself or in a technical memorandum. Other projects might have no potential for noise or vibration impacts. For those projects, that environmental documentation should explain that no noise or vibration impacts are expected.

This section provides guidance on presenting the necessary noise and vibration information in the environmental document (Section 8.1) and the associated technical report (Section 8.2).

8.1 Environmental Document

In the environmental document, provide a summary of the comprehensive noise and vibration information from the technical report and emphasize the salient points of the analysis in a format and style that the public can understand. Smaller projects may have all of the technical information contained within the environmental document, so take special care in summarizing the technical details to convey the information adequately.

Step 1: Choose the Information to Include

Choose the appropriate noise and vibration analysis information to include based on the level of environmental review and the associated documentation.

1a. Provide full disclosure of noise and vibration impacts in the environmental document, including identification of locations where impacts cannot be mitigated below the severe impact level. In general, an EIS describes significant impacts and plans to mitigate the impacts. For EAs, completion of the environmental review with a finding of no significant impact (FONSI) may depend on mitigation being considered for incorporation in the proposed project. The way mitigation is presented in the environmental document depends on the type of impact (noise or vibration) and the stage of project development and environmental review. Projects that meet the criteria of a CE may also require the completion of a noise and/or vibration analysis, and the results of such an analysis should be documented in a noise memo or the CE documentation.

1b. Document noise impacts – Typically, airborne noise impacts can be accurately predicted during the environmental review. For projects that focus on a single alternative, noise impacts can be accurately identified in the draft environmental document. If mitigation is anticipated, then mitigation options should be explored in the EA or draft EIS; firm decisions on mitigation can be deferred to the final document. But for all projects, decisions on noise mitigation should be made before the final document is approved.

1c. Document vibration impacts – Predicting vibration impacts accurately is more complex because ground-borne vibration may be strongly influenced by subsurface conditions. The geotechnical studies that reveal these conditions are normally undertaken during the engineering phase, after the environmental review process is complete. Therefore, the final environmental document will usually not be able to state with certainty whether mitigation is needed for ground-borne vibration and noise.

If the engineering phase is conducted at the same time as the final environmental document, report the results of the Detailed Vibration Analysis in the final environmental document. If the engineering phase is conducted after the final environmental document, report the results of the General Vibration Assessment in the final environmental document. If impact is determined, include a commitment in the final document to conduct a Detailed Vibration Analysis during the engineering phase to complete the impact assessment. Also, include a discussion on various control measures that could be used and the likelihood that the criteria could be met through the use of one or more of the measures. It may be possible to state a commitment in the final environmental document to adhere to the impact criteria for the Detailed Vibration Analysis, while deferring the selection of specific vibration control measures until the completion of detailed studies in the engineering phase. When work is conducted after FTA signs its final decision document (i.e., ROD, combined FEIS/ROD, or FONSI), additional documentation, such as a reevaluation of the previous decision, may be necessary. FTA recommends contacting the FTA Regional office directly in these situations.

1d. Describe mitigation measures in the decision document – After the decision document is approved, incorporate the mitigation measures by reference in the actual grant agreements signed by FTA and the project sponsor. The mitigation measures then become contractual conditions that must be adhered to by the project sponsor.

It is typically appropriate to include the following noise and vibration information in the environmental document, as described in Section 8.1:

- The existing conditions (affected environment)
- The direct impacts from operation (environmental consequences)
- The construction impacts (environmental consequences)

Step 2: Organize information in the Environmental Document

Include information in the following sections of the environmental document separating out the noise and vibration information.

2a. Existing Conditions (Affected Environment) – Describe the existing conditions (conditions without the project) in terms of the existing noise and vibration conditions in this section of the document. The primary function of this section is to establish the focus and baseline conditions for the discussion of environmental impacts. Include the following basic information and separate the noise and vibration sections.

- **Description of noise/vibration metrics, effects and typical levels** – Include a targeted summary of relevant information from Section 3 of this manual. This will serve as background for the discussions of noise/vibration levels and characteristics that will follow in later sections. Provide illustrative material to convey typical levels to the public.

- **Inventory of noise/vibration-sensitive sites** – Describe the approach for identifying noise- and vibration-sensitive sites as well as the identified sites and site descriptions. Use sufficient detail to demonstrate completeness. Document these results on a map.

- **Noise/vibration measurements** – Document the basis for selecting measurement sites, including tables of sites coordinated with maps showing locations of sites. Summarize the measurement approach and include the justification for the measurement procedures used.

  Present measurement data in well-organized tables and figures with a summary and interpretation of measured data. Measurements are often included in the table of measurement sites described in the previous paragraph. In some cases, measurements may be supplemented or replaced by collected data relevant to the noise and vibration characteristics of the area. For example, soil information for estimating ground-borne vibration propagation characteristics may be available from other projects in the area.

A summary and interpretation of how the collected data define the project setting is fundamental to this section.

2b. Direct Impacts – Include the following in the discussion on direct impacts due to project operation:

- **Overview of approach** – Provide a targeted summary of relevant information on the assessment procedure for determining noise/vibration impacts as a framework for the following sections.

- **Estimated noise/vibration levels** – Provide a general description of prediction models used to estimate project noise/vibration levels. Describe any distinguishing features unique to the project, such as source levels associated with various technologies.

  Describe the results of the predictions in general terms first, followed by a detailed accounting of predicted noise levels. Supplement this information with tables and illustrate by contours, cross-sections, or shaded mapping. If contours are included in a technical report, it is not necessary to repeat them in this section.

- **Criteria for noise/vibration impact** – Describe the impact criteria for the project in detail and reference the appropriate section in this manual. Include tables listing the criteria levels or the figures included in this manual.

- **Noise/vibration impact assessment** – Present the impact assessment in its own section or combined with the section above.

  Describe the locations, as identified in the screening procedure, where noise/vibration impact is expected to occur without implementation of mitigation measures, based on the screening results, predicted future levels, existing levels, and application of the impact criteria.

  Include inventory tables of impacted noise- and vibration-sensitive sites to quantify the impacts for all noise/vibration-sensitive sites included in the Affected Environment (Existing Conditions) as described in the Existing Conditions section above.

- **Noise/vibration mitigation measures** – Perhaps the greatest difference between the technical report and the environmental document is with mitigation. The technical report discusses mitigation options and recommendations, while the environmental document provides the vehicle for reaching decisions on appropriate mitigation measures.

  Begin this section with a summary of the noise/vibration mitigation measures considered for the impacted locations. Describe the specific measures selected for implementation in detail. Also, include any

applicable, specific noise or vibration policies the project sponsor may have in place.

In cases where it is not possible to commit to a specific mitigation measure in the final environmental document, it may be possible to commit to a certain noise/vibration level. For example, the environmental document could include a commitment to meet or exceed the impact criteria specified in Sections 4.1 and 6.2.

- **Unavoidable adverse environmental effects** – If it is projected that adverse noise/vibration impacts will result after all reasonable abatement measures have been incorporated, identify these impacts in this section.

2c. Construction Impacts – Discuss construction impacts in the environmental document's section on construction impacts, if present. If, because of the scale of the project, the environmental document does not have a separate construction impacts section, then the construction impacts should be discussed with the rest of the resource impacts.

When a special section on construction noise/vibration impacts is included in the document, it should be organized according to the comprehensive outline on long-term impacts described above. For projects with relatively minor effects, include a brief summary of impact.

8.2 Technical Report on Noise and Vibration

The technical report is intended to present complete technical data and descriptions in a manner that can be understood by the general public, but is more technical than the information found in the environmental document. All necessary background information should be present in the technical report, including tables, maps, charts, drawings, and references that may be too detailed for the environmental document, but which are important in helping to draw conclusions about the project's noise and vibration impacts and mitigation options.

Include the following major subject headings and key information described below. If both noise and vibration have been assessed, include separate sections for noise and vibration with subsections for key information as described below. Additional details on documentation requirements for the technical report of non-standard procedures and methodologies are included in Appendix G.

- **Overview** – Include a brief description of the project and an overview of the noise/vibration concerns to highlight initial considerations in framing the scope of the study.

- **Inventory of Noise/Vibration-Sensitive Sites** – Describe the approach for identifying noise- and vibration-sensitive sites as well as the identified sites and site descriptions. Use sufficient detail to demonstrate completeness. Document results on a map.

- **Measurements of Existing Noise/Vibration Conditions**
  - Document the basis for selecting measurement sites, including tables of sites coordinated with maps showing locations of sites. Summarize the measurement approach with justification for the measurement procedures used.
  - If the measurement data are used to estimate existing conditions at other locations, include the rationale and the method of estimation. Describe measurement procedures in detail.
  - Include tables of measurement instruments documenting manufacturer, type, serial number, and date of most recent calibration by authorized testing laboratory. Document measurement periods, including the time of day and length of time at each site to demonstrate adequate representation of ambient conditions.
  - Present measurement data in well-organized tables and figures with a summary and interpretation of measured data.

- **Additional Measurements Related to the Project** – Include detailed description of measurements and results for projects that require specialized measurements at noise- and vibration-sensitive sites. Examples include:
  - Outdoor-to-indoor noise level reduction of homes
  - Transmission of vibration into concert halls and recording studios
  - Special source-level characterization

- **Predictions of Noise/Vibration from the Project**
  - Describe the prediction model used to estimate future project conditions and specific data used as input to the models. Reference the appropriate section in this manual. Document any change or extension to the models recommended in this manual, so that the validity of the adjustments can be confirmed. See Appendix G for more information.
  - Describe in detail the modeled scenarios and why the scenarios were chosen.
  - Tabulate computed levels and illustrate by contours, cross-sections, or shaded mapping. Illustrate noise/vibration impacts with base maps at a scale with enough detail to provide reference for the location.

- **Noise/Vibration Criteria**
  - Describe the impact criteria for the project in detail and reference the appropriate section in this manual. Include tables specifying the criteria levels or the figures included in this manual.
  - If construction noise and/or vibration assessments were conducted, include the construction criteria in a separate section with the construction assessment details. See below for more information.

- **Noise/Vibration Impact Assessment**
  - Describe the impact assessment according to the appropriate noise and/or vibration impact assessment sections in this manual.
  - If an alternatives analysis was conducted, present a resulting impact inventory for each alternative mode or alignment in a format that allows comparison among alternatives.
  - Tabulate the inventory according to the different types of affected noise- and vibration-sensitive sites. Present the results of the assessment both before and after mitigation.

- **Noise/Vibration Mitigation**
  - Begin this section with a summary of all treatments considered, including those not carried to final consideration.
  - Consider final candidate mitigation treatments separately and provide a description of the features of the treatment, including costs, expected benefit in reducing impacts, locations where the benefit would be realized, and a discussion of the practicality of alternative treatments.
  - Include enough noise and vibration impact information to allow the project sponsor and FTA to reach decisions on mitigation prior to issuance of an environmental decision document.

- **Construction Noise/Vibration Impacts**
  - Describe criteria adopted for construction noise or vibration if construction noise and/or vibration assessments were conducted.
  - Describe the method used for predicting construction noise or vibration and include inputs to the models such as equipment roster by construction phase, equipment source levels, assumed usage factors, and other assumed site characteristics.
  - Present predicted levels for noise- and vibration-sensitive sites and identify short-term impacts.
  - In cases where construction impacts are identified, discuss feasible abatement methods using enough detail to allow construction contract documents to include mitigation measures.

- **References** – Provide references for all criteria, approaches, and data used in the analyses, as well as other reports related to the project that may be relied on for information, e.g., geotechnical reports.

Appendix A: Glossary of Terms

Terminology used through the manual is defined in this appendix.[49][72]

A-weighting	A standardized filter used to alter the sensitivity of a sound level meter with respect to frequency so that the instrument is less sensitive at low and high frequencies where the human ear is less sensitive. Abbreviated as dBA.
Absolute Noise Impact	Noise that interferes with activities independent of existing noise levels and is expressed as a fixed level threshold.
Accelerometer	A transducer that converts vibratory motion to an electrical signal proportional to the acceleration of that motion.
Ambient	The pre-project background noise or vibration level, which is often used interchangeably with "existing noise" in this manual.
Amplitude	Difference between the extremes of an oscillating signal.
Alignment	The horizontal location of a railroad or transit system as described by curved and tangent track.
At-grade	Tracks on the ground surface.
Automated Guideway Transit (AGT)	Guided steel-wheel or rubber-tired transit passenger vehicles operating singly or in multi-car trains with a fully automated system on fixed-guideways along an exclusive ROW. AGT includes personal rapid transit, group rapid transit, and automated people mover systems.
Auxiliaries	The term applied to a number of separately driven machines, operated by power from the main engine or electric generation. They include the air compressor, radiator fan, traction motor blower, and air conditioning equipment.
Ballast mat	A 2- to 3-inch-thick elastomer mat placed under the normal track ballast on top of a rigid slab or packed sub-grade.
Ballast	Granular material placed on the trackbed for the purpose of holding the track in line and at surface.
Bus Rapid Transit (BRT)	A type of limited-stop bus operation that relies on technology to help speed up the service. Buses can operate on exclusive transitways, high-occupancy-vehicle lanes, expressways, or ordinary streets.
Catenary	On electric railroad and LRT systems, the term describing the overhead conductor that is contacted by the pantograph or trolley, and its support structure.
Commuter rail	Conventional passenger railroad serving areas surrounding an urban center. Most commuter railroads utilize locomotive-hauled coaches, often in push-pull configuration.
Consist	The total number and type of cars, locomotives, or transit vehicles in a trainset.
Continuous welded rail	A number of rails welded together to form unbroken lengths of track without gaps or joints.
Corrugated rail	A rough condition of alternating ridges and grooves which develops on the rail head in service.
Crest factor	The ratio of peak particle velocity to maximum RMS amplitude in an oscillating signal.
Criteria	Plural form of "criterion," the relationship between a measure of exposure (e.g., sound or vibration level) and its corresponding effect.
Cross tie	The transverse member of the track structure to which the rails are spiked or otherwise fastened to provide proper gage and to cushion, distribute, and transmit the stresses of traffic through the ballast to the trackbed.
Crossover	Two turnouts with the track between the frogs arranged to form a continuous passage between two nearby and generally parallel tracks.
Cumulative	The summation of individual sounds into a single total value related to the effect over time.
Cut	A terrain feature typically created to allow for a trackbed to be at a lower level than the surrounding ground.

dB	See Decibel.
dBA	See A-weighting.
Decibel	The standard unit of measurement for sound pressure level and vibration level. Technically, a decibel is the unit of level which denotes the ratio between two quantities that are proportional to power; the number of decibels is 10 times the logarithm of this ratio. Abbreviated as dB.
DMU	Diesel-powered multiple unit. See Multiple Unit.
DNL	See L_{dn}.
Electrification	A term used to describe the installation of overhead wire or third rail power distribution facilities to enable operation of trains.
Embankment	A bank of earth, rock, or other material constructed above the natural ground surface.
Equivalent level	The level of a steady sound, which, in a stated time period and at a stated location, has the same sound energy as the time-varying sound. Also, written as L_{eq}.
Event	A passby of a vehicle (e.g., train, bus, or car) of any size consist.
Ferry boat	A transit mode comprised of vessels to carry passengers and/or vehicles over a body of water.
Fixed-guideway	A public transportation facility with a separate ROW for the exclusive use of public transportation and other high-occupancy vehicles.
Flange	The vertical projection along the inner rim of a wheel that serves, together with the corresponding projection of the mating wheel of a wheel set, to keep the wheel set on the track.
Floating slab	A special track support system for vibration isolation, consisting of concrete slabs supported on resilient elements, usually rubber or similar elastomer.
Force density	Force density is the force per root distance along the track in $lb/ft^{1/2}$. The force density level is the level in decibels of the force density relative to 1 $lb/ft^{1/2}$ and describes the vehicle force that excites the soil/rock surrounding the transit structure.
Frequency	The number of times that a periodically occurring quantity repeats itself in a specified period. With reference to noise and vibration signals, the number of cycles per second.
Frequency spectrum	Distribution of frequency components of a noise or vibration signal.
Frog	A track structure used at the intersection of two running rails to provide support for wheels and passageways for their flanges, thus permitting wheels on either rail to cross the other.
Gage (of track)	The distance between the rails on a track.
Grade crossing	The point where a rail line and a motor vehicle road intersect at the same vertical elevation.
Guideway	Supporting structure to form a track for rolling or magnetically-levitated vehicles.
Head-End Power (HEP)	A system of furnishing electric power for a complete railway train from a single generating plant in the locomotive.
Heavy rail	See Rail Rapid Transit.
Hertz (Hz)	The unit of acoustic or vibration frequency representing cycles per second.
Hourly average sound level	The time-averaged A-weighted sound level, over a 1-hour period, usually calculated between integral hours. Abbreviated as $L_{(1h)}$.
Hybrid Bus	A rubber-tired vehicle that features a hybrid diesel-electric propulsion system. A diesel engine runs an electric generator that powers the entire vehicle including electric drive motors that deliver power to the wheels.
Idle	The speed at which an engine runs when it is not under load.
Intermediate Capacity Transit (ICT)	A transit system with less capacity than rail rapid transit (RRT), but more capacity than typical bus operations. Examples of ICT include bus rapid transit (BRT), automated guideway transit (AGT), monorails, and trolleys.
Intermodal facility	Junction of two or more modes of transportation where transfers may occur.
Jointed rail	A system of joining rails with steel members designed to unite the abutting ends of contiguous rails.

$L_{(1h)}$	See Hourly Average Sound Level.
L_{dn}	Day-Night Sound Level. The sound exposure level for a 24-hour day calculated by adding the sound exposure level obtained during the daytime (7 a.m. to 10 p.m.) to 10 times the sound exposure level obtained during the nighttime (10 p.m. to 7 a.m.). This unit is used throughout the United States for environmental impact assessment. Also, written as DNL.
$L_{eq(1hr)}$	Equivalent Sound Level. The metric for cumulative noise exposure over a specific time interval is the equivalent sound level
Light Rail Transit (LRT)	A mode of public transit with tracked vehicles in multiple units operating in mixed traffic conditions on streets as well as sections of exclusive ROW. Vehicles are generally powered by electricity from overhead lines.
Locomotive	A self-propelled, non-revenue rail vehicle designed to convert electrical or mechanical energy into tractive effort to haul railway cars. See also Power Unit.
Main line	The principal line or lines of a railway.
Maglev	Magnetically-levitated vehicle; a vehicle or train of vehicles with guidance and propulsion provided by magnetic forces. Support can be provided by either an electrodynamic system wherein a moving vehicle is lifted by magnetic forces induced in the guideway or an electromagnetic system wherein the magnetic lifting forces are actively energized in the guideway.
Maximum sound level	The highest exponential-time-average sound level, in decibels, that occurs during a stated time period. Abbreviated as L_{max}. The standardized time periods are 1 second for L_{max}, slow, and 0.125 second for L_{max}, fast.
Metric	Measurement value or a quantitative descriptor used to identify a specific measure of sound level.
Monorail	Guided transit vehicles operating on or suspended from a single rail, beam, or tube.
Multimodal Project	In this manual, the term multimodal project is used to describe a project that includes changes to both transit and highway components in segments of the project.
Multiple Unit (MU)	A term referring to the practice of coupling two or more diesel-powered or electric-powered passenger cars together with provision for controlling the traction motors on all units from a single controller.
Noise	Any disagreeable or undesired sound or other audible disturbance.
Octave band	A standardized division of a frequency spectrum in which the interval between two divisions is a frequency ratio of 2.
One-third octave band	A standardized division of a frequency spectrum in which the octave bands are divided into thirds for more detailed information. The interval between center frequencies is a ratio of 1.25.
Pantograph	A device for collecting current from an overhead conductor (catenary), consisting of a jointed frame held up by springs or compressed air and having a current collector at the top.
Park-and-ride facility	A parking garage and/or lot used for parking passengers' automobiles while they use transit agency facilities and vehicles.
Peak factor	See Crest factor.
Plan-and-profile	Mapping used by transportation planners that shows two-dimensional plan views (x- and y- axes) on the same page as two-dimensional profiles (x- and z-axes) of a road or track.
Peak Particle Velocity (PPV)	The peak signal value of an oscillating vibration velocity waveform. Usually expressed in inches/second in the United States.
Peak-to-Peak (P-P) Value	Of an oscillating quantity, the algebraic difference between the extreme values of the quantity.
Power unit	A self-propelled vehicle, running on rails and having one or more electric motors that drive the wheels and thereby propel the locomotive and train. The motors obtain electrical energy either from a rail laid near, but insulated from, the track rails, or from a wire suspended above the track. Contact with the overhead wire is made by a pantograph mounted on top of the unit.
Project segment	Portions of a project with similar characteristics.

Pure tone	Sound of a single frequency.
Radius of curvature	A measure of the severity of a curve in a track structure based on the length of the radius of a circle that would be formed if the curve were continued.
Rail	A rolled steel shape, commonly a T-section, designed to be laid end to end in two parallel lines on cross ties or other suitable supports to form a track for railway rolling stock.
Rail Rapid Transit (RRT)	Often called "Heavy Rail Transit." A mode of public transit with tracked vehicles in multiple units operating in exclusive rights-of-way. Trains are generally powered by electricity from a third rail alongside the track.
Receiver	A stationary far-field position at which noise or vibration levels are specified.
Relative Noise Impact	Noise increase above existing levels.
Resonance frequency	The phenomenon that occurs in a structure under conditions of forced vibration such that any change in frequency of excitation results in a decrease in response.
Right-of-Way	Abbreviated as ROW. Lands or rights used or held for railroad or transit operation.
Root Mean Square (rms)	The square root of the mean-square value of an oscillating waveform, where the mean-square value is obtained by squaring the value of amplitudes at each instant of time and then averaging these values over the sample time.
RMS Velocity Level (LV)	See Vibration Velocity Level.
SEL	See Sound Exposure Level.
Sound Exposure Level	The level of sound accumulated over a given time interval or event. Technically, the sound exposure level is the level of the time-integrated mean square A-weighted sound for a stated time interval or event, with a reference time of one second. Abbreviated as SEL.
Sound	A physical disturbance in a medium that is capable of being detected by the human ear.
Spectrum	See Frequency Spectrum.
Sub-ballast	Any material of a superior character, which is spread on the finished subgrade of the roadbed and below the top-ballast, to provide better drainage, prevent upheaval by frost, and better distribute the load over the roadbed.
Subgrade	The finished surface of the roadbed below the ballast and track.
Suburban bus	A bus similar to an intercity bus with high-backed seats but no luggage compartment, often used in express mode to city centers from suburban locations.
Switch	A track structure used to divert rolling stock from one track to another.
Tangent track	Track without curvature.
Track	An assembly of rail, ties, and fastenings over which cars, locomotives, and trains are moved.
Traction motor	A specially designed direct current series-wound motor mounted on the trucks of locomotives and self-propelled cars to drive the axles.
Trainset	A group of coupled cars including at least one power unit.
Transducer	Device designed to receive an input signal of a given kind (motion, pressure, heat, etc.) and to provide an output signal of a different kind (electrical voltage, amperage, etc.) in such a manner that desired characteristics of the input signal appear in the output signal for measurement purposes.
Transfer mobility	Transfer mobility is the complex velocity response produced by a point force as a function of frequency and represents the relationship between a vibration source that excites the ground and the resulting vibration of the ground surface.
Transit center	A fixed location where passengers interchange from one route or vehicle to another.
Trolley bus	A rubber-tired, electrically-powered bus operating on city streets drawing power from overhead lines.
Truck	The complete assembly of parts including wheels, axles, bearings, side frames, bolster, brake rigging, springs, and all associated connecting components, the function of which is to provide support, mobility, and guidance to a railroad car or locomotive.
Trunk line	See Mainline. The mainline of a commuter railroad where the branch line traffic is combined.

Turnout	An arrangement of a switch and a frog with closure rails, by means of which rolling stock may be diverted from one track to another.
VdB	See Vibration Velocity Level.
Vibration Velocity Level (LV)	Ten times the common logarithm of the ratio of the square of the amplitude of the RMS vibration velocity to the square of the amplitude of the reference RMS vibration velocity. The reference velocity in the United States is one micro-inch per second. Abbreviated as VdB.
Vibration	An oscillation wherein the quantity is a parameter that defines the motion of a mechanical system.
Wheel flat	A localized flat area on a steel wheel of a rail vehicle, usually caused by skidding on steel rails, causing a discontinuity in the wheel radius.
Wheel squeal	The noise produced by wheel-rail interaction, particularly on curves where the radius of curvature is smaller than allowed by the separation of the axles in a wheel set.

Additional, relevant acoustic terminology and formulas are defined in ANSI S1.1-1994 (49).

Appendix B: Fundamentals of Noise

Noise is generally considered to be unwanted sound. Sound is what we hear when our ears are exposed to small pressure fluctuations in the air. There are many ways in which pressure fluctuations are generated, but typically they are caused by vibrating movement of a solid object. This manual uses the terms noise and sound interchangeably because there is no physical difference between them. Noise can be described in terms of three variables: amplitude (loud or soft); frequency (pitch); and time pattern (variability).

B.1 Amplitude

The loudness of a sound is described by the sound wave's amplitude of pressure fluctuations above and below atmospheric pressure. Pressure is measured in Pascals. The mean value of the positive and negative pressure fluctuations is the static atmospheric pressure and is not a useful metric of sound. However, the effective magnitude of the sound pressure in a sound wave can be expressed by the rms of the oscillating pressure. See Figure B-1 for an illustration of the rms pressure.

The rms pressure is calculated according to Eq. B-1. The values of sound pressure are squared and time-averaged to smooth out variations. The rms pressure is the square root of this time-averaged value.

$$P_{rms} = \sqrt{\frac{1}{N}\sum_{i=1}^{N} P_i^2} \qquad \textbf{Eq. B-1}$$

where:

P_{rms} = sound pressure
P_i = individual sound pressure
N = number of samples
$i = 1$ = index of summation

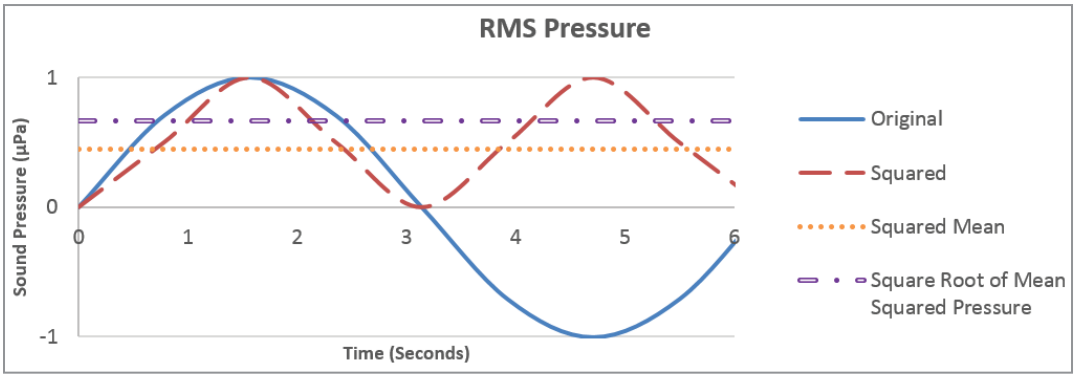


Figure B-1 RMS Pressure Illustration

Most humans with typical or average hearing can perceive sounds ranging from approximately 20 microPascals to 20 million microPascals or more. Because of the difficulty in dealing with such an extreme range of numbers, acousticians use a logarithmic scale to describe sound levels. Acousticians use a compressed scale based on logarithms of the ratios of the sound energy contained in the wave related to the square of sound pressures instead of the sound pressures themselves, resulting in the "sound pressure level" in decibels (dB). The 'B' in dB is always capitalized because the unit is named after Alexander Graham Bell, a leading 19th century innovator in communication.

Sound pressure level (L_p) is defined as:

$$L_p = 10log_{10}(\frac{p_{rms}^2}{p_{ref}^2}); or$$

$$L_p = 20log_{10}(\frac{P_{rms}}{P_{ref}})\ dB \qquad \textbf{Eq. B-2}$$

where

L_P = sound pressure level, dB
P_{rms} = RMS sound pressure
P_{ref} = 20 microPascals

Inserting the range of sound pressure values mentioned above into Eq. B-2 results in a typical quietest sound at 20 microPascals at 0 dB. A typical loudest sound of 20 million microPascals is 120 dB.

B.1.1 Decibel Addition

The combination of two or more sound pressure levels at a single location requires decibel addition, which is the addition of logarithmic quantities of sound energy (P^2_{rms}).

To add sound energy from multiple, unique sources, add the sound energy as shown Eq. B-3.

$$L_p = 10log_{10}(\frac{{P_1}^2 + {P_2}^2 + \cdots + {P_n}^2}{P_{ref}^2}) \qquad \textbf{Eq. B-3}$$

where

L_P = sound pressure level, dB
P_1, P_2, P_n = individual source RMS sound pressures to add
P_{ref} = 20 microPascals

A doubling of identical sound sources results in a 3-dB increase, as shown mathematically below.

$$L_p = 10log_{10}(2\frac{p_{rms}^2}{p_{ref}^2})$$

$$= 10log_{10}(\frac{p_{rms}^2}{p_{ref}^2}) + 10log_{10}(2)$$

$$= 10log_{10}(\frac{p_{rms}^2}{p_{ref}^2}) + 3$$

To add decibel levels (instead of sound energy) use the following equation:

$$L_p = 10log_{10}(\sum_{i=1}^{N} 10^{(L_i/10)})$$

where

L_p = sound pressure level, dB
N = number of samples
i = index of summation
L_i = individual sound pressure levels, dB
L_P = sound pressure level, dB
L_1, L_2, L_n = individual source sound pressure levels to add

The equation above can be rewritten as follows:

$$L_p = 10log_{10}(10^{\frac{L_1}{10}} + 10^{\frac{L_2}{10}} + \cdots + 10^{\frac{L_n}{10}}) \quad \textbf{Eq. B-4}$$

where

L_1, L_2, L_n = individual source sound pressure levels to add

Decibel addition can be quickly approximated using Figure B-2.

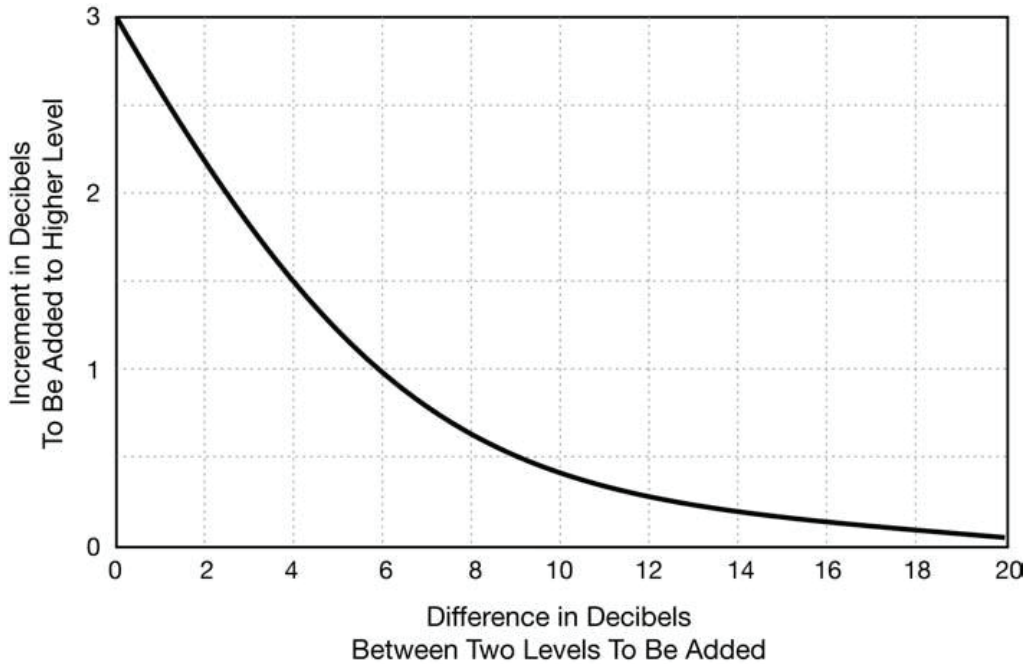


Figure B-2 Graph for Approximate Decibel Addition

Example B-1 Decibel Addition – Identical Buses

Decibel Addition

What is the combined sound pressure level of two identical buses if the noise from one bus resulted in a sound pressure level of 70 dB?

Since a doubling of identical sound sources results in a 3-dB increase:

$$\begin{aligned} L_p &= 70 + 3 \\ &= 73\ dB \end{aligned}$$

Example B-2 Decibel Addition – Two Sources

Decibel Addition

What is the combined sound pressure level of 64 dB and 60 dB?

Using Eq. B-4:

$$\begin{aligned} L_p &= 10log_{10}(10^{64/10} + 10^{60/10}) \\ &= 65.5\ dB \end{aligned}$$

Using Figure B-2:
The x-axis values represent the difference between the two sound levels, 64 and 60 dB. The difference between the sound levels in this example is 4. The point on the curve corresponding to 4 on the x-axis is 1.5. The y-axis values represent the increment that is added to the higher level.

$$\begin{aligned} L_p &= 64 + 1.5 \\ &= 65.5\ dB \end{aligned}$$

B.1.2 Frequency

Sound is a fluctuation of air pressure. The number of times the fluctuation occurs in one second is called its frequency. In acoustics, frequency is quantified in cycles per second, or Hertz (Hz). The hearing for a typical human covers the frequency range from 20 Hz to 20,000 Hz.

Some sounds, like whistles, are associated with a single frequency; this type of sound is called a pure tone. However, most often, noise is made up of many frequencies, called a spectrum. Analyzing a noise spectrum allows for identification of dominant frequency ranges and can assist in identifying noise sources. Often a frequency spectrum is divided into standardized frequency bands for analysis. Most commonly, the frequency bands for transit analyses are octave bands (where the interval between two divisions is a frequency ratio of 2) and one-third octave bands (where the interval between center frequencies is a ratio of 1.25).[73]

If the spectrum associated with a transit noise source is dominated by many low-frequency components, the noise will have a characteristic like the rumble of thunder; this is often associated with noise from a subway. Mid-range frequencies are often associated with wheel/rail noise, and high frequencies may be associated with wheel squeal due to sharp curves on a track.

The spectrum in Figure B-3 illustrates the full range of acoustical frequencies that can occur near a transit system. In this example, the noise spectrum was measured near a train on an elevated steel structure with a sharp curve.

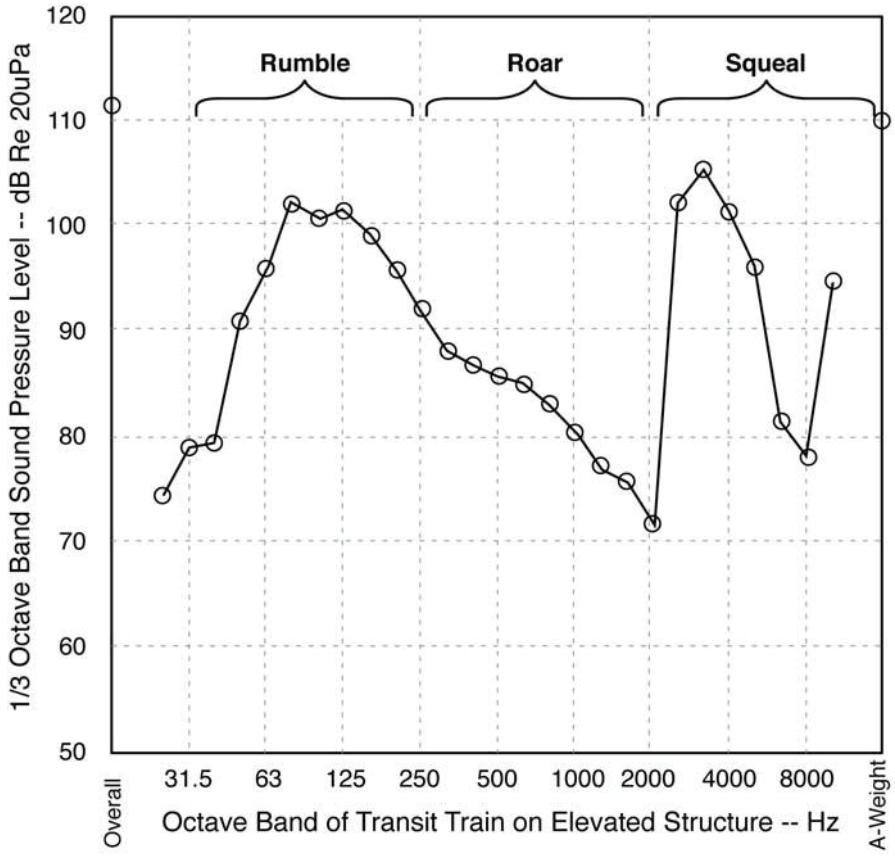


Figure B-3 Noise Spectrum of Transit Train on Curve and Elevated Structure

The human auditory system does not respond equally to all frequencies of sound. For sounds normally heard in our environment, low frequencies below 250 Hz and frequencies above 10,000 Hz are generally considered less audible than the frequencies in between. This is because our ears are less sensitive in those areas. To better represent human hearing, frequency response functions were developed to characterize the way people respond to different frequencies. These are referred to as A-, B-, and C-weighted curves and represent human auditory response to normal, very loud, and extremely loud sound levels, respectively. Environmental noise is generally considered to be in the normal sound level range; and, therefore, the A-weighted sound level is considered best to represent the human response.

The A-weighting curve is shown in Figure B-4. This curve illustrates that sounds at 50 Hz would have to be amplified by 30 dB to be perceived as loud as a sound at 1000 Hz at normal sound levels.

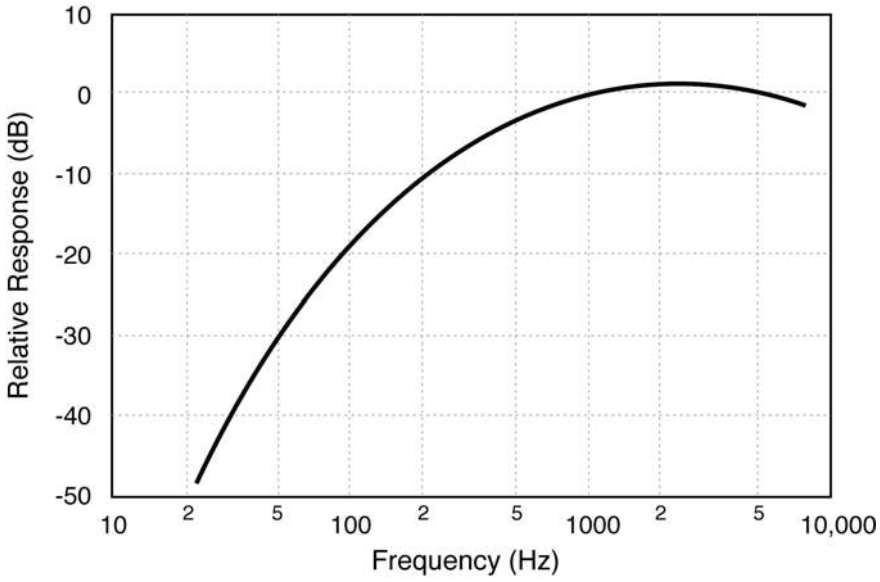


Figure B-4 A-Weighting Curve

Low frequencies have longer wavelengths of sound (cycles are less frequent) and, conversely, high frequencies have shorter wavelengths (cycles are more frequent). The size of the wavelength in feet is dependent on frequency and speed of sound as follows:

$$f\lambda = c \qquad \textbf{Eq. B-5}$$

where

f = frequency in cycles per second, Hz
λ = wavelength, ft
c = speed of sound, ft/sec

The speed of sound in air varies with temperature; but at standard conditions, it is approximately 1000 ft per second. Therefore, at standard conditions, a frequency of 1000 Hz has a wavelength of 1 foot and a frequency of 50 Hz has a wavelength of 20 ft. The scale of these waves explains, in part, the reason humans perceive sounds of 1000 Hz better than those of 50 Hz. A wavelength of 1 foot is similar to the size of a person's head; whereas, a wavelength of 20 ft is similar to dimensions associated with a house, which is why low-frequency sounds (such as those from an idling locomotive) are sometimes not attenuated by walls and windows of a home. These sounds transmit indoors with relatively little reduction in strength.

B.1.3 Time Pattern

The third important characteristic of noise is its variation in time. Environmental noise is considered to be a combination of all outdoor noise sources. When combined, sources such as distant traffic, wind in trees, and distant industrial or farming activities often create a low-level background noise in which no particular individual source is identifiable. Background noise is often relatively constant from moment to moment, but varies slowly over time as natural forces change or as human activity follows its daily cycle. In addition to this low-level, slowly varying background noise, a succession of identifiable noisy events of relatively brief duration may be added. These events may include single-vehicle passbys, aircraft flyovers,

screeching of brakes, and other short-term events, which all cause the noise level to substantially fluctuate from moment to moment.

It is possible to describe these fluctuating noises in the environment using single-number metrics to allow for manageable measurements, computations, and impact assessment. The search for adequate single-number noise metrics has encompassed hundreds of attitudinal surveys and laboratory experiments in addition to decades of practical experience with many alternative metrics.

B.1.4 Noise Metrics

The noise metrics referred to in this manual are described in the sections below.

B.1.4.1 A-weighted Sound Level: The Basic Noise Unit

The basic noise unit for transit noise is the A-weighted sound level and is described in ANSI S1.1-1994 (49). It describes the noise level at the receiver at any moment in time and can be read directly from noise-monitoring equipment when frequency weighting is set to A-weighting. Figure B-5 shows examples of typical A-weighted sound levels for both transit and non-transit sources, ranging from approximately 30 dBA (very quiet) to 90 dBA (very loud).

The unit dBA denotes the decibel level is A-weighted. The letter "A" indicates that the sound has been filtered to reduce the strength of very low and very high-frequency sounds to emulate the human response to sound levels as described in Appendix B.1.2. This allows for events that are out of the range of human hearing, such as high-frequency dog whistles and low-frequency seismic disturbances, to be filtered out. On average, each A-weighted sound level increase of 10 dB corresponds to an approximate doubling of subjective loudness.

A-weighted sound levels are adopted as the basic noise unit for transit noise impact assessments because they:

- Can be measured easily,
- Approximate the human ear's sensitivity to sounds of different frequencies,
- Match attitudinal-survey tests of annoyance better than other basic units,
- Have been in use since the early 1930s, and
- Are endorsed as the proper basic unit for environmental noise by most agencies concerned with community noise throughout the world.

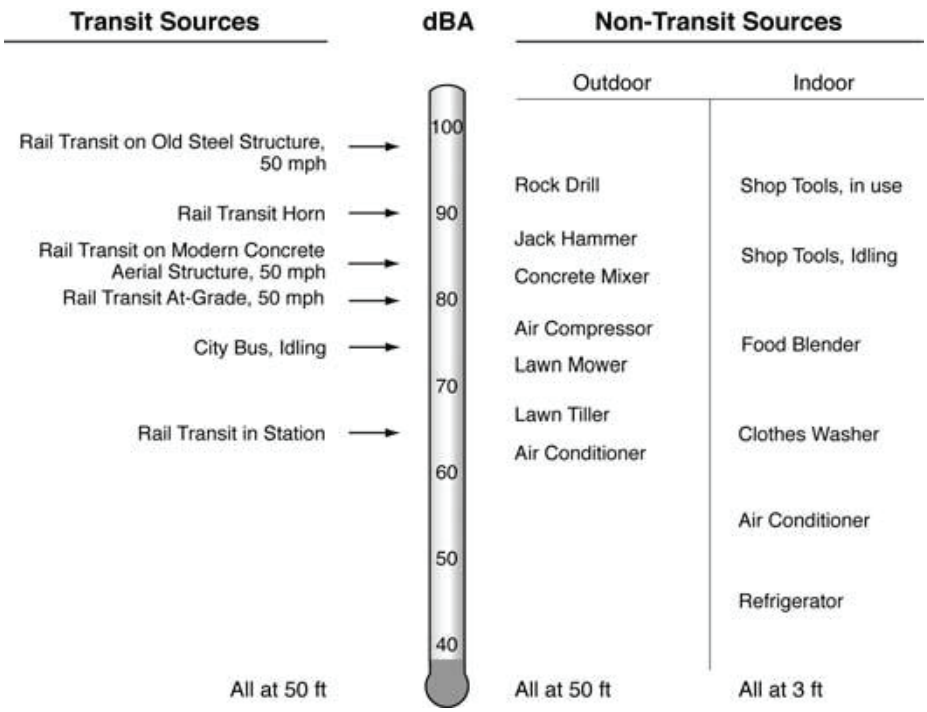


Figure B-5 Typical A-weighted Sound Levels

B.1.4.2 Maximum Sound Level (L_{max}) During a Single Noise Event

As a transit vehicle approaches, passes by, and then recedes into the distance, the A-weighted sound level rises, reaches a maximum, and then fades into the background noise. The maximum A-weighted sound level reached during this passby is called the maximum sound level, [49] abbreviated here as L_{max}. L_{max} is illustrated in Figure B-6 where time is plotted horizontally, and A-weighted sound level is plotted vertically.

Although L_{max} is commonly used in vehicle-noise specifications,[xvi] it is not used for transit environmental noise impact assessment. L_{max} does not include the number and duration of transit events, which are important for assessing people's reactions to noise. It also cannot be normalized to a one-hour or 24-hour cumulative measure of impact, and therefore, is not conducive to comparison among different transportation modes. For example, cumulative noise metrics commonly used in highway noise assessments are $L_{eq(1hr)}$ and L_{10}, the noise level exceeded for 10 percent of the peak hour.

[xvi] For noise compliance tests of transient sources, such as moving transit vehicles under controlled conditions with smooth wheel and rail conditions, L_{max} is typically measured with the sound level meter's time weighting set to "fast." However, for tests of continuous or stationary transit sources, it is usually more appropriate to use the "slow" setting. When set to "slow," sound level meters ignore some of the very-transient fluctuations, which are negligible when assessing the overall noise level.

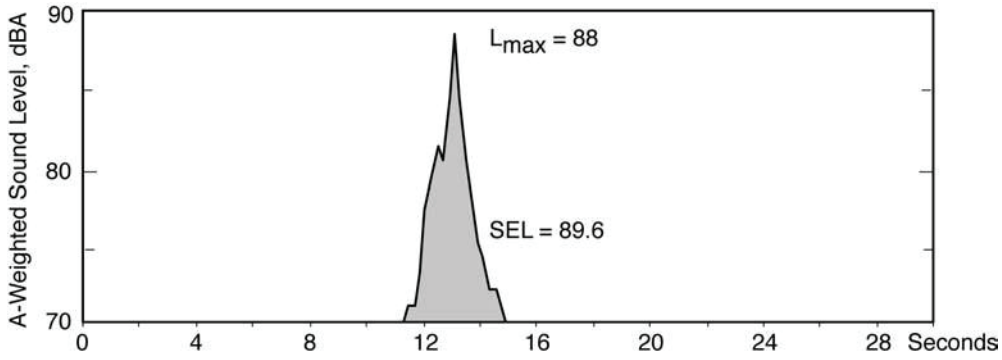


Figure B-6 Typical Transit-Vehicle Passby

B.1.4.3 Sound Exposure Level (SEL): Exposure from a Single Noise Event

Sound exposure level, abbreviated here as SEL, is the cumulative noise exposure from a single noise event, normalized to one second (49). SEL contains the same overall sound energy as the actual varying sound energy during the event. It is the primary metric for the measurement of transit vehicle noise emissions and an intermediate metric in the measurement and calculation of both $L_{eq(1hr)}$ and L_{dn}. The SEL metric is A-weighted and is expressed in the unit dBA.

This concept is illustrated in Figure B-6 and Figure B-7 where the shaded regions are the sound exposure during and event. The example in Figure B-6 is a transit-vehicle passby and Figure B-7 is an example of a fixed-transit facility as a transit bus is started, warmed up, and then driven away. For this event, the noise exposure is large due to duration of the event.

SEL is an A-weighted cumulative measure that is referenced to one second. Louder events have greater SELs than quieter events, and events of longer duration have greater SELs than shorter events. This is generally consistent with community response to noise. Noise events of longer duration are considered more disruptive than events of shorter duration with equal maximum A-weighted sound levels.

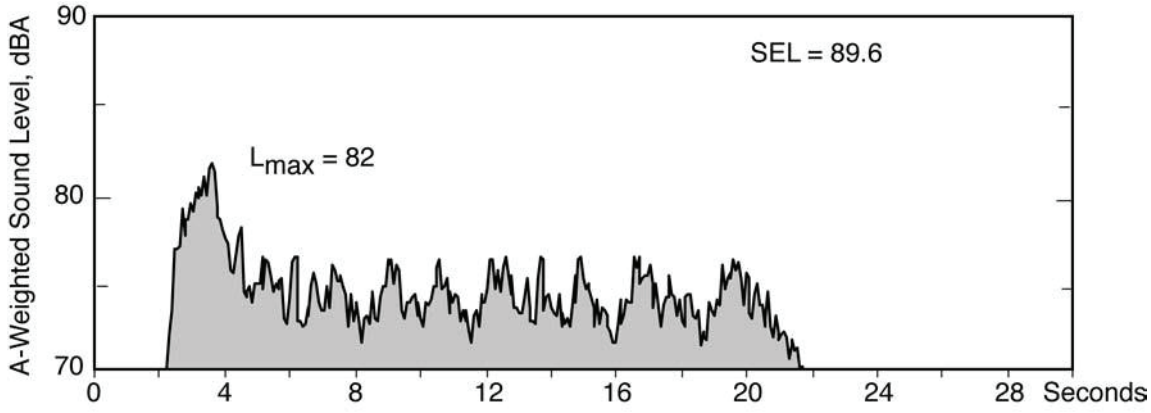


Figure B-7 Typical Fixed-Facility Noise Event

Conceptually, the sound exposure level can be expressed as:

$$SEL = 10log_{10}(\begin{matrix}Total\ sound\ energy \\ during\ the\ event\end{matrix})$$

Mathematically, the sound exposure level is computed as follows:

$$SEL = 10log_{10}(\sum_{i=1}^{N} 10^{(L_i/10)}) \qquad \textbf{Eq. B-6}$$

where

SEL = Sound exposure level, dBA
N = number of samples
i = index of summation
L_i = individual A-weighted sound level, dBA

The events shown in Figure B-6 and Figure B-7 are compared graphically in Figure B-8 using a logarithmic vertical scale. The shaded zones in these figures indicate noise exposure over time. The actual event shows the noise exposure over the time of the event, and the equivalent SEL shows the total noise exposure normalized to one second. Note that events 1 and 2 in Figure B-8 have different time periods and noise levels throughout the event, but the same resulting SEL.

SEL is used in transit noise analyses because it:

1. Accounts for both the duration and amplitude of an event,
2. Allows a uniform assessment method for both transit-vehicle passbys and fixed-facility noise events, and
3. Can be used to calculate the one-hour and 24-hour cumulative metrics for comparison across different transportation modes.

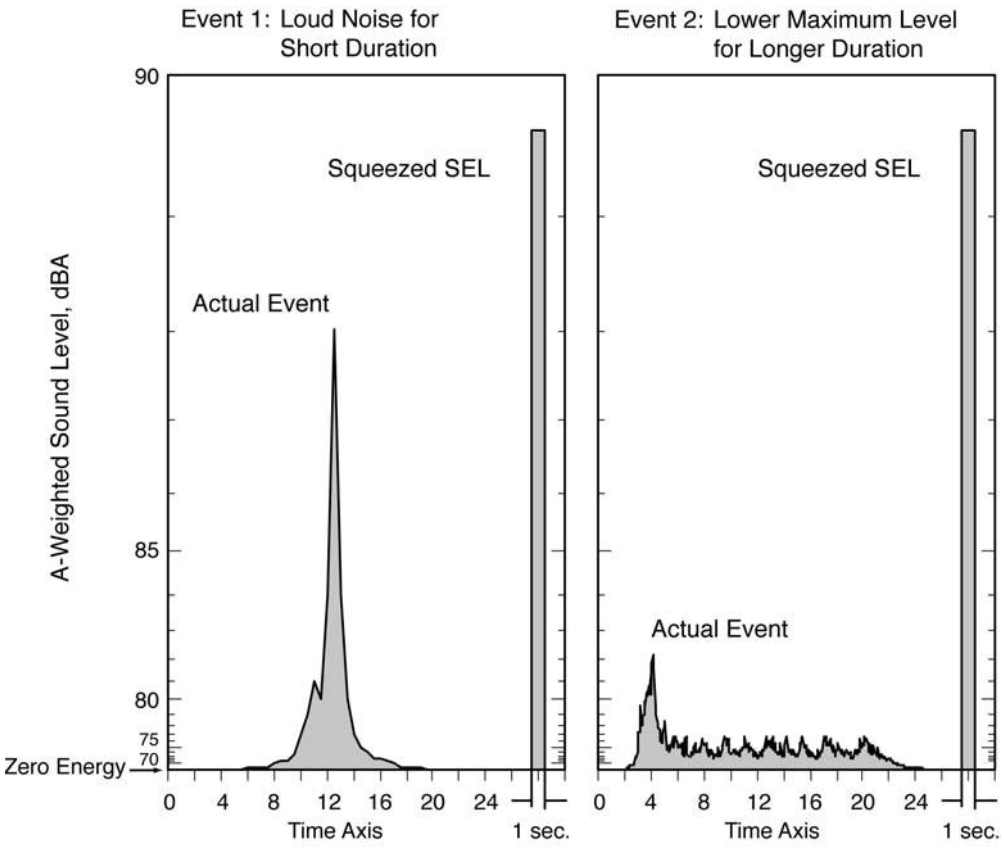


Figure B-8 An Energy View of Noise Events

B.1.4.4 Equivalent Sound Level ($L_{eq(t)}$)

The metric for cumulative noise exposure over a specific time interval is the equivalent sound level (49). It is a single decibel value that accounts for total sound energy from all sound levels over a specified time interval (or time period). The time period associated with the equivalent sound level metric can vary for different types of analyses. This metric is abbreviated as $L_{eq(t)}$, where "t" is the duration of the time period. $L_{eq(t)}$ represents a hypothetical constant sound level and contains the same overall sound energy as the actual varying sound energy during the time period "t". For most transit noise analyses, an A-weighted, hourly equivalent sound level is used, abbreviated here as $L_{eq(1hr)}$. $L_{eq(1hr)}$ is expressed in the unit, dBA.

Figure B-9 shows examples of typical unmitigated hourly $L_{eq(1hr)}$'s, both for transit and non-transit sources ranging from 40 (quiet) to 80 dB (loud). Note that these $L_{eq(1hr)}$'s depend upon both the number of events during the hour as well as each event's duration, which is affected by vehicle speed. For example, doubling the number of events during the hour will increase the $L_{eq(1hr)}$ by 3 decibels, as will doubling the duration of each individual event.

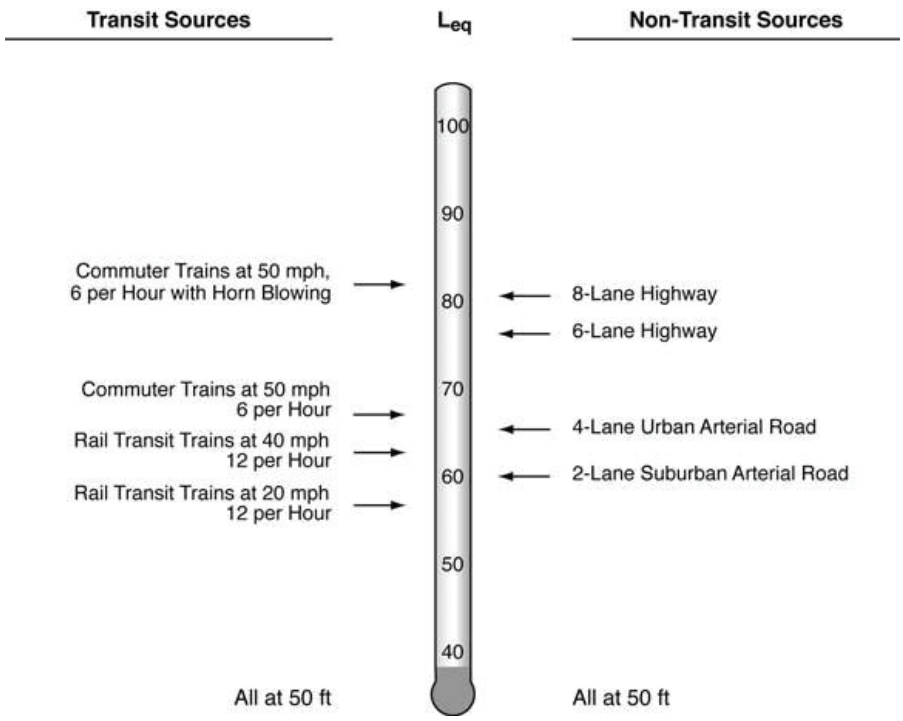


Figure B-9 Typical Hourly $L_{eq(1hr)}$'s

An example of sound levels over time for a single noise event such as a train passing on nearby tracks is illustrated in the top frame of Figure B-10. As the train approaches, passes by, and then recedes into the distance, the A-weighted sound level rises, reaches a maximum, and then fades into the background noise. The equivalent sound level is shown for three different time periods Figure B-10. The area under the curve in this top frame is the noise that reaches the receiver (noise exposure) over this five-minute period. The center frame of the figure shows sound levels over the one-hour period, including the five-minute period from the top frame. The area under the curve represents the noise exposure for one hour. The bottom frame shows sound levels over a full 24-hour period and is discussed in Appendix B.1.4.5.

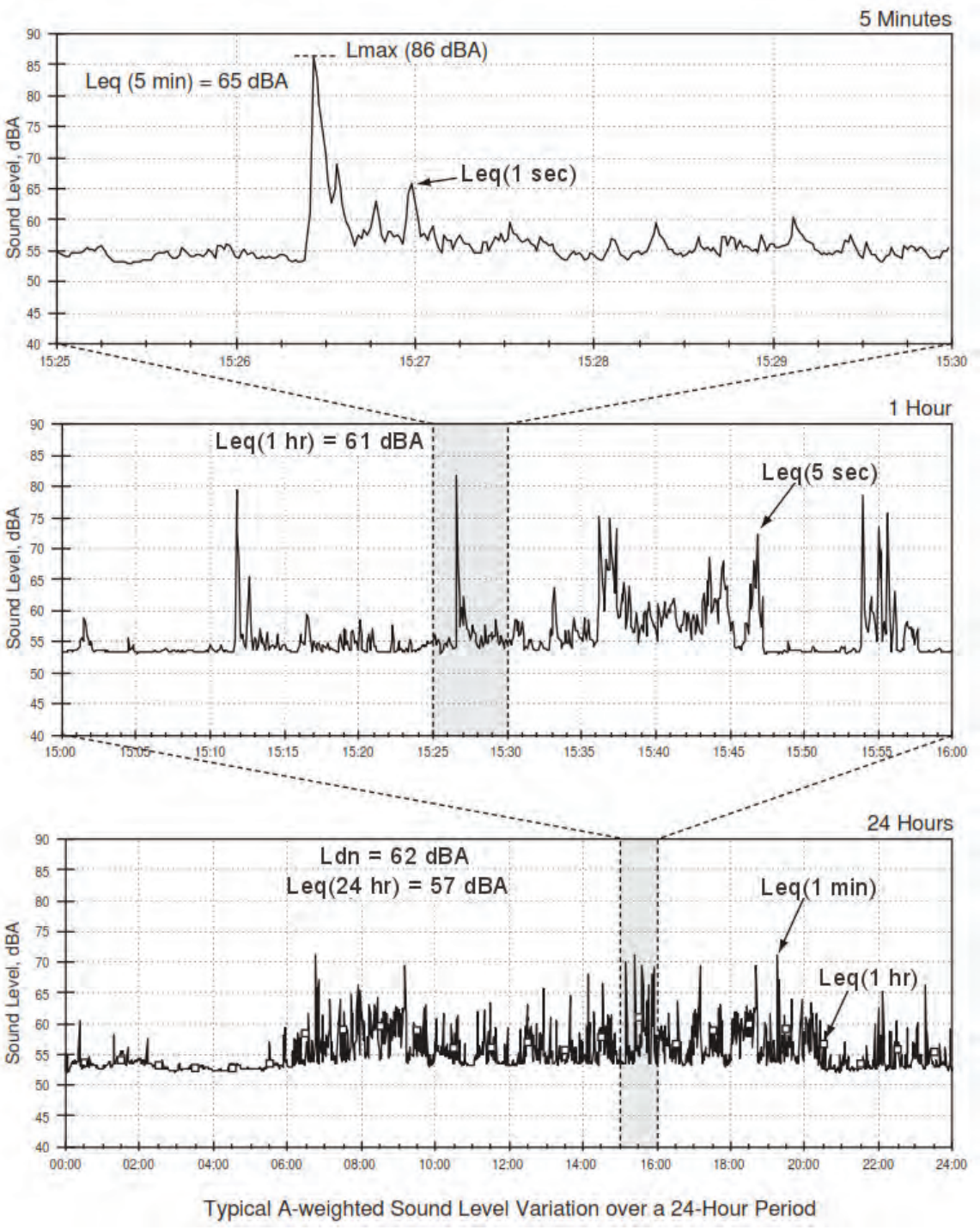


Figure B-10 Example A-weighted Sound Level Time Histories

Conceptually, the equivalent sound level can be expressed as:

$$L_{eq}(t) = 10log_{10}(\frac{Total\ Sound\ Energy}{Time\ Period})$$

Mathematically, the equation is as follows:

$$L_{eq}(t) = 10log_{10}(\frac{1}{T}\sum_{i=1}^{N} 10^{(L_i/10)})$$

where

$L_{eq(t)}$ = equivalent sound level of time period "t", dBA
T = time period, sec (3600 for an hourly $L_{eq(1hr)}$)
N = number of samples, sec (3600 for an hourly $L_{eq(1hr)}$)
i = index of summation
L_i = individual A-weighted sound level, dBA

The equation above can be rewritten as follows for a one-hour time period:

$$L_{eq}(1h) = 10log_{10}[Total\ Sound\ Energy\ in\ 1\ hr] - 35.6 \quad \textbf{Eq. B-7}$$

where

35.6 = numerical adjustment for a time period of 1 hour ($10log_{10}(t)$)

The sound energy is totaled over a full hour (3600 seconds) and is accumulated for all noise events during that hour. When computing the equivalent sound level for a time period other than one hour, T is modified in the equation to the duration of the time period in seconds. The numerical adjustment (35.6) accounts for time period of interest, in this case, one hour.

An alternate way for computing $L_{eq(1hr)}$ for a series of transit-noise events using sound exposure levels can be expressed conceptually as follows:

$$L_{eq}(1h) = 10log_{10}(\frac{Energy\ Sum\ of}{all\ SELs}) - 35.6$$

Mathematically, the equation is as follows:

$$L_{eq}(t) = 10log_{10}(\frac{1}{T}\sum_{i=1}^{N} 10^{(SEL_i/10)}) \quad \textbf{Eq. B-8}$$

where

$L_{eq(t)}$ = equivalent sound level of time period "t", dBA
T = time period, sec (3600 for an hourly $L_{eq(1hr)}$)
N = number of sample, sec (3600 for an hourly $L_{eq(1hr)}$)
i = index of summation
SEL = individual sound exposure level, dBA

Hourly $L_{eq(1hr)}$ is adopted as the measure of cumulative noise impact for non-residential land uses (those not involving sleep) because $L_{eq(1hr)}$:

- Correlates well with speech interference in conversation and on the telephone – as well as interruption of TV, radio, and music enjoyment;
- Increases with the duration of transit events;
- Accounts for the number of transit events over the hour, which is also important to people's reactions; and

- Is used by the Federal Highway Administration in assessing highway-traffic noise impact.(Thus, this noise metric can be used for directly comparing and contrasting highway, transit, and multimodal alternatives).

B.1.4.5 Day-Night Sound Level (L_{dn}): 24-Hour Exposure from All Events

The metric for cumulative 24-hour exposure is the Day-Night Sound Level, [49] abbreviated here as L_{dn}. It is a single, A-weighted decibel value that accounts for total sound energy from all sound sources over 24 hours and is expressed in the unit, dBA. Events between 10 p.m. and 7 a.m. are increased by 10 dB to account for people's greater nighttime sensitivity to noise.

Figure B-11 shows examples of typical L_{dn}'s, both for transit and non-transit sources, ranging from 50 to 80 dB, where 50 is considered a quiet 24-hour period and 80 a loud 24-hour period. Note that these L_{dn}'s depend upon the number of events during day and night separately, including each event's duration, which is affected by vehicle speed.

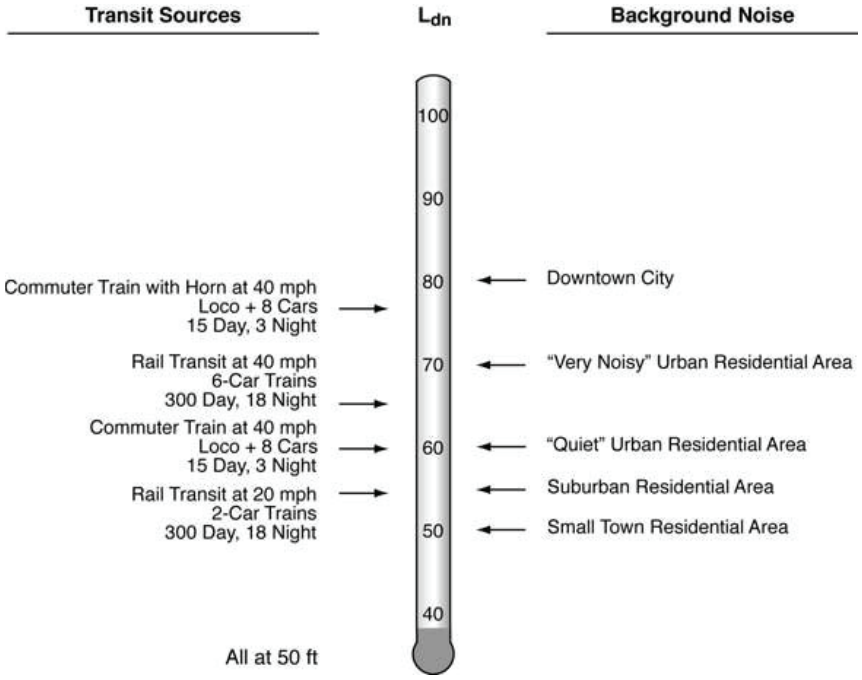


Figure B- 11 Typical L_{dn}'s

An example of sound level variation over 24 hours is visualized in the bottom frame of Figure B-10. The area under the curve represents the receiver's noise exposure over the 24 hours. Note that some vehicle passbys occur at night, when the background noise is typically lower and the 10 dB adjustment is applied.

Conceptually, the day-night level can be expressed as:

$$L_{dn} = 10log_{10}(\frac{Total\ Sound\ Energy_{Day}}{Time\ Period_{Day}\ (seconds)} + \frac{n_{adj,n} \times Total\ Sound\ Energy_{Night}}{Time\ Period_{Night}\ (seconds)})$$

Mathematically, the equation is as follows:

$$L_{dn} = 10log_{10}(\frac{1}{T_d}\sum_{i=1}^{N} t_i \times 10^{(L_{d,i}/10)} + \frac{1}{T_n}\sum_{j=1}^{M} t_j \times 10^{((L_{n,j}+n_{adj,n})/10)}) \quad \textbf{Eq. B-9}$$

where

L_{dn} = cumulative 24-hour exposure (day-night sound level), dBA
T_d = time period during the daytime, between 7 a.m. and 10 p.m. sec (54,000)
N = number of samples during the daytime (54,000)
i = index of summation
t_i = time interval of measurements in seconds (1)
$L_{d,i}$ = individual A-weighted sound level during the daytime, dBA
T_n = time period during the nighttime, between 10 p.m. and 7 p.m. sec (32,400)
M = number of samples during the nighttime (32,400)
j = index of summation
t_j = time interval of measurements, sec (1)
$L_{n,j}$ = individual A-weighted sound level during the nighttime, dBA
$n_{adj,n}$ = nighttime noise adjustment (10 dB)

The equation above can be rewritten as follows:

$$L_{dn} = 10log_{10}[\,(15 * Total\ Sound\ Energy_{Day}) + (9 * n_{adj,n} * Total\ Sound\ Energy_{Night})] - 49.4$$

The sound energy is totaled over a full 24 hours, and the sound energy is accumulated from all noise events during that time period. The numerical adjustment (49.4) accounts for time period of interest, in this case, 24 hours.

An alternative way of computing L_{dn} from twenty-four hourly $L_{eq(1hr)}$'s can be expressed conceptually as follows:

$$L_{dn} = 10log_{10}(\frac{Energy\ sum\ of\ daytime,\ hourly\ Leqs + (n_{adj,n} * Energy\ sum\ of\ nighttime,\ hourly\ Leqs)}{Time\ period\ (seconds)})$$

The equation above can be rewritten as:

$$L_{dn} = 10log_{10}(\frac{Energy\ sum\ of\ daytime,\ hourly\ Leqs + (n_{adj,n} * Energy\ sum\ of\ nighttime,\ hourly\ Leqs)}{(\frac{86400}{3600})})$$

The equation above can be reduced further and rewritten as:

$$L_{dn} = 10log_{10}(Energy\ sum\ of\ daytime,\ hourly\ Leqs + (n_{adj,n} * Energy\ sum\ of\ nighttime,\ hourly\ Leqs)) - 13.8 \quad \textbf{Eq. B-10}$$

L_{dn} due to a series of transit-noise events can also be computed in terms of SEL. The equation below assumes that transit noise dominates the 24-hour noise environment, where nighttime SELs are increased by 10 dB before totaling:

$$L_{dn} = 10log_{10}(\frac{Energy\ sum\ of}{all\ daytime\ SELs} + (n_{adj,n} * \frac{Energy\ sum\ of}{all\ nighttime\ SELs})) - 49.4 \qquad \textbf{Eq. B-11}$$

L_{dn} is adopted as the measure of cumulative noise impact for residential land uses (those involving sleep), because it:

- Correlates well with the results of attitudinal surveys of residential noise impact
- Increases with the duration of transit events
- Accounts for the number of transit events over the full twenty-four hours
- Accounts for the increased sensitivity to noise at night, when most people are asleep
- Allows composite measurements to capture all sources of community noise combined
- Allow quantitative comparison of transit noise with other community noises
- Is the designated metric of choice of other Federal agencies (e.g., HUD, FAA, and EPA) and has wide international acceptance

Appendix C: Background for Transit Noise Impact Criteria

The noise criteria presented in Section 4.1 of this manual have been developed based on well-documented criteria and research on human response to community noise. The primary goals in developing the noise criteria were to ensure that the impact limits are firmly founded in scientific studies, realistically based on noise levels associated with new transit projects, and represent a reasonable balance between community benefit and project costs. This appendix provides background information on the development of these criteria.

C.1 Relevant Literature

The following is an annotated list of the documents that are particularly relevant to the noise impact criteria:

1. **U.S. EPA's "Levels Document"**[74]
   This report identifies noise levels consistent with the protection of public health and welfare against hearing loss, annoyance, and activity interference. It has been used as the basis of numerous community noise standards and ordinances.

2. **Committee on Hearing, Bioacoustics and Biomechanics (CHABA) Working Group 69, "Guidelines for Preparing Environmental Impact Statements on Noise"**[75]
   This report was the result of deliberations by a group of leading acoustical scientists with the goal of developing a uniform national method for noise impact assessment. Although the CHABA's proposed approach has not been adopted, the report serves as an excellent resource documenting research in noise effects. It provides a strong scientific basis for quantifying impacts in terms of L_{dn}.

3. **American Public Transportation Association (APTA) Guidelines for Design of Rapid Transit Facilities**[76]
   The noise and vibration sections of the APTA Guidelines have been used successfully in the past for the design of rail transit facilities. The APTA Guidelines include criteria for acceptable community noise and vibration. Experience has shown that meeting the APTA Guidelines will usually result in acceptable noise levels; but the metric used in the APTA Guidelines is not appropriate for environmental assessment purposes.

   The APTA Guidelines criteria are in terms of L_{max} for conventional RRT vehicles, and they cannot be used to compare among different modes of transit. Since the APTA Guidelines are expressed in terms of maximum passby noise, they are not sensitive to the frequency or duration of noise events for transit modes other than conventional RRT operations with 5 to 10 minute headways. Therefore, the APTA criteria are questionable for assessing the noise impact of other transit modes that differ from conventional rapid transit with respect to source emission levels and operating characteristics (e.g., commuter rail, AGT, and a variety of bus projects).

4. **Synthesis of Social Surveys on Noise Annoyance**[77]
   In 1978, Theodore J. Schultz, an internationally known acoustical scientist, synthesized the results of a large number of social surveys concerning annoyance due to transportation noise. A group of these surveys were remarkably consistent, and the author proposed that their average

results be taken as the best available prediction of transportation noise annoyance. This synthesis has received essentially unanimous acceptance by acoustical scientists and engineers. The "universal" transportation response curve developed by Schultz (Figure 3-7) shows that the percent of the population highly annoyed by transportation noise increases from zero at an L_{dn} of approximately 50 dBA to 100% when L_{dn} is approximately 90 dBA. Most importantly, this curve indicates that for the same increase in L_{dn}, there is a greater increase in the number of people highly annoyed at high noise levels than at low noise levels. For example, a 5 dB increase at low ambient levels (40 - 50 dB) has less impact than at higher ambient levels (65 - 75 dB). A recent update of the original research containing several railroad, transit, and street traffic noise surveys, confirming the shape of the original Schultz curve [12].

5. **HUD's Standards**[19]
   HUD has developed noise standards, criteria, and guidelines to ensure that housing projects supported by HUD achieve the goal of a suitable living environment. The HUD acceptability standards define 65 dB (L_{dn}) as the threshold for a normally unacceptable living environment (moderate impact for FTA) and 75 dB (L_{dn}) as the threshold for an unacceptable living environment (severe impact for FTA).

C.2 Basis for Noise Impact Criteria Curves

The lower curve in Figure 4-2 represents the onset of moderate impact and is based on the following considerations:

- The EPA finding that a community noise level of L_{dn} less than or equal to 55 dBA is "requisite to protect public health and welfare with an adequate margin of safety."[72]
- The conclusion by EPA and others that a 5 dB increase in L_{dn} or $L_{eq(1hr)}$ is the minimum required for a change in community reaction.
- The research concludes that there are very few people highly annoyed when the L_{dn} is 50 dBA, and that an increase in L_{dn} from 50 dBA to 55 dBA results in an average of 2% more people highly annoyed (Figure 3-7).

The increase in noise level from an existing ambient level of 50 dBA to a cumulative level of 55 dBA because of a project is found to cause minimal impact, with 2% of people highly annoyed, as described in the bullets above. This is considered the lowest threshold where impact starts to occur. Therefore, for an existing ambient noise level of 50 dBA, the curve representing the onset of moderate impact is at 53 dBA, the combination of which yields a cumulative level of 55 dBA by decibel addition. The remainder of the lower curve in Figure 4-2 was determined from the annoyance curve (Figure 3-7) by allowing a fixed 2% increase in annoyance at other levels of existing ambient noise. As cumulative noise increases, the increment to attain the same 2% increase in highly annoyed people is smaller. While it takes a 5-dB noise increase to cause a 2% increase in highly annoyed people at an existing ambient noise level of 50 dB, an increase of only 1 dB causes a 2% increase of highly annoyed people at an existing ambient noise level of 70 dBA.

The upper curve in Figure 4-2 represents the onset of severe impact based on a total noise level, corresponding to a higher degree of impact. The severe noise impact curve is based on the following considerations:

- HUD defines an L_{dn} of 65 as the onset of a normally unacceptable noise zone (moderate impact for FTA) in its environmental noise standards [19]. FAA considers that residential land uses are not compatible with noise environments where L_{dn} is greater than 65 dBA (20).

- An increase of 5 dB in L_{dn} or $L_{eq(t)}$ is commonly assumed as the minimum required increase for a change in community reaction.
- The research concludes that an increase of 5 dB in L_{dn} or $L_{eq(t)}$ represents a 6.5% increase in the number of people highly annoyed (Figure 3-7).

The increase in noise level from an existing ambient level of 60 dBA to a cumulative level of 65 dBA caused by a project represents a change from an acceptable noise environment to the threshold of an unacceptable noise environment. This is considered the level at which severe impact starts to occur with a 6.5% increase in the number of people highly annoyed as described in the bullets above. Therefore, for an existing ambient noise level of 60 dBA, the curve representing the onset of severe impact is at 63 dBA, the combination of which yields a cumulative level of 65 dBA by decibel addition. The remainder of the upper curve in Figure 4-2 was determined from the annoyance curve (Figure 3-7) by allowing a fixed increase of the 6.5% increase in annoyance at all existing ambient noise levels.

Both curves incorporate a maximum limit for the transit project noise in noise-sensitive areas. Independent of existing noise levels, moderate impact for land use categories 1 and 2 is considered to occur whenever the transit L_{dn} equals or exceeds 65 dBA, and severe impact occurs whenever the transit L_{dn} equals or exceeds 75 dBA. These absolute limits are intended to restrict activity interference caused by the transit project alone.

Both curves also incorporate a maximum limit for cumulative noise increase at low existing noise levels (below approximately 45 dBA). This is a conservative limit that reflects the lack of social survey data on people's reactions to noise at such low ambient levels. Like the FHWA approach in assessing the relative impact of a highway project, the transit noise criteria include limits on noise increase of 10 dB and 15 dB for moderate impact and severe impact, respectively, relative to the existing noise level.

Note that due to the types of land use included in category 3, the criteria allow the project noise for category 3 sites to be 5 dB greater than for category 1 and category 2 sites. This difference is reflected by the offset in the vertical scale on the right side of Figure 4-2. Aside from active parks, which are clearly less sensitive to noise than category 1 and 2 sites, category 3 sites include primarily indoor activities. Therefore, the criteria account for some noise reduction from the building structure.

C.3 Equations for Noise Impact Criteria Curves

The equations for the noise impact criteria curves shown in Figure 4-2 are included in this section. These equations may be useful when performing the noise assessment methodology using spreadsheets, computer programs, or other analysis tools. Otherwise, such mathematical detail is generally not necessary to implement the criteria, and direct use of Figure 4-2 is adequate and less time-consuming.

A total of four continuous curves are included in the criteria, creating two threshold curves for moderate and severe impact for category 1 and 2, and two curves for category 3 (See Table C-1). Note that for each level of impact, the overall curves for categories 1 and 2 are offset by 5 dB from category 3. While each curve is graphically continuous, each one is defined by a set of three discrete equations. These equations are approximately continuous at the transition points. The following is a description of the three equations:

- The first equation in each set is a linear relationship, representing the portion of the curve in which the existing noise exposure is low, and the allowable increase is limited to 10 dB and 15 dB for moderate impact and severe impact, respectively.

- The second equation in each set represents the impact threshold over the range of existing noise exposure for which a fixed percentage of increase in annoyance is allowed, as described in Appendix C.2. This curve is a third-order, polynomial approximation derived from the Schultz curve(75) and covers the range of noise exposure encountered in most populated areas. This curve is used for determining noise impact in most cases for transit projects.
- The third equation represents the absolute limit of project noise imposed by the criteria for areas with high existing noise exposure. For land use category 1 and 2, the absolute limit is 65 dBA for moderate impact and 70 dBA for severe impact. For land use category 3, the absolute limit is 75 dBA for moderate impact and 80 dBA for severe impact.

Table C-1 Threshold of Moderate and Severe Impacts

Threshold of Moderate Impact

Category 1 and 2

$$L_p = \begin{cases} 11.450 + 0.953L_E, & L_E < 42 \\ 71.662 - 1.164L_E + 0.018{L_E}^2 - 4.088 \times 10^{-5}{L_E}^3, & 42 \le L_E \le 71 \\ 65, & L_E > 71 \end{cases} \quad \textbf{Eq. C- 12}$$

Category 3

$$L_p = \begin{cases} 16.450 + 0.953L_E, & L_E < 42 \\ 76.662 - 1.164L_E + 0.018{L_E}^2 - 4.088 \times 10^{-5}{L_E}^3, & 42 \le L_E \le 71 \\ 70, & L_E > 71 \end{cases} \quad \textbf{Eq. C- 13}$$

Threshold of Severe Impact

Category 1 and 2

$$L_p = \begin{cases} 17.322 + 0.940L_E, & L_E < 44 \\ 96.725 - 1.992L_E + 3.02 \times 10^{-2}{L_E}^2 - 1.043 \times 10^{-4}{L_E}^3, & 44 \le L_E \le 77 \\ 75, & L_E > 77 \end{cases} \quad \textbf{Eq. C- 14}$$

Category 3

$$L_p = \begin{cases} 22.322 + 0.940L_E, & L_E < 44 \\ 101.725 - 1.992L_E + 3.02 \times 10^{-2}{L_E}^2 - 1.043 \times 10^{-4}{L_E}^3, & 44 \le L_E \le 77 \\ 80, & L_E > 77 \end{cases} \quad \textbf{Eq. C- 15}$$

L_E = the existing noise exposure in terms of L_{dn} or $L_{eq(1hr)}$
L_p = the project noise exposure which determines impact in terms of L_{dn} or $L_{eq(1hr)}$)

Appendix D: Clustering Receivers of Interest

This appendix supplements the information in Section 4.5 on clustering receivers of interest.

The general approach to selecting noise-sensitive receivers in the study area is included in Section 4.5, Step 1. General guidelines are as follows:

- Select the following types of receivers to evaluate individually:
  - Every major noise-sensitive public building
  - Every isolated residence
  - Every relatively small outdoor noise-sensitive area
- Residential neighborhoods and relatively large outdoor noise-sensitive areas can often be clustered and represented by a single receiver.

Clustering similar receivers reduces the number of computations needed later, especially for large-scale projects where a greater number of noise-sensitive sites may be affected. For this approach to be effective, it is essential that the representative receiver accurately represents the noise environment of the cluster.

The major steps in clustering receivers include:

1. First, cluster receivers according to approximately equal exposure to the primary project noise source. These areas typically run parallel to a linear project or circle major stationary sources relative to the proposed project.
2. Next, cluster receivers according to major sources of ambient noise. These areas typically run parallel to or encircle major sources of ambient noise.
3. Then, cluster receivers according to changes in the project layout or operations along the corridor.
4. Finally, select a representative receiver for each cluster.

The major steps are expanded below and include instructions on how to draw cluster boundaries on a map.

1. **Boundaries along the proposed project** – Draw cluster boundaries along the proposed project as described below to separate clusters based on distance from the project. Draw these cluster boundaries for the project sources listed as major in Table 4-19.

   Within both residential and noise-sensitive outdoor areas:

   - **Primary project source**
     Draw cluster boundaries at the following distances from the near edge of the primary project source: 0 ft, 50 ft, 100 ft, 200 ft, 400 ft, and 800 ft. For linear sources, such as a rail line, draw these boundaries as lines parallel to the proposed ROW line. For stationary sources, draw these boundaries as approximate circles around the source, starting at the property line.

     Do not extend boundaries beyond the noise study area, identified in the Noise Screening Procedure in Section 4.3 or the General Noise Assessment of Section 4.4.

- **Remaining project sources** – Repeat the process for the primary project source for all other project listed as major in Table 4-19, such as substations and crossing signals. If several project sources are located approximately together, only consider one source, since the others would produce approximately the same boundary.

  It is good practice to optimize the number of clusters for a project to simplify the procedure.

Where rows of buildings parallel the transit corridor:

- Ensure that cluster boundaries fall between the following rows of buildings, counting back away from the proposed project:
  - Between rows 1 and 2
  - Between rows 2 and 3
  - Between rows 3 and 4
- Add cluster boundaries between these rows if not already included.

2. **Boundaries along sources of ambient noise** – Draw cluster boundaries along all major sources of ambient noise based upon distance from these sources, as described below.
   - Draw cluster boundaries along all interstates and major roadway arterials at the following distances from the near edge of the roadway: 0 ft, 100 ft, 200 ft, and 500 ft.
   - Draw cluster boundaries along all other roadways that have state or county numbering at 0 ft and 100 ft from the near edge of the roadway.
   - For all major industrial sources of noise, draw cluster boundaries that encircle the source at the following distances from the near property line of the source: 0 ft, 100 ft, 200 ft, and 400 ft.

3. **Boundaries based on changes in project layout or operations** – Further subdivision is needed to account for changes in project noise where proposed project layout or operating conditions change considerably along the corridor. Draw a cluster boundary perpendicular to the corridor extending straight outward to both sides at the following locations:
   - Where parallel tracks previously separated by more than approximately 100 ft are moved closer together
   - Approximately where speed and/or throttle are reduced when approaching stations and where steady service speed is reached after departing stations
   - Approximately 200 ft up and down the line from grade crossing bells
   - At transitions from jointed to welded rail
   - At transitions from one type of cross section to another including on structure, on fill, at-grade and in cut
   - At transitions from open terrain to heavily wooded terrain
   - At transitions between areas free of locomotive horn noise and areas subject to this noise source
   - Any other positions along the line where project noise is expected to change considerably, such as up and down the line from tight curves where wheels may squeal

4. **Selection of a representative receiver from each cluster** – Determine a representative receiver for each cluster boundary drawn in the steps above.
   - **Residential clusters**
     Select a representative receiver within the cluster at the house closest to the proposed project. If this receiver is not the clear choice, select the receiver furthest from major sources of ambient noise.
   - **Outdoor noise-sensitive clusters (e.g., urban park or amphitheater)**

Select a representative receiver within the cluster at the closest point of active noise-sensitive use. If this receiver is not the clear choice, select the receiver farther from major sources of ambient noise.

Note that some clusters may fall between areas with receivers of interest. This could occur when operational changes or track layouts change in an open, undeveloped area. Retain these clusters. Do not merge them with adjacent clusters. Do not select a representative receiver of interest from them.

Example D-1 Clustering Receivers

Receivers of Interest and Clustering Receivers

In this hypothetical situation, a new rail transit line, labeled "new rail line" in Figure D-1, is proposed along a major urban street with commercial land use. A residential area is located adjacent to the commercial strip, located approximately one-half block from the proposed transit alignment. A major arterial, labeled "highway," crosses the alignment.

Cluster Receivers Along the Primary Project Source

Primary Project Source

The primary project source in this example is the new rail line. Boundaries are first drawn at distances of 0 ft from the right-of- way line (edge of the street in this example), 50 ft, 100 ft, 200 ft, 400 ft, and 800 ft, (Figure D-1). Distances are labeled at the top of the figure.

This is proposed to be a constant speed section of track, so there are no changes in boundaries due to changes in operations along the corridor. Moreover, no other project sources are shown here, but if there had been a station with a parking lot, lines would have been drawn enveloping the station site at the specified distances from the property line.

Rows of Buildings Parallel to the Transit Corridor

This example includes rows of buildings parallel to the transit corridor. The first set of boundary lines satisfies the requirement that cluster boundaries fall between rows 1 and 2, and between rows 2 and 3, but there is no line between rows 4 and 5. Consequently, a cluster boundary labeled "R" at the top of the figure has been drawn between the 4th and 5th row of buildings.

Cluster Receivers Along the Primary Project Source

The roadway arterial (labeled "highway") is the only major source of ambient noise shown.

Cluster boundaries are drawn at 0 ft, 100 ft, 200 ft and 500 ft from the near edge of the roadway on both sides. These lines are shown with distances labeled at the side of the figure.

Select a Representative Receiver from Each Cluster

Representative receivers are shown as filled circles in Figure D-1. Note that the receivers labeled with "REC" are primarily for use in Appendix E.

Locate receiver, "REC 3". Note that this cluster is located at the outer edge of influence from the major source ("highway") where local street traffic is the dominant source for ambient noise (in practice, this would be verified by a measurement).

"REC 3" is chosen to represent this cluster because it is among the houses closest to the proposed project source in this cluster and it is in the middle of the block affected by the dominant local street. Ambient noise levels at one end of the cluster may be influenced more by the highway and the other end may be affected more by the cross street, but the majority of the cluster would be represented by receiver site "REC 3."

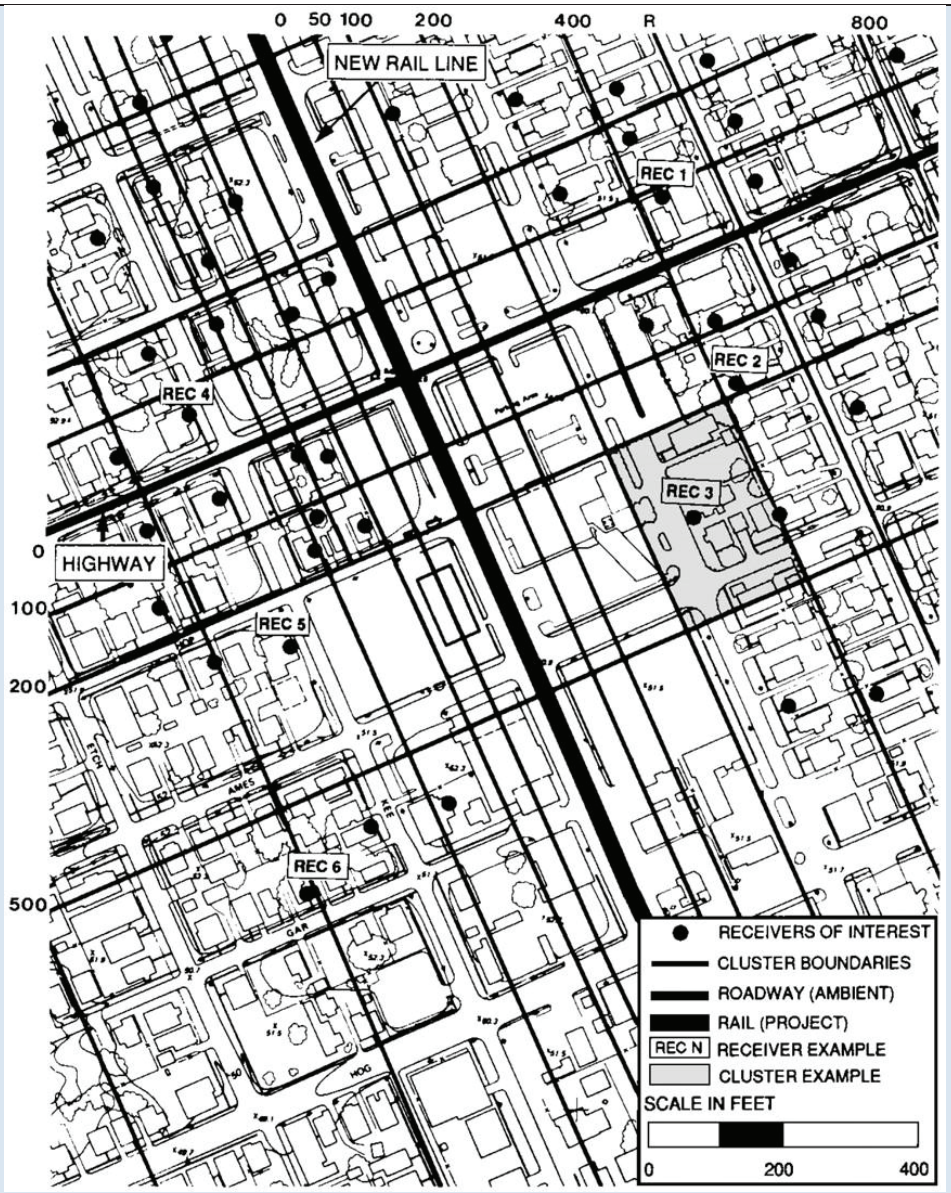


Figure D-1 Example of Receiver Map Showing Cluster Boundaries

Appendix E: Determining Existing Noise

Different options of determining existing noise, including full measurement, computation from partial measurements, and tabular look-up, are described in Section 4.5, Step 5. This appendix provides additional details associated with each method and examples of when each method could be used.

Additional details on the methods for estimating existing noise are provided below:

Option 1: $L_{eq(1hr)}$ measurement (non-residential) – Full one-hour measurements are recommended to determine existing noise for non-residential receivers of interest. These measurements are preferred over all other options and will accurately represent the $L_{eq(1hr)}$. The following procedures apply to these full-duration measurements:

- Measure $L_{eq(1hr)}$ at the receiver of interest during a typical hour of use on two non-successive days. Choose the hour in which maximum project activity will occur. The $L_{eq(1hr)}$ will be accurately represented using this method. Typically, measuring between noon Monday and noon Friday is recommended, but weekend days may be more appropriate for places of worship.
- Position the measurement microphone for all sites as shown in Figure 4-19, considering relative orientation of project and ambient sources. Position the microphone in a location that is somewhat shielded from the ambient source to measure the ambient noise at these locations at the quietest area on the property.
- Conduct all measurements in accordance with good engineering practice.

Option 2: L_{dn} measurement (residential) – Full 24-hour measurements are recommended to determine ambient noise for residential receivers of interest. These measurements are preferred over all other options and will accurately represent the L_{dn}. The following procedures apply to these full-duration measurements:

- Measure a full 24-hour L_{dn} at the receiver of interest for a single weekday (generally between noon Monday and noon Friday).
- Position the measurement microphone for all sites as shown in Figure 4-19 considering relative orientation of project and ambient sources. Position the microphone in a location that is somewhat shielded from the ambient source to measure the ambient noise at these locations at the quietest area on the property.
- Conduct all measurements in accordance with good engineering practice.

Option 3: L_{dn} computation of L_{dn} from 3 partial $L_{eq(1hr)}$ measurements (residential) – An alternative way to determine L_{dn} is to measure $L_{eq(1hr)}$ for three typical hours of the day, then compute the L_{dn} from these three $L_{eq(1hr)}$ measurements. This method is less precise than its full-duration measurement. The following procedures apply to this partial-duration measurement method for L_{dn}:

- Measure the $L_{eq(1hr)}$ during each of the following time periods:
  - During peak-hour roadway traffic
  - Midday, between the morning and afternoon roadway-traffic peak hours
  - During late night between midnight and 5 a.m.
- Position the measurement microphone for all sites as shown in Figure 4-19 considering relative orientation of project and ambient sources. Position the microphone in a location that is somewhat shielded from the ambient source to measure the ambient noise at these locations at the quietest area on the property.
- Conduct all measurements in accordance with good engineering practice.
- Compute the L_{dn} using the equation below

$$L_{dn} \approx 10\log(3 \times 10^{\frac{L_{eq.peakhour.}-2}{10}} + 12 \times 10^{\frac{L_{eq.midday}-2}{10}} + 9 \times 10^{\frac{L_{eq.latenight}+8}{10}}) - 13.8$$ **Eq. E-1**

The resulting L_{dn} will be slightly underestimated due to the adjustment to the measured levels in these equations. This underestimation is intended to compensate for the reduced precision of the computed L_{dn}. If using this method, a minimum time duration of one hour should be used for each measurement period in computing an Ldn.

Option 4: Computation of L_{dn} from 1 partial $L_{eq(1hr)}$ measurement (residential) – L_{dn} can also be determined by measuring $L_{eq(1hr)}$ for one hour of the day, and then computing L_{dn} from the $L_{eq(1hr)}$. This method is less precise than computing L_{dn} from 3 $L_{eq(1hr)}$ measurements. This method may be useful for projects with are many sites assessed by the General Noise Assessment. This method may also be appropriate when determining if a particular receiver of interest represents a cluster in a Detailed Noise Analysis. The following procedures apply to this partial-duration measurement option for L_{dn}:

- Measure the $L_{eq(1hr)}$ for the loudest hour of project-related activity during hours of noise sensitivity. If this hour is not selected, other hours may be used with the understanding that the estimate is less precise.
- Position the measurement microphone for all sites as shown in Figure 4-19, considering relative orientation of project and ambient sources. Position the microphone in a location that is somewhat shielded from the ambient source to measure the ambient noise at these locations at the quietest area on the property.
- Conduct all measurements in accordance with good engineering practice.
- Convert the measured hourly $L_{eq(1hr)}$ to L_{dn} with the appropriate equation below.

For measurements between 7 a.m. and 7 p.m.:

$$L_{dn} \approx L_{eq} - 2$$ **Eq. E-2**

For measurements between 7 p.m. and 10 p.m.:

$$L_{dn} \approx L_{eq} + 3$$ **Eq. E-3**

For measurements between 10 p.m. and 7 a.m.:

$$L_{dn} \approx L_{eq} + 8$$ **Eq. E-4**

The resulting L_{dn} will be moderately underestimated due to the use of the adjustment constants in these equations. This underestimation is intended to compensate for the reduced precision of the computed L_{dn}. If using this method, a minimum time duration of one hour should be used for each measurement period in computing an Ldn.

Option 5: Computation of $L_{eq(1hr)}$ or L_{dn} from $L_{eq(1hr)}$ or L_{dn} of a comparable site (all land uses) – Computing $L_{eq(1hr)}$ or L_{dn} from the $L_{eq(1hr)}$ or L_{dn} of a comparable site where the ambient noise is dominated by the same source that is comparable in precision to Option 4. This method can be used to characterize noise in several neighborhoods by using a single representative receiver. It is critical that the measurement site has a similar noise environment to all areas represented. If measurements made by others are available and the sites are equivalent, the existing measurements can be used to reduce the amount of project noise monitoring. The following procedures apply to this method of determining of ambient noise:

- Choose another receiver that is comparable to the receiver (CompRec) of interest with the following:
  - The same source of dominant ambient noise

- The ambient level of the comparable receiver was measured according to Option 1 or Option 2 above
- The ambient measurement at the comparable receiver was made in direct view of the major source of ambient noise, unshielded by noise barriers, terrain, rows of buildings, or dense tree zones

- Determine the following from a plan or aerial photograph:
  - The distance ($D_{CompRec}$) from the comparable receiver to the near edge of the ambient source
  - The distance (D_{Rec}) from this receiver of interest to the near edge of the ambient source
- Determine the number of rows of buildings (N) that intervene between the receiver of interest and the ambient source.
- Compute the ambient level at the receiver of interest (Rec) with the appropriate equation below

If roadway sources dominate:

$$L_{Rec} \approx L_{CompRec} - 15\log(\frac{D_{Rec}}{D_{CompRec}}) - 3N \qquad \textbf{Eq. E-5}$$

If other sources dominate:

$$L_{Rec} \approx L_{CompRec} - 25\log(\frac{D_{Rec}}{D_{CompRec}}) - 3N \qquad \textbf{Eq. E-6}$$

The resulting L_{Rec} will be moderately underestimated. This underestimation is intended to compensate for the reduced precision of the computed L_{dn}.

Option 6: Estimation of L_{dn} by table look-up (all land uses) – The least precise way to determine the ambient noise is to estimate the level using a table. A tabular look-up can be used to establish baseline conditions for a General Noise Assessment if a noise measurement cannot be made. This method should not be used for a Detailed Noise Analysis. The following instruction applies to this method of determining of ambient noise:

Estimate either the $L_{eq(1hr)}$ or the L_{dn} using Table 4-17 based on distance from major roadways, rail lines, or upon population densities. In general, these tabulated values are substantially underestimated.

The underestimation is intended to compensate for the reduced precision of the estimated ambients.

Examples – Examples of when each method of determining existing noise may be appropriate are provided below using the example from Appendix D. Existing noise at the receivers labeled "REC" in Figure D-1 could be estimated as follows:

- **Option 1: $L_{eq(1hr)}$ measurement** – Existing noise at REC 1 is due to the highway at the side of this church. $L_{eq(1hr)}$ can be measured during a typical church hour.
- **Option 2: L_{dn} measurement –** Existing noise at the residence REC 2 is due to a combination of the highway and local streets. L_{dn} can be measured for a full 24-hours.
- **Option 3: L_{dn} computation of L_{dn} from 3 partial $L_{eq(1hr)}$ measurements** – Existing noise at the residence REC 3 is due to the street in front of this residence. L_{dn} can be computed from three $L_{eq(1hr)}$ measurements.

- **Option 4: Computation of L_{dn} from 1 partial $L_{eq(1hr)}$ measurement** – Existing noise at the residence REC 4 is due to the highway. Because the highway has a predictable diurnal pattern, L_{dn} can be computed from one $L_{eq(1hr)}$ measurement.
- **Option 5: Computation of L_{dn} from L_{dn} of a comparable site** – Existing noise at the residence REC 5 is due to Kee Street. REC 3 is also affected by local street traffic and is a comparable distance from the highway. L_{dn} for REC 5 can be computed based on the L_{dn} at REC-3.
- **Option 6: Estimation of L_{dn} by table look-up** – Existing noise at the residence REC 6 is due to local traffic. L_{dn} can be estimated by tables based on population density along this corridor.

Appendix F: Computing Source Levels from Measurements

This appendix contains the procedures for computing source reference levels (SEL_{ref}) from source measurements in cases where the source reference tables in Section 4.5, Step 2 indicate measurements are preferred, data are not available for the source of interest, or more precise data are required than available in the table.

Close-by source measurements for vehicle passbys may capture either the vehicle's sound exposure level (SEL) or maximum noise level (L_{max}). Both metrics can be measured directly by commonly available sound level meters. While the L_{max} metric is not used for transit noise impact assessments, it can be used to compute SEL source reference levels. L_{max} measurements are often available from transit-equipment manufacturers and some transit system equipment specifications may limit close-by L_{max} levels.

Close-by source measurements for stationary sources capture the source's SEL over one source event, where the event duration may be chosen based on measurement convenience. The duration will factor out of the computation when the measured value is converted to reference operating conditions.

This manual does not specify elaborate methods for undertaking the close-by source measurements, but rather, provides general processes. It is required that all measurements conform to good engineering practice, guided by the standards of the American National Standards Institute and other such organizations (27, 28, 29).

This appendix presents information according to noise source as follows:

- Appendix F.1: Highway and rail vehicle passbys for vehicles of the same type
- Appendix F.2: Stationary sources
- Appendix F.3: L_{max} for single train passbys (for trains of mixed consists)

F. 1 Highway and Rail Vehicle Passbys

This section provides information on appropriate conditions for vehicle passby measurements, instructions on converting measurements made under non-reference conditions to source reference levels, and examples of these computations.

The following conditions are required for vehicle passbys, in addition to good engineering practice:

- Measured vehicles must be representative of project vehicles in all aspects, including representative acceleration and speed conditions for buses.
- Track must be relatively free of corrugations and train wheels relatively free of flats, unless these conditions are typical of the proposed project.
- Road surfaces must be smooth and dry, unless these conditions are typical of the proposed project.
- Perpendicular distance between the measurement position and the source's centerline must be 100 ft or less.
- Vehicle speed must be 30 mph or greater, unless typical project speeds are less than that.
- No noise barriers, terrain, buildings, or dense tree zones may break the lines-of-sight between the source and the measurement position.

When close-by source measurements are made under non-reference conditions, use the instructions below and the equations in Table F-1 to convert the measured values to source reference levels. For rail vehicles, measure/convert a group of locomotives or a group of cars separately. This computation requires that all measured vehicles be of the same type. For trains of mixed consists, see Appendix F.3.

SEL measured for a highway-vehicle passby, or a passby of a group of identical rail vehicles

- Collect the following input information:
  - SEL_{meas}, the measured SEL for the vehicle passby
  - N, the consist of the measured group of rail cars or group of locomotives
  - T, the average throttle setting of the measured diesel-powered locomotive(s)
  - S_{meas}, the measured passby speed, in miles per hour
  - D_{meas}, the closest distance between the measurement position and the source, in feet
- Compute the Source Reference Level SEL_{ref}, using Eq. F-1.

L_{max} measured for a passby of a group of identical rail vehicles

- Collect the following input information:
  - L_{max}, measured for the group passby
  - N, the consist of the measured group of rail cars or group of locomotives
  - T, the average throttle setting of the measured diesel-powered locomotive(s)
  - S_{meas}, the measured passby speed, in miles per hour
  - D_{meas}, the closest distance between the measurement position and the source, in feet
  - L_{meas}, the total length of the measured group of locomotives or group of rail cars, in feet
- Compute the Source Reference Level SEL_{ref}, using either Eq. F-2 or Eq. F-3, as appropriate, for locomotives or rail cars.

L_{max} measured for a highway-vehicle passby

- Collect the following input information:
  - L_{max}, measured for the highway-vehicle passby
  - S_{meas}, the vehicle speed, in miles per hour
  - D_{meas}, the closest distance between the measurement position and the source, in feet
- Compute the Source Reference Level, SELref, using Eq. F-4.

Table F-1 Conversion to Source Reference Levels at 50 ft – Highway and Rail Sources

Measured	Source	Equation	
SEL	Vehicle passby	$SEL_{ref} = SEL_{meas} + 10\log(\frac{S_{meas}}{50}) + 10log(\frac{D_{meas}}{50}) + C_{consist} + C_{emissions}$	**Eq. F-1**
L_{max}	Rail-vehicle passby, locomotives only	$SEL_{ref} = L_{Amax} + 10\log(\frac{L_{meas}}{50}) + 10\log(\frac{D_{meas}}{50}) - 10\log(2 \propto) + C_{consist} + C_{emissions} + 3.3$	**Eq. F-2**
	Rail-vehicle passby, cars only	$SEL_{ref} = L_{Amax} + 10\log(\frac{L_{meas}}{50}) + 10\log(\frac{D_{meas}}{50}) - 10\log\ [2 \propto + \sin(2 \propto)] + C_{consist} + C_{emissions} + 3.3$	**Eq. F-3**
	Highway-vehicle passby	$SEL_{ref} = L_{Amax} + 20\log(\frac{D_{meas}}{50}) + C_{emissions} + 3.3$	**Eq. F-4**

S_{meas} = speed of measured vehicle(s), mph

D_{meas} = closest distance between measurement position and source, ft

$C_{consist}$ = 0 for buses and automobiles
$-10\log(N_{Cars})$ for locomotives and rail cars
where N is the number of locomotives or rail cars in the measured group

$C_{emissions}$ = 0 for T < 6 for locomotives
-2 (T-5) for T ≥ 6
where T is average throttle setting of measured diesel – electric locomotive(s)

$-30\log(\frac{S_{meas}}{50})$ for rail cars

$-25\log(\frac{S_{meas}}{50})$ for buses

$-38.1\log(\frac{S_{meas}}{50})$ for automobiles

E_{meas} = event duration of measurement, sec

L_{meas} = total length of measured group of locomotives *or* rail cars, ft

$\propto$ = arctan($\frac{L_{meas}}{2D_{meas}}$), rad

Example F-1 Calculate SEL_{ref} – Locomotives

Computation of SEL_{ref} from SEL Measurement of Fixed-guideway Source

SEL was measured for a passby of two diesel-powered locomotives with the following conditions:

SEL_{meas} = 90 dBA
N_{Cars} = 2
T = 6
S_{meas} = 55 mph
D_{meas} = 65 ft

Compute the source reference level using Eq. F-1.

$$SEL_{ref} = SEL_{meas} + 10\log\left(\frac{S_{meas}}{50}\right) + 10log\left(\frac{D_{meas}}{50}\right) + C_{consist} + C_{emissions}$$
$$= 90 + 10\log\left(\frac{55}{50}\right) + 10\log\left(\frac{65}{50}\right) - 10\log(2) + (-2(6-5))$$
$$= 86.5 \text{ dBA}$$

Example F-2 Calculate SEL_{ref} – Rail Cars

Computation of SEL_{ref} from L_{max} Measurement of Fixed-Guideway Source

L_{max} was measured for a passby of a 4-car consist of 70-ft long rail cars with the following conditions:

L_{max} = 90 dBA
N_{Cars} = 4
S_{meas} = 70 mph
D_{meas} = 65 ft
L_{meas} = 280 ft
$\propto$ = 1.14

Compute the source reference level using Eq. F-3.

$$SEL_{ref} = L_{Amax} + 10\log\left(\frac{L_{meas}}{50}\right) + 10\log\left(\frac{D_{meas}}{50}\right) - 10\log\left[2 \propto + \sin(2 \propto)\right] + C_{consist} + C_{emissions} + 3.3$$
$$= 90 + 10\log\left(\frac{280}{50}\right) + 10\log\left(\frac{65}{50}\right) - 10\log\left[2(1.14) + \sin\left(2(1.14)\right)\right] - 10\log(4) - 30\log\left(\frac{70}{50}\right) + 3.3$$
$$= 86.7 \text{ dBA}$$

Example F-3 Calculate SEL_{ref} – Bus

Computation of SEL_{ref} from L_{max} Measurement of Highway Vehicle Source

L_{max} was measured for a bus with the following conditions:

L_{max} = 78 dBA
D_{meas} = 80 ft
S_{meas} = 40 mph

Compute the source reference level using Eq. F-4

$$SEL_{ref} = L_{max} + 20\log(\frac{D_{meas}}{50}) + C_{emissions} + 3.3$$
$$= 78 + 20\log(\frac{80}{50}) - 25\log(\frac{40}{50}) + 3.3$$
$$= 87.8 \text{ dBA}$$

F.2 Stationary Sources

This section provides information on appropriate conditions for stationary source measurements, instructions on converting measurements made under non-reference conditions to source reference levels, and an example of this type of computation.

The following conditions are required for stationary sources, in addition to good engineering practice:

- Measured source operations must be representative of project operations in all aspects.
- The following ratio must be 2 or less, and the distance to the closest source component must be 200 ft or less.

$$\frac{Distance\ to\ the\ farthest\ source\ component}{Distance\ to\ the\ closest\ source\ component}$$

  If both conditions cannot simultaneously be met, separate close-by measurements of individual components of this source must be made, for which these distance conditions can be met.

- The following ratio must be 2 or less:

$$\frac{Lateral\ length\ of\ the\ source\ area}{Distance\ to\ the\ closest\ source\ component}$$

  The lateral length of the source area is measured perpendicular to the general line-of-sight between source and measurement positions.

  If this condition cannot be met, then make separate close-by measurements of individual components of this source, for which this condition can be met.

- No noise barriers, terrain, buildings, or dense tree zones may break the lines-of-sight between the source and the measurement position.

When close-by source measurements are made under non-reference conditions, use the instructions below and the equation in Table F- 2 to convert the measured values to source reference levels.

SEL was measured for a stationary noise source

- Collect the following input information:
  - SEL_{meas}, the measured SEL for the noise source, for whatever source "event" is convenient to measure
  - E_{meas}, the event duration, in seconds
  - D_{meas}, the closest distance between the measurement position and the source, in feet
- Compute the source reference level, SELref using Eq. F- 5.

Table F-2 Conversion to Source Reference Levels at 50 ft - Stationary Sources

Measured	Source	Equation
SEL	Stationary noise source	$SEL_{ref} = SEL_{meas} - 10\log(\frac{E_{meas}}{3600}) + 20\log(\frac{D_{meas}}{50})$ **Eq. F- 5**
S_{meas} = speed of measured vehicle(s), in miles per hour E_{meas} = event duration of measurement, in seconds D_{meas} = closest distance between measurement position and source, in feet		

Example F-4 Calculate SEL_{ref} – Signal Crossing

Computation of SEL_{ref} from SEL Measurement of Stationary Source

SEL was measured for a signal crossing with the following conditions:

SEL_{meas} = 70 dBA
E_{meas} = 10 sec
D_{meas} = 65 ft

Compute the source reference level using Eq. F-5.

$$SEL_{ref} = SEL_{meas} - 10\log(\frac{E_{meas}}{3600}) + 20\log(\frac{D_{meas}}{50})$$
$$= 70 - 10\log(\frac{10}{3600}) + 20\log(\frac{65}{50})$$
$$= 97.8 \text{ dBA}$$

F.3 L_{max} for Single Train Passby

This section provides procedures for the computation of L_{max} for a single train passby. This procedure can be used to characterize trains of mixed consists using L_{max}. Follow the instructions below.

- Collect the following input information:
  - SEL_{ref}, from Section 4.5, specific to both the locomotive type and car type of the train
  - N_{loco}, the number of locomotives in the train
  - N_{cars}, the number of cars in the train
  - L_{loco}, the total length of the train's locomotive(s), in feet (or N_{loco} unit length)
  - L_{cars}, the total length of the train's set of rail car(s), in feet (or N_{cars} unit length)
  - S, the train speed, in miles per hour
  - D, the closest distance between the receiver of interest and the train, in feet

- Use the equations in Table F-3 to compute the following:
  - $L_{max.loco}$ for the locomotive(s) using Eq. F-6

- $L_{max.cars}$ for the rail car(s) using the Eq. F-7
- $L_{max.total}$, the larger L_{max} from the locomotives(s) and rail car(s) is the L_{max} for the total train passby, see Eq. F- 8.

Table F-3 Conversion to Lmax at the Receiver, for a Single Train Passby

Source	Equation	
Locomotives	$L_{max.Loco} = SEL_{locos} + 10log\left(\frac{S}{50}\right) - 10log\left(\frac{L}{50}\right) + 10\log(2 \propto) - 3.3$	**Eq. F-6**
Rail Cars	$L_{max.Rcars} = SEL_{Rcars} + 10log\left(\frac{S}{50}\right) - 10log\left(\frac{L}{50}\right) + 10\log(2 \propto + \sin(2 \propto)) - 3.3$	**Eq. F-7**
Total Train	$L_{max.total} = max(L_{max.Loco}\ or\ L_{max.RCars})$	**Eq. F-8**

L = total length of measured group of locomotive(s) or rail car(s), ft

S = vehicle speed, mph

$\propto$ = arctan $\left(\frac{L}{2D}\right)$, rad

D = closest distance between receiver and source, ft

Example F-5 Calculate L_{max} – Train Passby

Computation of L_{max} for Train Passby

Calculate the L_{max} of commuter train at receiver of interest according to the following conditions:

SEL_{ref} = 92 dBA for locomotives
= 82 dBA for rail cars
N_{Loco} = 1
N_{Cars} = 6
S = 43 miles per hour
D = 125 ft
$\propto_{locos}$ = 0.27
$\propto_{cars}$ = 1.03

The locomotive and rail cars each have a unit length (L) of 70 ft.

Determine the total length of the locomotive and rail cars.

L_{Loco} = 70 ft
L_{cars} = 420 ft

Compute L_{max} for the locomotive using Eq. F-6:

$$L_{max.Loco} = SEL_{loco} + 10log\left(\frac{S}{50}\right) - 10log\left(\frac{L}{50}\right) + 10\log(2 \propto) - 3.3$$
$$= 92 + 10log\left(\frac{43}{50}\right) - 10log\left(\frac{70}{50}\right) + 10\log(2 \times 0.27) - 3.3$$
$$= 84.0 \text{ dBA}$$

Compute L_{max} for the rail cars using Eq. F-7:

$$L_{max.Rcars} = SEL_{Rcars} + 10log\left(\frac{S}{50}\right) - 10log\left(\frac{L}{50}\right) + 10\log(2 \propto + \sin(2 \propto)) - 3.3$$
$$= 82 + 10log\left(\frac{43}{50}\right) - 10log\left(\frac{420}{50}\right) + 10\log((2 \times 1.03) + \sin(2 \times 1.03)) - 3.3$$
$$= 73.5 \text{ dBA}$$

Find the total L_{max} for the train passby using Eq. F-8.

$$L_{max.total} = max(L_{max.Loco} \text{ or } L_{max.Rcars})$$
$$= 84.0 \text{ dBA}$$

Appendix G: Non-Standard Modeling Procedures and Methodology

This manual provides guidance for preparing and reviewing the noise and vibration sections of environmental documents, as well as FTA-approved methods and procedures to determine the level of noise and vibration impact resulting from most federally-funded transit projects. Situations may arise, however, that are not explicitly covered in this manual. Professional judgment may be used to extend the basic methods to cover these cases, when appropriate. It is important to note that each project is unique and must be evaluated on a case-by-case basis. This appendix provides procedures for the use of non-standard noise and vibration modeling procedures and methodologies on public transportation projects.

Submittal Procedure – The procedure for using non-standard modeling procedures and methodology is as follows:

1. The transit project manager should contact the FTA Regional office to discuss the proposed methods and/or data not described in this manual prior to use of the non-standard approach.
2. The non-standard methodology should be documented according to the guidelines below as part of the technical report described in Section 8.2.

Examples of Methods that Require Communication and Documentation – The following noise and vibration analysis methods and data require communication with the FTA Regional office and documentation:

- Non-standard transit noise and vibration modeling and analysis methods not described in this manual (including non-standard adjustments, computations, and assumptions). This includes modifications to standard FTA noise and vibration methods.
- Non-standard transit noise and vibration reference data not described in this manual (including measured data, substitution data, data at non-standard reference distances and/or speeds, new transit noise sources, and transit noise sources operating in non-standard conditions).
- Non-standard transit noise and vibration impact criteria not described in this manual, including the maximum sound pressure level metric.
- Non-standard methods of evaluating construction noise, including non-standard construction noise impact criteria.
- Other noise modeling tools besides the FTA Noise Impact Assessment Spreadsheet or Traffic Noise Model (TNM®) for highway noise modeling, such as the development of a finite element method model.
- Any transit noise and vibration analysis that involves an impact area or noise source that is controversial.

Documentation Guidelines – The use of non-standard noise and vibration analysis methods or data requires the following documentation components in a technical memorandum attached to the environmental document:

- **Background**
  Briefly describe the transit project for which non-default methods or data are needed. State the dominant noise sources, type of analysis, and the impact criteria. Include any additional relevant information.

- **Statement of Benefit**
  Briefly describe the benefit of the non-default noise and vibration methods or data to the transit project. Describe the appropriateness of the non-default methods or data, as well as why the standard method or data are insufficient or problematic.

- **Non-standard Data Description**
  Describe the non-standard noise or vibration data in detail. Include source type, manufacturer, reference conditions (speed, distance, and operational conditions), name of data supplier, and a date associated with data development/measurement. For measured noise or vibration data, provide corresponding data documentation (such as a data measurement or a development report). For substitution data, a comparison between the non-standard data and corresponding standard data should be provided. Furthermore, if outside sources recommend the use of the non-standard data (such as a technical society, a standards organization, or a vehicle manufacturer), references for those recommendations should be included.

- **Non-standard Methods Description**
  Describe the non-standard noise or vibration analysis method in detail. This should include a detailed description and derivation of the method (including data used in the development of the method), a description of the usage of the method, and a comparison between the non-standard method and the corresponding standard method in the context of the transit analysis. If the method has been validated against measurement data, a description of that validation analysis should be provided. If the method is derived from another source (such as a different transportation noise or vibration method), provide corresponding documentation for that source. A description of how the method is conservative (for example, estimating the worst-case scenario) or some discussion on the probability of exceeding the predicted level should be provided. Furthermore, if outside sources recommend the use of the non-standard method (such as a technical society or standards organization), references for those recommendations should be included.

- **Non-standard Tools Description**
  Describe in detail any non-standard noise or vibration models that have not been explicitly recommended in this manual. This should include a detailed description of the tool (including data used, the computations implemented in the tool, any modifications or adjustments to the tool or the corresponding data, and the usage of the tool), a description of the validation of the tool (including reference documentation and validation analyses), and a comparison between the non-standard tool and the equivalent standard tool in the context of the transit analysis. Quantitative comparisons, such as the standard deviation of the non-standard tool and an estimate of the least mean square of differences between the standard and non-standard tools, should be provided and explained. A description of how the method is conservative (for example, estimating the worst-case scenario) or some discussion on the probability of exceeding the predicted level should be provided. If outside sources recommend the use of the non-standard tool (such as a technical society or standards organization), references for those recommendations should be included.

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COLLABORATIVE FOR HIGH PERFORMANCE SCHOOLS.

Better buildings. Better students.

CA-CHPS Criteria v2.0

For New Construction & Major Renovation/Additions of Classroom and Non-Classroom Buildings

Published April 2021
Edited June 2021

CA-CHPS Criteria

Version 2.0

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ERRATA:

1. SS C7.1 Reduce Heat Islands: scoring corrected to 4 pts for 7.1.1 or 1 pt for 7.1.2, p183
2. II C7.1.3 Energy Resilience: scoring in Requirements text corrected to reflect 2-4 points, p32
3. EE C1.1.2 Zero Net Energy: points corrected to 6, p117

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INTRODUCTION

This is the sixth edition of the California CHPS Criteria™ (CA-CHPS) and the second edition to follow significant changes adopted in 2014, hence CA-CHPS v2.0. The Collaborative for High Performance Schools® (CHPS) began in November 1999, when the California Energy Commission called together Pacific Gas and Electric Company, San Diego Gas and Electric, and Southern California Edison to discuss the best way to improve the performance of California's schools. Out of this partnership, CHPS grew to include a diverse range of government agencies, utility companies, school districts, non-profit organizations and private companies, all with a unifying goal: to improve the quality of educational facilities for California's children. When the first version of the CA-CHPS Criteria was released in late 2001, it was in anticipation of an unprecedented wave of new school construction. This edition of CA-CHPS also comes at an opportune moment as the recovery from the COVID-19 pandemic has placed an unprecedented amount of attention and focus on improving indoor air quality and creating healthy learning environments. From the beginning, the CHPS Criteria has always emphasized good indoor air quality and improving the quality of the spaces where our students learn. This focus is now more important than ever.

The release of CA-CHPS v2.0 comes at a time where there is a unique opportunity to invest in high performance schools in California. COVID-19 recovery is bringing a significant expansion in funding at the federal, state and local levels targeted at improving school facilities. At the same time California and the federal government are also renewing their efforts to combat climate change with energy efficiency, renewable energy and decarbonization at the center of that effort. While this is only a fraction of the estimated $117 billion in capital investment needed over the next decade to upgrade all of California's schools to be safe, modern, equitable, and sustainable learning environments, it is a promising start. CA-CHPS responds to all of these challenges with evidence-based standards to improve learning environment quality, reduce energy use and reduce the impact schools have on climate change. This update coordinates with DSA's Sustainability Plan for public school construction, incorporates Title 24 2019, and includes new and expanded credits and additional points focused on indoor air quality, Zero Net Energy, building decarbonization and connection to nature. CA-CHPS provides a tool to guide investment in school facilities to make the biggest impact as well as a platform to gain recognition for these efforts as a CHPS Verified or CHPS Designed project.

PRINCIPLES AND FRAMEWORK

Guiding Principles of CA-CHPS

CHPS has established our criteria based on evidence and best practices that form the foundation of every healthy, high performance school. Our criteria are structured around three priority outcomes:

1. Maximize the health, well-being, and performance of students, educators, and staff.
2. Conserve energy, water, and other resources to minimize greenhouse gas emissions and reduce operating costs.
3. Practice good environmental stewardship within schools to achieve community social and environmental goals.

Framework and Organization

CA-CHPS is divided into seven categories in order to streamline the implementation process: Integration & Innovation (II), Indoor Environmental Quality (EQ), Energy (EE), Water (WE), Site (SS), Materials & Waste (MW), and Operations (OM). Each category is comprised of prerequisites and credits (formerly called

"mandatory offerings"). Prerequisites are required to be implemented in every project unless non-applicable due to project type or other allowed exemption. CHPS assigns points to prerequisites and credits. This allows us to demonstrate the importance of the prerequisites on the same scale as credits.

CA-CHPS contains 250 points available for recognition.

Point Assignments in CA-CHPS

Category	% (Points)
Integration (II)	15% (39)
Indoor Environmental Quality (EQ)	30% (74)
Energy (EE)	24% (59)
Water (WE)	9% (23)
Site (SS)	9% (22)
Materials & Waste (MW)	6% (16)
Operations (OM)	7% (17)
TOTALS	100% (250)

How to Use the Guide

Prerequisites and credits are organized by the categories listed above. Each prerequisite and credit includes the following sections:

- **Intent**: The fundamental goal of the strategy or feature. Nested prerequisites and credits share the intent.
- **Background description**: The context for and helpful information about the strategy or feature. Nested prerequisites and credits share the background description.
- **Prerequisite or Credit:** Identification of whether the item is required or optional.
- **Applicability**: What types of projects can use the prerequisite or credit.
- **Verification Review Stage**: Indicates which review stages are required: Design Review prior to construction and/or Construction Review shortly after substantial completion or occupancy.
- **Scoring:** Guidance on how to calculate the points for multi-part items.
- **Related Criteria:** If applicable, a list of CHPS prerequisites and credits that are substantially related to the item.
- **Requirement**: Describes what is required to achieve compliance and receive points for the prerequisite or credit.
- **Implementation**: Describes in more detail strategies for implementing the requirements of the prerequisite or credit.
- **Documentation**: Describes how to appropriately document compliance for the purposes of participating in the CHPS Verified recognition program. Documentation guidance may be included

in the text of CHPS adaptations or may be contained in a separate document.

- **Resources**: Publications, websites, and other sources of additional information for support for compliance.

Additional information is found in:

Appendix A, Table A – Table of prerequisites that apply to major modernizations of existing buildings

Appendix A, Table B – Table of guidance for non-classroom projects

Glossary – https://chps.net/glossary

Verification User's Guide – download at https://chps.net/verification-programs

Topic Specific Guidance and Helpful Hints – https://chps.net/technical-tips

Verification Fees – https://chps.net/chps-verified and https://chps.net/chps-designed

Project Application Form – https://chps.net/project-application-form

System-Wide Approach

Most of the CHPS programs including CHPS Criteria, CHPS Verified™ and CHPS Designed™ are intended for school system-wide use. Public school districts, charter schools and private/independent schools (with an independent governing board) may become CHPS members for free and adopt a CHPS resolution committing to use CA-CHPS Criteria for all of their schools.

Projects

CA-CHPS may be used for individual public, charter and private school construction projects. Projects must meet or exceed applicable code requirements for school construction projects within that particular state or local jurisdiction, i.e. covered by CA-CHPS. For more details, see Eligible Project Types below.

What Has Changed in This Version

CA-CHPS Version 2.0 is the regular, comprehensive revision to the Criteria. This edition is based on the comprehensive revisions made to the National Core Criteria v3.0 in 2019 with the addition of a new credit for Biophilic & Responsive Design and other clarifications and corrections made in 2020. For a complete list of changes from the last version, please contact us at info@chps.net or 415-957-9888.

Effective Date

CA-CHPS v2.0 (2021 edition) became available for use effective March 4, 2021. The concurrency period for registering projects under either CA-CHPS 2014 (v1.02) or CA-CHPS v2.0 ends July 31, 2021.

Future Editions

CHPS has adopted a five-year cycle for comprehensive revisions to our criteria, with a 2-year cycle for interim updates as necessary. Changes during these cycles are made by the CHPS National Technical Committee with the approval of the CHPS Board of Directors in accordance with our consensus process. All major revisions are subject to two public comment periods prior to Board approval. Substantial changes to conform with changes to statutes or regulations may not be subject to public review.

Unless stated otherwise in the approval, the revised edition will take effect upon approval by the CHPS Board of Directors. A summary of substantive changes will be available by contacting CHPS at info@chps.net.

Non-Substantive Changes and Interpretations

Corrections, clarifications, editorial changes, additional compliance pathways, and interpretations to the criteria and supporting documentation may be made at any time by CHPS. An errata sheet will be posted on the Core Criteria webpage and in the document, and the document may be renumbered n.1, n.2, etc. Minor changes go into effect immediately. Changes to the supporting documents will be posted on the Core Criteria webpage. CHPS Criteria Interpretations (CCIs) will be posted in the CCI Library https://chps.net/criteria-interpretations-and-errata.

CHPS VERIFICATION

CHPS began as a self-certifying building rating program, referred to as CHPS Designed™. Later, CHPS introduced CHPS Verified™, a full technical review by a third party, in order for schools to have a more rigorous option, which is sometimes required by a funding entity or regulatory authority. The two levels of recognition under CHPS Verified are *Verified* and *Verified Leader*. CHPS offers both the CHPS Designed and CHPS Verified programs to schools in order to allow flexibility in compliance.

Further details on the options are provided here:

CHPS Designed is a semi-self-certification recognition system with a narrative reviewed by CHPS. Full documentation is not required. It is ideal for school districts or design teams with extensive internal capabilities and experience in using the CHPS Criteria and limited need for an independent project review. The program relies on a project scorecard that helps design teams manage the points they are claiming and can be used to designate responsible team members and track compliance with credits. Teams provide CHPS with a brief narrative for each prerequisite and credit they are claiming describing how they complied, and no additional documentation is reviewed. The primary accountability rests on the school administration and design team for ensuring compliance with the CHPS Criteria. CHPS Designed is available for a low registration fee.

CHPS Verified combines project management, the CHPS Criteria, and a third party assessment to ensure that the school project is designed and built to the highest performance standards. A school that is recognized as CHPS Verified is healthier, more environmentally efficient, and more cost-saving than standard schools, and has been verified by an independent third party. Participation in this program helps ensure that the school project has the required high performance features to realize all the benefits associated with high performance schools, including improved student and worker health, increased productivity of personnel, improved student performance, decreased operating costs through energy and resource savings, and reduced environmental impact. CHPS Verified helps design teams manage the design and documentation process with tools for project oversight, plan review and other resources. The Verification Program User Guide is available online and outlines design and construction review requirements and what each registered project will receive. CHPS Verified is ideal for school districts or design teams seeking to verify their project's performance. Accountability rests not only on the school district and design team but also on CHPS and an assigned independent reviewer.

CHPS Verified Leader is a higher level of recognition for school projects that perform well beyond minimum eligibility requirements. CHPS Verified Leaders exceed CHPS Verified and have inspirational designs that incorporate their high performance features into architectural expression. A Verified Leader school must be an image of environmental and social responsibility and must be balanced in providing benefits to student health and student performance, resource conservation and the environment.

More information on the available programs, costs, processes and documentation requirements are outlined on the CHPS website https://chps.net/verification-programs.

Eligible Project Types

While any building project involving a school may follow the CHPS Criteria for guidance, only the following project types are eligible for recognition under CHPS Verified or CHPS Designed:

- New School Construction (new site)
- New Buildings on Existing Campus (classroom or non-classroom)
- Major Renovations/Modernizations with or without Additions (classroom or non-classroom)
- Combined Scope (new construction + major renovation)

Note: For the remainder of this manual, when references are made to a new building on an existing campus and renovations, these terms include both classroom and non-classroom buildings unless specified otherwise in the applicability section. CHPS uses the terms "renovation" and "modernization" interchangeably.

New Schools and New Building(s) on Existing Campus (Classroom Buildings)

Verification thresholds:

	CHPS Designed/Verified	CHPS Verified Leader
New Building	**110**	**160**

Note: For new buildings on existing campuses, all prerequisites apply with the exception of EQ P15.0 Acoustical Performance for buildings without classrooms. See Non-Classroom Projects below for more discussion.

Major Renovation/Modernization Projects (Classroom Buildings)

To qualify for CHPS recognition, the scope of the renovation must meet our threshold for Major Modernization, which is defined by a substantial improvement to a building of at least two of the following systems: lighting, HVAC, building envelope, interior surfaces, and/or site. A substantial improvement is when more than half the system or surfaces are being replaced or upgraded. The method for quantifying the amount varies by system.

	CHPS Designed/Verified	CHPS Verified Leader
Major Modernization	**85**	**135**

Appendix A, Table A shows the applicability of US-CHPS v2.0 prerequisites for Major Modernizations.

Note: For Modernizations that include Additions, the building must pass the EE P1.0 prerequisite to be eligible. In other words, the addition's systems must be independent of the main building and pass on their own or the whole building's systems must be modeled and pass the prerequisite.

Non-Classroom Projects

Non-Classroom Buildings, both new and renovated, as a stand-alone project type are now eligible for CHPS Designed and CHPS Verified/Verified Leader recognition. Taking into consideration the wide range of building uses and project scopes for non-classroom spaces, we have established the following point thresholds:

	CHPS Designed/Verified	CHPS Verified Leader
New Building	**83**	**120**
Major Renovation	**64**	**101**

Appendix A, Table B contains guidance on applying the prerequisites to non-classroom scopes. The only prerequisite that absolutely does not apply is EQ P15.0 Acoustical Performance. Even so, some non-classroom spaces may be well served by the same acoustical practices used in classrooms; similarly, most other prerequisites and credits apply based on the project scope and the goals of the project team. Many criteria that were originally intended for classrooms translate to non-classroom spaces quite readily. The lower point thresholds are an acknowledgement of the range of possibilities for this project type.

CHPS and Historic Preservation

CHPS supports the reuse and preservation of historic buildings for schools as a community and national interest. While we recognize that local, state, or federal rules for historic structures may limit the scope of a project in terms of alterations, CHPS does not offer automatic exemptions from prerequisites because in many cases some achievement is possible. This approach allows us to balance the values of historic preservation with the core principles of our criteria. The CHPS National Technical Committee has determined in recent CCIs pertaining in historic spaces that those teams did not have to follow the prerequisite to the letter but were asked to do what they can.

Teams working on projects in a historic structure may submit a waiver request to CHPS once the project is registered. CHPS reviews waiver requests on a case-by-case basis and may issue a determination of full exemption, partial exemption, or no exemption.

ACKNOWLEDGEMENTS

We gratefully acknowledge the support of our CA-CHPS v2.0 sponsor:

"Quattrocchi Kwok Architects is proud to have supported the development of CA-CHPS v2.0. Never has our shared goal to make a difference by building healthier more sustainable schools been more important. We look forward to these criteria guiding the development of many school projects to support schools and communities across California."

Aaron Jobson, QKA Principal/President

Thank you to the CA-CHPS 2020 Advisory Committee:

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INTEGRATION & INNOVATION (II)

II P1.0 INTEGRATED DESIGN
II C1.1 ENHANCED INTEGRATED DESIGN

> **Intent**
>
> Establish the district's high performance goals early in the conceptual design phase and work collaboratively as a team to ensure these goals are incorporated. Goals identifying building efficiencies, site impacts, indoor environmental health and wellbeing should be captured in this early planning process.

Integrated design is the consideration and design of all building systems and components together. It brings together the various disciplines involved in designing a building to develop and review their recommendations as a whole. It recognizes that each discipline's recommendations have an impact on other aspects of the building. For example, the HVAC system selection and design should take into consideration the building envelope and other building systems such as lighting and daylighting. A lack of teamwork can result in oversized systems or systems that are optimized for non-typical conditions. Integrated design allows professionals working in various disciplines to take advantage of efficiencies that are not apparent when they work in isolation. The earlier the integration is introduced into the design process, the greater the benefit for both new construction and renovation/modernization projects.

II P1.0 INTEGRATED DESIGN

PREREQUISITE

1 point

APPLICABILITY: All Projects

VERIFICATION: Design Review, Construction Review

RELATED CRITERIA: All

II P1.0 REQUIREMENTS

1 point

Conduct a minimum of three integrated design team workshops that identify the project's high performance goals, ensure the incorporation of all CHPS prerequisites, and target the appropriate CHPS credits and best practices as part of an ongoing programming and design decision-making process. The outcome shall be a plan, scorecard matrix, or checklist of how each prerequisite and credit will be implemented, the person(s) responsible, and a timeline of key deliverables or implementation procedures.

The first workshop must take place at the point at which the project team is making design decisions, and preferably in the programming or first conceptual or Schematic Design phase meeting.

The second workshop must occur sometime during the Design Development phase, prior to the mid-point (50%) of the construction documentation phase and should coordinate with the owner's project requirements and any other district or project specific CHPS guidelines or environmental performance requirements. This integrated design workshop should include a quality check of the documents for high performance features and continued achievability of the earlier identified prerequisites and credits with an emphasis on maintenance and operational aspects of the building systems. School staff in charge of HVAC controls, maintenance, lighting, cleaning, landscaping, recycling, trash collection, and consumables purchasing are required to attend.

The third workshop must occur during the early part of construction, preferably in concert

with the construction kick-off meeting, where all parties review the CHPS scorecard goals, schedule of deliverables, and expectations of respective responsible parties, especially contractors, school site and maintenance and operations staff. Discuss implementation issues and confirm continued achievability of design intent, CHPS scorecard prerequisites and targeted credits.

Set any remaining deadlines for respective CHPS design and construction review, prerequisites, and credit documentation to be uploaded to the CHPS project account in Basecamp.

The following groups must be represented at least once in the process to speak to their responsibility for a CHPS prerequisite or credit:

- *Owner Representatives Group* – owner's project manager, facilities maintenance representative, district or school capital project staff, utility representative, commissioning agent, and any sustainability officer or green schools staff.
- *Design Consultants Group* – architect, interior designers, engineers (mechanical, electrical, civil, and plumbing), food service, acoustic and energy consultants, lighting designer, landscape architect, and green building/CHPS consultant.
- *Construction Representatives Group* – construction manager, general contractor, and major subcontractors. For projects that are Design-Bid-Build-Delivery, the contractor may not yet be under contract until the Construction Phase.
- *School Occupants Representatives Group* – principal, teachers, special education representatives, students, parents, operations staff, and community members.

II C1.1 ENHANCED INTEGRATED DESIGN

CREDIT

1 point

APPLICABILITY: All Projects

VERIFICATION: Design Review

SCORING: 1 point for completing one of the 3 options: 1.1.1, 1.1.2, 1.1.3

RELATED CRITERIA: All

II C1.1 REQUIREMENTS

II C1.1.1 *Energy Modeling Variations*

1 point

During the Design Phase, perform at least three iterations or variations of whole building energy analysis and document how the models responded to synergistic issues raised during the first two CHPS workshops and/or Interim Design Phase to improve overall high performance (see Prerequisite above).

OR

II C1.1.2 *Advanced Design Modeling*

1 point

Utilize an advanced BIM decision-making tool for integrated sustainable design; whole building life cycle assessment (WBLCA); or environmental impact modeling tool such as Tally, Athena, One Click, or Skanska's Embodied Carbon in Construction Calculator (EC3); or others that facilitate calculation of embodied and/or operating carbon emissions.

OR

II C1.1.3 Cross-Category Workshops

1 point During CHPS integrated design workshops, set aside time to specifically discuss design opportunities to improve multiple high performance outcomes by identifying criteria across categories (Materials & Waste, Indoor Environmental Quality, Site, Water, Energy) that contribute to the achievement of other category credits and/or design strategies that also promote human health, nutrition, or wellness.

II P1.0 - C1.1 IMPLEMENTATION

Assign a facilitator to oversee the integrated design workshops. The most likely candidates are the school project manager, if familiar with CHPS, a district/owner's green building program or sustainability manager/officer or the project's CHPS/sustainability consultant. While the design architect can be the facilitator, it is recommended that the lead design architect not be the facilitator, in order to minimize any situations where they might be required to serve dual roles and to maximize their open participation as a key member of the project team.

Invitation to the workshops of additional relevant stakeholders is encouraged. These stakeholders may positively contribute to the discussion by providing a unique perspective. This is especially true of those who will be impacted by or responsible for the selected green building strategies long-term. The workshop minutes shall include high performance project goals, implementation procedures, topics needing further investigation or research, and team members responsible for each prerequisite and targeted credit.

Planning documents (education specifications and owner project requirements) and procurement documents (requests for proposals and contracts) should reference project team member participation in these workshops where possible to ensure associated costs are covered for participation and ensure attendance of appropriate consultants. Participation via telephone or videoconference can assist with minimizing consultant travel expenses. The CHPS Scorecard are efficient tools to record the results.

Although an integrated workshop is an important first step in achieving the benefits of high performance schools, it is important to carry out a collaborative team process through continual interdisciplinary dialogue throughout the completion of construction and into post-occupancy. Although only three integrated design workshops are required, more workshops may be beneficial to ensure optimum results, depending on the district and team's experience with high performance schools and/or the complexity of the project.

It is encouraged, but not required, that additional workshops are held after construction and post-occupancy to discuss lessons learned for future projects and to highlight any pertinent maintenance and operations issues. Consider scheduling these to cover both the heating and cooling seasons.

II P1.0 - C1.1 DOCUMENTATION

DESIGN REVIEW

II P1.0 For the first two workshops: agendas, attendee lists, and workshop minutes including at least one example of how different participants contributed in the integrated design process to co-create/innovate some part of the design that contributed to a credit. Note: the third workshop occurs during the construction phase kick-off, thus is a Construction Review submittal.

II C1.1.1-2 Submit a signed letter or narrative from the project lead stating which model/tool was used and what purpose the model served, i.e. a description of how the team used the model or what the team got out of it. The narrative should explain the improvements made to each successive model, any synergies between achievements of two or more prerequisites or credits, and the intended beneficial outcomes of those integrated design decisions.

OR

II C1.1.3 Provide a brief signed narrative from the project lead of how the intentional design approaches discussed in the integrated design workshops were incorporated into the project, identifying prerequisites or credits involved across categories and combined outcomes, such as health or wellness benefits.

CONSTRUCTION REVIEW

II P1.0 Submit the final integrated design workshop report: agenda, attendee list, and workshop minutes including at least one example of how different participants contributed to a credit.

II P1.0 - C1.1 RESOURCES

1. American Institute of Architects (AIA) Center for Integrated Practice: https://network.aia.org/projectdelivery/home/integratedpractice
2. ANSI/MTS 1.0 Whole Systems Integrated Process Guide (WSIP)-2007 http://mts.sustainableproducts.com/Capital_Markets_Partnership/DueDiligence/15/15%20IP%20Standard%20Guide%20-%20FINAL%20APPROVED%202-1-12.pdf
3. The Integrative Design Guide to Green Building: Redefining the Practice of Sustainability, by Group 7, and Bill Reed, April 2009.
4. The National Institute of Building Science's Whole Building Design Guide (WBDG): www.wbdg.org/
5. US Department of Energy Office of Renewable Energy and Energy Efficiency. Integrated Building Design: www.eere.energy.gov/buildings/info/design/integratedbuilding/
6. US Department of Energy: Office of Renewable Energy and Energy Efficiency and Renewable Energy High-Performance Buildings Initiative & the National Renewable Energy Laboratory: www.nrel.gov/docs/fy09osti/44051.pdf

II P2.0 CENTRAL EDUCATIONAL DISPLAY
II C2.1 SCHOOL AS A LEARNING TOOL

Using the school and grounds as a learning tool, students, staff, and the community can benefit by having an educational display to illustrate the healthy, efficient, environmentally sustainable features of the school.

Intent

Promote environmental awareness and eco-literacy by utilizing the high performance features of the school to demonstrate the basics and benefits of sustainable, healthy buildings.

High performance features offer excellent opportunities to teach students about the specific ideas and technologies incorporated into the school. Demonstrating these features in the architecture of the school provides a hands-on experience for students, teachers, and staff.

School gardens and campus landscape can provide a richly engaging learning environment, as well as a beautiful respite from the demands of the school day. Gardens promote learning about the social and environmental systems and healthy foods. Students who are not engaged by traditional learning methods often find the experience of working in the garden and campus landscape a welcome path to experiential-based learning.

II P2.0 CENTRAL EDUCATIONAL DISPLAY

PREREQUISITE

1 point

APPLICABILITY: All Projects

VERIFICATION: Design Review, Construction Review

RELATED CRITERIA: All

II P2.0 REQUIREMENTS

1 point

Provide a permanent educational display, such as signage, kiosk, showcase, or digital device, in a central location on the school site that describes the high performance features that are part of the building and site.

The permanent educational display must be located in a prominent location at the school, such as the main lobby. The display shall include a list of all CHPS high performance features with a statement of the intent and an explanation of each feature. Visual aids or drawings may be used to illustrate features as needed. If demonstration areas are established in II C2.1, the display shall include a map identifying their locations.

II P2.0 IMPLEMENTATION

The display may be electronic and interactive but must be physically present at the school site and dedicated for this purpose. It may not be a virtual display only accessible via computer, unless that computer is permanently located as described above. In any case, the software and content must be permanently accessible to the school community and public. We recommend the display be designed so that it can be updated periodically and easily modified for future phased renovation/modernization projects.

II P2.0 DOCUMENTATION

DESIGN REVIEW

CDs must include the prominent location and details of the educational display, describing all main high performance features, as well as material specifications of any permanent display. If available, graphics of the signage, including text, should be submitted. If graphics are not available, then a narrative describing the plan for the sign must be submitted.

CONSTRUCTION REVIEW

Submit one to two photos of the installed educational display. At least one photo must show the context/location of the display and at least one photo must show readable details of the content of the display. Explain any deviations from Design Review submittals.

II C2.1 SCHOOL AS A LEARNING TOOL

CREDIT

1-3 points

APPLICABILITY: All projects

VERIFICATION: Design Review, Construction Review

SCORING: 1 point each for 2.1.1-2.1.3

RELATED CRITERIA: All

II C2.1 REQUIREMENTS

II C2.1.1 *Demonstration Areas*

1 point

Create at least two demonstration areas highlighting any of the school's high performance features including: indoor environmental quality, energy, water, site, materials & waste, and climate resilience. The demonstration areas are in addition to the central educational display.

Within the demonstration sites, at least one feature of a high performance category must be showcased. The demonstration area must explain how the high performance feature works, its environmental and economic benefits, and how it exemplifies a holistic and integrated approach to sustainable design.

II C2.1.2 *Educational Integration/Environmental Curriculum*

1 point

Create an educational plan, program, or activity that utilizes the school's high performance features in teaching and learning to contribute to environmental awareness and/or eco-literacy. If the plan or program is obtained through a third party, it must address the school's high performance features. Include a letter of commitment from the school principal, teacher(s), or governing board stating that the sustainability education will occur on a yearly basis. The educational program should consist of the following primary components:

- Science, technology, environmental arts, or math (STEM/STEAM) hands-on learning that explores high performance design features.
- A core group of learners, or CHPS Champions, who will be responsible for educational outreach within the school community. The number of CHPS

Champions will vary from school to school but is preferably at least 2 students per grade.

- Support staff, preferably 2, who will administer the program and mentor the CHPS Champions.

Educate entire student community (100% of student population) on high performance design. Each student should be exposed to at least one design feature, exposing them to level appropriate learning-outcome relevant information.

Educational integration should incorporate the central educational display and/or demonstration areas.

II C2.1.3 *School Gardens*

1 point Provide a site on campus for one or more school gardens with a minimum of 200 ft^2 for a student enrollment of 499 or fewer students, and a minimum of 500 ft^2 for student enrollment equal to or greater than 500 students. At a minimum, the garden(s) must provide for learning about the social and environmental systems of the local natural systems and about healthy foods, in the case of an edible garden. The garden(s) shall have a permanent source of water through an irrigation system or by access to a tap and hose and/or access to a rain collection system. There must also be dedicated storage space for garden maintenance supplies and tools. Informal seating or gathering space for instruction within the garden or nearby is encouraged, but not required.

Provide signage to designate the area as a school garden and to differentiate it from the surrounding grounds. Develop a long-term ecologically sustainable operations and maintenance plan to ensure the garden is implemented and continues to thrive; update the plan as-needed.

For existing school sites (major renovations/modernizations or new building on existing campus project) the soil must be tested to ensure there are no harmful contaminants. New school sites are covered under SS P1.0 site requirements.

II C2.1 IMPLEMENTATION

II C2.1.1 Each demonstration area will showcase a minimum of one feature that was utilized in the design of the school. The design of the demonstration areas may include, but is not limited to, signage, kiosks, cut-aways, meters, graphic illustrations, artistic murals, videos, real-time displays, or other elements. For example, a demonstration area could be a meter of resource flows/usage or a visual display of electrical generation provided by the photovoltaics.

Demonstration areas in joint use portions of the building are an excellent way to educate the broader community beyond students. For safety and security reasons, it may not be desirable to allow the public to access the demonstration areas outside of joint use areas; however, the demonstrated features can be identified and summarized as part of the central educational display.

When choosing materials or media to portray a high performance feature, ensure that they align with the other intents of a high performance school. For example, a kiosk made of on-site recycled materials, or an electronic display labeled ENERGY STAR®.

II C2.1.2 Educational integration considers people, lesson plans, educational outreach, and documentation.

Personnel

- Identify the CHPS Champions group and determine their roles and level of involvement. Roles and involvement should be grade-appropriate.
- Create a support team on the side of educators and staff (minimum 2 people). The support team should have at least one educator. It is preferred, but not required, that facilities staff is involved in technical support of the curriculum.
- Together, the CHPS Champions and the support staff will be responsible for educating the entire school community (100% of student population).

Lesson Plans

- Review mission of CHPS and all high performance features. It is encouraged that the educational display and demonstration areas be incorporated in the overview.
- Select or design age-appropriate standards-based lesson plans covering at least one of four high performance design topics (see resources). Instruction can include classroom work, outdoor instruction, engagement at demonstration areas, educational event, homework, and/or tours or a site visit. Educational lesson plans can be from established or third party curriculum or developed by site-project team.

Educational Outreach

- The goal of outreach is to connect every student with knowledge about high performance design and how it benefits the school and/or the local community from social, economic and performance perspectives. CHPS Champions are encouraged to be creative. Outreach can range from an educational assembly to publication of educational materials that includes a discussion (see Resources).

II C2.1.3

To earn this point, the project shall designate an area(s) appropriate for gardening by the school community. Examples of acceptable uses of garden space include a vegetable garden, pollinator or butterfly habitat, or for animal husbandry, such as raising turtles, fowl (ducks, geese, chickens), rabbits, fish amphibians or other animals.

Indicate on the plans the location of the garden and its components. A school garden can come in many different forms. It can be fenced off, or physically separated from buildings, making it easily accessible to the school and to community members, or it can be integrated onto the school site in multiple areas or planters. Unique gardens, such as roof gardens, can also be considered for credit.

It is highly recommended that school community members, including staff and parents, be involved with the school garden and its development. When school is closed during summer months, for example, the garden will still need care, and community support is essential for this purpose.

The garden must have:

- A prominent entrance that is easily accessible and/or identified by signage.
- A long-term maintenance plan to ensure the garden is implemented and continues to thrive.
- Soil that has been tested (for existing school sites or redeveloped sites) to ensure there are no contaminants.
- Permanent irrigation or water source.

Gardens and campus landscapes can be integrated across the curriculum, including natural sciences, social sciences and humanities, as well as place-based and project-based curriculum.

Consistent with best science-based practices to conserve or restore biodiverse ecosystem function, use native seeds or plants (or locally adapted native seeds or plants). The school garden(s) and campus landscape should promote ecologically sustainable practices such as building healthy soil, using organic compost instead of chemical fertilizers, planting locally adapted native seeds and plants, and using integrated pest management without chemicals. School gardens can also be the site of school-wide composting programs. Agroecology can provide a model approach for the planning and design of school gardens and campus landscape.

II C2.1 DOCUMENTATION

DESIGN REVIEW

II C2.1.1 CDs must contain all the pertinent details of the demonstration areas. These include location and details of all three areas and the actual content of the signage (describing how the high performance features work, the environmental and economic benefits, and how the project exemplifies a holistic and integrated approach to sustainable design).

II C2.1.2 Present an educational plan and letter of commitment or governing board-level resolution, if appropriate, stating that the sustainability education will occur on a yearly basis. Include a narrative of the district or school's intent to implement this educational integration with a proposed typical timeline and identification of the CHPS Champion(s) and any educators or staff involved.

CONSTRUCTION REVIEW

II C2.1.1 Submit one to two photos of each of the demonstration areas with a brief description of each. One of the required photos must show the Demonstration Area in context and the other required photo must be a close- up and/or show readable detail of any signage.

II C2.1.3 Submit a photo(s) of the completed garden(s). Submit the long-term maintenance plan for the garden spaces. For existing schools, submit proof that the garden site soil has been tested and no harmful contaminants are present or that new soil is being installed.

II C2.1 RESOURCES

1. California Environmental Protection Agency, Education and the Environment Initiative: www.californiaeei.org/
2. Minnesota Department of Natural Resources, Environmental Education Resources: www.dnr.state.mn.us/education/ee/examples.html
3. North American Association For Environmental Education, Excellence in Environmental Education: Guidelines for Learning (K-12): resources.spaces3.com/47edc444-7bd4-4093-918b-7964644cce75.pdf
4. Energy Coalition, PEAK curriculum: energycoalition.org/peak/
5. Alliance to Save Energy, PowerSave Schools: www.ase.org/programs/powersave-schools
6. Green Schoolyard Network: greenschoolyardnetwork.org/
7. Hedgerows Enhance Beneficial Insects: ucanr.org/repository/cao/landingpage.cfm?article=ca.v065n04P197&fulltext=yes

8. Native American Plant Hedgerow Resource Establishment: www.plant-materials.nrcs.usda.gov/pubs/capmctn7882.pdf
9. Square Foot Gardening: www.squarefootgardening.org
10. The Edible Schoolyard: www.edibleschoolyard.org

II C3.1 DISTRICT LEVEL COMMITMENT

Intent

Integrate high performance goals into district planning.

School and district leaders who institutionalize high performance programs are not just building better schools; they are protecting student and staff health, improving student performance, and lowering the district's operating expenses. Institutionalizing high performance schools allows districts to leverage suppliers and vendors for products and services that comply with high performance school standards, standardize specifications and building strategies to minimize time and expenses, and maximize the benefits of high performance schools on a district-wide basis.

II C3.1 DISTRICT LEVEL COMMITMENT

CREDIT

1 point

APPLICABILITY: All Projects

VERIFICATION: Design Review

SCORING: 1 point for either 3.1.1 or 3.1.2

RELATED CRITERIA: All

II C3.1 REQUIREMENTS

II C3.1.1 *CHPS Membership & Construction Resolution*

1 point

The administration must maintain an active CHPS membership and pass a board or trustee-level resolution that mandates compliance with CHPS Criteria for the corresponding project type to formalize district-wide commitment to high performance schools, as follows:

Meet or exceed the CHPS qualifying threshold using the CHPS Criteria for:

- New Schools
- Major Renovation/Modernization Projects
- New Buildings on an Existing Campus, including Non-Classroom Buildings
- Additions to an Existing Building
- Prefabricated/Modular Classrooms

OR

II C3.1.2 *Benchmarking Resolution*

1 point

The governing board must pass a board or trustee-level resolution that mandates conducting annual monitoring and benchmarking (see OM C4.1 High Performance Operations) district-wide, if applicable.

II C3.1 IMPLEMENTATION

The CHPS website has membership information, sample board or trustee level resolutions, and other resources. The district must be a CHPS member in good standing at the time of project review. The resolution must be passed by the governing body by the time of submittal for Design Review. Commitments to become a member or adopt a resolution are not allowed for a point.

Where applicable, state or other jurisdiction (county, city or district, as in the case of the District of Columbia) green/high performance building legislation requiring CHPS compliance, or CHPS as an equivalent rating system to LEED where specifically legislated, for all school facility projects may accompany local board or trustee-level resolutions as additional evidence of formalized commitment.

II C3.1.2 *Benchmarking Resolution*

Benchmarking and monitoring over time are excellent ways to assess the performance of school buildings and to guide the continuous high performance of the buildings. The resolution should state a commitment to conduct benchmarking using any of the tools identified in OM C4.1 on an annual basis. For non-public schools, a letter of commitment from the administration or a policy adopted by the governing board are acceptable. An equivalent form of commitment is acceptable.

II C3.1 DOCUMENTATION

DESIGN REVIEW

Provide a PDF of approved governing board-level resolution(s). CHPS membership will be verified by the reviewer through the CHPS online Member Directory. Note: ORC commitment resolution may be submitted during Construction Review.

CONSTRUCTION REVIEW

N/A unless benchmarking resolution submitted.

II C3.1 RESOURCES

1. Current high performance district resolutions and the CHPS sample resolutions: https://chps.net/school-district-resolutions
2. CHPS School Membership Program: www.chps.net/join
3. CHPS PreFAB Program for pre-approval of prefabricated, modular, and relocatable classroom models: https://chps.net/chps-prefab

II C4.1 SCHOOL MASTER PLAN & ENHANCED PLANS

While a school is being designed or renovated it is important to consider future needs and how those needs may be met while keeping high performance principles in mind. It is also important to have a master plan in place to ensure that the intent of the design or renovation/modernization is carried out when the school is renovated and maintained in the future.

Intent

Ensure high performance measures are implemented throughout the life of the school. Plan for and take meaningful actions to measure and reduce GHG emissions over time.

Climate action planning provides a roadmap for schools and districts to reduce greenhouse gas (GHG) emissions. Electricity use and combustion of fuels for heating in buildings contribute to nearly 40 percent of national GHG emissions. High performance design and construction of new schools as well as sustainable operation and renovation of existing schools offers great potential to reduce GHG emissions.

II C4.1 SCHOOL MASTER PLAN & ENHANCED PLANS

CREDIT

1-4 points

APPLICABILITY: All Projects

VERIFICATION: Construction Review

SCORING: 1 point for 4.1.1, 2 points for 4.1.2, 3 points for 4.1.3, 4 points for 4.1.4

RELATED CRITERIA: EE C1.1 Superior Energy Efficient Design, OM P3.0 Energy & GHG Performance Benchmarking, OM C8.1 Green Power

II C4.1 REQUIREMENTS

Create a written, actionable master plan with goals for continuous implementation and improvement of the high performance elements of the school over at least a 10 year period from occupancy/project completion. Enhanced plans contain goals for significant additional steps towards sustainability over the baseline performance of the building, such as zero net energy or zero waste. Enhanced plans should cover 50-80 years.

II C4.1.1 *High Performance School Master Plan or Commitment to Complete Enhanced Plan*

1 point

Do either of:

High Performance School Master Plan

The administration shall develop a school master plan for the site and facilities in collaboration with school board members and community stakeholders covering 10-15 years from occupancy that:

- Supports continued compliance with high performance strategies followed in these Criteria.
- Is consistent with the district-wide facilities master plan, if applicable.
- Assesses and plans for future transportation impacts on the school and offers flexibility for alternative forms of transportation.

- Assesses and plans for the possibility of increased or decreased student enrollment.
- Assesses use of the school for emergency preparedness such as a shelter or for climate adaptation and resilience.
- Assesses and plans for future high performance upgrades and renovations/modernizations by documenting:
  1) Life expectancy of major systems and materials.
  2) Opportunities for high performance replacement such as reuse or recycle.
- Identifies current and future opportunities for pedestrian and bike connections to surrounding neighborhoods, community services, and bike paths.
- Considers protecting outdoor spaces for school gardens, landscaping, permeable paving, and ideal solar orientation.

OR

Commitment to Enhanced Plan

The administration shall make a written commitment to complete any one of the following sustainable/climate action plans (4.1.2-4.1.4), including the GHG Emissions Inventory. The commitment must include the timeframe for completion of the plan and identification of the responsible individuals.

II C4.1.2 *ZNE School Master Plan*

2 points Exceed the school master plan above to create a zero net energy (ZNE or ZE) plan. The ZNE plan should address all of 4.1.1 as well as include goals and actions to achieve the following over time:

- Zero net energy for the whole site/all buildings using the criteria in EE C1.1 Superior Energy Efficiency Design
- Energy resiliency using the criteria in II C7.1 Design for Adaptation & Resilience or other criteria appropriate to the local climate and conditions

II C4.1.3 *Sustainable School Master Plan*

3 points Exceed the above plans by doing all of 4.1.2 plus:

- At least 40% water use reduction using strategies including but not limited to those in WE C2.1 & C3.1; “water neutral” or “zero water” goals are encouraged
- Additional waste reduction measures beyond those in MW P1.0 and MW C1.1; “zero waste” is encouraged
- Provide for ZEV/carpool preferred parking and electric vehicle charging facilities
- Coordinate with district-wide sustainability planning, if applicable
- Integrate education on all the above into curriculum

II C4.1.4 *Sustainable School Climate Action Plan or Low/Zero Carbon School Master Plan*

4 points Do all of 4.1.3 plus either of:

Sustainable School Climate Action Plan

Develop and implement an administration-approved climate action plan that includes a goal for annual reporting of GHG emissions to raise awareness of the school community’s carbon

footprint and engage students, staff, and the community in reducing the footprint. The plan must establish a baseline year, identify measures that will lead to reduction in GHG emissions by at least 25% from the baseline year within 10 years and 80% by 2050. The climate action plan shall address Scopes 1 and 2 emissions (see Implementation) at a minimum and may also include Scope 3 emissions.

OR

Low/Zero Carbon School Master Plan

The Low/Zero Carbon plan is eligible for an additional point in II C8.1 Innovation.

Complete the Climate Action Plan above plus:

- Commit to no fossil fuels used on-site for space heating, water heating, cooking, or other small process loads.
- Address GHG emissions from transportation related to school district employee/teacher/student commute or pick-up/drop-off through performing a baseline survey and developing a plan for minimum 25% reduction by 2030 and 80% reduction by 2050.

II C4.1 IMPLEMENTATION

This credit applies to major renovation/modernization projects if the school master plan is developed for the entire school site, not just the portion of the school being renovated or built.

The basic master plan should cover 10 to 15 years from the school opening or a major renovation being completed. Enhanced plans should cover 50 to 80 years to capture changes in climate. Some school districts may already have a master plan, so a new plan may not be needed. The existing plan can be reviewed for compliance with the above requirements.

The school may use a district-wide Facilities Master Plan that contains the site-specific information required by this criterion.

If pursuing the commitment option, the school/district governing body must adopt and sign a written statement of intent, resolution or equivalent. The commitment must be specific as to who, when, and what will be accomplished.

For plans that include the GHG Emissions Inventory, the plan should identify who will be responsible for monitoring the GHG measurements.

GHG Emissions Inventory and Monitoring

CHPS projects that complete Portfolio Manager®/Target Finder™ in EE P1.0 and OM P3.0 will have an automatic GHG baseline projected for them. GHG emissions inventory, calculation, and reporting of the school's carbon footprint can also be completed using the Climate Registry Information System (CRIS) tool or other appropriate calculator. Once the GHG emissions baseline is established, the methodology is same as other types of monitoring: gather 12 continuous months of data for direct (on-site) and indirect (utility generated) emissions. [9] A school may additionally address Scope 3 emissions (other indirect sources), per the Greenhouse Gas Protocol. (10) All three categories of emissions provide a complete accounting of measuring and reducing GHG emissions. Then calculate the percentage reduction, if any, from the baseline GHG inventory, to track and report annually or in the chosen period.

II C4.1 DOCUMENTATION

DESIGN REVIEW

N/A

CONSTRUCTION REVIEW

Submit a copy of the plan or written commitment.

II C4.1 RESOURCES

1. A4LE, *Creating Connections: The CEFPI Guide for Educational Facility Planning*, available for purchase: http://creatingconnections.a4le.org/
2. The Climate Action Registry: www.theclimateregistry.org/
3. Climate Registry Information System: http://cris4.org/(S(e3cxw11z3wfmzlrca5ea0wix))/frmLILogin.aspx
4. The Campus Carbon Calculator, now SIMAP, housed at the University of New Hampshire, Sustainability Institute: https://sustainableunh.unh.edu/calculator
5. Eco-Schools USA Handbook: http://www.ecoschools.global/ecoschools-ehandbook/
6. The Whole-School Sustainability Framework: https://www.centerforgreenschools.org/sites/default/files/resource-files/Whole-School_Sustainability_Framework.pdf
7. Sample Climate Action Plan: The New School Climate Action Plan: https://issuu.com/newschool/docs/2017-tns-climate-action-plan
8. Sample Sustainability Plan: San Diego Unified School District Sustainability Plan: https://www.scribd.com/document/272746917/San-Diego-Unified-School-District-Sustainability-Plan
9. EPA's Portfolio Manager Technical Reference on GHG Emissions: https://portfoliomanager.energystar.gov/pdf/reference/Emissions.pdf
10. The Greenhouse Gas Protocol: https://ghgprotocol.org/sites/default/files/standards_supporting/FAQ.pdf

II C5.1 SAFER SCHOOLS BY DESIGN

The design of learning environments can dramatically affect behavior, feelings, and attitudes towards one another. While schools in the United States remain relatively safe, it is imperative to increase feelings of safety and reduce opportunities for violence. Crime Prevention Through Environmental Design (CPTED) principles focus on reducing crime opportunities, and promoting positive social behavior. The CPTED Principles are:

Intent

Ensure school grounds, buildings, and interiors incorporate proven strategies that deter crime, reduce the fear and incidence of crime, and improve the quality of the life for students.

- Natural surveillance – Integrate themes of openness and transparency for all to see and be seen.
- Natural access control – Direct the flow of people towards entrances that are most visible.
- Territorial reinforcement – Create a sense of place and ownership to deter crime.
- Maintenance and management – Well-maintained spaces feel safer and are proven to deter crime.

There are strong overlaps and synergies among the four CPTED principles. In practice, it may be useful to recognize that the principles can meet other design goals as well, like Responsive Design (II C8.1 Biophilic & Responsive Design). The implementation of strategies should create a warm and welcoming environment, foster a sense of physical and social connection, increase a sense of place, and provide more opportunities for natural surveillance.

To incorporate CPTED Principles effectively, schools must involve those responsible for design, use, and maintenance. Key stakeholders include school officials, teachers, designers, students, community members, and local emergency response agencies. The most effective CPTED strategies are those that improve the quality of the learning environment and that bring communities closer. This is in contrast to implementing visually affronting security or target hardening measures such as armed security patrols or razor wire fences. Effective CPTED strategies include:

- Increasing visibility between interior rooms and circulation spaces.
- Adequate site lighting at drop-off/pick-up areas, trash enclosure, and along pedestrian paths.
- Directing the flow of people toward proper and visible entrances.
- Eliminating unnecessary doors or gates, such as at restrooms.
- Promoting land use mix to encourage activities during critical time periods.
- Creating a sense of ownership and placemaking through design, maintenance and management.

II C5.1 SAFER SCHOOLS BY DESIGN

CREDIT

1 point

APPLICABILITY: All Projects

VERIFICATION: Design Review

RELATED CRITERIA: II C8.1 Biophilic & Responsive Design, Most Site criteria especially SS C9.1 Living Schoolyards, MW P1.0 Storage & Collection of Recyclables

II C5.1 REQUIREMENTS

Complete all the following:

Conduct a CPTED workshop with key project stakeholders and a CPTED professional at the outset of, or before, schematic design to identify site, building and interior issues, and define strategies aligned with CPTED principles for addressing them in a CPTED Plan. Key project stakeholders must include representatives of the designers, users, and emergency responders.

The CPTED Plan must articulate strategies categorized by CPTED Principles.

The design team must incorporate these strategies in the project design. The CPTED professional shall review the design prior to construction and provide comments as necessary to align the design with CPTED Principles.

II C5.1 IMPLEMENTATION

The requirement includes a minimum list of potential strategies. Design teams are encouraged to develop a broader list of strategies taking into account district needs and site-specific research, especially in consideration of placemaking, social equity, and responsive or trauma-sensitive design. The CPTED Plan will be provided to the CHPS review team, along with the review comments that align the originally proposed strategies with the actual design response.

II C5.1 DOCUMENTATION

DESIGN REVIEW

Provide meeting agenda, list of attendees, and meeting minutes from CPTED workshop.

Provide a written narrative, articulating the CPTED Plan strategies for the project, referencing any plans or other construction documentation that will demonstrate the incorporation of CPTED principles.

Provide a letter from the CPTED professional with comments related to the review of the plan and meeting of the intent of the narrative above.

CONSTRUCTION REVIEW

N/A

II C5.1 RESOURCES

1. A4LE Safe Schools Planning Guide: https://www.a4le.org/pdf/knowledgecenter/SchoolSafetyGuide.pdf?hkey=8cc99e62-7d45-4db6-9cce-f6e1f5015a6f
2. Department of Health and Human Services, Centers for Disease Control and Prevention, Youth Risk Behavioral Surveillance, 2007: www.cdc.gov/mmwr/PDF/SS/SS5505.pdf
3. International CPTED Association: www.cpted.net/
4. National Institute of Crime Prevention, CPTED Training: www.cptedtraining.net/
5. Secure Community Network, Crime Prevention Through Environmental Design (CPTED): https://securecommunitynetwork.org/resources/best-practice-archive/crime-prevention-through-environmental-design

II C6.1 LOW/ZERO GHG SCHOOLS & EXISTING BUILDING DECARBONIZATION

> **Intent**
>
> In new buildings, design for all-electric facilities that use 100% renewable energy and low embodied carbon materials to reduce GHG emissions. In existing buildings, transition away from fossil fuels to all-electric using 100% renewable energy and low embodied carbon materials.

Zero Net Energy (ZNE) schools are not zero GHG or zero carbon emission schools. If ZNE schools use natural gas or other fossil fuels, they are a major source of direct GHG emissions in buildings, even if offset by renewable energy. Low carbon schools avoid use of natural gas or other fossil fuels for space heating, water heating, cooking, and other process loads, are energy efficient, all-electric facilities that use 100% renewable energy. Low carbon schools are on track to becoming zero emission schools when they also ensure that low embodied carbon materials are used and that environmentally preferable refrigerants are incorporated into equipment and building material selection.

Low carbon is not just for new buildings. Transitioning our existing schools to both ZNE and Zero Carbon is immediately important to avoid 20-40 more years of emissions and stranded assets in the near future. A major renovation project is an opportunity to improve energy efficiency, transition to all-electric and renewable energy, and install low embodied carbon materials.

II C6.1 LOW/ZERO GHG SCHOOLS & EXISTING BUILDING DECARBONIZATION

CREDIT

2-13 points

PROJECT TYPE: All Projects

VERIFICATION: Design Review, Construction Review

SCORING: 6 points for 6.1.1a or 6.1.1b; 2 points each for 6.1.2 and 6.1.4; 3 points for 6.1.3

RELATED CRITERIA: EE C1.1 Superior Energy Efficient Design & Zero Net Energy, OM C7.1 Green Power, II C1.1 Enhanced Integrated Design, II C4.1.4 Low/Zero Carbon School Master Plan, II C7.1 Design for Adaptation & Resilience, EQ C2.1 Pollutant & Chemical Source Control

II C6.1 REQUIREMENTS

II C6.1.1a *Energy Efficient, All-Electric (New Construction)*

6 points

Design a highly efficient, all-electric building using one of the following options:

1. Passive House approach;
2. Achieve a minimum of 35% savings beyond ASHRAE 90.1-2016; or
3. Achieve a site-based Energy Use Intensity (EUI) of less than 30 kBtu/sf/yr or target from NREL's EUI target chart by climate zone, whichever is higher. [8]

II C6.1.1b *Deep Energy Retrofit & Conversion to All-Electric (Modernizations)*

6 points

Implement a deep energy retrofit that results in an all-electric building targeting one of the following:

1. Achieve a minimum of 35% savings beyond current Title 24; or
2. Achieve a site-based Energy Use Intensity (EUI) of less than 30 kBtu/sf/yr or target from NREL's EUI target chart by climate zone, whichever is higher. [8]

During any natural gas infrastructure work:

- Ensure proper safety and inspections are performed.
- Methane leakage is checked, prevented, and mitigated, especially during any capping off.
- Gas meter is removed at any final decarbonization of the campus, when all-electric systems are fully operational.

II C6.1.2 *100% Renewable Energy / Zero Carbon*

2 points

Achieve the zero net energy level in EE C1.1 for an all-electric building where on-site renewable energy systems produce as much energy on an annual basis as is used by the sum of all the building systems;

OR

100% of purchased electricity to power the building, whether through the local grid, a Community Choice Aggregator (CCA) or through a Power Purchase Agreement (PPA), is from 100% renewable sources.

OR

ZNE/ZNC is achieved through a combination of on-site renewables, smart inverters, battery storage, and purchased electricity.

II C6.1.3 *Low Embodied Carbon Materials*

3 points

Select low carbon building materials through an assessment of embodied carbon using whole-building life-cycle assessment (WBLCA) or other appropriate calculator. Teams are invited to propose a methodology to CHPS for approval.

II C6.1.4 *Environmentally Preferable Refrigerants*

2 points

Comply with CALGreen, Section 5.508.1, Outdoor Air Quality, requiring the use of no CFC-based refrigerants in building HVAC & refrigeration, and fire suppression systems.

HFC refrigerants are being phased out per CARB regulation and preference should be given to specifying HVAC, refrigeration, and water heating equipment that utilizes low GWP refrigerants, including carbon dioxide (CO_2) refrigerant.

II C6.1 IMPLEMENTATION

For the purposes of this criterion, natural gas also includes propane and similar fuels.

II C6.1.1b *Deep Energy Retrofit & Conversion to All-Electric*

Perform an ASHRAE Level II audit or retro-commissioning of the building(s) or campus, including any central plant, if involved. Review the resulting reports with energy analysis and develop a strategic energy master plan for the project, to achieve both a cost effective deep energy retrofit and fuel-switch to all-electric.

Guidance on deep energy retrofits is available from a number of sources, including NREL's *Advanced Energy Retrofit Guide*. [8]

II C6.1.3 *Low Embodied Carbon Materials*

WBLCA is a process to evaluate multiple impacts of building materials over the entire life cycle of the material. Since structural systems contribute to approximately 80 percent of the embodied carbon in a building, projects can earn one point by completing WBLCA using calculator tools such as the Athena Impact Estimator, or Tally, and selecting low carbon structural and other major materials, sourced as locally as possible. As tool and methods for accounting of embodied carbon in construction materials may progress rapidly, other appropriate calculators may be submitted to CHPS for pre-approval prior to utilization. (See Resources.)

II C6.1.4 *Environmentally Preferable Refrigerants*

For a full guide of acceptable refrigerants, refer to CCR Title 17, Division 3, Chapter 1, Subchapter 10 Climate Change, Article 4, Subarticle 5. [10] For ease of locating information by end-use, refer to EPA's SNAP lists, which were adopted by CARB. [7] Note that all CFC production has stopped. HCFC-123 is allowed for existing equipment until 2030. Districts and schools should implement exceptional maintenance and operation practices so that refrigerant is not lost from the system. This will reduce replacement costs, help maintain energy efficiency, and protect the reliability of the equipment.

II C6.1 DOCUMENTATION

DESIGN REVIEW

II C6.1.1 Provide the specification section(s) and drawings or mechanical schedule indicating electric systems for heating/HVAC, water heating equipment, all cooking equipment and appliances, any laundry appliances, any therapy equipment, and any science labs.

II C6.1.2 Provide a short narrative describing the audit process followed and the highlights of the resulting design. Provide the specification section(s) and drawings or mechanical schedule showing the conversion to electric systems for heating/HVAC, water heating, all cooking equipment and appliances, any laundry appliances, any therapy equipment, and any science labs.

II C6.1.3 Provide documentation verifying all-electric design to ZNE with provision for on-site renewable energy. If the project is a modification of an existing facility with natural gas or other fossil-fuel building uses, identify and submit the demolition plans and/or specification sections showing safe shut off and removal of gas supply-distribution lines through to removal of gas meter. The documentation in EE P1.0 will cover the energy analysis requirement.

II C6.1.4 Provide documentation of WBLCA of structural and major materials systems.

II C6.1.5 Provide specifications showing the refrigerants and a schedule or cut sheets showing that equipment has no CFC-based refrigerants.

CONSTRUCTION REVIEW

II C6.1.1-3 Submit statement on letterhead confirming "No natural gas or other fossil-fuel use in the completed project," and "All electricity provided to the project is from 100% renewable sources", citing sources and signed by both the architect-of-record and the district facilities officer. If project is a modification of an existing facility served by natural gas or other fossil-fuel building uses, include a statement attesting to the safe shut off and removal of gas supply-distribution lines including removal of gas meter.

II C6.1.4 Include a statement confirming the project utilized the "low embodied carbon building materials" listed in the WBLCA submitted in the Design Review without substitution.

II C6.1.5 N/A

II C6.1 RESOURCES

1. New Buildings Institute, ZNE Schools: https://newbuildings.org/?s=ZNe+schools

   And https://newbuildings.org/hubs/zero-net-energy/#case-studies
2. The Carbon Leadership Forum's LCA Practice Guide http://carbonleadershipforum.org/lca-practice-guide/
3. Athena Impact Estimator: https://calculatelca.com/software/impact-estimator/download-impact-estimator/
4. Tally: https://choosetally.com/
5. *Life Cycle Assessment*, by Kathrina Simonen, c 2014
6. U.S. EPA Refrigerant Guidelines and Regulations: www.epa.gov/Ozone/title6/608/index.html
7. U.S. EPA Significant New Alternatives Policy (SNAP) list of acceptable substitute refrigerants: https://www.epa.gov/snap/snap-substitutes-sector
8. NREL's *A Guide to Zero Energy and Zero Energy Ready K-12 Schools*: https://www.nrel.gov/docs/fy19osti/72847.pdf
9. NREL's *Advanced Energy Retrofit Guide, Practical Ways to Improve Energy Performance*: https://www.nrel.gov/docs/fy14osti/60913.pdf
10. CA Code of Regulations Title 17, Division 3, Chapter 1, Subchapter 10 Climate Change, Article 4, Subarticle 5: https://ww3.arb.ca.gov/regact/2020/hfc2020/appa.pdf?_ga=2.258728650.1341430130.1619621249-110381901.1538412665

II C7.1 DESIGN FOR ADAPTATION & RESILIENCE

A well maintained building designed today should last 60-100 years, at least in terms of its building shell and foundation. High performance school facilities may perform well on paper, but the design is often based on outdated climate data that does not reflect changes in weather data, let alone future changes in climate. Changing climate is already contributing to increased overheating and other weather-related hazards at schools, and is expected to worsen through this century and beyond. Due diligence should be taken to assess and mitigate the vulnerability of school facilities to climate change.

Building designers around the world have been designing buildings in recent years to perform well under future climate conditions and during power outages. This life cycle approach will increase the long-term durability and performance of buildings, and help avoid unnecessary and perhaps catastrophic impacts on facilities and their occupants. It will also help state-level adaptation, mitigation and resilience planning, such as in New York, California, Massachusetts, and others, in meeting goals for energy efficiency, emergency disaster planning, and GHG reductions in their schools, despite a changing climate.

Intent

Encourage building design practices that assess climate change vulnerability and that plan for changing climatic conditions over the building lifespan, in order to avoid excessive energy costs, repair costs, carbon emissions, and liability risks; while preserving access to safe water, sanitation, life safety, and minimizing health and student performance impacts. This approach of planning now for ***future*** changing conditions and disruptive events, particularly when combined with related CHPS Criteria, can allow schools to serve as sustainable centers of community resilience.

II C7.1 DESIGN FOR ADAPTATION & RESILIENCE

CREDIT

2-9 points

APPLICABILITY: All projects. For renovations/major modernizations, see Implementation for details.

VERIFICATION: Design Review

SCORING: 2 points each for 7.1.1-7.1.2, 2-4 points for 7.1.3, 1 point for 7.1.4

RELATED CRITERIA: All Integration, EQ P1.0 Ventilation & IAQ, EQ C10.1 Thermal Comfort, EQ C12.1 Daylight Availability, All Energy, All Water, SS P1.0 Environmental Site Assessment, SS C5.1 Sedimentation & Stormwater Management, SS C4.1 Joint Use, SS C7.1 Reduce Heat Islands, OM C6.1 Indoor Environmental Management and C8.1 Green Power

II C7.1 REQUIREMENTS

II C7.1.1 *Climate Vulnerability Assessment*

2 points

If no recent climate risk assessment exists for the site, conduct an assessment of the location's vulnerability to significant weather events. Assume at least 60-100 years of service life for the building shell, foundation, and other major structural components. Use the most recent and most localized (local, regional, and/or state, and/or national) climate change vulnerability assessments, maps, and/or adaptation plans to assess the magnitude and likelihood of climate change hazards at the school site and district wide, if applicable. Consider potential hazards such as, extreme heat event/overheating, wildfires, power

outages, extreme drought/water shortage, air pollution, extreme wind, sea level rise, winter storms, tornadoes, and episodic flooding or storm surge. State and federal (USGCRP, EPA, NOAA, or DOE) online resources, databases, or tools may be utilized, if no local climate risk assessments have been done recently.

Identify the top one to two hazards from the vulnerability assessment above based on the likelihood and potential magnitude of impacts on human health and safety and on economic impacts. For the top hazard(s), identify potential actions, design strategies, and opportunities to adapt the school building project, site, and district design standards (if applicable), operational policies, and school site activities and address future emergency events and climate conditions. Outreach and partnering with the local community, state, and regional agencies is highly recommended.

II C7.1.2 *Design for Climate Adaptation*

2 points

Design the building to meet the EE C1.1 criteria for zero energy and:

For the top hazards identified above, incorporate all feasible adaptation measures in the project design. Assess the feasibility, scheduling, and cost-effectiveness of the measures. Evaluate the potential benefits in terms of energy, water, and cost savings, disruption of service and other cost avoidance, improved staff and student performance, health, and safety, and reduced liability. Seek to identify and leverage other community benefits, both short and long term.

If integration of climate adaptation measures is not feasible under the current project budget or other constraints, provide the school administration with a recommendation for how to assess and implement the measures in the future, such as by designing and preparing construction alternates. Phasing the measures in over time is allowed if necessary, but plan for any necessary infrastructure or preparations in the initial construction phase, e.g., brackets for external shades, substructure for green roofs, and electrical transformer/panel/wiring for more electrification, PV panels, internet of things, EV charging, and microgrids. These recommendations can be used in the plan in II C4.1 School Master Plan.

II C7.1.3 *Energy Resilience*

2-4 points

Meet the criteria for zero net energy in EE C1.1. and design the building to meet at least two of the following measures for 2 points or all four measures for 4 points:

1. No less than 75% of the floor area is located within a daylit zone as defined by the IECC-2015, ASHRAE 90.1-2016 or the Spatial Daylight Autonomy methodology.
2. No less than 75% of the floor area is located in a space provided with an operable fenestration area to the exterior of at least 5% of the floor area of the space. Operable fenestration area shall be capable of manual operation.
3. All power systems are divided into primary/critical and secondary/non-critical sub-systems so that no more than 50% of the building loads are on the primary subsystem and the secondary sub-system can be disconnected from energy sources.
4. It contains an on-site energy storage system sized to serve the loads on the primary subsystem for no less than 4 days without any interaction with energy supply infrastructures such as the electricity grid or is connected to renewable backup power with the same capacity. A microgrid or renewable district energy system is acceptable for this criterion.

Critical energy systems such as HVAC equipment, energy distribution systems for the primary energy sub-system, onsite renewable energy systems and energy storage systems are built and located to protect them from the most likely disturbances or natural disasters. For example, in tornado-prone areas, these systems would be built in accordance with, or located in portions of the building built in accordance with, tornado-resistant standards. Or in flood-prone areas, these systems would be located above the flood level. In areas prone to high wind, especially tornadoes and hurricanes, it is especially important that onsite renewable systems be built to withstand high wind loads.

Include the systems in training and O&M Manual in OM P1.0 and in the Systems Maintenance Manual in OM C4.1, if applicable.

II C7.1.4 *Passive Habitability/Survivability*

1 point

If/when the school/district establishes readiness for emergencies by working with the Red Cross or other local lead agency, then comply with the criteria below. It is not required that the school achieve formal designation as an emergency shelter.

- Using dynamic thermal modeling such as EnergyPlus or Passive House certification, design and construct the facility, first maximizing energy efficiency and passive strategies, with 100% renewable energy systems including energy storage that can safely support the maximum occupancy for a 4-day power outage, at minimum.
- Meet the energy storage/backup power criterion in 7.1.3 to cover critical services such as access to sanitation facilities, potable water, refrigeration of medicines and food, cooking, charging of cell phones and other essential communication and electronic devices, shade/cooling and fresh air/exhaust fans, and perhaps portable air cleaners, as well as others identified in the vulnerability assessment above.
- Take additional measures as needed if the quality of potable water may also be affected, such as having backup filtration or a backup source. Coordinate with lead public agencies and plan with local community around other needs such as food supplies.
- Include details on all passive features in the O&M Manual in OM P1.0 and in the Systems Maintenance Plan in OM C4.1. Provide a brief User's Guide to designated emergency personnel on the operation of the features.

II C7.1 IMPLEMENTATION

For additions and major modernizations/renovations, the credit is based on the whole building. While portions of buildings can meaningfully pursue energy resiliency, the intent of this criterion is to achieve resiliency for the whole building.

II C7.1.1 *Vulnerability Assessment and Adaptation*

Research and/or contact regional, state, or federal programs and green building programs for the latest climate change modeling results, future weather files, local or regional climate vulnerability assessments or online resources (see CHPS Resources below) with data that may already be analyzed and applicable to your project as well as examples and case studies of future climate adaptation. A growing number of state and regional agencies have researched and published useful reports, online tools, or guidance on vulnerabilities, climate assessments, and adaptation and mitigation resources. Please refer to latest versions of these documents pertinent to your project locale first.

Method for Conducting Overheating Analysis:

Estimate mid- and late-century climate conditions for the site(s). Use the High Emission Scenarios in the climate models (e.g., RCP 8.5 or A2 scenarios) and 90th percentile or higher estimates of impacts. Climate projections should use 20- year averages if possible. Use the most spatially resolved climate predictions available for the project site.

For modeling energy and thermal comfort performance, two alternate approaches are available:

1) Use TMY weather files from a city with a current climate similar to that predicted for future conditions at the site (the "climate analog city" approach"), as characterized by Cooling and Heating Degree Days, Max and Min temperatures, and humidity. If local or regional climate model results are not available for the site, use the Climate Central website to identify a "climate analog city". Current weather files for major cities in the U.S. are available at the Energy Plus website.

2) Use future weather files with hourly data that are adjusted ("morphed") to reflect projected climate changes. These files are available commercially, e.g.: http://www.weather-shift.com/. They can also be created at no cost using the online CC WorldWeatherGen tool. In addition, consider the incremental effects of urban heat islands (UHI); consult local and regional groups for mapping and estimates of UHI impacts.

For prioritizing the hazards and identifying potential adaptation measures, consider the most recent federal, state, and local plans for climate adaptation and resilience or climate change modeling results. Some of these sources may be outdated or limited in analysis, but they are good starting points.

II C7.1.2 *Design for Adaptation*

Give preference to measures that have been tested or modeled for their effectiveness in the type of climate and region for the project. Consider case studies as well.

Facility Planning

Identify future building and modernization projects where adaptation and resilience measures could be incorporated and provide these recommendations to the school administration. This step can be used toward credit in II C4.1 School Master Plan.

II C7.1.3 *Energy Resilience*

Resiliency in the energy systems of buildings is achieved in two ways. The first is by designing the building so that it has passive systems that can meet certain building needs without any energy-consuming active systems. This aligns with the energy efficiency loading order of maximizing demand reduction, including building envelope insulation, prior to relying on highly energy efficient systems. The second is by designing active systems to be resilient. This criterion includes requirements for both kinds of resiliency.

Resiliency that incorporates passive systems is important for a couple of reasons. Even resilient active systems can be damaged, either by a disruptive event itself or by overtaxing those systems in the aftermath. Passive systems allow the load on the active systems to be reduced, especially when buildings are running on limited onsite energy storage or being served by potentially damaged or limited energy infrastructure systems. Passive systems also ensure that the building can continue to be usable even if onsite supplies of energy run out.

Daylighting & Operable Fenestration:

Daylighting and operable fenestration allow a building to continue to be usable even when all of the active systems have failed. They ensure that the building has lighting and ventilation without the use of active systems. Items #1 and #2 are not intended to require systems that are sufficient for substantially daylit or naturally ventilated spaces in day-to-day operation; a properly designed daylighting or natural ventilation system requires more design attention. These basic requirements are meant to merely provide minimum levels of lighting and ventilation to maintain usability during or after a disruptive event.

Zero Energy:

Energy resiliency requires a combination of both energy efficient systems and onsite energy production. For this reason, the Zero Energy criterion is a good standard to meet to ensure both of these. A resilient energy design requires the onsite production of energy even when the energy infrastructure fails or is only limited. Onsite renewable energy systems fill that role without the need to store or input consumable fuel sources. However, reducing energy consumption is also important. It maximizes the utility of both the onsite energy production and the onsite energy storage. Criterion EE2.2 includes a set of requirements that ensures that a design includes these important elements.

Primary/Secondary Energy Systems:

In an emergency situation, many normal loads are not essential. However, many loads are difficult to turn off or disconnect. Many plugged-in devices continue to draw power when in standby and even off mode. Turning off loads one by one is also a task that is likely to be a low priority in an emergency situation. Separating non-critical loads onto a secondary subsystem that can be disconnected from power sources ensures that none of the limited on-site energy supply is wasted on non-essential or “phantom” loads. This is a well-established practice in building types like hospitals, which are often designed so that only certain building loads are served by backup generators.

Onsite Energy Storage:

Many onsite renewable systems are “grid-tied” systems. These systems feed their power production back into the grid instead of into on-site storage. These systems are often less costly, simpler, and more efficient (the grid is a more efficient storage medium than onsite storage options like batteries). Many onsite renewable systems actually won’t even operate if they are not connected to a working power grid.

However, resiliency requires onsite energy storage so that energy is available if the utility services fail. No onsite renewable system – especially not photovoltaic systems, which are the most ubiquitous type of system – has a constant production. Loads aren’t constant either. Onsite storage allows a buffer to manage the mismatches that occur between onsite energy production and onsite energy demand. (This is why even some generator-based systems utilize batteries, which allows the generators to always run at peak efficiency regardless of load.) Onsite storage ensures that there is energy available regardless of the production levels on the onsite renewable energy system.

Critical System Location:

When Hurricane Katrina hit New Orleans, the Superdome was used as a refuge of last resort. Unfortunately, the generators were located in the basement of the building. As flooding worsened and water infiltrated the basement, the generators failed, and with them the lighting and HVAC systems that were keeping the superdome habitable. This illustrates that an important part of energy resiliency is ensuring that critical parts of the energy system are protected.

How this is done will vary depending on the disruptions that the building is most likely to face. For example, if flooding is the primary concern, then critical equipment should not be located anywhere in the building below the anticipated flood level. But if high winds from a source like a tornado are the anticipated danger, a basement location could be very appropriate. In seismic zones, critical equipment would need to be located in a seismically reinforced portion of the building. Hurricanes can pose particular challenges since they often include both high winds and flooding.

Another issue is protecting systems that cannot be located within the building. Most onsite renewable energy systems will be located outside the building, so this is a critical issue. Photovoltaic systems, by far the most common onsite renewable energy system, are particularly vulnerable to high winds. High winds can detach panels from mountings and blowing debris can damage panels. It is important, therefore, to design and install these systems to withstand the conditions that could occur during the disruption such as wind loads, seismic loads, snow loads, flooding, etc.

II C7.1.4 *Passive Habitability/Survivability*

Utilizing the approach for identifying and designing for primary and secondary systems in 11.1.3 Energy Resiliency, identify a facility or portion thereof, that can provide emergency shelter for a large number of students and adults. Model the thermal comfort performance of the designated space at full occupancy during a 4-day power outage. Use the worst recorded weather episodes for heat waves and cold waves; for heat waves, also select those that have the highest nighttime temperature. Estimate the time until the facility goes outside the Standard Effective Temperature (SET) target range of 54 - 86°F, and the number and percent of total hours it would be outside the target ranges.

Create a brief classroom User's Guide for teachers and administrative staff. This guide shall explain policies and procedures for ensuring human safety during heat waves, cold spells, power outages, and other weather related hazards. Guidance should include warning and actions levels, and when and how to evacuate the building or move to a "cool room" or other shelter in place. Incorporate the use of the OSHA-NIOSH Heat Safety Tool app (https://www.cdc.gov/niosh/topics/heatstress/heatapp.html) for obtaining real-time, hourly forecasts of the local outdoor Heat Index.

Coordinate with school community/parents, local health and safety officials on the location and capacity of cool rooms and/or emergency shelters in the district, FEMA, the Red Cross, and other relevant agencies.

II C7.1.3 & 4 Be sure the resilient features and systems are included in the O&M Manual and training and the Systems Maintenance Plan, as applicable. Be sure the occupant User's Guide includes any pertinent information.

II C7.1 DOCUMENTATION

DESIGN REVIEW

II C7.1.1 Provide a short narrative that cites the outside assessment used, if any, or describes the approach taken and includes top hazards and the rationale for selecting them.

II C7.1.2 Provide a short narrative of all feasible adaption measures that will be included in the project design and construction. The zero energy requirement will be fulfilled under EE C1.1.

Or, if the adaptation will occur in the future, provide a copy of the recommendations to the administration and a description of features included in the current design.

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II C7.1.4 Identify the shelter space(s) on the CDs. Provide a description of the features that provide habitability.

CONSTRUCTION REVIEW

II C7.1.2 & 4 Provide a signed letter of confirmation from the primary architect, engineer, or commissioning agent that systems and any passive features have been installed as designed.

Documentation for OM P1.0 and OM C4.1 will cover the training and manuals.

II C7.1.3 Documentation from the following related credits will suffice for this credit as long as the calculations and other evidence demonstrate compliance with the above requirements:

EQ C12.1 Daylight Availability

EQ C11.1 Views

EQ C9.1 Controllability of Systems (operable windows)

EE C1.1 Superior Energy Efficient Design-Zero Net Energy Bonus

For the primary and secondary subsystems, onsite energy storage, and critical system location, submit a signed letter from the engineer stating how the project complies.

II C7.1 RESOURCES

1. ARCC Network (Adaptation and Resilience to Climate Change Network). Extremes and other Project types. U.K. Climate Impacts Programme. Tools; demonstration and research projects http://www.arcc-network.org.uk/extremes/overheating/. See Overheating and Flooding topics.
2. Houghton et al., 2017. Design Strategies and Community Resilience to Urban Flooding: A Systematic Review of the Evidence. Int J Environ Res Public Health. 2017 Dec; 14(12): 1519. DOI: 10.3390/ijerph14121519.
3. ICLEI, 2012. ICLEI's Adaptation Work: Local and Global Resources. http://resilient-cities.iclei.org/resilient-cities-hub-site/resilience-resource-point/resilience-library/methodologies-and-tools/
4. Imhoff et al., 2010. Remote sensing of the urban heat island effect across biomes in the continental USA. Remote Sensing of Environment, Volume 114, Issue 3, Pages 504-513. https://www.sciencedirect.com/science/article/pii/S0034425709003174.
5. New York City, April 2017. Preliminary Climate Resiliency Design Guidelines. OneNYC Initiative, Mayor's Office of Recovery and Resiliency, New York, NY. http://www1.nyc.gov/office-of-the-mayor/news/271-17/mayor-new-resiliency-guidelines-prepare-city-s-infrastructure-buildings-for.
6. Sustainable Energy Research Group. CCWorldWeatherGen. University of Southampton, U.K. Online tool for creating future weather files by morphing historical weather files. http://www.energy.soton.ac.uk/ccworldweathergen/.
7. UKCIP (United Kingdom Climate Information Programme), 2013. Adaptation Wizard Tool. University of Oxford, UK. A 5-step tool for vulnerability assessments and climate adaptation plans for communities plus case studies. U.S. weather and climate information can be used. https://www.ukcip.org.uk/wizard/. *See also:* https://www.ukcip.org.uk/designing-a-climate-resilient-school/

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8. USGCRP (US Global Change Research Program), 2017. “Fourth National Climate Assessment.” Assessments of climate change impacts by U.S. region, plus various resources, and forthcoming risk assessments and other updates. https://www.globalchange.gov/nca4.
9. Resilient Design Institute: http://www.resilientdesign.org. Search for LEED, RELi, thermal, and other resilient design topics.
10. RELi (http://c3livingdesign.org/?page_id=5110)
11. City Resilience Index (https://www.arup.com/perspectives/themes/cities/city-resilience-index)
12. FEMA resources: https://www.fema.gov/media-library/assets/documents/177480?utm_source=gd&utm_medium=ces&utm_campaign=BSBRiskMAPFlyers032619
13. EnergyPlus modeling tool: https://energyplus.net/
14. Passive House Institute US: https://www.phius.org/home-page

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II C8.1 BIOPHILIC & RESPONSIVE DESIGN **NEW***

As we spend increasing amounts of time inside, we create a disconnect between our day to day experiences and the natural world. Biophilic design aims to recreate that connection to nature by activating the senses with natural elements or mimics of natural systems, such as daylight, natural patterns, fresh air, moving water, and plant life.

Intent

To contribute to occupant health and wellness by providing an experience that is grounded in place, connected to nature, and promotes a sense of calmness and wellbeing.

Biophilic design principles are organized into three categories: nature in the space, nature of the space, and natural analogues. Nature in the space is the direct presence of nature. Nature of the space is about mimicking or replicating the feelings that natural spaces give us. Natural analogues use indirect methods to reflect nature, such as the use of patterns, shapes, textures, and numerical arrangements found in nature. The key to biophilic design principles is to integrate these forms in a way that feels natural.

Responsive design is the term we use to encompass design features that create safe and calming spaces, contribute to a sense of community, and allow for students of all abilities, backgrounds, and perspectives to learn together. Responsive design features support equitable education by making all children feel safe, welcome, and engaged.

Contact with nature and feeling connected is essential to the human experience. Schools should be designed and planned in ways that connect us with nature and with each other, something that we know produces numerous benefits including improved focus, awareness, social interactions, sense of wellbeing, and reduced absenteeism.

II C8.1 BIOPHILIC & RESPONSIVE DESIGN

Credit

1-3 points

APPLICABILITY: All projects

VERIFICATION: Design Review

SCORING: 1 point each for 8.1.1, 8.1.2, 8.1.3

RELATED CRITERIA: II P1.0 Integrated Design, II P2.0 Central Educational Display, II C2.1 School as a Learning Tool, II C5.1 Safer Schools by Design, EQ C13.1 Views, SS C2.1 Sustainable Site Use & Sensitive Lands Conservation, OM P1.0 Facility Staff and Occupant Training

II C8.1 REQUIREMENTS

II C8.1.1 *Biophilic Design*

1 point

Incorporate a minimum of six biophilic features, with at least two elements in each of the three categories: Nature in the Space (physically experiencing nature), Nature of the Space (spatial configurations), Natural Analogues (nature-inspired elements).

II C8.1.2 *Responsive Design*

1 point

Provide a minimum of two interior or exterior features that create safe and calming spaces, provide sensory input, or contribute to a sense of community. Features may include the sites' cultural, spiritual, archeological, or architectural history.

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II C8.1.3 *Educational Curriculum Integration*

1 point

Provide educational materials for students and teachers that document the successful biophilic and responsive design strategies in C8.1.1 or C8.1.2. These could include but not be limited to signage indicating the benefits of a biophilic element, or a user guide highlighting the biophilic patterns included in the building, or a curriculum that further explores a responsive feature.

II C8.1 IMPLEMENTATION

Conduct an integrated biophilic and responsive design charrette with key stakeholders early in the design process. Identify opportunities to incorporate features into the project that respond to Biophilic and Responsive Design principles. Teams may target either Biophilic or Responsive Design, or both.

Biophilic features bring nature into the space, replicate the feelings that natural spaces give us, and use materials, elements and symmetries that reflect and remind us of nature.

Responsive features may be targeted to classrooms or grade levels and may vary throughout the building.

Employ targeted engagement tools such as:

- Develop narratives describing strategies available for incorporation.
- Engage the greater community in the responsiveness conversation.
- Document building user group ideas.
- Draft building and site drawings highlighting spaces available and installation locations.
- Solicit ideas for curriculum integration and grade appropriate project-based learning assignments.
- Consider signage around the building that discusses the biophilic or responsive elements and why they are important. This tool can be counted towards one of the Demonstration Areas in II C2.1 School As A Learning Tool.

II C8.1 DOCUMENTATION

DESIGN REVIEW

II C8.1.1 *Biophilic Design*

Provide the list of proposed and selected strategies generated from the integrated design charette. Identify within the project specifications or the construction drawings the six features that have been incorporated into the project.

II C8.1.2 *Responsive Design*

Provide a written explanation of the features that have been included in the design and how these features serve as calming spaces, provide sensory input, or create a sense of community.

II C8.1.3 *Educational Curriculum Integration*

Provide a written statement from the district or school administration reflecting their commitment to incorporate the concepts of biophilic and responsive design into the educational curriculum, including how that will be achieved.

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CONSTRUCTION REVIEW

N/A

II C8.1 RESOURCES

1. 14 Patterns of Biophilic Design, Improving Health & Well-Being in the Built Environment: https://www.terrapinbrightgreen.com/report/14-patterns/
2. AIA-funded study led by Craig Gaulden Davis Architects: https://cgdarch.com/wp-content/uploads/2019/12/The-Impact-of-Biophilic-Learning-Spaces-on-Student-Success.pdf
3. International Living Future Initiative, Biophilic Design Initiative: https://living-future.org/biophilic-initiative

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II C9.1 INNOVATION

The purpose of this criterion is to encourage school project teams to be creative and take advantage of and/or test new technologies or strategies for improving the health and performance of students, schools, and the environment. The innovation may take an existing CHPS criterion to a significant new height or address a topic or practice not currently offered within the CHPS Criteria. Users are encouraged to refer to the CHPS Criteria Library for potential Innovation credit strategies.

Intent

Test, understand, and implement innovative approaches to improving the health of school occupants and performance of school facilities.

II C9.1 INNOVATION

CREDIT

1-2 points

APPLICABILITY: All projects, does not apply to CHPS Designed recognition

VERIFICATION: Design Review, Construction Review

SCORING: The CHPS National Technical Committee will determine whether a submission warrants 1 or 2 points. Two submissions may be awarded 1 point each or a single submission may be awarded 2 points.

II C9.1 REQUIREMENTS

Implement new technologies or strategies that do at least one of the following not currently offered in the CHPS rating program:

- Improves the health and performance of students and staff.
- Improves the performance and efficiency of school facilities, or operation of those facilities.
- Improves the natural environment and/or addresses GHG reductions.

OR

The innovation points can reward exceptional performance in an existing criterion area through submission of a narrative explaining how the intent was exceeded by a significant amount.

II C9.1 IMPLEMENTATION

The point value of the criterion will be determined during the CHPS Verified review process by the CHPS Verified review team. A maximum of 2 points will be awarded per strategy, technology, or for exceptional performance beyond an existing threshold. Points will be awarded based on the technology or strategy's ability to address the three priorities under Requirements.

The CHPS Criteria are designed to be a comprehensive guide to high performance design, but as new technologies and creative designs evolve, there is a responsibility to support and encourage them. These points are also offered for communities that go beyond what

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is required by the Criteria and push to achieve exceptional performance, health, educational, and environmental benefits, place-based novel solutions, and excellent policies.

As innovation points are achieved by projects, they will be made publicly available on the CHPS website.

Ideas for innovation points:

- Produce a surplus of energy on a net annualized basis, which exceeds Zero Net Energy School per EE C1.1.
- Implement a recycling program where there is no existing infrastructure per MW P1.0.
- Divert construction and demolition waste per MW C2.1 at a 90% rate for 1 point and 95% rate for 2 points.
- Provide a published Health Product Declaration (HPD) with a disclosure level of 1,000 ppm for at least 40 permanently installed products from at least five manufacturers in accordance with EQ C7.1 for 1 point.
- Design for Adaptability, Durability and Disassembly -- Provide the school owner, builder and records management systems with a Disassembly Plan that has the method of disassembly of major systems during renovations and end-of-life, and the properties of major materials and components for 1 point. Design major systems with differing functions and lifespans to promote disentanglement for 1 point, or provide access to and types of connections for one major system that allows disassembly for 1 point.
- Install a school farm or indoor garden.
- Retro-commissioning – For existing schools, commission all retained systems that have not been commissioned within the past three years. Systems to retro-commission are lighting and lighting controls, HVAC, domestic hot water, and energy management systems.
- Implement a responsibly permitted 100% non-potable on-site water reuse system with periodic water quality testing and management.
- Implement a program for district/staff/fleet Zero Emissions Vehicles and/or install charging stations in school parking areas.
- Implement building features that meet the intent of Inclusive Design, that is, features that create a calming environment for all students but particularly those with special needs or traumatic backgrounds. Examples include hallways with visual, textural, or physical elements that encourage healthy sensory processing; use of calming colors; furnishings that are designed to be responsive to sensory seeking; or a designated calming room or sensory room. At least 2 Inclusive features are required to earn a point.
- Implement Biophilic Design features.

For each new credit attempted:

1) Define the credit and its purpose.
2) Describe the proposed criteria for compliance including any applicable standards.

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3) Identify documentation requirements that verify compliance with the proposed credit.

If the Innovation point is for exceptional performance in an existing criterion, then prepare a narrative of the design approach, including an explanation of how the original intent was exceeded by a significant amount.

II C9.1 DOCUMENTATION

DESIGN REVIEW

For each new credit attempted:

1) Submit a narrative describing how the credit reflects sustainable or environmental health and safety practices.
2) Submit documentation identified to support narrative.

For claiming credit for exceptional performance in an existing credit area, submit a narrative of the design approach, including an explanation of how the original credit was exceeded by a significant amount.

CONSTRUCTION REVIEW

If the innovation has a physical component (i.e.it is not purely performance-based), submit photographs that best highlight the high performance aspects of the innovation. Possible examples: photos of a large photovoltaic array(s), an urban school farm next to a culinary academy, or details of the construction of a building designed for disassembly.

II C9.1 RESOURCES

None

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INDOOR ENVIRONMENTAL QUALITY (EQ)

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EQ P1.0 VENTILATION & IAQ
EQ C1.1 ENHANCED VENTILATION, FILTRATION, AND DEDICATED OUTDOOR AIR SYSTEM

Establishing a minimum level of indoor air quality positively impacts student and teacher performance, may reduce absenteeism, and reduces the potential for long- and short-term health problems. The criteria in this prerequisite and credit are used to achieve excellent indoor air quality, which starts during construction with preventative measures to keep pollutants out of the building and includes good filtration and ventilation during building operation. [1]

Intent

Provide a foundation for providing clean, breathable air to protect student and staff health and increase potential for better performance and attendance.

EQ P1.0 VENTILATION & IAQ

PREREQUISITE

5 points

APPLICABILITY: All projects.

VERIFICATION: Design Review, Construction Review

RELATED CRITERIA: All of EQ and EE, SS P1.0 Environmental Site Assessment, OM C4.1 Systems Maintenance Plan, OM C5.1 Indoor Environmental Management

EQ P1.0 REQUIREMENTS

5 points

For new schools, replacement schools and new buildings on existing campuses, comply with CALGreen section 5.506.1 and Title 24 Section 120.1.

Design and construct the HVAC system to provide continuous outdoor air (OA) ventilation to each space during occupied hours, including all full- and part-load conditions. Follow ASHRAE 62.1-2019 unless a local equivalent is more stringent. Comply with all of the following:

1. The design shall ensure the ventilation system is not readily defeated. Assume no windows are open.
2. Ventilation rates during occupied hours including all full-and part-load conditions in all school areas shall be no less than required by the outdoor ventilation rate calculated according to the outdoor air ventilation rate procedure in ASHRAE 62.1-2019 §6.2 or §6.4 if natural ventilation is used.
3. The ASHRAE 62.1 Mechanical Ventilation Calculation Worksheet shall be completed in full and included in the project drawings and design documentation. The table shall list for each room: HVAC system ID number and HVAC type, minimum outdoor air flow rate, room air classification, and all exhaust fans.
4. HVAC systems and equipment shall meet the requirements of ASHRAE Standard 62.1-2019 §5.
5. Design of condensate pans shall meet all requirements in ASHRAE Standard 62.1-2016 §5.10.

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6. Outdoor air intakes shall meet all requirements in ASHRAE Standard 62.1-2016 §5.5. All intakes must be 6 feet above landscaped grade including soil, lawn, shrubs, or any plant life within 1.5 ft. horizontally of intake.

   Additionally, for projects where locating an air intake near a Class 2 exhaust source is unavoidable, such as in a renovation/modernization project, the intake opening shall be a minimum of 2 feet below the Class 2 exhaust and 10 feet horizontally from the nearest edge of the air intake to the nearest edge of the Class 2 exhaust.

7. The particulate matter filters or air cleaners shall meet all requirements in ASHRAE Standard 62.1-2019 §5.8, §6.2.1.1 and §6.2.1.2. In addition, filtration media shall have a Minimum Efficiency Reporting Value (MERV) of 13 or higher for all new HVAC systems. All HVAC filtration media must be replaced immediately prior to occupancy.

8. Mold resistance of air stream surfaces shall meet all requirements in ASHRAE Standard 62.1-2019 §5.4.

9. All in-room plug in Air Cleaning Devices used in the school classrooms shall be models that are Certified and Labeled in accordance with California Air Cleaning Device regulation California Code of Regulations, Title 17, Section 94804. [1]

10. The school shall be in compliance with ASHRAE 62.1-2019 §6.2.1.3, as applicable.

For multiple spaces served by variable air volume (VAV) systems, this means that the minimum supply setting of each VAV box should be no less than the design outdoor ventilation rate calculated for each space. The box must be controlled so that the minimum required airflow is maintained at all times when the space is occupied, even when the fan has modulated to its minimum capacity. Additionally, for art classrooms, darkrooms, kitchens and kitchenettes, locker rooms, copy printing rooms, science lab classrooms, woodwork shops and any other rooms with significant pollutant sources, the pollutants shall be exhausted directly to the outside and not recirculated. Local contaminate exhaust in rooms such as fume hoods may meet this requirement. The exhaust airflow rates shall be no less than required in ASHRAE 62.1-2019 §6.5. Occupancy or CO_2-based demand control ventilation shall be in compliance with ASHRAE 62.1-2019 §6.2.7.

HVAC systems and equipment shall meet the requirements of ASHRAE Standard 62.1-2016 §5, which addresses among other things the design of drain pans (§5.10), outdoor air intakes (§5.5), and air stream surfaces (§5.4).

To avoid particulate accumulation and/or mold in the ductwork, duct liners must meet the American Society for Testing and Materials (ASTM) standards C 1071 or UL 181 for surface erosion resistance and ASTM standards C 1104 or C 209 (at <0.5% absorption by volume) for water vapor sorption.

To minimize dust and microbial growth, all regularly occupied spaces in the school must be served by a ducted HVAC return.

EQ C1.1 ENHANCED FILTRATION, VENTILATION, AND DEDICATED OUTDOOR AIR SYSTEM

CREDIT

1-10 points APPLICABILITY: All projects except 1.1.1 not applicable to those with unit ventilators.

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VERIFICATION: Design Review, Construction Review

SCORING: 1 point for 1.1.1; 7 points for 1.1.2; 2 points for 1.1.3

RELATED CRITERIA: All of EQ and EE, SS P1.0 Environmental Site Assessment, OM C4.1 Systems Maintenance Plan, OM C5.1 Indoor Environmental Management

EQ C1.1 REQUIREMENTS

EQ C1.1.1 *Enhanced Filtration Media*

Filtration media shall have a Minimum Efficiency Reporting Value (MERV) of 15 or higher.

EQ C1.1.2 *Enhanced Ventilation Rate*

The outdoor airflow shall be no less than 130% of the value determined in accordance with the ASHRAE 62.1 ventilation rates.

EQ C1.1.3 *Dedicated Outdoor Air System*

Provide a dedicated outdoor air ventilation system (DOAS) with the ability to efficiently process and manage ventilation down to the individual room level.

EQ P1.0-C1.1 IMPLEMENTATION

EQ P1.0 *Ventilation & IAQ*

CDs shall include design details and control sequences presented in a manner allowing that compliance with the prerequisite may be verified. In addition to information on the contract documents, calculations used to determine the most stringent outdoor air ventilation rate shall be signed by the project engineer. ASHRAE 62.1-2019 Mechanical Ventilation Calculation Worksheet shall be completed by the project engineer documenting that each space meets the minimum outdoor air quantities according to ASHRAE 62.1-2019 calculations. The spreadsheet shall show that the outdoor air quantity in each room served by an HVAC system meets the minimum outdoor air quantity for the space. For multiple spaces the spreadsheet shall show that the minimum outdoor air quantities are met in each space including during times when all VAV boxes are turned down to their minimum flow positions. A completed table shall be compiled by the project engineer and included in the project drawings and design documentation.

The table shall list for each room:

- the HVAC system ID number,
- HVAC type,
- the minimum outdoor air flow rate,
- the room's air classification, and
- all exhaust fans.

These drawings and documents including the table and electronic spreadsheet shall be submitted for verification. Minimum outdoor air quantities for all spaces shall be verified during HVAC system Testing and Balancing and included in minimum Commissioning requirements when all VAV boxes are turned down to their minimum flow positions.

Throughout this criterion, ventilation air means the designed outdoor air flow rate for maximum occupancy.

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Controls shall be specified that operate the HVAC fans to provide outdoor air ventilation continuously during occupied hours, whether or not there is a need for heating or cooling. Thermostats with an "automatic" setting do not meet this requirement, since in this mode, the fans cycle on and off according to demands for heating or cooling.

The HVAC shall be operated continuously during working hours except during scheduled maintenance and emergency repairs, or during periods in which the district can demonstrate that the quantity of outdoor air supplied by non-mechanical means meets the outdoor air supply rate required by ASHRAE Standard 62.1-2016, §6.2 (i.e., climate is suitable and an acceptable means for natural ventilation is provided).

Natural ventilation systems must be engineered to demonstrate sufficient outdoor air ventilation and thermal comfort and shall adhere to natural ventilation guidelines, including:

- Maximize wind-induced ventilation by siting the ridge of a building perpendicular to the summer winds.
- Generally, naturally ventilated buildings should be narrow.
- Generally, each room should have two separate supply and exhaust openings. Locate exhaust high above inlet to maximize stack effect. Orient windows across the room and offset from each other to maximize mixing within the room while minimizing the obstructions to airflow within the room.
- Provide ridge vents.
- Consider the use of clerestories or vented skylights.
- Consider the use of fan-assisted cooling strategies.
- Consider open staircases that provide stack effect ventilation but observe all fire and smoke precautions for enclosed stairways.
- Doors are not acceptable natural ventilation openings.

ASHRAE Standard 62.1-2019 §5 has a number of requirements to improve the effectiveness of outdoor air ventilation systems. Some of these requirements apply to the design of equipment and manufacturers. The design engineer shall check with manufacturers to verify that the specified equipment complies with the requirements of §5. Some manufacturers label their product lines or equipment as complying with Standard 62.1 but not all do; when in doubt check with the manufacturer. Specifications shall specify that the HVAC system provides a slope in condensate pans so that water does not stand, provides access for cleaning coils and other components, and makes sure that air stream surfaces are not porous including the requirement that insulation is not placed on internal air stream surfaces except for sound attenuation insulation that may be placed selectively on the inside of HVAC ducts if it is certified to meet ASTM C 1071 and ASTM C 1104 for surface erosion resistance and water vapor sorption.

Some jurisdictions may also be required to submit to the county.

Locating air intakes away from sources of potential air pollution will ensure that indoor air quality is not compromised by diesel fumes or exhaust air from ventilation, cooling towers, kitchen, or HVAC systems. Be particularly careful to locate air intakes away from areas where school buses and other vehicles may be idling. Where intake openings front on a street or public way, measure the horizontal distance from the centerline of the street or public way to the air intake.

EQ C1.1.1 *Enhanced Filtration Media*

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It is important to select a filter that is designed for the specific application and to make sure that the HVAC filter enclosures are designed to perform with the filter in place without leakage around the filter. This rating is conducted by ASHRAE standard 52.2 MERV scale range from 1 to 20. For this credit, it is not necessary to provide filters for equipment that provides in-room circulation, although it is recommended.

Filters rated MERV 15 or higher will block up to 90% of fine particulates and most allergens. Schools located near areas with elevated outdoor particulate matter during one or more seasons of the year, in areas with high wildfire risk, and near high-volume roadways should use high efficiency filters of MERV 15 or higher. At the federal level, high-volume roadways are defined as an excess of 50,000 annual average daily traffic (AADT). Each state may set a different threshold, and design teams should consult the state's Department of Transportation to determine the applicable threshold and AADT for the road(s) in question.

For new construction or renovations/modernizations that replace HVAC equipment, specify systems that accept the required filter efficiency without a loss of operating efficiency. Filters rated at MERV 13 and higher will help ensure very good quality ventilation air by blocking some fine particles and allergens. A MERV 13 filter has the ability to filter more than 90% of particles 1.0 to 3.0 microns or larger in size, which includes lead dust, humidifier dust, mold spores, sand dust, fabric fibers, pollen.

Labels on filter entry doors of all HVAC Systems shall list the date that the filter was last changed on and the date for scheduled replacement. The Systems Maintenance Plan, OM C4.1, and/or the Indoor Environmental Management Plan, OM C5.1, should include a filter schedule that includes all air handling units, roof top units, unit ventilators, etc. and the rating of filters used for each piece of equipment.

EQ C1.1.2 *Enhanced Ventilation Rate*

The minimum occupied rate of outdoor air ventilation to be provided should equal the minimum rate of ventilation required to satisfy ANSI/ASHRAE Standard 62.1-2019 for the applicable category of space computed using the Ventilation Rate Procedure. IAQ procedure demand control methods employing contaminant sensing may not be employed. The maximum amount of outdoor air is to be provided.

Project engineers shall provide engineering documentation on the drawings in tabular format demonstrating compliance with ANSI/ASHRAE Standard 62.1-2019 using the Ventilation Rate Method. Show and describe how the dedicated outdoor air HVAC system designs seeking credit: 1) Delivers 130% fresh outdoor air directly into each space without first mixing it with any recirculated building air (i.e. variable volume, displacement ventilation dual duct, etc.); and 2) Integrates an adequate energy recovery strategy to meet ANSI/ASHRAE/IESNA Standard 90.1-2016 air-to-air energy recovery requirements.

EQ C1.1.3 Dedicated Outdoor Air System

Dedicated outdoor air systems (DOAS) can take multiple forms but must be able to independently deliver heating, cooling, and ventilation where, and only when, it is needed. The practice of recirculation in traditional HVAC systems does not save energy; it compromises ventilation. Recirculated air may contain toxins from materials found within the built environment as well as higher levels of carbon dioxide, both of which can affect student and teacher health and performance. A DOAS consistently delivers the required amount of outside ventilation air to each space and can provide higher indoor air quality to combat harmful particulate matter.

Shut-off variable-air-volume delivery systems can be used with DOAS systems to control, measure and monitor ventilation in real time, permitting these systems to actively manage ventilation by delivering the precise amount of fresh outdoor air directly to each space

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without recirculating contaminants or pathogens generated in other spaces. Furthermore, VAV air terminal unit controls can be integrated with occupancy sensing devices to not only assure that appropriate levels of ventilation are provided when spaces are occupied, but to also turn off ventilation to those spaces when they are not occupied.

For dedicated outdoor air systems to comply with energy efficiency requirements or ASHRAE 90.1, they must utilize energy recovery to reduce the energy used to condition outdoor air a minimum of 50%, measured as enthalpy, at design conditions. DOAS systems that effectively employ two-stage air-to-air heat exchangers maximize the performance characteristics of energy recovery and energy avoidance equipment like heat wheels and indirect evaporative coolers. These configurations have demonstrated the ability to reduce annual ventilation cooling energy as much as 85% and heating energy requirements as much as 97%.

EQ P1.0-C1.1 DOCUMENTATION

DESIGN REVIEW

EQ P1.0 Certification by the Mechanical Engineer that the mechanical system design meets these requirements. Provide drawings showing all air intake openings. Clearly identify hazardous and noxious contaminant sources on the drawings and bubble each air intake with a 10 ft. radius on the drawings. Additionally, provide drawings showing ducted returns. Indicate the horizontal and vertical distances from the contaminant source in the drawings.

EQ P1.0-C1.1.1 Drawings, contractor notes, or schedule must clearly specify the correct type of filter. Provide the CSI number, section, and page number that highlight compliance with this criterion.

EQ C1.1.2 Drawings must include calculations showing that the design can supply 130% of outdoor air as determined in accordance with the ASHRAE 62.1 ventilation rates.

EQ C1.1.3 Drawings must include the required components of the DOAS. Provide the ASHRAE 62 MZ Calc spreadsheet or equivalent. Show that the system provides 100% fresh air without mixing with recirculated air; show integrated energy recovery strategy.

CONSTRUCTION REVIEW

EQ P1.0-C1.1.1 Photos of a sample installed filter or approved submittal.

EQ P1.0-C1.1 RESOURCES

1. Read-only version of ASHRAE 62.1-2019: https://ashrae.iwrapper.com/ASHRAE_PREVIEW_ONLY_STANDARDS/STD_62.1_2019
2. CARB Certified Air Purifiers: https://www.arb.ca.gov/research//indoor/aircleaners/certified.htm
3. Davanagere, B.S., Shirey, D.B. III, Rengarajan, K., & Colacino, F. (1997). Mitigating the impacts of ASHRAE Standard 62-1989 on Florida schools. United States: American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc., Atlanta, GA (United States).
4. Fisk, W. (1999). Estimates of Potential Nationwide Productivity and Health Benefits from Better Indoor Environments: An Update. Indoor Air Quality Handbook

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5. Fisk, W. J. (2017). The ventilation problem in schools: literature review. Indoor Air, 27(6), 1039-1051.
6. Kajtár, L. & Herczeg, L. (2012). Influence of carbon-dioxide concentration on human well-being and intensity of mental work. Idojaras, 116(2), 145-169.
7. MacNaughton, P., J. Pegues, U. Satish, S. Santanam, J. Spengler, and J. Allen. (2015). Economic, Environmental and Health Implications of Enhanced Ventilation in Office Buildings. International Journal of Environmental Research and Public Health 14709-14722.
8. Maddalena, R., Mendell, M. J., Eliseeva, K., Chan, W. R., Sullivan, D. P., Russell, M., Satish, U., & Fisk, W. J. (2015). Effects of ventilation rate per person and per floor area on perceived air quality, sick building syndrome symptoms, and decision-making. Indoor Air, 25(4), 362-370.
9. Satish, U., Mendell, M. J., Shekhar, K., Hotchi, T., Sullivan, D., Streufert, S., & Fisk, W. J. (2012). Is CO_2 an Indoor Pollutant? Direct Effects of Low-to-Moderate CO(2) Concentrations on Human Decision-Making Performance. Environmental Health Perspectives, 120(12), 1671-1677.
10. Seppänen, O. A., Fisk, W. J., & Mendell, M. J. (1999). Association of Ventilation Rates and CO_2 Concentrations with Health and Other Responses in Commercial and Institutional Buildings. Indoor Air, 9(4), 226-252.

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EQ C1.2 DEMAND CONTROLLED VENTILATION ***NEW***

Intent

To promote high quality learning spaces with adequate ventilation and appropriate carbon dioxide levels.

Proper ventilation is critical for creating an effective learning environment. Studies have shown that decreasing the carbon dioxide concentration in spaces improves cognitive function. Studies have also shown that many school HVAC systems do not deliver the levels of ventilation as designed and have higher than recommended carbon dioxide levels. By utilizing carbon dioxide sensors to control the ventilation systems schools can ensure that their spaces have the correct carbon dioxide levels to provide the highest performance learning environments. This use of Demand Controlled Ventilation is somewhat different than the use of the term in the CA Energy Code. In that context the term is used in the context of decreasing ventilation (with the goal of saving energy) when occupancy of a space is low. The focus of this credit is increasing the amount of ventilation for periods of high occupancy. These two strategies are not mutually exclusive. In fact, they can be implemented together to use sensors to provide the right amount of ventilation for the real time needs of the space.

EQ C1.2 DEMAND CONTROLLED VENTILATION CREDIT

1-3 points

APPLICABILITY: All projects

VERIFICATION: Design Review

SCORING: 1-3 points for threshold achieved

RELATED CRITERIA: EQ 1.0 HVAC Design – ASHRAE 62.1, EQ 1.2 Dedicated Outdoor Air Systems.

EQ C1.2 REQUIREMENTS

1-3 points

The HVAC controls system shall be designed to include carbon dioxide sensors in each classroom (or dedicated learning space) as part of the controls system and/or thermostat and meet the Energy Commission requirements of Section 120.1(d). Each classroom shall have a Co2 sensor built into or next to the thermostat that lists the ppm of the space. The thermostat shall not have the option to set the fan to AUTO. Sensors must be calibrated and certified per the requirements of the California Energy Code Section 120.1(d)4F The carbon dioxide level in each classroom shall control the amount of outside air provided to each classroom to ensure that the carbon dioxide level remains at or below the level indicated in the table below for each point level. For dedicated outdoor air systems to comply with energy efficiency requirements or ASHRAE 90.1, they must utilize energy recovery to reduce the energy used to condition outdoor air.

Points	Design Carbon Dioxide Level
1	1000 ppm
2	800 ppm
3	600 ppm

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EQ C1.2 IMPLEMENTATION

For any new building or modernization project to meet the requirements for these points the carbon dioxide monitoring requirements must be integrated into the design and documentation of the HVAC system and energy management system. The design documents must clearly show the desired sequence of operations for the controls and the design and energy documentation must take the additional ventilation into account. The necessary controls should be integrated into a building or energy management system wherever possible.

EQ C1.2 DOCUMENTATION

DESIGN REVIEW

Submit Construction documents showing HVAC system design and energy management system controls sequence of operations indicating demand controlled ventilation and carbon dioxide monitoring.

CONSTRUCTION REVIEW

Submit project submittal documentation verifying HVAC and controls systems installed match those specified. Provide commissioning reports documenting that controls have passed functional testing and are controlling the systems as required.

EQ C1.2 RESOURCES

1. Allen JG, MacNaughton P, Satish U, Santanam S, Vallarino J, Spengler JD. 2016. Associations of cognitive function scores with carbon dioxide, ventilation, and volatile organic compound exposures in office workers: a controlled exposure study of green and conventional office environments. Environ Health Perspect 124:805-812; http://dx.doi.org/10.1289/ehp.1510037.
2. Stafford, Tess, Indoor Air Quality and Academic Performance (October 29, 2013). UNSW Australian School of Business Research Paper No. 2013-25. Available at SSRN: https://ssrn.com/abstract=2339850 or http://dx.doi.org/10.2139/ssrn.2339850
3. Satish U, Mendell MJ, Shekhar K, et al. Is CO2 an indoor pollutant? Direct effects of low-to-moderate CO2 concentrations on human decision-making performance. *Environ Health Perspect*. 2012;120(12):1671–1677. doi:10.1289/ehp.1104789

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EQ P2.0 OFF-GASSING
EQ C2.1 POLLUTANT & CHEMICAL SOURCE CONTROL

Intent

Achieve good indoor air quality to protect student, educator, and staff health and increase the potential for improved performance and attendance.

Good indoor air quality includes preventing potential air-borne contaminants from being released into occupied spaces and reduces the building's overall environmental footprint. Volatile organic compounds (VOCs) are contributors to health problems in humans and are widely believed to cause low-level ecosystem damage. For example, VOCs from construction materials, cleaning products and plug-in or spray fragranced air fresheners can cause smog, causing disruption to human breathing and to the ecosystem surrounding the building. This section includes an array of best practices to prevent or eliminate pollutants and chemicals releases.

EQ P2.0 OFF-GASSING

PREREQUISITE

2 points

APPLICABILITY: All projects.

VERIFICATION: Design Review, Construction Review

RELATED CRITERIA: EQ P1.0 Ventilation and C1.1 Enhanced Ventilation, OM C4.1 High Performance Operations

EQ P2.0 REQUIREMENTS

2 points

Where use of chemicals with likely VOCs occurs, including housekeeping areas, chemical mixing areas, copying/print rooms, photography labs, and vocational spaces, use deck-to-deck partitions with dedicated mechanical exhaust to the outdoors (no air recirculation, and negative pressure) at a rate of at least 0.50 cubic feet per minute per square foot, and adequate make up air. These spaces must have negative air pressure when the doors are closed. Negative air pressure is defined as mechanical exhaust to the outdoors at a rate of at least 0.50 cubic feet per minute per square foot. The spaces must maintain a negative pressure of at least 5 Pa (0.02 inches of water gauge) to a minimum of 1 Pa (0.004 inches of water) compared to their immediate environment and when their doors are closed. In photo labs, specify table vents to draw chemical vapors away from the breathing zone of dark room users.

Doors to areas where hazardous materials are stored and used must be secured with self-locking and closing mechanism.

EQ C2.1 POLLUTANT & CHEMICAL SOURCE CONTROL

CREDIT

2 points

APPLICABILITY: All projects.

VERIFICATION: Design Review, Construction Review

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SCORING: 2 points for any three of 2.1.1-2.1.6

EQ C2.1 REQUIREMENTS

EQ C2.1.1 *Walk Off Mats*

1. Provide a minimum of a 20 foot walk off mat system with a combination of scraper, absorption mat, and finisher mat at every major outside common entryway to school buildings. These areas do not include entryways to kitchens and loading docks. Mat systems must be appropriate to the region, and the length of each segment may vary accordingly. Vacuuming of mats should be done with a HEPA vacuum that meets or exceeds the CRI Seal of Approval standards. The mat system must consist of one of the following:
   - Non-Permanent Mats: The district must have at least a two-year signed contract for non-permanent mats to be cleaned as seasonally appropriate. It is expected that maintenance staff will provide regular cleaning in between.

     OR

   - Permanent Mats: Shall consist of a grate or grill 4-6 feet long exterior of every major entry or within an entry vestibule that scrapes and provides water drainage, an interior absorption mat at least 6 feet long that traps and hides dirt and water, and a finisher mat at least 8 feet long to clean and dry any residual dirt and moisture. Mats must be permanently installed. Any recessed grates, grills, or slotted materials must be designed to be lifted for cleaning. Specify daily cleaning and periodic maintenance of walk off mat systems.
2. Finger-Plan Schools with Outdoor Circulation: Provide a walk off mat system at the entrance to all classrooms with primary exterior entrances. Mat systems must be at least 6 feet in length and width and appropriate to the region. Roll-out mats may only be used if they are maintained at least weekly. Alternately, provide permanent exterior grates 4-6 feet long at every classroom entry where there is a continuous covered walkway.

EQ C2.1.2 Control surface dust by providing hard-surfaced paving not less than eight feet by eight feet at all outside entrances or doorways to any school room (concrete or equivalent), together with covered walkways or entry canopies covering the entire 8’X8’ area to keep rain from the walkway surface.

EQ C2.1.3 *Electric Ignitions for Gas-Fired Equipment*

Specify electric ignitions for the following gas-fired equipment: water heaters, boilers, air-handling units, and cooking stoves.

EQ C2.1.4 *No Mobile Fossil Fuel Powered Equipment Indoors*

Do not acquire fossil fuel-powered machinery that is mobile and whose specific function is for use inside the building. This is to prevent accumulation of exhaust inside the building from equipment such as polishers and burnishers. This criterion does not include stationary equipment such as gas stoves, chemistry equipment, and vocational equipment.

EQ C2.1.5 *Carbon Monoxide (CO) Sensors*

Install a carbon monoxide monitor in occupied spaces served by gas fired appliances, and/or adjacent to parking areas where cars may idle to prevent unhealthful exposures to carbon monoxide and other combustion gasses. These sensors are intended for life safety purposes. Sensors capable of detecting very low concentrations of CO are not required.

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EQ C2.1.6 *Electronic Product Environmental Assessment Tool (EPEAT)*

All school electronic devices including computers, imaging devices, and TV/AV systems shall meet the requirements of the EPEAT rating system, Silver or Gold level. See EPEAT website for a comprehensive list of current Silver and Gold-rated products.

EQ P2.0-C2.1 IMPLEMENTATION

EQ P2.0 Design to physically isolate activities associated with chemical contaminants from other locations in the building and provide dedicated exhaust systems to contain and remove chemical pollutants from source emitters at source locations. Eliminate or isolate high hazard areas and design all housekeeping chemical storage and mixing areas (central storage facilities and janitors' closets) to allow for secure product storage. Design copier or print rooms with structural deck-to-deck partitions and dedicated outside exhaust systems.

EQ C2.1.1 Because cleaning of walk off mats is so important, select mats that are appropriate to the weather of the region and are readily maintained. Daily vacuuming of the interior mats is absolutely necessary, and regular washing may be necessary in snowy or muddy seasons. Particles tracked into the school on shoes are one of the chief sources of contamination of floors and carpets. Research shows that pesticides, heavy metals, and soil are tracked in on students' shoes. The best way to keep the school free of dust, dirt, and contaminants is to prevent these unwanted items from entering the building in the first place. It is especially important to protect young school children since they are more likely to sit and play on classroom floors and be more directly exposed to contaminants (2).

EQ C2.1.2 Control surface dust by providing hard-surfaced paving not less than eight feet by eight feet at all outside entrances or doorways to any school room (concrete or equivalent), together with covered walkways or entry canopies to keep rain from the walkway surface.

EQ C2.1.3 The purpose of this criterion is to prohibit standing pilot lights in gas-fired equipment. Under certain conditions, the accumulation of carbon monoxide from standing pilot lights can cause dangerous air quality conditions for staff and students. Therefore, electric ignitions are required for the equipment listed in this prerequisite.

Reference specification sections for gas-fired equipment that uses electric ignitions to light gas burners.

EQ C2.1.4 The school/district may adopt a resolution or policy indicating compliance.

EQ C2.1.5 Provide plans with locations of CO sensors highlighted. Include specifications for CO sensors.

EQ C2.1.6 The school/district may adopt a resolution or policy indicating compliance.

EQ P2.0-C2.1 DOCUMENTATION

DESIGN REVIEW

EQ P2.0 Provide a letter from the engineer certifying that the spaces stated in the prerequisite are ventilated to maintain a 1-3 Pa negative pressure, compared to their immediate environment, and are exhausted at a rate of 0.50 cfm/ft2. List the specific spaces in the project that comply.

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EQ C2.1.1 Reference sheet numbers identifying walk-off mats, or equivalent track-off mitigation measures, and their lengths at all high volume entrances.

EQ C2.1.2 Reference sheet numbers identifying paved areas outside entrances or doorways.

EQ C2.1.3 Reference specifications and subsections for gas-fired equipment that uses electric ignitions to light gas burners.

EQ C2.1.4 Provide the signed resolution, policy, or equivalent stating that no indoor mobile fossil fuel burning equipment will be used in the new or renovated facility.

EQ C2.1.5 Reference CD sheet numbers identifying required carbon monoxide monitors. Provide drawings that show all air intake openings and clearly identify hazardous and noxious contaminant sources on the drawings.

EQ C2.1.6 Provide a copy of the purchasing policy, signed resolution, or equivalent regarding purchasing of equipment that complies with EPEAT Silver or Gold.

CONSTRUCTION REVIEW

EQ C2.1.1 Where removable mats are specified, provide photo(s) of walk-off mats or equivalent track-off mitigation at required areas.

EQ P2.0-C2.1 RESOURCES

1. Carpet & Rug Institute certified vacuums: https://www.carpet-rug.org/certified-vacuums.html
2. US Environmental Protection Agency, *Resuspension and Tracking of Particulate Matter From Carpet Due to Human Activity Final Report*, November 2007: http://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P1005V2Y.PDF
3. US Environmental Protection Agency, Controlling Pollutants and Sources, Preventing the Entry of Pollutants from Outside the Building: https://www.epa.gov/iaq-schools/controlling-pollutants-and-sources-indoor-air-quality-design-tools-schools#EntryMatBarrier

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EQ P3.0 OUTDOOR MOISTURE MANAGEMENT

Due to health risks associated with mold and microbial growth and the damage caused to buildings by water infiltration, all surface grades, drainage systems, and HVAC condensate must be designed to move water away from buildings and their foundations.

Intent

Achieve good indoor air quality to protect student and staff health and increase the potential for improved performance and attendance.

EQ P3.0 OUTDOOR MOISTURE MANAGEMENT

CREDIT

2 points

APPLICABILITY: All projects.

VERIFICATION: Design Review, Construction Review

RELATED CRITERIA: WE P2.0 & C2.1 Outdoor Water Use Reduction

EQ P3.0 REQUIREMENTS

2 points

Comply with both the following:

Drainage

Design surface grades to slope away from the building and the building foundation to drain away rainwater, snowmelt, and HVAC condensate and to prevent ponding, pooling or otherwise saturating the building envelope or foundation. Rain leaders, or downspouts, must be directed to infiltration structures, on site storage, rain gardens, or daylight provided that surface drainage moves water well away from the building and does not result in unintended ponding or pooling. HVAC systems that use evaporation drip pans for condensate removal are prohibited.

Lawn Irrigation Systems

Design to prevent spray on building walls. Comply with CALGreen Section 5.407 including weather-resistant exterior wall and foundation envelope, sprinkler spray control, and designing exterior entries and/or openings subject to foot traffic or wind-driven rain to prevent water intrusion into buildings. Notes: Use features such as overhangs and recesses, and flashings integrated with a drainage plane. Use nonabsorbent floor and wall finishes within at least two feet around and perpendicular to such openings. Drip and bubbler irrigation systems comply.

EQ P3.0 IMPLEMENTATION

Condensate removal systems that rely on gravity drainage are strongly preferred to systems that use pumps due to the reduced maintenance associated with gravity systems.

The following should be submitted to adequately show compliance:

- Site plan showing grading plan
- Diagram of condensate system. A signed statement indicating that it is an integral part of the HVAC system if such a diagram is not available.

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- Typical detail of condensate drains showing drain trap and gravity drainage system
- Project team sign-off that the drain trap and gravity drainage systems have been tested to show that water flows out and neither is blocked nor flows into the building.

Permanent irrigation systems that spray on buildings can cause structural damage and mold growth. Do not install irrigation systems in locations where they may spray directly onto buildings. *Note:* This requirement only applies to schools with permanent irrigation systems. Submit a plan of irrigation system showing that sprinkler ranges do not intersect with buildings.

EQ P3.0 DOCUMENTATION

DESIGN REVIEW

Reference site plan showing required drainage. Diagrams and details of condensate systems must show drain tap and gravity drainage system.

CDs must include irrigation plans showing that sprinkler ranges do not intersect with buildings.

CONSTRUCTION REVIEW

Submit photos of installed measures, minimum of one photo for each measure.

EQ P3.0 RESOURCES

None.

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EQ C4.1 CONSTRUCTION IAQ MANAGEMENT

Good indoor air quality starts during design, is implemented during construction, and is maintained during operation. Cleanliness during construction is especially important to reduce the chance of dust settling in the building and causing problems during occupancy. Protecting building materials from moisture and removing water-damaged materials are important practices to prevent mold growth in the building.

Intent

Achieve good indoor air quality to protect student and staff health and increase the potential for improved performance and attendance.

EQ C4.1 CONSTRUCTION IAQ MANAGEMENT

CREDIT

5 points

APPLICABILITY: All projects. 4.1.2 applies only to renovation projects with new HVAC systems.

VERIFICATION: Design Review, Construction Review

SCORING: 1 point each for 4.1.1-4.1.2 and 4.1.4, 2 points for 4.1.3

RELATED CRITERIA: OM C4.1 High Performance Operations, OM C5.1 Indoor Environmental Management

EQ C4.1 REQUIREMENTS

EQ C4.1.1 *SMACNA Guidelines*

1 point

During construction, meet the recommended Design Approaches of the Sheet Metal and Air Conditioning National Contractors Association (SMACNA) *IAQ Guideline for Occupied Buildings Under Construction*, 2007, Chapter 3. Include the erosion and sedimentation control measures to minimize site dust during occupied renovations. [4]

EQ C4.1.2 *Duct Cleanliness – New Ducts Only*

1 point

For new schools, replacement schools, or new buildings on existing campuses, follow CALGreen Section 5.504.3.

If installing a new duct system, follow the SMACNA guidelines for “Duct Cleanliness for New Construction Guidelines” according to Advanced Levels of cleanliness. Of specific importance are the following:

- Specify that ductwork be sealed when transported to the construction site.
- Store ductwork in clean, dry conditions and keep sealed while it is stored.
- Wipe down internal surfaces of ductwork immediately prior to installation to remove dust.
- Seal open ends on completed ductwork and overnight work-in-progress.
- During installation, protect ductwork waiting to be installed with surface wrapping, etc.
- During construction, seal HVAC supply and return openings to protect them from construction dust infiltration (e.g., from drywall installation or wood floor sanding).

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EQ C4.1.3 *Building Flush-Out*

2 points

The project team shall develop a plan, and include it in the specifications, to flush out the building with outdoor air (no return air) based on the requirements and recommendations in the specifications to remove indoor pollutants prior to occupancy. The information should also be detailed in the projects TAB and control sequence of the specifications or project manual.

The specifications at minimum must state that the maximum amount of outdoor air (the design outdoor air flow rate for maximum occupancy) must be provided during and after installation of VOC emitting materials for the maximum amount of time feasible, but not less than continuously (i.e. 24 hrs.) for seven days. It should be noted that the maximum amount of ventilation provided by an HVAC system may be limited not only by the system's capacity but also by the temperature and humidity of the outdoor air.

After substantial completion, conduct the flush out for 24 hours a day continuous ventilation for 7 days with all supply fans at their maximum rate and position. Internal temperatures are maintained at the most energy efficient level above 60°F; relative humidity is maintained no higher than 60%. Under conditions where the heating cannot be met (60°F) at that fan speed, then adjust the fan to achieve 60°F.

All air handling unit dampers are at their maximum outdoor air position during the 7-day flush out. If the 60% relative humidity level cannot be achieved with maximum outdoor air position, reduce fan speed and/or outdoor air position as needed, but extend flush-out period beyond 7 days to accomplish roughly the same amount of total air throughput that would have occurred at maximum outdoor air position.

After flush-out, replace air filters with new filters and provide two sets of additional replacement filters prior to occupancy.

Occupied Flush-Out:

For the case where a project has fallen behind schedule, the contractor may alternatively conduct the flush-out while the building is occupied according to the requirements below or conduct air testing to identify classrooms that exceed the limits below and remedy any non-compliant rooms.

1. Conducting Occupied Flush-Out

   Conduct the flush-out for 24 hours a day with continuous ventilation for the total number of days identified in the plan with all supply fans at their maximum rate and position. Thermal comfort must be maintained during occupied hours, per the criteria in ASHRAE Standard 55. Internal temperatures must be maintained at the most energy efficient level above 60°F; relative humidity must be maintained no higher than 60% during non-occupancy hours.

   All air handling unit dampers are at their maximum outdoor air position during the flush-out. If the 60% relative humidity level cannot be achieved with maximum outdoor air position, reduce fan speed and/or outdoor air position as needed, but extend flush-out period beyond the established period to accomplish roughly the same amount of total air throughput that would have occurred at maximum outdoor air position. Classrooms shall not be “baked out”. The temperature in the building space shall not be increased to attempt to bake out contaminants. (If continuous ventilation is not possible, flush-out must total the equivalent of 14 days of maximum outdoor air.)

2. Air Testing

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The square root of the total number of all classrooms must be tested for compliance with the following criteria. Any non-compliant rooms must be remedied and re-tested until they are compliant. Two additional classrooms per non-compliant classroom must also be tested in all items below in the event of non-compliance. Conduct IAQ testing using protocols consistent with the methods listed in Table EQ4-1. Use current versions of ASTM standard methods, EPA compendium methods, or ISO methods, as indicated. Laboratories that conduct the tests for chemical analysis of formaldehyde and volatile organic compounds must be accredited under ISO/IEC 17025 for the test methods they use. Demonstrate that contaminants do not exceed the concentration levels listed in Table EQ4-1.

Remedies may include spot ventilation or flush-out.

Table EQ4-1. Maximum Concentration Levels* by Contaminant and Testing Method

Contaminant	Maximum concentration	ASTM and U.S. EPA Methods	ISO method
Formaldehyde	27 ppb	ASTM D5197; EPA TO-11 or EPA Compendium Method IP-6	ISO 16000-3
Particulates (PM10 & PM2.5)**	PM10: 20 µg/m3 PM2.5: 12 µg/m3	EPA Compendium Method IP-10	ISO 7708
Total volatile organic compounds (TVOCs)	500 µg/m3	EPA TO-1, TO-15, TO-17, or EPA Compendium Method IP-1	ISO 16000-6
Target chemicals listed in CDPH Standard Method v1.2, Table 4-1, except formaldehyde	CDPH Standard Method v1.2, Allowable Concentrations, Table 4-1	ASTM D5197; EPA TO-1, TO-15, TO-17, or EPA Compendium Method IP-1	ISO 16000-3, 16000-6
Carbon monoxide (CO)	9 ppm; no more than 2 ppm above outdoor levels	EPA Compendium Method IP-3	ISO 4224

*ppb = parts per billion; ppm = parts per million; µg/m3 = micrograms per cubic meter
**Only required if located in an EPA non-attainment area.

Post-Occupancy Ventilation

When the contractor is required to perform touch-up (including furniture after occupancy) work involving products with chemical emissions, provide temporary construction ventilation during application and extend the building flush-out by a minimum of 4 days after touch-up application, with 100% tempered outdoor air for 24 hours each day. [1]

EQ 4.1.4 *Mold Prevention/Moisture Management*

1 point

Building materials, especially gypsum wallboard, wood, porous insulation, paper, and fabric, should be kept dry to prevent the growth of mold and bacteria. Cover these materials to prevent rain damage, and if resting on the ground, use spacers to allow air to circulate

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between the ground and the materials. Water damaged materials shall be dried within 24 hours. Due to the possibility of mold and bacterial growth, materials susceptible to moisture that are damp or wet for more than 24 hours must be discarded. Immediately remove materials showing signs of mold and mildew, including any with moisture stains, from the site and properly dispose of them. Replace moldy materials with new, undamaged materials.

EQ C4.1 IMPLEMENTATION

EQ C4.1.1 For new schools constructed next to occupied schools, the construction process (and demolition process if applicable) will create dust, fumes, and exhaust from activities such as site grading, pouring of the foundation, framing, enclosing the walls and roof, landscaping, installation of stormwater and utility systems, and paving. The construction team must have a communications plan in place to alert school occupants to potential exposures. Additionally, there must be an occupant complaint system in place when construction activities are creating nuisance dust, fumes, and exhaust. Furthermore, if warranted, the construction team should consider protecting the occupied school's outdoor air intakes to prevent entrainment of pollutants.

For occupied renovations, applicants must implement containment procedures for dusts, gases, fumes, and other pollutants created as part of any planned construction, addition to, or renovation/modernization of a school building. Containment procedures must follow the SMACNA *IAQ Guidelines for Occupied Buildings Under Construction.* All bids received for school construction or renovations/modernizations must include the cost of planning and execution of containment of construction pollutants consistent with the SMACNA guidelines.

Specifications must include an Indoor Air Quality Management Plan that addresses SMACNA control measures for maintaining good indoor air quality on the job site. The specifications should indicate who is responsible for implementing the IAQ management plan, and the plan should address depressurizing work areas, ongoing housekeeping, scheduling of construction activity to lower impacts of IAQ problems on workers and building occupants, and the method of communication between construction team and building occupants regarding complaints, concerns, and predicted changes to IAQ. In addition, the plan must consider whether protection of outdoor air intakes is necessary for the project.

EQ C4.1.2 This construction practice will improve indoor air quality by minimizing the amount of indoor pollutants that are distributed and retained by the surface materials and ventilation systems during construction.

Duct insulation should be located on the outside of ductwork, unless it is being installed for the purpose of attenuating sound and there is no other means of attenuating sound. Duct liners have been known to deteriorate over time and absorb moisture, leading to the release of particles in the ducts that can be blown into classrooms and offices. Ensure that the duct liners used for sound attenuation meet the ASTM standards for surface erosion resistance and water vapor sorption.

Specifications must include the requirements for ASTM standards C 1071 or UL 181 for surface erosion resistance and ASTM standards C 1104 or C 209 (at <0.5% absorption by volume for ASTM C 209) for water vapor sorption.

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EQ C4.1- DOCUMENTATION

DESIGN REVIEW

EQ C4.1.1-C4.1.2 Submit specifications for: 1) SMACNA guidelines for IAQ which should include sedimentation and erosion control measures, 2) duct cleanliness, 3) building flush-out, 4) post-occupancy ventilation requirements when touch-ups are required. Designate the CSI number, section, and page number that highlight compliance with each requirement.

EQ 4.1.4 Reference specification sections for protection of building materials from water damage, and designate the CSI number, section, and page number showing compliance.

CONSTRUCTION REVIEW

EQ C4.1.1-C4.1.2 Submit photos, taken at various times during construction, with a narrative for each photo describing compliance with the various requirements.

For occupied renovations/modernizations, provide photographs and a narrative for each photo describing compliance with SMACNA guidelines as follows:

- Construction areas that were isolated from adjacent non-construction areas using temporary walls, plastic sheeting, or other vapor retarding barriers.
- Construction areas that were maintained at a negative air pressure compared to surrounding non- construction areas.
- Recirculating air ducts that were temporarily capped and sealed (appropriate filters may be used if nuisance particulates are the only contaminant of concern).
- Supply air systems that were operated with filters in place.

EQ C4.1.3 Submit a narrative describing implementation of the flush-out option chosen, photos and sign-off from the contractor or Inspector of Record that it took place.

EQ C4.1.4 Submit photos taken at various times during construction, with a narrative for each photo describing techniques for protecting building materials from mold and moisture damage.

EQ C4.1 RESOURCES

1. ANSI/ASHRAE Standard 62.1-2016, Ventilation for Acceptable Indoor Air Quality
2. ANSI/ASHRAE Standard 62.1-2016 User's Manual: https://www.techstreet.com/ashrae/standards/standard-62-1-user-s-manual-based-on-standard-62-1-2016-ventilation-for-acceptable-indoor-air-quality?gateway_code=ashrae&product_id=1937128
3. ANSI/ASHRAE Standard 62.1-2016 Mechanical Ventilation Calculation Worksheet
4. ASHRAE Standard 62.1 Sheet Metal and Air Conditioning National Contractors Association (SMACNA) IAQ Guideline for Occupied Buildings Under Construction, 2008.
5. Sheet Metal and Air Conditioning Contractors' National Association, Inc., (SMACNA) Duct Cleanliness for New Construction Guidelines; ©SMACNA 2000 https://www.smacna.org/docs/default-source/technical-resources/duct-cleanliness-for-new-construction-guidelines.pdf?sfvrsn=c921fda5_2

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EQ C5.1 POST-CONSTRUCTION INDOOR AIR QUALITY

Carpet and other soft surfaces and ventilation systems are susceptible to the accumulation of construction dust. Effective vacuuming will reduce the accumulation and distribution of particulates.

Intent

Improve indoor air quality by minimizing the amount of indoor pollutants that are distributed and retained by the surface materials and ventilation systems during construction.

EQ C5.1 POST-CONSTRUCTION INDOOR AIR QUALITY

CREDIT

1 point

APPLICABILITY: All projects.

VERIFICATION: Design Review, Construction Review

EQ C5.1 REQUIREMENTS

1 point

Vacuum carpeted and soft surfaces with a certified vacuum or high-efficiency particulate air (HEPA) filter vacuum that meets or exceeds the CRI Seal of Approval program after construction is complete and prior to occupancy. For phased, occupied renovations, HEPA vacuum the carpet daily in occupied areas and in areas adjacent to those affected by construction activities. [1]

For hard surfaces, either use a HEPA vacuum that meets the above criteria with a brush or hard floor attachment, or use microfiber mops, cloths, and sponges that will capture the dust.

EQ C5.1 IMPLEMENTATION

Reference specifications for vacuuming of carpeted floors prior to full building occupancy using a certified vacuum or high efficiency particulate air (HEPA) filter vacuum that meets or exceeds the CRI Seal of Approval. For phased, occupied renovations, or adjacent areas that may be affected by construction activities, submit a signed letter from the superintendent or designee stating that:

- Carpeting in occupied areas of the school shall be vacuumed on a daily basis.
- Only certified Carpet & Rug Institutes Seal of Approval (CRI SOA) Program vacuums with manufacture model identification numbers listed on the Carpet & Rug Institutes Seal of Approval (CRI SOA) Program website list will be permitted to be used for daily vacuuming of carpet in the school.
- All maintenance and cleaning staff shall keep a written log reviewed by the schools Facility Manager annually verifying that each vacuum used in the school operated at all times with the proper filter defined for the specific vacuum in the Carpet & Rug Institutes Seal of Approval (CRI SOA) Program.
- Tracking labels shall be included and used documenting date of all past and next filter replacements.

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EQ C5.1 DOCUMENTATION

DESIGN REVIEW

Reference specifications for vacuuming of carpeted floors prior to full building occupancy using a certified vacuum or high efficiency particulate air (HEPA) filter vacuum that meets or exceeds the CRI Seal of Approval program and for phased, occupied renovations adjacent areas that may be affected by construction activities. Provisions for cleaning hard surfaces must also be specified.

CONSTRUCTION REVIEW

Submit a signed letter from the Superintendent, or designee, stating that carpeting in occupied areas of the school shall be vacuumed on a daily basis, and only certified CRI SOA vacuums with manufacture model identification numbers listed on the CRI SOA website list will be permitted to be used for daily vacuuming of carpet in the school.

EQ C5.1 RESOURCES

1. List of vacuums certified by the The Carpet and Rug Institute (CRI) Seal of Approval Program: https://www.carpet-rug.org/certified-vacuums.html

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EQ P6.0 LOW EMITTING MATERIALS
EQ C6.1 ADDITIONAL LOW EMITTING MATERIALS

Intent

Minimize air concentrations of harmful volatile organic compounds that derive from building products and building materials used indoors.

Many common building products and building materials used indoors in the construction of educational facilities and other buildings are sources of volatile organic compounds (VOCs). When emitted to indoor air, these pollutants are inhaled by occupants. Such inhalation exposures can result in adverse health effects, including sensory and upper respiratory irritation, pulmonary irritation, asthma, damage to organ systems and neurological and reproductive systems, and increased risk of cancer. Exposure to airborne VOCs is an especially important issue for schools as children may be more susceptible than adults. In order to reduce the potential for adverse effects due to inhalation exposures to VOCs, it is important to specify and utilize products and materials in the construction of the interiors of classrooms and other educational buildings that have low emissions of VOCs know to be harmful.

EQ P6.0 LOW EMITTING MATERIALS

PREREQUISITE

2 points

APPLICABILITY: All projects.

VERIFICATION: Design Review, Construction Review

RELATED CRITERIA: MW C3.1 and C5.1 for material environmental attributes, EQ C7.1 Material Health Disclosures, OM C5.1 Indoor Environmental Management, all ventilation prerequisites and credits

EQ P6.0 REQUIREMENTS

2 points

Comply with all the following:

Paints & Coatings

Applicable to all paints and coatings that are applied onsite in the project's interior:

For new schools, replacement schools and new buildings on existing campuses architectural paints and coatings shall comply with CALGreen section 5.504.4.3. Aerosol paints and coatings shall comply with CALGreen section 5.504.4.3.1.

The affected products include but are not limited to sealers, stains, clear wood finishes, floor sealers and coatings, waterproofing sealers, primers, flat paints and coatings, non-flat paints and coatings, and rust preventative coatings.

Flooring Systems

Applicable to all resilient flooring and carpet systems installed in the project's interior:

For new schools, replacement schools and new buildings on existing campuses, all carpet systems installed in the building interior shall comply with CALGreen section 5.504.4.4.

For new schools, replacement schools and new buildings, at least 80% of resilient flooring shall comply with CALGreen section 5.504.4.6.

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Composite Wood

Applicable to all composite wood panels and building products with composite wood cores that are installed onsite in the project's interior: Affected products are those defined in the California Air Resources Board (CARB) Airborne Toxic Control Measure (ATCM) to Reduce Formaldehyde Emissions from Composite Wood Products (California Code of Regulations, Title 17, Sections 93120-93120.12), comprising composite core and veneer core hardwood plywood (HWPW, particleboard (PB), medium density fiberboard (MDF), and thin MDF.

For new schools, replacement schools and new buildings on existing campuses, hardwood plywood, particleboard, and medium density fiberboard composite wood products used on the interior or exterior of the building shall comply with CALGreen section 5.504.4.5.

Adhesives, Sealants & Caulks

Applicable to all adhesives, sealants, and caulks used in the project:

For new schools, replacement schools and new buildings on existing campuses adhesives, sealants, and caulks shall comply with CALGreen section 5.504.4.1.

EQ C6.1 ADDITIONAL LOW EMITTING MATERIALS

CREDIT

4 points

APPLICABILITY: All projects.

VERIFICATION: Design Review, Construction Review

SCORING: Six available options for 1 point each, up to a total of 4 points

EQ C6.1 REQUIREMENTS

Meet the requirements in up to four of the following six categories of materials:

EQ C6.1.1 Adhesives & Sealants

1 point

Products in this category include but are not limited to carpet and resilient and wood flooring adhesives; base cove adhesives; ceramic tile adhesives; drywall and panel adhesives; aerosol adhesives; adhesive primers; acoustical sealants; fire stop sealants; HVAC duct sealants, sealant primers; and caulks. Note that structural adhesives are excluded, and sealers including concrete floor sealers and other waterproofing sealers are treated under C6.1.5 for Paints & Coatings.

90% or more, by volume, of the adhesives and sealants covered under this criterion shall be tested for emissions of VOCs of concern with respect to chronic inhalation exposures following the specifications of the CDPH/EHLB Standard Method V1.2, 2017. The test results shall be compliant with the Standard Method when modeled to the school classroom scenario as follows: Flooring adhesives and sealants shall be modeled using the manufacturer's specified coverage and the classroom flooring area. Wall applied adhesives and sealants shall be modeled using the manufacturer's specified coverage and the classroom wall paint and wall coverings area. Wall base adhesives shall be modeled similarly using the wall base area. Non full-spread products in this category shall be modeled based on their potential worst-case application in the school classroom model following the procedures in the CDPH standard.

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EQ C6.1.2 Flooring Systems

1 point

100% of resilient flooring shall comply with the certification or testing requirements of CALGreen 5.504.4.6.

Selected flooring shall not require the use of heavy-duty strippers and finishes. Solid wood flooring is exempt, although adhesives and sealants used with it must comply. For the purposes of this subcredit, it is assumed that ceramic tile, organic-free mineral-based flooring, and concrete flooring are negligible sources of VOCs and are available for credit without any testing requirements.

EQ C6.1.3 Composite Wood and Agrifiber Products

1 point

Applicable to composite wood as defined in the California Air Resources Board (CARB) Airborne Toxic Control Measure (ATCM) to Reduce Formaldehyde Emissions from Composite Wood Products (California Code of Regulations, Title 17, Sections 93120-93120.12). The affected materials are composite core and veneer core hardwood plywood (HWPW, particleboard (PB), medium density fiberboard (MDF), and thin MDF. Agrifiber products are composite boards produced from agricultural/biobased materials and a chemical binder system.

At least 90%, by area, of the composite wood and the composite wood cores of finished building products (e.g., engineered wood floors, doors, trim/molding, cabinetry, and counter tops) installed onsite in the project's interior shall either 1) be manufactured with no-added formaldehyde (NAF) based resins, or 2) be manufactured with ultra-low emitting formaldehyde (ULEF) resins and shall meet the appropriate emission requirements established by the ATCM for NAF and ULEF products.

Additionally, at least 90%, by area, of all agrifiber products installed onsite in the project's interior shall be manufactured with NAF based resins.

Structural plywood, structural panels, oriented strand board, structural lumber, glue laminated timber, prefabricated wood joists, and finger jointed lumber, are excluded from these requirements.

EQ C6.1.4 Furniture & Furnishings

1 point

This option is only available if 75% or more of the total number of individual stations (defined as a chair and associated work surface, i.e., either a desk or a desk/chair combination) are new and/or newly remanufactured/refurbished. All such furniture totaling 90% or more of new individual stations (e.g., combined classroom and administrative stations) shall meet this requirement.

The furniture, both classroom and administrative, shall be tested for VOC emissions following the procedures in ANSI/BIFMA M7.1-2011 (R2016). Workstations and seating, both classroom and administrative, shall be tested individually except a pupil desk/chair combination is treated as a single unit. Administrative area and teacher workstations and seating shall be evaluated for VOC emissions using the parameters for an open plan workstation and seating as defined in M7.1. Pupil classroom workstations and seating shall be evaluated for emissions using parameters defined for the classroom in CDPH Standard Method V1.2, 2017. The furniture modeling parameters are listed in f., below. The furniture shall meet the VOC emissions guidelines defined in ANSI/BIFMA X7.1-2011 (R2016), *FES Test Method*, and ANSI/BIFMA e3-2019, *Furniture Sustainability Standard*, as specified in Table EQ6-1.

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Table EQ6-1: Modeling Parameters and VOC Emission Guideline Requirements

	Admin Area & Teacher		Classroom Pupil	
Modeling Parameters	Workstation	Seating	Workstation	Seating
Number of units	1	1	27[a]	27[a]
Air Flow rate, m^3/h	15.01[b]	24.84[b]	191[c]	191[c]
Total workstation area, m^2	21.75[d]	n/a[e]	n/a[e]	n/a[e]
VOC Emission Guidelines				
Meet ANSI/BIFMA X7.1-2011	Yes	Yes	n/a	n/a
Meet ANSI/BIFMA e3-2014, Section 7.6.1[f]	Same as X7.1	Same as X7.1	Yes	Yes
Meet ANSI/BIFMA e3-2014, Section 7.6.2[f,g]	Yes	Yes	Yes	Yes
Meet ANSI/BIFMA e3-2014, Section 7.6.3[h]	Not required	Not required	Yes	Yes

a. CDPH Standard Method specifies 27 occupants per classroom.
b. Air flow rates specified in M7.1 for open plan workstations and seating.
c. Classroom air flow rate from CDPH Standard Method.
d. Total open plan workstation area (work surface + storage + panel) as defined in M7.1.
e. Not applicable. Modeling of seating is performed on a per unit basis, not area.
f. Administrative workstations shall meet the requirements using either the concentration or the emission factor approach defined in M7.1. For the latter, use the open-plan workstation emission factor requirements. Classroom furniture (either workstations, seating, or combined desk seating units) shall meet the concentration limits for a workstation system as specified in the e3 standard.
g. Workstation individual VOC concentration limits and open-plan workstation emission factor limits are defined in the e3 standard, Annex C.
h. The formaldehyde concentration limit is 9 µg/m3.

EQ C6.1.5 Paints & Coatings

1 point

See EQ P6.0 for the description of the paints and coatings covered under this criterion.

90%, or more, by volume of all interior paints and coatings normally applied to walls, ceilings, floors or trim shall be tested for emissions of VOCs of concern with respect to chronic inhalation exposures following the specifications of the CDPH Standard Method V1.2, January 2017. The test results shall be compliant with the Standard Method when modeled to the school classroom scenario as follows. Flooring sealers and paints shall be modeled using the manufacturer's specified coverage and the classroom flooring area. Wall applied paints and coatings shall be modeled using the manufacturer's specified coverage and the classroom wall paint and wall coverings area. Ceiling applied paints and coatings shall be modeled similarly using the ceiling area. Wood stains and finishes and trim applied paint shall be modeled similarly using the area of the classroom door plus the area of the wall base (i.e., 125 ft^2 or 11.6 m^2).

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EQ C6.1.6 Ceiling & Wall Systems

1 point

Ceiling and wall systems include but are not limited to ceiling insulation installed within the structural envelope, wall insulation, acoustical ceiling panels, gypsum board wall panels, tackable wall panels, and wall coverings. Ceramic tile and other organic-free, metal-, or mineral-based wall coverings are available for credit without any testing requirements. Site applied adhesives and sealants are treated under EQ C6.1.1 Adhesives & Sealants, and site applied paints and coatings associated with ceiling and wall systems are treated under EQ C6.1.5 Paints & Coatings.

90% or more of the total areas of ceiling and wall systems shall be tested for emissions of VOCs of concern with respect to chronic inhalation exposures following the specifications of the CDPH Standard Method V1.2, January 2017. The test results shall be compliant with the Standard Method when modeled to the school classroom scenario using the applicable modeling scenario in Table 4-3 of the CDPH Standard. For systems consisting of more than one distinct layer (e.g., walls comprised of insulation, wall panel and wall covering), all layers shall individually meet the requirements of the CDPH Standard Method.

EQ P6.0-C6.1 IMPLEMENTATION

For the purposes of these requirements, indoor products and materials are defined as materials installed or applied on site inside of a building. The building interior is defined as everything within the waterproofing membrane. The building exterior is defined as everything outside and inclusive of the primary and secondary weatherproofing system, such as waterproofing membranes and air- and water-resistive barrier materials. Low emitting materials within a selected option shall be used throughout the project including all classroom areas, teaching laboratories, administrative and staff areas, indoor circulation areas, restrooms, and multipurpose areas such as gymnasiums. Shops or other areas requiring specialty finishes may be excluded. Ninety percent (90%) or more of the combined surface area or quantity measure of an entire system (e.g., floor, ceiling, furniture) or the individual components of a system (e.g., wall assembly consisting of three components – insulation, wall panel, and wall covering) shall be comprised of low emitting materials in order to receive credit for an option. Unless otherwise specified below, low emitting materials shall meet the testing and VOC emission requirements of the California Department of Public Health's (CDPH) *Standard Method for the Testing and Evaluation of Volatile Organic Emissions from Indoor Sources Using Environmental Chambers, Version 1.2* (2017). The school classroom shall be used as the exposure modeling scenario for evaluating the acceptability of VOC emissions as described in the Standard Method, Tables 4-2 and 4-3. For wet applied products, additional content criteria are specified.

There are several options for selecting products:

- Pre-approved products from the CHPS Pre-Approved Product listings at https://zerodocs.com/chps-certified-products/. Products under this option do not require documentation.
- Acceptable third party labeling or certification programs listed in the CHPS Low Emitting Materials workbook and on the CHPS website.
- Products tested by an independent laboratory as prescribed by the standards. See the CHPS Low Emitting Materials workbook or the CHPS website.

Include the required certification or testing in the product specifications.

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EQ P6.0 - C6.1 DOCUMENTATION

DESIGN REVIEW

EQ P6.0 Specification sections for each category of products with the maximum allowed VOC concentration levels per product and certifications as required.

EQ C6.1.1-.2, & 6.1.5-.6 Specification sections for each product requiring emissions testing to CDPH Standard Method.

EQ C6.1.3 Specification sections for each product requiring no-added formaldehyde (NAF) based resins or be manufactured with ultra-low emitting formaldehyde (ULEF) resins and meeting the appropriate emission requirements established by the ATCM for NAF and ULEF products.

EQ C6.1.4 Specification sections for each product requiring testing for VOC emissions following the procedures in ANSI/BIFMA M7.1-2011.

CONSTRUCTION REVIEW

For all products, provide calculations indicating compliance if less than 100% of a given product type is compliant with requirements.

If CHPS Pre-Approved products are selected, provide a list of the products. Submittals are not required for these materials.

EQ P6.0 Submit cut sheets or equivalent showing VOC content.

EQ C6.1 Provide test reports or proof of labeling/certification with cover sheet.

EQ P6.0-C6.1 RESOURCES

1. State of California Department of Public Health, Standard Method for the Testing and Evaluation of Volatile Organic Emissions from Indoor Sources Using Environmental Chambers, Version 1.2, January 2017 (CDPH/EHLB/Standard Method, V1.2): https://www.cdph.ca.gov/Programs/CCDPHP/DEODC/EHLB/IAQ/CDPH%20Document%20Library/CDPH-IAQ_StandardMethod_V1_2_2017_ADA.pdf
2. CHPS Pre-Approved Products database: https://zerodocs.com/chps-certified-products/
3. CHPS approved list of independent laboratories and third party certifiers of low-emitting material products: https://chps.net/products
   and CHPS Low Emitting Materials workbook:
4. California Air Resources Board: Suggested Control Measures: http://www.arb.ca.gov/coatings/arch/docs.htm
5. South Coast Air Quality Management District: Rule 1113. Architectural Coatings: http://www.arb.ca.gov/DRDB/SC/CURHTML/R1113.PDF
6. California Division of the State Architect, California Green Building Code (CALGreen) for Schools and Community Colleges, Title 24, California Code of Regulations, Part 11: http://www.dgs.ca.gov/dsa/Programs/progSustainability/greencode.aspx
7. California Code of Regulations, Title 24, Part 11: http://codes.iccsafe.org/app/book/toc/2016/California/Green/index.html

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EQ C7.1 MATERIAL HEALTH DISCLOSURES

Demand for transparency in environmental and health impacts of products has resulted in multiple options for identifying products that have disclosed the health hazards of their contents. It is important for specifiers to look for these products to ensure that everything that goes into a school building is free from hazardous materials.

Intent

Specify products and materials with publicly available health related information of their ingredients.

EQ C7.1 MATERIAL HEALTH DISCLOSURES

CREDIT

1-2 points

APPLICABILITY: All projects.

VERIFICATION: Design and Construction Review

SCORING: 2 points for Performance Approach, 1-2 points for Prescriptive Approach

EQ C7.1 REQUIREMENTS

The following programs are approved for use in this credit, using either the Performance or Prescriptive Approach below:

- Health Product Declaration (HPD): the product has a published HPD with full disclosure of known hazards in accordance with the HPD Standard. [1]
- Cradle to Cradle Product Certification Standard (C2C): the product has been certified at the C2C v2 Silver Level or above or the C2C v3 Bronze Level or above. [2]
- Cradle to Cradle Material Health Certificate (MHC): the product has an MHC at the Bronze level or above
- Declare.: the product has a Declare. label. [3]
- Manufacturer Inventory: the product has a published list of ingredients identified by name and CAS number and a GreenScreen Benchmark and/or GreenScreen List Translator Benchmark. [4,5]
- UL Product Lens: the product has been certified to Product Lens for materials transparency and disclosure. [6]
- Other CHPS approved certification program meeting the criteria.

EQ C7.1.1 *Performance Approach*

2 points

Use at least 20 permanently installed products from at least five different manufacturers that use any of the approved programs to demonstrate the material health and inventory of a product down to 1000 ppm (0.1%).

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EQ C7.1.2 *Prescriptive Approach*

1-2 points Specify the use of at least 50% (by cost) of two or more of the following major interior finish or structural materials categories demonstrating the material health and inventory of a product down to 1000 ppm (0.1%) using the approved programs. (1 point for 2 categories, 2 points for 4+ categories)

- Adhesives & Sealants
- Paints & Coatings
- Flooring Systems
- Composite Wood and Agrifiber Products
- Furniture & Furnishings
- Ceiling & Wall Systems

EQ C7.1 IMPLEMENTATION

EQ C7.1 Designers and specifiers may collect disclosure certificates from identified third party programs, from the manufacturer, or from the certificate website, if applicable. In order to meet the requirements of this credit, the documentation must be publicly available--either published by the manufacturer on the manufacturer website with other technical data and/or in a registry (ex. Pharos, GreenWizard, etc).

For each of the programs, the following requirements shall apply:

- Health Product Declarations (HPDs): the HPD shall be published and disclose, at a minimum, all hazards down to 1000ppm.
- Cradle to Cradle Product Certification Standard (C2C): the product shall be certified at the C2C v2 Silver level or above, or at the C2C v3 Bronze level or above.
- Cradle to Cradle Material Health Certificate (MHC): the product has a Cradle to Cradle Material Health Certificate at the Bronze level or above.
- Declare: the product has a Declare. label at any of the 3 levels (Declared, LBC Compliant, LBC Red List Free).
- Manufacturer Inventory: the product has a published list of ingredients identified by name, percentage of ingredient found in product, and Chemical Abstracts Service Registry (CAS) number, disclosed to at least 1000 ppm. In addition, the manufacturer shall provide a GreenScreen Benchmark or GreenScreen List Translator Benchmark for each disclosed ingredient. Where IP concerns are an issue, a manufacturer may choose to not disclose the chemical name/CAS number, but shall still be required to disclose the GreenScreen Benchmark or GreenScreen List Translator Benchmark, as well as the role of the chemical. Also, manufacturers may disclose percent ranges where appropriate.
- The product has a Product Lens label.

If a team collects only third party certificates, the team should consider applying for an Innovation credit.

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Full disclosure of known hazards means that the documentation discloses the role and hazard traits of each ingredient but may mask the identity of certain ingredients that are restricted by IP and/or trade secret policies.

Full disclosure of intentional ingredients means that the documentation discloses the role and hazard traits of every ingredient in the product. This is a much higher standard that is not required by this credit, but its use is encouraged where appropriate.

EQ C7.1 DOCUMENTATION

DESIGN REVIEW

CDs must include notes for specifiers and designers regarding which of the various product categories are covered, where product templates may be found, and what the credit requirements are.

CONSTRUCTION REVIEW

Completed CHPS Materials Worksheet and approved submittal with cover sheet and applicable materials. Provide cut sheets and completed HPD templates for materials claimed to meet this credit.

If pursuing the prescriptive path, provide schedule of values for the project. All products from the pursued categories must be grouped together, and all qualifying products must clearly be indicated. Provide a total value for all products in the category and a subtotal for all qualifying products.

EQ C7.1 RESOURCES

Current valid versions of programs:

1. Health Product Declaration Standard and Templates for Manufacturers: http://www.hpd-collaborative.org/
2. Cradle to Cradle Product Certification Standard and Cradle Material Health Certificate: http://www.C2ccertified.org/
3. Declare product certification program: http://www.declareproducts.com
4. CAS Registry: https://www.cas.org/content/chemical-substances
5. GreenScreen Benchmark Program: http://www.greenscreenchemicals.org/method
6. UL Product Lens: https://industries.ul.com/environment/certificationvalidation-marks/product-lens-certification

Free product searches, non-exhaustive list:

7. Sustainable Minds Transparency Catalog*: http://www.transparencycatalog.com/
8. ZeroDocs Product & Specification Resource*: https://zerodocs.com/chps-certified-products/

*Official CHPS' product listing partner

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EQ C8.1 DRINKING WATER: TOXIN-FREE PLUMBING

Intent

Ensure that drinking water is lead-free and free of other potential contaminants that leach from plumbing fixtures and materials.

Children, particularly younger ones, are especially susceptible to poisoning from water-borne contaminants because of their physiology and age. The impacts of lead poisoning are acute and life-long. As a consequence, there is no safe amount of lead ingestion for children. However, EPA allows for some amount of lead in plumbing fixtures (no more than 0.25% of weighted average). Until 2014, it was optional for products to be tested to meet this standard. Since 2014, plumbing products have to be tested and labeled according to the National Sanitation Foundation (NSF) standards, known as NSF/ANSI 61 and NSF/ANSI 372. Additionally, all new plumbing installed for potable use must meet the standard.

EQ C8.1 DRINKING WATER QUALITY: TOXIN-FREE PLUMBING

CREDIT

1-3 points

APPLICABILITY: 8.1.1 applies to Renovation/Modernization projects only; 8.1.2 applies to all projects

VERIFICATION: Design and/or Construction Review

SCORING: 2 points for 8.1.1 and/or 1 point for 8.1.2

EQ C8.1 REQUIREMENTS

EQ C8.1.1 *Plumbing System Components*

2 points

In Renovation/Modernization projects with or without Additions, for the potable water system, specify and install only components that are certified to meet the NSF/ANSI 61 requirements for low-lead content and chemical extraction. If the plumbing system is not part of the scope of work, the project may alternatively apply for 1 point under 8.1.2.
The list of covered components includes but is not limited to:

- Pipes, fittings, and related products
- Drinking fountains, faucets, and other end-point devices
- Mechanical parts such as meters, valves, and filters
- Protective barriers, including paints, coatings, and cements
- Joining/sealing materials
- Process media such as sand, ion exchange resins, and filter media

AND/OR

EQ C8.1.2 *District Resolution to Test Drinking Water*

1 point

For all projects, adopt a school or district resolution to test drinking water for lead annually and publish results for the community. Commit to implement mitigation measures, if warranted, including replacement of plumbing components in compliance with 8.1.1.

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Testing procedures should follow EPA's 3Ts program for lead sampling and remediation or an equivalent state or local program. [3]

EQ C8.1 IMPLEMENTATION

Not all renovation projects touch the plumbing; however, all existing schools with plumbing over a certain age are at risk for lead leaching into the drinking water. All renovation projects are strongly encouraged to pursue this credit either by replacing potable water components or by adopting a resolution to test drinking water annually.

EQ C8.1.1 NSF/ANSI 61 establishes standards for the health effects of materials and products that come into contact with drinking water. NSF/ANSI 61 addresses both the content of the material/product and any leachate that may arise from water coming into contact with the surface of the product and references the 0.25% limit for lead content under the SDWA. The associated standard, NSF/ANSI 372, covers the testing procedure for lead content only, again referencing the 0.25% limit. Products meeting the requirements may have one or multiple NSF marks, pursuant to NSF's system (see Resources item 2).

Use the NSF search feature at http://info.nsf.org/Certified/PwsComponents/ to find products meeting NSF/ANSI 61 and/or NSF/ANSI 372. Products certified to NSF/ANSI 61 meet both the lead-free content and leachate standards. Products certified to NSF/ANSI 372 meet the lead-free content standard.

Fixtures and products involving wastewater, such as toilets and urinals, or outdoor irrigation do not have to comply with the standard.

For further information and guidance, refer to the NSF web page on lead in schools in the first bullet under Resources.

EQ C8.1.2 The resolution or policy can be adopted at the governance or facilities management level and must identify the testing protocol to be used. It is good practice to ensure that testing is included in the annual budget.

EQ C8.1 DOCUMENTATION

DESIGN REVIEW

EQ C8.1.1 Provide specifications showing that the following components are required to meet NSF/ANSI 61:

- Pipes, fittings, and related products
- Drinking fountains, faucets, and other end-point devices
- Mechanical parts such as meters, valves, and filters
- Protective barriers, including paints, coatings, and cements
- Joining/sealing materials
- Process media such as sand, ion exchange resins, and filter media

CONSTRUCTION REVIEW

EQ C8.1.1 Provide a statement signed by the plumbing contractor or general contractor certifying that all installed components have met the NSF/ANSI 61 standard.

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EQ C8.1.2 Provide a copy of the resolution or policy identifying the responsible party and the protocol that will be followed.

EQ C8.1 RESOURCES

1. NSF has a very informative page for lead in school drinking water: http://www.nsf.org/consumer-resources/water-quality/faucets-plumbing/lead-schools?pane=water-school-lead.
2. For a list of the various NSF marks and what they apply to, see http://www.nsf.org/newsroom_pdf/water_nsf_ansi_61_your_answer_lead-free.pdf
3. US EPA 3Ts for Reducing Lead in Drinking Water Toolkit for schools: https://www.epa.gov/ground-water-and-drinking-water/3ts-reducing-lead-drinking-water-toolkit

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EQ C9.1 LOW RADON

Intent

Build with radon-reducing features and test for radon to determine whether mitigation is necessary to reduce health effects.

This credit encourages schools to assess their radon levels and to ensure that the levels are low. Radon in schools presents a significant health risk, and thousands of schools are affected. Approximately 20% of schools have high radon, and 41% of those schools are located in known high radon areas. Radon is a human lung carcinogen and is the largest source of radiation exposure and risk to the public. Radon is the second leading cause of lung cancer; even small exposures to radon can result in lung cancer. According to the US EPA, the only way to know if elevated radon levels are present is to conduct testing. Mitigation measures should be pursued during design, construction, and renovation.

EQ C9.1 LOW RADON

CREDIT

1 point

APPLICABILITY: All projects

VERIFICATION: Design Review, Construction Review

EQ C9.1 REQUIREMENTS

1 point

For new construction, institute radon reduction measures specifically, *but not limited to*: soil gas barrier, gas permeable layer, and vent pipes for fan-activated radon removal systems (should testing warrant system activation). Designs and strategies depend on the types of building foundations and other factors. See *CC-1000 Soil Gas Control Systems in New Construction of Buildings* by ANSI/AARST for radon reduction measures that work best for different construction types and scopes

Radon reduction measures are not deemed effective until testing verifies radon levels below 4 pCi/L. Test for radon according to *MALB Protocol for Conducting Measurements of Radon and Radon Decay Products in Schools and Large Buildings*.

For renovations/modernizations, perform post-renovation radon testing and make necessary mitigations should radon levels meet or exceed 4 pCi/L. Test for radon after HVAC systems are commissioned and performing as intended prior to occupancy. If mitigation is warranted, such as HVAC manipulations or sub-slab depressurization, procedures must follow *RMS-LB Radon Mitigation Standards for Schools and Large Buildings* as soon as possible. If radon levels are near 100 pCi/L or greater, school officials should call their State Radon Contact and consider relocating from affected rooms until the levels can be reduced. All radon testing must follow the *MALB Protocol for Conducting Measurements of Radon and Radon Decay Products in Schools and Large Buildings.*

EQ C9.1 IMPLEMENTATION

New school buildings have a unique opportunity to prevent radon gas from entering the interior of a school at the USEPA action level of greater than or equal to 4 pCi/L. Design and construction methods for radon reduction should follow *CC-1000 Soil Gas Control Systems in New Construction of Buildings.* Additionally, the USEPA regional office or state

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radon program and professionals certified in radon testing and mitigation should be consulted. If hiring measurement and mitigation consultants, ensure that they are certified through the National Radon Proficiency Program (NRPP) or National Radon Safety Board (NRSB). Also ensure that projects comply with applicable codes, regulations and certification rules within the project jurisdiction.

Once measures have been incorporated into the construction of the school and HVAC systems have been commissioned and are operating as intended, then test that levels of radon are less than 4 pCi/L. Post-construction radon testing best practices are found in *MALB Protocol for Conducting Measurements of Radon and Radon Decay Products in Schools and Large Buildings.* Where radon testing indicates high radon (4 pCi/L or greater), the radon system can be activated with a fan and/or HVAC can be modified to reduce radon in accordance with *CC-1000 Soil Gas Control Systems in New Construction of Buildings.*

Renovations/modernizations also have opportunities to successfully mitigate radon levels in school projects. Depressurization systems which pull air from below the slab or crawl spaces or changes to ventilation are examples of proven measures that reduce radon. These changes should be made once HVAC systems have been commissioned and are operating as intended. At that point, testing can be conducted to determine presence of radon and whether airflow adjustments are needed. Projects must consult *RMS-LB Radon Mitigation Standards for Schools and Large Buildings and MALB Protocol for Conducting Measurements of Radon and Radon Decay Products in Schools and Large Buildings* for guidance on mitigation and testing measures and, as above, USEPA regional office or state radon program and professionals certified in radon testing and mitigation should be consulted.

To maintain low radon environments, a school should be tested at least every five years unless the school previously tested with high levels. In such schools, those rooms or buildings should be mitigated and then retested every two years. Retesting is done to ensure that the mitigation system remains effective and that common building changes are not causing a change in radon levels from previously known levels. The need for retesting is triggered by the following types of events:

- Renovation work that includes energy upgrades
- HVAC equipment that is added, removed, replaced, operated incorrectly or differently, or improperly maintained
- New additions/significant renovations

EQ C9.1 DOCUMENTATION

DESIGN REVIEW

The Project Team must provide a statement to CHPS stating that radon prevention and active mitigation systems (if needed) have been designed according to the following standards, and include descriptions of any deviations from best practices:

- For new construction*: CC-1000 Soil Gas Control Systems in New Construction of Buildings,* ANSI/AARST.
- For renovation/modernizations: *RMS-LB Radon Mitigation Standards for Schools and Large Buildings,* ANSI/AARST.

Provide specifications and construction documents delineating radon prevention measures and active mitigation systems in order to support the statement above.

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CONSTRUCTION REVIEW

Submit a statement from the Project Team that summarizes the following: whether radon testing was completed, when it was completed, test duration, and the radon levels detected. Indicate whether further mitigation was needed.

Statement must indicate that testing was performed in accordance with *MALB Protocol for Conducting Measurements of Radon and Radon Decay Products in Schools and Large Buildings*, ANSI/AARST.

EQ C9.1 RESOURCES

1. CC-1000 Soil Gas Control Systems in New Construction of Buildings, ANSI/AARST
2. RMS-LB Radon Mitigation Standards for Schools and Large Buildings, ANSI/AARST
3. MALB Protocol for Conducting Measurements of Radon and Radon Decay Products in Schools and Large Buildings, ANSI/AARST
4. EPA Radon in Schools Webinar: https://www.epa.gov/iaq-schools/forms/webinar-radon-schools-what-you-need-know-properly-manage-radon-your-school
5. American Association of Radon Scientists and Technologists (AARST) Mitigation and Certification Courses: http://aarst-nrpp.com/wp/entry-level-courses/
6. Schools and Daycares testing: https://www.certi.us/cms/component/virtuemart/courses/continuing-education/c-16-108-addressing-radon-in-daycare-facilities,-schools-and-large-buildings-certi-323-detail?Itemid=0
7. Western Regional Radon Training Center courses: http://kansasradonprogram.org/courses
8. Eastern Regional Radon Training Center courses: http://www.cpe.rutgers.edu/programs/radon_indoor_air_quality.htmlNational Radon Proficiency Program (NRPP) http://aarst-nrpp.com/wp/certification/
9. National Radon Safety Board (NRSB) http://www.nrsb.org/

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EQ P10.0 THERMAL COMFORT – ASHRAE 55

Thermal comfort is controlled by six factors: air temperature, relative humidity, radiant temperature, air movement, occupant activity and clothing. Design the building envelope and mechanical systems to provide optimal comfort and energy efficiency.

Intent

To provide a high level of thermal comfort to support optimum health, productivity, and comfort.

EQ P10.0 THERMAL COMFORT – ASHRAE 55

PREREQUISITE

2 points

APPLICABILITY: All projects.

VERIFICATION: Design Review

RELATED CRITERIA: II C7.1 Design for Adaptation & Resilience, EE P1.0 Energy Efficient Design

EQ P10.0 REQUIREMENTS

2 points

Comply with the latest edition of the ASHRAE Standard 55 for thermal comfort. [1]

EQ P10.0 IMPLEMENTATION

Indoor design temperature and humidity for general comfort applications shall be determined in accordance with the latest edition of the American National Standards Institute ANSI/ASHRAE 55. The standard specifies conditions in which a specified fraction of the occupants will find the environment thermally acceptable. Comfort conditions for naturally ventilated buildings are included in the standard. Provide a summary that identifies each thermally controlled zone and the temperature and humidity control ranges and method of control used for each zone.

The design should also consider other important factors such as minimizing temperature differences between exterior surfaces and interior walls, decreasing the temperature variation between floors and ceilings, the impact on air speed by ceiling fans, radiant temperature, and decreasing the velocity of air flow such as drafts. Energy modeling tools can provide outputs on some of these factors.

EQ P10.0 DOCUMENTATION

DESIGN REVIEW

CDs must include a table with seasonal temperatures and humidity design criteria, and metabolic rates for each space. Provide supporting documentation with PMV/PPD calculations, and/or ASHRAE Comfort Tool results that standards have been met.

CONSTRUCTION REVIEW

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N/A

EQ P10.0 RESOURCES

1. ANSI/ASHRAE Standard 55-2010 Thermal Environmental Conditions for Human Occupancy: www.ashrae.org/resources--publications/bookstore/standard-55

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EQ C11.1 CONTROLLABILITY OF INDOOR ENVIRONMENT

Temperature and Ventilation Controls: A high performance school is a comfortable place to learn. Temperature and humidity are important factors in maintaining occupant comfort. A comfortable and healthy indoor environment increases productivity and learning and reduces absenteeism.

Intent

Enable teachers to have reasonable control of the thermal environment within classrooms.

Operable windows are important for personal comfort and have been shown to improve student performance.

EQ C11.1 CONTROLLABILITY OF INDOOR ENVIRONMENT

CREDIT

1 point

APPLICABILITY: All projects; in renovations, applies if new HVAC is part of scope

VERIFICATION: Design Review, Construction Review

RELATED CRITERIA: EE P1.0 Energy Efficient Design, EE P2.0 Commissioning, OM P1.0 Facility Staff & Occupant Training, OM C6.1 Indoor Environmental Management

EQ C11.1 REQUIREMENTS

1 point

Provide an individual temperature control for each classroom with an independent temperature sensor.

AND

Ninety percent (90%) for new schools and new school buildings, and seventy five percent (75%) for major renovations, of all classrooms shall have a minimum of one operable window per classroom that is reasonably accessible to the occupants. This precludes the use of ladders to adjust the window opening. If external shading devices are included, controls for their use and management must be made accessible to teachers and staff.

EQ C11.1 IMPLEMENTATION

Temperature Controls

Individual classrooms will vary in temperature depending on their orientation, glazing apertures, occupancy, and the effectiveness of the heating or cooling systems. Provide individual systems to allow teachers to regulate the lighting and temperature of classrooms.

Operable Windows

Provide at least one operable window in each classroom. Provide either an educational signage or a guide and train teachers how to properly use the HVAC controls in their rooms and on how opening doors and windows affects the HVAC system and the acoustical environment in a classroom. Operable windows are important for both personal comfort and operation if, for example, power loss occurs and mechanical ventilation cannot be provided.

For the purposes of this part of this criterion, classrooms are:

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- General classrooms
- Art rooms
- Music rooms
- Science rooms
- Computer rooms
- Special needs, remedial, and collaborative space
- Industrial technology spaces
- Work and family studies spaces

Other Considerations

Temperature control systems should not give teachers free range to adjust the temperature to whatever they desire. It is possible to install systems that allow teachers to adjust the temperature in a room to within 1-2 degrees of the standard setting for the season (e.g. 70° in winter) that will improve comfort while not having a significant adverse impact on the building's energy efficiency. Establishing a standard temperature setting for the entire building is an important corollary action.

EQ C11.1 DOCUMENTATION

DESIGN REVIEW

EQ C11.1.1 Reference specifications and drawings for separate temperature controls for each classroom.

EQ C11.1.2 Reference specifications for operable windows. Designate the CSI number, section, and page number that highlight compliance with this requirement. Drawings must show operable windows in each classroom - 90% for new schools and new school buildings, and 75% for major renovations of classrooms need to comply. This is based on numbers of classrooms not square footage.

CONSTRUCTION REVIEW

Provide approved submittal with cover sheet and applicable materials and/or operation of temperature and ventilation sensors and controls.

EQ C11.1 RESOURCES

None.

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EQ P12.0 DAYLIGHT: GLARE PROTECTION
EQ C12.1 DAYLIGHT AVAILABILITY

Daylighting is fundamentally important to high performance design and should be the primary source of light in classrooms. Daylighting has a number of advantages, including improved occupant productivity, improved connection to the outdoors, improved health, energy savings, and quality of light.

Intent

Provide high quality daylighting in classrooms to enhance student performance, improve student productivity through quality daylighting designs that minimize glare and direct sunlight penetration, promote health and wellness, and ensure energy savings.

EQ P12.0 DAYLIGHT: GLARE PROTECTION

PREREQUISITE

4 points

APPLICABILITY: All projects.

VERIFICATION: Design Review

RELATED CRITERIA: EQ C11.1 Controllability of Indoor Environment, EQ C14.1 Electric Lighting Performance

EQ P12.0 REQUIREMENTS

4 points

Design regularly occupied spaces to optimize daylight while preventing glare by controlling direct sunlight ingress with blinds, shades, overhangs, light shelves, translucent material, or other effective means. Use either of the following two metrics to document achievement of this criterion, and refer to the implementation section for documentation requirements:

- No direct sunlight incident on teaching surfaces or workplanes at 9:00am, 12:00pm and 3:00pm on the winter and summer solstice and the equinox.

OR

- The ratio of maximum to average illuminance measured on workplanes cannot exceed 15 at 9:00am, 12:00pm and 3:00pm on the winter and summer solstice and the equinox.

EQ C12.1 DAYLIGHT AVAILABILITY

CREDIT

1-5 points

APPLICABILITY: All projects. To earn these points for major renovations/modernizations, it may be necessary to add skylights or modify the size and location of windows.

VERIFICATION: Design Review

SCORING: 1-3 points for 12.1.1 and 1-2 points for 12.1.2

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EQ C12.1 REQUIREMENTS

For **all** **regularly occupied** spaces, a daylight responsive electric lighting control system or control plan must be implemented for the daylit spaces. In renovation/modernization projects that do not modify lighting systems, this requirement does not apply.

AND

Comply with the Multiple Point in Time Approach or the Daylight Saturation (DS) Approach as shown below:

EQ C12.1.1 *All Classroom Spaces*

1-3 points *Daylight Sufficiency – Multiple Point in Time Approach*

1 Points	Achieve >20fc annual average daylight illuminance for >75% of classroom area
2 Points	Achieve >35fc annual average daylight illuminance for >75% of classroom area
3 Points	Achieve >50fc annual average daylight illuminance for >75% of classroom area

OR

Daylight Sufficiency - Daylight Saturation (DS) Approach

1 Points	Achieve >40% DS_{30} for >75% of classroom area
2 Points	Achieve >60% DS_{30} for >75% of classroom area
3 Points	Achieve >80% DS_{30} for >75% of classroom area

EQ C12.1.2 *All Support Spaces*

1-2 points *Daylight Sufficiency - Multiple Point in Time Approach*

1 point	Achieve >20fc average daylight illuminance for >75% of administration office area
1 point	Achieve >35fc average illuminance for >75% of library, cafeteria, gymnasium, and multi-purpose/commons area

OR

Daylight Sufficiency - Daylight Saturation (DS) Approach

1 Point	Achieve >40% DS_{30} for >75% of administration office area
2 Points	Achieve >40% DS_{50} for >75% of library, cafeteria, gymnasium, and multi-purpose/commons area

- Any spaces where daylight would have an adverse impact on the use of the space are excluded. Provide documentation illustrating impact.
- Spaces can use a design illuminance different than the target illuminance used in Daylight Saturation calculation (30fc for classroom/admin, 50fc for other) provided good reasoning. Provide documentation justifying variance.

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EQ P12.0-C12.1 IMPLEMENTATION

EQ P12.0 *Daylight: Glare Protection*

Direct sunlight penetration shall be verified by one of the following methods. In all cases, indicate if window treatments are used to meet the requirement and the intended window treatment operation:

- A physical model should be placed on a heliodon or otherwise positioned so that the sun angles represent the dates and times specified in EQ P12.0. Verify by photograph that the 9 conditions do not have any direct sunlight on the workplane or teaching wall.
- Manually calculate the sun profile angles and show that the criteria are satisfied for the dates and times specified in EQ P12.0. Illustrate how the shading strategies provide complete direct sunlight control for the 9 conditions specified.
- A computer-simulation that can calculate sunlight or daylight illuminance on interior surfaces. Verify with rendering images and/or task plane illuminance calculations that the 9 conditions do not have any direct sunlight on the workplane or teaching wall or comply with the illuminance ratio requirements.
- Using a computer simulation, perform a Daylight Excess calculation using 300fc, 500fc or other recommended target illuminance x 10.

EQ C12.1.1&2 *Daylight Availability in Classrooms and Support Spaces*

Calculations for this requirement must be made with a qualified computer simulation tool.

Multiple Point in Time Approach

- The annual average illumination should be determined by either with a 9am-3pm annual calculation or with a point-in-time formula. The point in time formula should be determined by first calculating the workplane average illuminance for 10 design sky conditions: 9am, 12pm, and 3pm for winter and summer solstice and equinox under a CIE clear sky and 12pm on the equinox under a cloudy sky condition. Use information from the National Oceanic and Atmospheric Association's (NOAA) National Climatic Data Center, or from a TMY weather file to determine the percentage of cloudy and sunny days. The annual average illuminance is calculated with this formula:

$$E_{avg} = [(W9 + W12 \times 2 + W3 + (E9 + E12 \times 2 + E3) \times 2 + (S9 + S12 \times 2 + S3) \times 0.5)/14] \times Sunny\% + EC12 \times Cloudy\%$$

Where:

E_{avg} = estimated annual average illuminance
WX = Sunny winter solstice condition at 9am, 12pm, and 3pm
EX = Sunny equinox condition at 9am, 12pm and 3pm
SX = Sunny summer condition at 9am, 12pm, and 3pm
EX12 = Cloudy equinox condition at 12pm
Sunny % - percent of year with opaque cloud cover <50%
Cloudy % - percent of year with opaque cloud cover >50%

- Include window treatments in the 10 design sky conditions as prescribed by the window treatment operation.

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Daylight Saturation Approach

The daylight saturation calculations must meet the following criteria:

- Using a computer model, perform an annual Daylight Saturation calculation using 30fc, 50fc or other recommended target illuminance. Describe and document the window treatment operation used to achieve the requirement.
- The school occupancy schedule and a representative weather file should be used for the annual Daylight Saturation and Daylight Excess calculations. 7am to 3pm should be used as a standard school schedule. Schools with schedules that vary from this standard should provide documentation of their operation hours.

Window Treatment Operation: Window treatments should comply with one of the following three control schemes:

1) Fixed (Passive manual) control – for windows where occupants do not have direct access to the window treatment control or spaces with no occupant education efforts the window treatment should be included in all modeling.
2) Manual control – for windows where occupants have easy and intentional access to window treatment control and occupant education efforts have been taken, the window treatment should be modeled to be engaged when there is a glare event and open after a delay period. The glare event is defined as anytime the center-of-glass daylight exitance (illuminance x normal glazing transmittance) is greater than 500fc. After the glare event passes, it is to be checked hourly during the duration, there is a 4 hour delay period before the shades will be opened.
3) Automatic control – for windows with automatic window treatment control, simulate the window treatment as accurately to the automatic controller's method as possible. Document control system algorithm and simulation approach. Alternatively, the Blinds/Shades Operation protocol described in section 2.2.6 of IES document LM-83-12 can be used to model automatic blinds.

Window treatment (manual control) Occupant Education: Describe in a building manual or classroom operation manual that can be provided and explained to teachers/staff, the intentional control and benefit of operating of window treatments throughout the school, namely ensuring they are not left down when there is available glare-free daylight.

EQ P12.0-C12.1 DOCUMENTATION

DESIGN REVIEW

EQ P12.0 *Daylight: Glare Protection*

If window treatments are implemented, provide plans or specification sections for all regularly occupied spaces that indicate the window treatment types and placement.

Provide PDF results of a daylight simulation model, a computer based simulation model, a physical model, or manually calculated sunlight penetration in the classrooms to illustrate no direct sunlight on teaching surfaces and work planes.

If submitting a computer simulation, submit a screenshot of the input values for each model and the results for each classroom type for each of the nine conditions or a report showing the Daylight Excess (DE) calculations for the space.

If submitting a physical model, submit a photo of the model and picture of each of the nine lighting conditions.

EQ C12.1 *Daylight Availability*

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CDs must identify spaces that qualify as daylit, and the overall percentage of daylit classrooms. Plans and sections will be used for verification. For each classroom group identified on the CHPS Verified Workbook worksheet, provide the required simulation results including point-by-point illuminance or daylight saturation calculations as appropriate.

- For photosensor based control systems; provide documentation showing location of sensors, lighting zones, setpoints, and commissioning information for the system.
- For strategic switching and occupant education approaches; provide documentation showing the switching and zones and a brief manual to be provided to the building occupants describing the daylighting intent of the space and the recommended function of all daylighting, lighting, and shading devices.

Construction Review

n/a

EQ P12.0-C12.1 RESOURCES

1. IES TM-83-13 “IES Spatial Daylight Autonomy (sDA) and Annual Sunlight Exposure (ASE)”: https://www.ies.org/product/ies-spatial-daylight-autonomy-sda-and-annual-sunlight-exposure-ase/
2. Free tool from NBI, *Daylighting Pattern Guide*: http://patternguide.advancedbuildings.net
3. AGI32 Lighting Design Software: www.agi32.com/
4. DAYSIM Daylighting Analysis Software: http://daysim.ning.com/
5. DOE-2 Building Energy Use and Cost Analysis Software: http://doe2.com/
6. EnergyPlus Building Energy Simulation Program: https://energyplus.net/
7. Equest: http://www.doe2.com/equest
8. SPOT Pro: www.daylightinginnovations.com/spot-home
9. Radiance: radsite.lbl.gov/radiance/
10. DIVA-for-Rhino: www.diva4rhino.com
11. Open Studio: http://openstudio.nrel.gov
12. Sefaira: http://sefaira.com/
13. Insight 360: https://insight.autodesk.com/oneenergy
14. LightStanza: http://lightstanza.com

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EQ C13.1 VIEWS

View windows are essential to areas where students and staff will be working for extended periods of time. Ample and interesting views have consistently been found to increase student performance. Distant views enable the room occupants to relax their eyes, which is especially beneficial to computer users and younger children who are still developing visual capabilities. Students in classrooms with access to green views through their windows have been observed to experience significantly faster recovery from stress and mental fatigue and performed significantly higher on tests of attentional functioning compared to students in classrooms with no windows or windows looking out onto other building facades.

Intent

Provide a connection between indoor spaces and the outdoor environment through the introduction of sunlight and views into the occupied areas of the building.

EQ C13.1 VIEWS

CREDIT

1-3 points

APPLICABILITY: All projects.

VERIFICATION: Design Review

SCORING: 1 point for 11.1.1 or 2 or 3 points for 11.1.2

RELATED CRITERIA: EQ C12.1 Daylight Availability

EQ C13.1 REQUIREMENTS

EQ C13.1.1 Provide direct line of sight to view glazing from 70% of the combined floor area of classrooms, library reading rooms, and administration areas.

To qualify, a space shall have view glazing area equal to or greater than 7% of the floor area. View glazing shall be transparent, but not translucent, and only include window area above 2.5 ft. and below 7.5 ft. from the floor. The total width of view windows shall be greater than 1% of the floor area.

Exception: For school buildings that share at least two sides with other buildings, shared walls are exempted from this requirement. Every effort shall be made to meet the view glazing requirement on walls not shared with other buildings.

OR

EQ C13.1.2 Provide direct line of sight to view glazing from at least 80% of the combined floor area of core classrooms and administration areas.

Access to Views, 80% = 2 point

Access to Views, 90% = 3 points

To qualify, a space shall have view glazing equal to or greater than 7% of the floor area. View glazing shall be clear and only include window area above 2.5 ft. and below 7.5 ft. from the floor. The total width of view glazing shall be greater than 1% of the floor area.

This criterion applies to all classrooms and administration areas. Renovation/modernization projects that involve window replacement can earn this criterion

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by modifying existing window configurations that do not conform to the requirements to configurations that do meet the requirements for this criterion.

EQ C13.1 IMPLEMENTATION

EQ C13.1.1-2 Determine the total floor area of spaces for which this requirement applies by creating a table listing the classrooms, library reading rooms and administrative areas. Like spaces may be listed just once. A like space is one with the same physical configuration, including windows.

For each space in the list determine how much of the floor area qualifies for the view criterion. Two considerations come into play: the view window area and the total width of the view windows. Each of these considerations limit how much of the area qualifies, as explained below:

- To determine the maximum qualifying area based on the view window area, divide the view window area by 7%.
- To determine the maximum qualifying area based on the width of the view windows, divide the total width of view windows by 1%.

For each space the qualifying floor area is the lesser of the total floor area, the maximum floor area based on view window area, or the maximum floor area based on view window width. Sum the qualifying area and compare to the total area. If it is greater than 70%, then the school project qualifies, otherwise it does not.

Line of sight may be drawn through interior glazing, and qualifying area in these zones may be included, assuming the interior glazing allows for a line of sight though exterior view glazing.

Example Calculation

Question:

A new school has 30 like classrooms each with a floor area of 960 ft². Each classroom has view windows with a total area of 60 ft² and a total width of 9 ft. The school also has six larger 1,040 ft² classrooms with 70 ft² view windows with a total width of 10.5 ft. The 2,600 ft² library reading area has 200 ft² of view windows with a total width of 25 ft. The 2,000 ft² administration area has 150 ft² of view windows with a total width of 18 ft. Does this school qualify for the view windows criterion, and how much of the floor area qualifies as having view windows?

Answer:

The total floor area of classrooms, administration areas and library reading rooms is 39,640 ft² (see column D in Table EQ13-1). To meet the criterion, at least 70% of the floor area of these spaces shall have view windows, or a total of 27,748 ft². The qualifying floor area must be determined for each space based on the total view window area and the total width of the view windows. For the smaller classrooms, the maximum qualifying floor area based on view window area is 857 ft² or 60 ft² divided by 7%. The maximum qualifying floor area based on window width is 900 ft. or 9 ft. divided by 1%/ft. The qualifying area is the smaller of these numbers or 857 ft². For the larger classrooms, the qualifying area is 1,000 ft²; 2,500 ft² for the library reading area; and 1,800 ft² for the administration areas. The total qualifying area is 36,010 ft² or 91%. See Table EQ13-1 for details of the calculation.

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Table EQ13-1: Example Calculation of View Window Criterion

A	B	C	D	E	F	G	H	I	J
				For each space					
Space	Size (ft²)	Number of spaces	Total area (ft²)	View window area (ft²)	Maximum Floor Area based on view window area (ft²)	Total width of view windows (ft.)	Maximum floor area based on view window width	Qualifying floor area per space (ft²)	Total qualifying floor area (ft²)
Classroom type 1	960	30	28,800	60	857	9	900	857	25,710
Classroom type 2	1040	6	6,240	70	1,000	10.5	1,050	1000	6,000
Library reading room	2600	1	2,600	200	2,857	25	2,500	2500	2,500
Administration	2000	1	2,000	150	2142	18	1,800	1800	1,800
Totals			39,640						36,010
Percent									91%

EQ C13.1 DOCUMENTATION

DESIGN REVIEW

CDs must include required calculations for view windows. Reference interior elevations to confirm dimensions.

CONSTRUCTION REVIEW

N/A

EQ C13.1 RESOURCES

1. The Daylighting Collaborative is a clearinghouse of best practices and resources about daylighting: www.daylighting.org

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EQ C14.1 ELECTRIC LIGHTING PERFORMANCE & CIRCADIAN LIGHTING

The classroom is one of the focal points for preparing students for today's high tech, postindustrial world. New teaching tools such as affordable A/V systems, smart boards, tablets and web-based learning tools have turned the classroom into a dynamic place of learning. As the rate of adoption of these new technologies increases, it is important to give the teacher easy-to-use control of lighting. This will enhance learning by letting the teacher tailor high quality lighting to the type of teaching taking place.

Intent

Integrate high performance electric lighting with daylighting to promote the health and well-being of the occupants while maximizing energy efficiency. Reduce hazardous substances commonly found in electric products. Provide high quality and flexible classroom lighting with teacher controls tailored to new teaching methods.

While the use of LED-based lighting systems is not required, the selection criteria included here will help progressive schools select LED-based luminaires that provide high quality, long-lasting and energy efficient lighting for the classroom

EQ C14.1 ELECTRIC LIGHTING PERFORMANCE & CIRCADIAN LIGHTING

CREDIT

1-7 points

APPLICABILITY: This criterion applies to all new classrooms and can also be earned in renovation/modernization projects when classroom lighting is included in the scope of work.

VERIFICATION: Design Review, Construction Review

SCORING: 2 points each for 14.1.1-14.1.2, 1 point each for 14.1.3-14.1.5

RELATED CRITERIA: EO C12.1 Daylight Availability, EE P1.0 Energy Efficient Design

EQ C14.1 REQUIREMENTS

EQ C14.1.1 *High Performance Lighting*

2 points

Achieve the following:

1. *Illuminating Engineering Society (IES) TM-30-15: Method for Evaluating Light Source Color Rendition* [3]: All luminaires shall have light sources with a Fidelity (Rf) of 80 or greater and a Gamut Area (Rg) of between 80 and 100.
2. *Restriction of Hazardous Substances (RoHS) Requirements* [2, 14]: Pursuant to CA HSC Division 20 Article 10.02 Lighting Toxics Reduction, all luminaires shall be RoHS compliant following the most current European RoHS regulations, including all applicable exemptions.
3. *LED Lighting:* If an LED-based system used, all LED-based luminaires shall meet the ENERGY STAR criteria in the latest ENERGY STAR Luminaires Specification or be

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listed by the Design Lights Consortium (DLC). [4] Exceptions may be accepted for specialty fixtures not listed by either source.

EQ C14.1.2 *Illumination Levels & Multimodal Systems*

2 points Achieve the following:

1. Provide multi-scene indirect/direct lighting systems for all classrooms, with the exception for specialty classrooms where multi-scene lighting is not required.
2. At a minimum, the lighting system shall work in at least two modes: General and Audio Visual (AV). The modes shall be recalled through a preset lighting control system via dimming the fixtures to meet required light levels for each mode. Daylight sensors shall be used to dim the lighting system in response to available daylight. A 3-minute fade shall be used to slow the daylight system to prevent distracting changes in the electric lighting. The daylighting system shall not dim the electric lighting below 10% initial output.
3. In general illumination mode, achieve the average illumination at the desk level based on the classroom type in the *IES Lighting Handbook, Tenth Edition*, or its most recent update.
4. In A/V mode the average illumination levels shall be 10 to 30-foot candles, not including contribution from the teaching wall light, for any point in the room greater than 3-feet from the side walls, or 10-feet from the front wall. Limit vertical illumination on the AV screen to no more than 7-footcandles at any point on the screen.
5. *Whiteboard Illumination:* Provide a separately switched lighting system that provides whiteboard vertical illumination of at least 30-footcandles average with a maximum-to-minimum illuminance ratio of 8:1 or better for all points on the whiteboard.

EQ C14.1.3 *Lighting Controls*

1 point Achieve the following:

1. All lighting must be dimmable by users in all regularly occupied spaces.
2. Enhanced Teacher Controls: Provide teacher control at the front of the classroom for general/AV mode and whiteboard control.
3. Advanced Classroom Controls: Link the on/off occupancy signal into a school-wide management system.

EQ C14.1.4 *Superior Performance Lighting Systems*

1 point Achieve the following:

1. All luminaires shall have light sources with Fidelity (Rf) of 85 or greater and a Gamut Area (Rg) of between 90 and 105.
2. If LED-based systems are used, they must meet the following criteria for flicker and performance:

   Flicker

   In all school classrooms and educational learning spaces, the measured Percent Amplitude Modulation (flicker percent and frequency) from LED integrated systems (include driver, LED array, dimming controls, daylight sensor) shall be less than 30% at greater than 200 Hz across the entire dimming range or meet IEEE PAR1789. (8, 9, 10)

   Performance

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LED-based luminaires shall maintain at least 80% of their initial light output (L80) at 60,000 projected hours of operation. [7]

EQ C14.1.5 *Circadian Lighting*

1 point Achieve the following:

1. For **all classrooms and regularly occupied support spaces**:
    - Proposed lighting program shall account for latitude and provide adequate light in winter months.
    - Proposed lighting program shall adjust to age group category for population being served (i.e. majority of occupants in that space). A ratio of brightness based upon age where as younger than 25 years old = 0.5, 25-65 = 1, and older than 65 years = 2; meaning that children and young adults need half the brightness of middle age and elderly need 2 times that of middle age. Reference Table 3 of IES-ANSI RP-3-13.
    - Baseline light intensity and color temperature schedule must be programmed into lights.
2. For **all classroom** spaces:
    - Lighting model shall demonstrate that the appropriate EML or CS is present at 75% or more of desks (may include daylight) on a vertical plane facing the primary teaching wall 4 ft above finished floor (to simulate the view of the student). This light level to be present for at least 4 hours per day for each day of scheduled instruction.
    - Manual override or pedagogical programming for lighting fluctuations to support learning (e.g. dim after lunch to calm, increase light intensity for exams) shall be demonstrated as beneficial and not disrupt circadian entrainment by more than 1 hour per day.
3. For regularly occupied **support** spaces:

    Lighting model shall demonstrate that 75% or more of workstations and regularly utilized work surfaces receive at least 200 EML or equivalent CS measured on a vertical plane 4’ above finished floor for workstations and at 5’6” above finish floor standing access work surfaces (to simulate the view of occupants). This light level is to be present at least between the hours of 9am and 1pm for each day of regular occupancy (may include daylight).

EQ C14.1 IMPLEMENTATION

EQ C14.1.1 Compliance can be shown either with certification to RoHS or with certification by DTSC. [15]

EQ C14.1.1-4 Many renovation/modernization projects include the installation of new lighting systems, providing an excellent opportunity to install high quality, energy efficient electric lighting that is integrated with the available daylight. Lighting technology in particular, is changing rapidly.

- TM-30-15 is an Illuminating Engineering Society (IES) technical standard that uses Fidelity (Rf) and Gamut Area (Rg) to describe how LEDs function in color space. The lighting industry is moving away from the CRI standard and using the IES TM-30-15 as the reference standard.

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- ENERGY STAR's criteria for standards from the IES TM-21 addresses all evolving aspects of the industry and is used as the main regularly updated reference for this document. Design Lights Consortium (DLC) is used as a complementary standard. If a luminaire is specified that is not listed by either, justification must be made.
- Restriction of Hazardous Substances (RoHS) is a European standard with no applicable third party certification or labeling. It is up to producers to self-declare that their products comply with RoHS legislation. Design teams may ask manufacturers to show that due diligence has been used and they have taken reasonable steps to comply.

- Manual override for occupancy sensors is no longer recommended due to advances in lighting technology and to the relatively higher cost. Occupancy sensors are available as motion, audio, and dual-technology hybrid solutions or equivalent. Current motion sensor technology can detect even minor movement now and will not shut off lights during times of classroom stillness.

Lumen maintenance is the amount of light produced from a light source or from a luminaire when it is brand new to the amount of light output at a specific time in the future.

During audio visual presentations, an average as low as 10-foot candles is acceptable to allow the teacher to "see" the students' faces and allow them to take notes. An average as high as 30-foot candles is acceptable to keep the contrast level of light at the desk and the screen at desired levels.

Special Consideration:

Flicker, both perceptible and imperceptible to the human eye, has effects on human performance and comfort and impacts different populations with varying sensitivity, particularly children, those individuals with Autism Spectrum Disorder, and those who suffer from migraines. These responses include headaches, seizures, eyestrain, and more. Addressing flicker issues can aid in classroom and school building performance and comfort. IEEE PAR1789 has not been finalized or adopted yet; however, it is robust and comprehensive compared to the Title 20 of the 2016 California Building Energy Efficiency Standards Code, which sets the 30% at 200Hz threshold. (8, 9, 10)

EQ C14.1.5 *Circadian Lighting*

Select measurement (EML or CS). The choice of metrics will impact the simulation process and should be consistently applied through the entirety of the process. Gather occupancy schedules and identify potential pedagogical uses that will impact circadian entrainment. Circadian entrainment should be preferenced over pedagogical applications.

If the space will serve multiple occupant age groups, such as in a joint use space, design for the needs of the occupants who require the highest light levels. For instance if the space will be used for both children and seniors, design for the lighting needs of the seniors, and use dimming to assure that the space is not overlit for children.

Choose locations for points of measurement that are representative of variability in space type, view, and orientation.

You may use a full color or neutral color simulation tool.

Full Color:

These tools demonstrate as CS value of .03 or a ML value of 250 or greater through simulation. The design intent simulation results must be met or exceeded, with onsite measurements that correlate with simulated locations and views.

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Lark Spectral Lighting and Alfa/DIVA are currently the only simulation tools that take into account the spectral content of light, the spectral reflectance of materials and the interaction of the two. If this path is chosen, then materials palettes can be viewed as suggestions rather than prescriptive.

Neutral Color:

These tools may render in color but do not analyze the interaction of the color (spectral content of light) of light and the color (spectral reflectance) of materials. Light is assumed to be white and materials are neutral, with changes in reflectance and surface roughness being the only modifiers. If these tools are used, the impact of material color is ignored and results may not correlate with onsite measurements.

Spot checking is recommended to confirm desired light levels. For classrooms, check five locations in two typical classrooms: front center of classroom desks, center of room, center rear, center right, and center left. Check at 10am, 1pm, and 3pm. For other work areas, spot check sufficient locations based on usage.

Vertical Measurements for Circadian Lighting:

The circadian resource must be understood at the occupant's eye. All measurements are to be taken perpendicular to the occupant's eye rather than perpendicular to the work plane. The height of the measurement should be representative of occupant characteristics and should be adjust according to age.

Potential modeling/calculation tools:

- Lark Spectral Lighting – Rhino
- Diva – Alfa
- Fidelity
- Circadian Stimulus Calculator
- Melanopic Luminance Calculator

EQ C14.1 DOCUMENTATION

DESIGN REVIEW

EQ C14.1.1-3 Submit specifications and subsections and/or drawings that confirm compliance.

EQ C14.1.4 CDs, particularly the electrical plans must include point-by-point lighting calculations for each classroom type. CDs, ideally the electrical schedule must include the required lighting and system features, particularly Enhanced Teacher Controls and Advanced Classroom Controls. Also reference specifications and sub-sections that confirm compliance.

CONSTRUCTION REVIEW

EQ C14.1.1-3 Submit approved submittal with cover sheet and applicable materials that contain the required specifications from the manufacturer and show Fidelity (Rf) of 80 or greater, a Gamut Area (Rg) of between 80 and 100, Restriction of Hazardous Substances (RoHS) certification, and LED Performance that meets Energy Star Luminaires specification or is listed by Design Lights Consortium.

EQ C14.1.4 Provide submittals that meet the Fidelity (Rf) or 85 and a Gamut Area of between 90 and 105. Show that LED-based luminaires retain 80% of their initial light output (L80) and explain how flicker standards are met.

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EQ C14.1.5 Provide a narrative that describes the lighting design approach as it relates to circadian system regulation, including highlights of the color and materials palette, a draft sequence of operations for lighting, and a list of the spaces targeted for circadian lighting.

EQ C14.1 RESOURCES

1. Advanced Lighting Guidelines: 2003 Edition: http://www.iesna.org/handbook/
3. Restriction of Hazardous Substances (RoHS) Guidelines: http://www.rohsguide.com/
4. IES link to worksheet for converting CRI to TM-30-15 is available from CHPS. Contact us at info@chps.net.
5. ENERGY STAR Luminaires Specification Version 2.1 (published March 15, 2018): https://www.energystar.gov/products/spec/luminaires_specification_version_2_0_pdf
6. Design Lights Consortium: https://www.designlights.org/
7. IES Maximum TM-21 Testing: 60,000 hours represents the mean of tested lifetimes for LEDs.
8. 2016 Nonresidential Compliance Manual Title-24 Part 6; Flicker Requirements Section 7.2.3 Section B. #5. Effective until 12/31/19; the 2019 update effective 1/1/20 does not change flicker requirements. https://www.energy.ca.gov/2015publications/CEC-400-2015-033/chapters/chapter_07_sign_lighting.pdf
9. US DOE slides on understanding IEEE PAR1789: https://www.energy.gov/sites/prod/files/2015/05/f22/miller%2Blehman_flicker_lightfair2015.pdf
10. Further reading on flicker: https://www.energystar.gov/sites/default/files/01-Bullough-FlickerOverview-2017-09-22.pdf
    https://www.energy.gov/sites/prod/files/2015/05/f22/miller%2Blehman_flicker_lightfair2015.pdf
11. Lighting Patterns for Healthy Buildings, http://lightingpatternsforhealthybuildings.org/welcome/select_room/5
12. Circadian Stimulus Calculator, http://www.lrc.rpi.edu/programs/lightHealth/
13. Melanopic Lux Tool Kit http://personalpages.manchester.ac.uk/staff/robert.lucas/Lucas%20et%20al%202014%20workbook.xls
14. CA HSC Division 20 Article 10.02 Lighting Toxics Reduction: https://leginfo.legislature,ca.gov/faces/codes_displaySection.xhtml?lawCode=HSC&sectionNum=25210.9.
15. CA Department of Toxic Substances Control guidance: https://dtsc.ca.gov/universalwaste/lighting-toxics-reduction/

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EQ P15.0 ACOUSTICAL PERFORMANCE
EQ C15.1 ENHANCED ACOUSTICAL PERFORMANCE

Student learning and teacher health suffer in acoustically poor environments. Excessive noise and long sound reverberation negatively affect speech communication, forcing teachers to talk louder than normal thereby straining their vocal cords and forcing students to strain to hear or to try to cope with noisy distractions. Students who are hearing impaired particularly suffer.

Intent

Provide classrooms with adequate acoustical environments.

EQ P15.0 ACOUSTICAL PERFORMANCE

PREREQUISITE

5 points

APPLICABILITY: All classroom projects. Renovation/modernization projects must meet the acoustics prerequisite according to Table A: Renovation/Modernization Requirements at the front of the document.

VERIFICATION: Design Review, Construction Review

EQ P15.0 REQUIREMENTS

Note on Definitions in ANSI 12.60:

For the purpose of this criterion, general terms and definitions are the same as those found in Section 3 of ANSI/ASA Standard S12.60-2010/Part1, with the introduction of the following amendments and additional categories:

Amendments:

a. The Core Learning Spaces category does not include special education rooms, libraries, music instruction and practice rooms. For the purpose of this criterion, these spaces are re-categorized as shown below.

b. The Ancillary Learning Spaces category does not include corridors. CHPS exempts corridors from acoustical requirements.

Additional Categories:

c. Inter-Classroom Workspaces (ICWS) include: small spaces in between two or more classrooms where student groups from any of the classrooms can gather for separate activities. For the purposes of the present criteria, Inter-Classroom Workspaces shall not be treated as regular classrooms, except where the district designates the ICWS as a core learning space.

d. Special Education Rooms (SER) include classrooms for special needs students.

e. Confidential Speech Privacy Rooms (CSPR) are rooms for which confidential speech privacy, as defined by Appendix X1 of ASTM standard E1130, is required for conversations held at normal voice levels, such as educational council offices and therapy rooms.

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f. Performance Arts Spaces (PAS) include: music and choir classrooms, ensemble rooms, practice rooms, dance classrooms, drama classrooms, auditoria and theaters.

g. Audio/Video Production Spaces (APS) include: audio/video recording or production studios and control rooms, and audio/video editing suites.

h. Large Assembly Spaces (LAS) include: multipurpose rooms, libraries, and gymnasia when the school program requirements include the use of any of these rooms as group instruction rooms or assembly spaces where good understanding of speech (amplified or unamplified) is important.

5 points Comply with all the following:

EQ P15.0.1 *Criteria for Sound Reverberation*

Comply with either the performance or prescriptive option listed below. The prescriptive and performance methods may be used interchangeably within a single project. While each room shall comply with one method, compliance with both methods is not required for any one space.

Performance Method:

The maximum reverberation times in the one-octave frequency bands centered at 500 Hz, 1,000 Hz and 2,000 Hz shall be:

- Core learning spaces with volume less than 10,000 ft^3: 0.60 seconds
- Core learning spaces with volume between 10,000 ft^3 and 20,000 ft^3: 0.70 seconds
- Core learning spaces with volume greater than 20,000 ft^3: 1.0 seconds

In spaces designated as ICWS and SER (see Implementation), the ideal reverberation times depend on the specific program for each space. The design team shall submit a narrative stating the Basis of Design for reverberation times for each of these spaces and calculations showing achievement of such Basis of Design.

Prescriptive Method:

Provide the following minimum finishes:

- Core learning spaces with volume less than 10,000 ft3: Ceiling finish with a minimum NRC of 0.70, covering minimum 95% of ceiling area (excluding lights, diffusers and grilles).
- Core learning spaces with volume between 10,000 ft3 and 20,000 ft3: Ceiling finish with a minimum NRC of 0.70, covering minimum 85% of ceiling area (excluding lights, diffusers and grilles).

For core learning areas greater than 20,000 ft^3 and/or spaces designated as ICWS and SER, follow the performance method.

EQ P15.0.2 *Criteria for Background Noise*

In Core Learning Spaces and in spaces designated as ICWS and SER, the total background noise from the combination of building HVAC systems and exterior noise shall not exceed 40 dBA.

- The metric for HVAC and exterior noise shall be the Equivalent Sound Level (L_{eq}).
- For exterior noise sources, the maximum hourly L_{eq} during instructional hours shall be used.

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Acoustical modeling or measurement shall be conducted to determine the interior sound levels from exterior sources.

- For HVAC noise, the L_{eq} when the HVAC system is in operation continuously shall be used. Acoustical calculation or measurement shall be conducted to determine the interior sound levels from HVAC.
- The total background noise level shall be defined as the energy sum of the maximum hourly L_{eq} from exterior sources and the HVAC system noise L_{eq}.

For background noise requirements, Section 5.2.3 of ANSI/ASA Standard S12.60-2010/Part1 does not apply. Sections 5.2.2.2 and 5.2.4 of ANSI/ASA Standard S12.60-2010/Part1 apply.

EQ P15.0.3 *Criteria for Sound Isolation*

1. *Outdoor-to-Indoor Attenuation of Airborne Sound:* Refer to background noise criteria.
2. *Indoor-to-Indoor Attenuation of Airborne Sound:*
   a. Wall and floor-ceiling assemblies shall be designed to achieve the minimum STC ratings specified in Table EQ15-1.
   b. The STC rating requirements of Table 6 also shall apply to the design of temporary full-height partitions that subdivide a learning space into smaller enclosed areas. The ratings in Table 6 apply to wall construction only.
   c. Design according to Section 5.4.2.2 of ANSI/ASA Standard S12.60-2010/Part1.
   d. Table EQ15-1 requirements do not apply to toilets opening only into the receiving space and used only by occupants of the receiving space.
   e. In any wall between a classroom and a public restroom, no plumbing shall be rigidly attached to the classroom wall framing. The wall assembly shall not contain large penetrations such as for restroom supply dispensers or disposals and shall not support rigidly attached electric hand dryer devices.
   f. The isolation between mechanical equipment rooms and Core Learning Spaces, ICWSs or SERs shall have a STC rating of 60 or greater unless it is shown that the sound level in the mechanical equipment room combined with a lower STC rating can achieve the required background noise level from building services in the core learning space. In no case shall the design STC between such spaces be less than 45.
   g. Operable partitions shall have same minimum STC rating as the wall they replace.
   h. Interior glazing in walls with STC ratings of 40 or higher shall have the same minimum STC requirement as the wall.
   i. Doors shall be selected to achieve the minimum requirements specified in Table EQ15-2.
   j. A minimum sound rating is not required for doors between classrooms and corridors. The absence of such requirement assumes that noise generated by corridor traffic can be controlled administratively by school staff.
   k. Vestibules functioning as a sound lock may be provided as an alternate to sound-rated door assemblies.

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Table EQ15-1 - Minimum STC Ratings for Wall and Floor-Ceiling Assemblies

Source Room	Receiving Room	Minimum STC Rating
Classroom, ICWS, SER	Classroom, ICWS, SER	43
Public Restrooms	Classroom, ICWS, SER	53
Corridor	Classroom, ICWS, SER	38
Staircase	Classroom, ICWS, SER	40
Mechanical Equipment Room	Classroom, ICWS, SER	60
Administration Office	Classroom, ICWS, SER	40
Conference Room	Classroom, ICWS, SER	50
PAS	Classroom, ICWS, SER	60
LAS	Classroom, ICWS, SER	60
CSPR	Classroom, ICWS, SER	53

Table EQ15-2 - Minimum STC Ratings for Doors

Source Room	Receiving Room	Minimum STC Rating
Classroom, SER	Classroom, SER	40
Conference Room	Classroom, ICWS, SER	45
PAC, APS	Classroom, ICWS, SER	40
CSPR	Classroom, ICWS, SER	45
ICWS	Classroom, SER	35
CSPR	Any other space	35

3. *Isolation from Structure-Borne Sound:*

Design according to Section 5.4.3 of ANSI/ASA Standard S12.60-2010/Part1, with the exception that carpeting is allowed to contribute to the assembly IIC rating when used as a permanent finish.

EQ P15.0.4 *Criteria for Classroom Audio Distribution Systems*

Where installed, design according to Section 5.5 of ANSI/ASA Standard S12.60-2010/Part1.

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EQ C15.1 ENHANCED ACOUSTICAL PERFORMANCE

CREDIT

1-5 points

APPLICABILITY: All projects.

VERIFICATION: Design Review, Construction Review

SCORING: 1 point for 14.1.1 and/or 2 points for 14.1.2 and/or 2 points for 14.1.3

EQ C15.1 REQUIREMENTS

EQ C15.1.1 *Reverberation Time*

1 point

In spaces designated as PAS, APS, and LAS, the ideal reverberation times depend on the specific program for each space. The design team shall submit a narrative stating the Basis of Design for reverberation.

EQ C15.1.2 *Background Noise*

2 points

In Core Learning Spaces and in spaces designated as ICWS, SER and CSPR, the total background noise from the combination of building HVAC systems and exterior noise shall not exceed 35 dBA.

In Ancillary Learning Spaces and in spaces designated as LAS, the total background noise from the combination of building HVAC systems and exterior noise shall not exceed 40 dBA.

In spaces designated as PAS and APS, the ideal background noise levels depend on the specific program for each space. The design team shall submit a narrative stating the Basis of Design for background noise levels for each of these spaces and calculations showing achievement of such Basis of Design.

EQ C15.1.3 *Noise Isolation*

2 points

Wall and floor-ceiling assemblies shall be upgraded to achieve the minimum STC ratings specified in Table EQ15-3. Doors shall be upgraded to achieve the minimum requirements specified in Table EQ15-4.

Table EQ15-3 - Minimum STC Ratings for Wall and Floor-Ceiling Assemblies

Source Room	Receiving Room	Minimum STC Rating
Classroom, ICWS, SER	Classroom, ICWS, SER	48
CSPR	Classroom, ICWS, SER	48

Table EQ15-4 - Minimum STC Ratings for Doors

Source Room	Receiving Room	Minimum STC Rating
Classroom, SER	Classroom, SER	45
ICWS	Classroom, SER	40

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EQ P15.0-C15.1 IMPLEMENTATION

General Guidance

Additional specific implementation steps are included under Documentation.

The acoustical testing agency shall have a minimum of ten (10) years' experience conducting architectural acoustical measurements in accordance with the applicable standards. The testing agent shall have a Bachelor's or higher degree in acoustics, physics, or engineering and a minimum of five (5) years' experience completing architectural acoustical measurements.

Consider employing a testing agency that is accredited by the National Voluntary Laboratory Accreditation Program (NVLAP) or equivalent organization for the applicable test method.

Specific Guidance

EQ P15.0.1 & C15.1.1 *Reverberation Time*

Design guidelines for controlling sound reverberation are available in Annex C of ANSI/ASA Standard S12.60-2010/Part1. Verification of conformance to reverberation time requirements is required for rooms utilizing the performance method only. Measurements shall be conducted according to ISO 3382-2:2008, utilizing the Survey method.
The acoustical testing agent shall select the classrooms to be tested. One classroom per classroom group shall be tested.

A measurement result is considered compliant when it does not exceed the required value by more than 10%, which is the nominal accuracy to be expected when applying the Survey method of the ISO 3382-2:2008 Standards. Octave-band measurement results shall be provided in the 500 Hz, 1,000 Hz and 2,000 Hz bands. Each band is required to comply with the criteria.

Measurements shall be conducted when construction in the space being measured is complete. Rooms may be measured with or without furnishings in place and shall be unoccupied.

EQ P15.0.2 C15.1.2 *Background Noise*

Design guidelines for controlling background noise and vibration are available in the 2007 (or most recent version) HVAC Applications ASHRAE Handbook, Chapter 47 on Sound and Vibration Control.

- Interior background noise levels due to building HVAC and exterior noise shall be measured in a sampling of spaces.
- Interior background noise levels due to building HVAC and exterior noise may be measured simultaneously or sequentially in a sampling of spaces.
- When measured sequentially, the total background noise level shall be defined as the sum of the maximum hourly L_{eq} from exterior sources and the maximum L_{eq} when the HVAC system is in operation continuously.

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- A measurement result is considered compliant if it does not exceed the criteria, when rounded to the nearest whole decibel. When measurements of building HVAC and exterior noise are completed sequentially, their results shall be summed using the energy method before rounding and comparing to the criteria.
- When measurements are conducted simultaneously, the timing of the measurement shall be chosen so that both sources simultaneously represent the worst-case condition at the time of the measurement (i.e. maximum L_{eq} for HVAC and maximum hourly L_{eq} for exterior noise).

Exterior Noise:

- For any rooms/facades where the maximum exterior hourly L_{eq} is less than or equal to 57 dBA, a verification measurement of exterior-to-interior noise is not required.
- Exterior noise within classrooms shall be verified in sufficient rooms to document compliance with the background noise criteria at all facades.
- Only the criteria that apply to the specific project are required to be measured.
- The acoustical testing agency shall submit a narrative describing the verification measurement paradigm and results. The acoustical testing agency shall provide a statement of engineering judgment regarding the sufficiency of the surveyed rooms to verify compliance across the entire building.
- The length of each measurement and the sound level measurement metric shall be determined by the Acoustical Testing Agency and shall be appropriate to document compliance with the criteria.
- Ideally, the verification measurement should be performed at the time of occurrence of the maximum exterior hourly L_{eq}. However, the acoustical testing agency may use the results of the exterior noise evaluation to adjust/offset verification measurement results to accommodate for changes in weekday or time of day.

Building HVAC:

- HVAC noise within classrooms shall be verified in sufficient rooms to document or infer compliance with criteria.
- Only the criteria that apply to the specific project are required to be measured.
- The acoustical testing agency shall submit a narrative describing the verification measurement paradigm and results. The Acoustical Testing Agency shall provide a statement of engineering judgment regarding the sufficiency of the surveyed rooms to verify compliance across the entire building.
- The length of each measurement and the sound level measurement metric shall be determined by the acoustical testing agency and shall be appropriate to document compliance with the criteria.
- The building HVAC system shall be in operation during the entire length of each the measurement to document compliance. Any measurement with HVAC system cycling on/off will not be accepted.

EQ P15.0.4 *Audio System*

A classroom that meets the reverberation time and dBA requirements set for in this criterion should not require enhanced classroom audio systems. However, there may be circumstances, such as the health of the teacher that may require sound amplification. If

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installing sound amplification systems, consider the new levels of noise that may be transmitted between classroom walls, ceilings and floors and necessary improvements or upgrades to ensure the noise does not affect neighboring classes. Also consider the maintenance and user training of such systems. Improperly maintained systems can lead to poorer speech communication between teacher and student than without the system.

EQ P15.0-C15.1 DOCUMENTATION

DESIGN REVIEW

EQ P15.0.1 & C15.0.1 *Reverberation Time Requirements*

Performance Method:

1. Provide narrative(s), as applicable, for selection of design criteria.
2. Provide calculations showing compliance with the reverberation time requirements for each classroom group.

Prescriptive Method:

1. Provide acoustical test reports for specified ceiling finishes.
2. Provide drawings and specifications as necessary to verify compliance with minimum surface area requirement.

EQ P15.0.1 & C15.1.1 *Background Noise Requirements*

1. Provide a statement that the design will achieve the minimum requirements for background noise from building services, utilities, and exterior sources. Provide calculations and specification sections supporting the statement. Specifically:
2. Provide results of exterior noise measurements or exterior noise calculations showing the predicted maximum exterior hourly L_{eq} at all school facades during regular school hours. A narrative and site plan must be submitted.
   a. For facades where the maximum exterior hourly L_{eq} is less than or equal to 57 dBA, further analysis/documentation for exterior noise is not required.
   b. For facades where the maximum exterior hourly L_{eq} is greater than 57 dBA:
      - Provide analysis and supporting documentation, such as laboratory test reports with sound transmission loss (TL) values, showing the required exterior building shell construction to meet the required level indoors (i.e., exterior wall construction and minimum window/door STC ratings).
      - Provide calculation results for the expected interior noise levels due to exterior noise sources.
3. Provide results of HVAC noise measurements or HVAC noise model calculations showing the predicted interior HVAC noise levels when all HVAC systems are operating under anticipated conditions. Heating and cooling modes shall be submitted separated for systems that provide both operational modes.

EQ P15.0.3 & C15.1.3 *Noise Isolation Requirements*

Indoor-to-Indoor Attenuation of Airborne Sound

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1. Provide documentation of compliance with the requirements of Table EQ15-1. Provide independent laboratory test reports showing the specified interior wall construction's STC rating.
2. Provide documentation of compliance with the requirements of Table EQ15-2. Provide independent laboratory test reports showing the specified interior wall construction's STC rating. Such minimum specified sound ratings shall be for door/door hardware/door frame systems and not for door panels alone.
3. Where vestibules are included as an alternate for a sound-rated door, design team shall submit a narrative regarding vestibule design compliance with sound isolation requirement at door.

Structure-Borne Impact Sound Isolation

Provide documentation of conformance to the IIC requirements.

CONSTRUCTION REVIEW

EQ P15.0.1 & C15.0.1 *Reverberation Time Requirements*

Performance Method:

1. Submit evidence for qualification of the acoustical testing agency to perform Construction Review verification services.
2. Submit a narrative from the acoustical testing agency describing the verification measurement paradigm and results.

Prescriptive method:

Provide construction submittals, shop drawings and acoustical test reports for acoustical products demonstrating compliance with design requirements.

EQ P15.0.1 & C15.1.1 *Background Noise Requirements*

1. Submit evidence for qualification of the acoustical testing agency to perform Construction Review verification services.
2. Submit a narrative from the acoustical testing agency describing the verification measurement paradigm and results. The testing agency shall provide a statement of engineering judgment regarding the sufficiency of the surveyed rooms to represent compliance across the entire building, for both HVAC noise and exterior noise.

EQ P15.0.3 & C15.1.3 *Noise Isolation Requirements*

A report from the acoustical testing agency covering the following:

Indoor-to-Indoor Attenuation of Airborne Sound:

1. Wall and Floor-Ceiling Assemblies: A minimum of one of each of the following partition types shall be tested for airborne sound attenuation. If there are multiple assemblies used for a single adjacency type within the project, measurement of more assemblies may be required.
   - Classroom/classroom wall
   - Classroom/public restroom wall
   - Classroom/classroom floor-ceiling assembly

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2. The CHPS-appointed third-party construction reviewer shall select the specific partitions to be tested. The verification shall be performed in accordance with ASTM standard E336-09. The measured NIC shall not be more than 3 points below the laboratory STC rating criteria to be considered compliant.
3. Operable Partitions: Verification of airborne sound attenuation field performance (NIC) is required for all operable partitions. The verification shall be performed in accordance with ASTM standard E336-09. The NIC shall not be more than 5 points below the laboratory STC criteria to be considered compliant.
4. Doors: Verification of airborne sound attenuation field performance (NIC) is required for all classroom partitions that include doors for which there is a requirement for minimum STC rating. The verification shall be performed in accordance With ASTM standard E336-09. The NIC shall be not be more than 3 points below the required minimum laboratory STC rating criteria of the door to be considered compliant.

Structure-Borne Impact Sound Isolation:

Verification of conformance to the structure-borne impact sound isolation requirements shall be conducted according to Section A.3.2 of ANSI/ASA Standard S12.60-2010/Part1, except that the metric used shall be ISR. The resultant ISR shall not be more than 5 points below the required minimum IIC rating criteria to be considered compliant. The verification shall be conducted in the same room(s) for which the airborne floor-ceiling sound attenuation is verified.

EQ P15.0-C15.1 RESOURCES

1. National Clearinghouse for Educational Facilities: www.edfacilities.org/
2. Acoustical Society of America: asa.aip.org/
3. American National Standards Institute: www.ansi.org/
4. American Speech-Language-Hearing Association: www.asha.org

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ENERGY (EE)

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EE P1.0 ENERGY EFFICIENT DESIGN
EE C1.1 SUPERIOR ENERGY EFFICIENT DESIGN & ZERO NET ENERGY

Intent

Minimize environmental impacts and operational costs associated with consuming energy and encourage the school to produce as much energy as it consumes on an annual basis.

Operating dollars are precious to schools. Clean air and a clean environment are precious too. High performance schools incorporate energy efficient design features, equipment, and systems to save money on operating costs and reduce the environmental impact of using fossil fuels, including the emission of atmospheric and land-based pollutants. Superior performing schools incorporate renewable energy resources and strive to become zero net energy buildings.

Extra points are available for schools that are designed to achieve zero net energy or are designed to be capable of achieving zero net energy without building modification.

EE P1.0 ENERGY EFFICIENT DESIGN

PREREQUISITE

5 points

APPLICABILITY: All Projects

VERIFICATION: Design Review

SCORING: 5 points total for either Prescriptive or Performance Compliance.

EE P1.0 REQUIREMENTS

5 points

Projects shall design for energy efficiency and greenhouse gas emissions reduction by demonstrating compliance with one of the following:

Prescriptive Compliance Options

1. Prescriptive compliance with the 2019 CA Energy Code (Title 24 Part 6).
2. The prescriptive requirements of ASHRAE Standard 90.1-2016
3. The prescriptive requirements of the 2018 edition of the *International Energy Conservation Code* (IECC)
4. The base requirements of Tier 2 of the *Advanced Buildings New Construction Guide* from the New Buildings Institute (NBI).
5. The 50% ASHRAE *Advanced Energy Design Guide* for Schools

Performance Compliance Options

1. Demonstrate the project's "above code" energy performance using the standards, procedures, and approved computer programs for compliance with the 2019 CA Energy Code (Title 24 Part 6). Performance will be evaluated using the "Above Code Qualifications" process in the reporting which includes Miscellaneous Energy consumption such as receptacle and process load.

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2. Demonstrate the project's energy performance is more efficient on a source energy basis than the Budget Building Design, using the procedures in ASHRAE Standard 90.1-2016, Appendix G.
3. Achieve an ENERGY STAR score of at least 75 using Target Finder or Portfolio Manager. This option may be used with any baseline, but additional points in C1.1 are not available without modeling against ASHRAE 90.1-2016 or following zEPI.

EE P1.0 IMPLEMENTATION

Performance Compliance - CA Energy Code Option

Projects shall document their performance compliance using the standards, procedures, and approved computer programs for compliance with the 2019 CA Energy Code (Title 24 Part 6). The performance metric to be used shall be TDV as mandated by the CA Energy Code procedures. Performance will be evaluated using the "Above Code Qualifications", Section C2 in the reporting, which includes Miscellaneous Energy consumption such as receptacle and process load.

Campus or multi building performance averages shall be calculated using the TDV metric, and weighted among buildings on a weighted basis as outlined above.

Since the CA Energy Code may not allow full consideration of a project's energy features, design teams may elect to use the ASHRAE Compliance option presented above in lieu of this CA Energy Code Option.

Performance Compliance - ASHRAE Option

On a new site or campus, designs for a single new building shall comply on a whole-building basis, and designs for multiple new buildings shall comply based on the entire campus.

On an existing site, designs for a single new building shall comply on a whole-building basis. Multiple new buildings may comply on a whole-building or combined basis, depending on scope.

For renovation/modernization or additions, projects may comply either on the basis of the whole building or the scope of work. Projects that include a mix of new construction and renovation may calculate the performance on a combined basis or on a separate basis, depending on the nature of the scope.

Combined efficiency shall be calculated as a weighted average:

Weight of Building n
= % area of n (decimal) = total area / area n

Combined Savings
= (savings 1*weight 1)+(savings 2*weight 2)+(savings 3*weight 3)+…*100

Energy Metric

The baseline and proposed site energy predicted from the energy model simulations and renewable energy system designs shall be converted to source energy using the Source Energy Conversion factors from Table EE1-1 below. Note that the procedures in the 90.1-2016 PRM require the use of energy cost as the metric, but for CHPS purposes, source energy is required.

Table EE1-1: Source Energy Multipliers [1]

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Energy Type	Source Energy Conversion
Electricity (Grid Purchased)	2.8
Exported Electricity (exported On-Site renewable)	1.00
Natural Gas	1.05
Fuel Oil	1.01
Propane & Liquid Propane	1.01
Steam	1.20
Hot Water	1.20
Chilled Water	0.91
Wood	1.00
Coal/Coke	1.00
Other	1.00

The source energy conversion factors in the table are used in the ENERGY STAR Portfolio Manager and Target Finder tools; updated August 2018. (1)

To determine source energy generally, multiply the energy consumed on site for each energy type by its source energy conversion factor. Then add together all of the source energy conversions.

For example, if 100 kBtu of electricity from the grid is used in a month. The grid electricity would use a conversion factor of 2.8 and the calculation would be:

$$100 \text{ kBtu Grid Electricity} \times 2.8 = 280 \text{ kBtu Source}$$

Consider that the example school also consumes 100.0 kBtu of natural gas. The conversion factor for natural gas is 1.05, so the calculation would be:

$$100 \text{ kBtu Grid Electricity} \times 2.8 + 100 \text{ kBtu Natural Gas x } 1.05 = \text{Total Source Energy}$$

If natural gas and electricity are the only two energy types used at the school, its total source energy would be:

$$\mathbf{280} \text{ Source kBtu Grid Electricity} + \mathbf{105} \text{ Source kBtu Natural Gas} = \mathbf{385} \text{ Total Source kBtu}$$

If the school also includes renewable energy, the total electricity consumed will need to be divided between the onsite renewable electricity consumed and the grid electricity consumed since they have different source conversion factors. For a modeled building, this would mean calculating the total production capacity of the renewable energy system and subtracting it from the total electricity consumption calculated by the building energy simulation to find the grid electricity consumed.

Take for example a school design whose energy model shows 100 kBtu total electricity consumption, and whose renewable energy system will produce 80 kBTU. 80 kBtu of the total electricity consumption will be renewable electricity and the remaining 20 kBtu would be grid electricity consumption. So, the calculation would be:

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80 kBtu Renewable Electricity × 1.0 + 20 kBtu Grid Electricity x 2.8 = Total Source Energy

80 Source kBtu Renewable Electricity+**56** Source kBtu Grid Electricity

=**136** Total Source kBtu

If a school has excess renewable energy production, then that can be used to offset the source energy of other sources. So, if a school has 100 kBtu of electricity consumption, 20 kBtu of natural gas consumption, and 120 kBtu of renewable electricity production, the calculation would be:

100 kBtu Renewable Energy Consumption x 1.0 + 20 kBtu Natural Gas Consumption x 1.05-20 kBtu excess renewable energy **production** = Total Source Energy

100 Source kBtu Renewable Electricity+**21** Source kBtu Natural Gas-**20** kBtu Source Renewable Electricity = **101** Total Source kBtu

Renewable energy and natural gas do not have the same conversion factors, so the excess renewable energy production does not completely offset the source value of the same quantity on on-site natural gas consumption.

Non-Regulated Energy Use:

Under this criterion, school districts may use the procedures documented in the COMNET MGP to take credit for reductions in plug load and other components of energy use that are not regulated by Standard 90.1-2016. The magnitude of the credit depends on the length of the commitment, per COMNET procedures.

Naturally Ventilated Spaces:

School districts in appropriate climates are encouraged to design classrooms and other school spaces to use natural ventilation to control overheating of the spaces. Credit for natural ventilation is offered through the COMNET modeling rules when the school has fewer than 300 unmet cooling load hours.

Naturally Ventilated Spaces as referenced in this section are not intended to be for control of contaminants in the spaces.

Building Schedules:

Building daily operating schedules and annual operating schedules (e.g. number of vacation days) should match the actual expected schedule. Schools typically operate on very different schedules than other building stock and this should be accounted for in the energy modeling.

Performance Compliance – ENERGY STAR Option

Once minimum code compliance is established, obtain an ENERGY STAR 1–100 design score from EPA's Target Finder or Portfolio Manager online tools. The inputs to receive a score for the estimated energy use shall account for all energy associated for the school's assets, intended operations, including all process and non-process loads as well as building use characteristics. The project must create a Statement of Energy Design Intent (SEDI) and through this attain an ENERGY STAR score of at least 75. The score can also be used to establish the baseline for energy performance benchmarking in OM P3.0. Other metrics from the SEDI report from Target Finder/Portfolio Manager can be used toward baselines and monitoring too, including the GHG emissions in II C5.1 Low/Zero GHG School and water savings in OM P3.0.

For multiple buildings in a project scope, each building must achieve an ENERGY STAR score of at least 75.

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Note: If a design project is saved in Portfolio Manager, the same project record can be used to add metered energy data to meet OM P3.0. The tool will show a comparison of design and operating energy data for the school.

EE C1.1 SUPERIOR ENERGY EFFICIENT DESIGN & ZERO NET ENERGY

CREDIT

1-36 points

APPLICABILITY: All projects.

VERIFICATION: Design Review

SCORING: 1-30 points for 1.1.1 (see tables below) and 1 or 6 points for 1.1.2

RELATED CRITERIA: all of EE, OM C7.1 Green Power, II C8.1 Innovation, II C6.1 and C7.1 for low GHG and climate resiliency

EE C1.1 REQUIREMENTS

EE C1.1.1 *Superior Energy Efficient Design*

For overall energy performance, achieve energy reductions beyond the energy pre-requisite. Additional requirements are listed below.

1-30 points *Performance Compliance Option*

Energy reductions shall be calculated utilizing the protocol from EE P1.0 and this section. Points are awarded as shown in the table in accordance with the following equation for percentage improvement or a zEPI score.

$$\text{Percentage Improvement} = \frac{\sum \text{Baseline Buildings Source Energy} - \sum \text{Proposed Buildings Source Energy}}{\sum \text{Baseline Buildings Source Energy}}$$

Points	Percentage Improvement	Optional zEPI Equivalent [9]
1	2%	51
2	4%	50
3	6%	49
10	20%	42

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15	30%	37
20	40%	31
25	50%	26
30	60%	21

Interpolation between the values in the above table is permitted.

1-7 points *Prescriptive Compliance Options*

Projects may demonstrate energy reductions by complying with the requirements of the *Advanced Buildings New Construction Guide* from the New Buildings Institute (NBI). Points shall be awarded according to the following table:

Points	Requirement	Optional zEPI Equivalent
1	Base requirements of Tier 2	51
2	Tier 2 + Criterion 2.18: Enhanced Envelope	50
3	Tier 2 + Criteria 3.2: Advanced Envelope	49
7	Tier 2 + Criteria 3.6: Variable Capacity Heat Pump (VRF)	46

EE C1.1.2 For 1-2 additional points, design the building to produce as much renewable energy as it consumes per year. There are two options:

1 point *Zero Net Energy Capable*

For schools that aspire to achieve zero net energy at a future date, design the building with a low enough energy usage metric that it could be 100% powered by on-site renewable systems and include features that make it ready to add the renewable systems without modification.

6 points *Zero Net Energy*

For schools that will install renewable systems as part of the project scope, show through the energy modeling required for EE P1.0 that on-site renewable energy systems produce as much energy on an annual basis as is used by the sum of all the building systems. Alternatives to on-site systems, such as renewable district energy or microgrid, will be considered case-by-case. Purchase of green power from the grid does not count as zero net energy.

EE C1.1 IMPLEMENTATION

There are significant opportunities to reduce energy use beyond the prerequisite level. Providing a more energy efficient building saves money for the school district, reduces

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environmental impacts and has a number of other long-term benefits. Up to 30 additional points are offered for schools designed to exceed the prerequisite level.

Performance Modeling Path

Demonstrating compliance with this criterion requires energy modeling following the procedures of ASHRAE/IES Standard 90.1-2016 Energy Standard for Buildings Except Low-Rise Residential Buildings Appendix G and Criterion EE P1.0.

zEPI Option

Projects may optionally establish their zEPI rating in lieu of performance above ASHRAE 90.1. There is a direct correlation between ASHRAE 90.1-2016 performance and the zEPI scale. zEPI provides a more stable scale that will not vary with future code updates. zEPI scores must be calculated using source energy values.

More information about zEPI and the conversion process can be found in *Rethinking Percent Savings – The Problem with Percent Savings* and *zEPI: The New Scale for a Net Zero Energy Future* by Eley et al., see Resources. [9]

Projects that do not pursue the zEPI option may still find the zEPI conversion chart useful for comparing future projects that use a baseline that differs from ASHRAE 90.1-2016.

On-Site Renewables:

On-site renewable energy sources may be used to offset the consumption of non-renewable fuels and contribute to superior energy performance.

Similarly, the use of community renewable energy systems is allowed if both of the following requirements are met:

- The school district owns the system or has signed a lease agreement for a period of at least 10 years
- The system is located within the same utility service area as the facility claiming the use

Renewable Energy Sources include:

- Photovoltaics
- On-site wind
- On-site hydropower
- On-site Geothermal
- On-site Solar Thermal

Source Net Energy Calculations for Zero Energy Buildings with Multiple Delivered Energy Types with On-Site Renewables:

If the school were to produce electricity on site, the site production will first offset what is consumed. If the production is greater than the on-site consumption it would then count as exported energy and could offset other energy consumption on site, like natural gas.

Consider the first case, a school that produces less electricity than it uses:

The school uses 100 kBtu of natural gas, 100 kBtu of electricity, and produces 80.0 kBtu of electricity from a photovoltaic system. Using the example above, the annual source energy balance would be:

$$(100.0 \text{ kBtu N.G.}) \times 1.05 + (100.0 \text{ kBtu consumed} - 80 \text{ kBtu Produced}) \times 2.8$$
$$= 161.0 \text{ kBtu Source}$$

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Consider the second case, a school that produces more electricity on site than it uses:

The school uses 100 kBtu of natural gas, 100 kBtu of electricity, and produces 120.0 kBtu of electricity from a Photovoltaic System:

$$(100.0 \text{ kBtu N.G.}) \times 1.05 + (100.0 \text{ kBtu consumed} - 100 \text{ kBtuh Produced}) \times 2.8 - (20 \text{ kBtuh Exported}) \times 1 = 85 \text{ kBtu Source}$$

EE C1.1.2 *Zero Net Energy*

Energy modeling using the procedures specified in EE P1.0 and above shall be used to demonstrate this criterion. Full zero net energy schools are eligible for an additional point in II C8.1 Innovation.

Zero Net Energy Capable

When demonstrating compliance with this criterion, the location of planned renewable systems shall be identified on the site or building and modeled using typical performance characteristics.

Examples of features that make a building zero energy capable:

- Roof can accommodate additional weight of a PV system.
- There is sufficient area to accommodate the PV needed; a rule-of-thumb is to plan for generation of 110% of energy usage to cover contingencies.
- No additional roof or wall penetrations will be needed for electrical wiring.
- Electrical or mechanical rooms are sufficient to accommodate the inverter(s) and other electrical system components.

Boundary for Determining Zero Net-Energy:

In determining whether a school is zero net energy or capable of zero net energy, only renewable energy sources located on the school site shall be considered with the exception that if the project is designing for resiliency in II C7.1, off-site renewable systems will be allowed. Biomass and liquid biofuels are not renewable energy sources.

Zero-Code Calculator:

The Zero-Code (zero-code.org) calculator can be used to demonstrate compliance. (11)

EE P1.0-C1.2 DOCUMENTATION

DESIGN REVIEW

EE P1.0 *Prescriptive Path*

Provide a narrative from the mechanical engineer identifying the option used and how the design complies with each of the prescriptive requirements.

Performance Path

Provide a short narrative identifying the energy efficient performance target and a description of the building systems and features that accomplish this target or a set of construction documents showing all energy efficiency features and equipment used.

Then:

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- For the ASHRAE option, provide the summary report from the model used, such as the certificate of compliance, as a pdf. If needed to confirm compliance, the entire energy model may be requested. Make this file available as needed.
- For the ENERGY STAR option, provide a Statement of Energy Design Intent (SEDI) report from Target Finder; or create an account in Portfolio Manager and save and print the SEDI to document the ENERGY STAR design score. If needed to confirm compliance, backup documentation, such as the inputs and baseline may be requested.

EE C1.1.1 For projects that follow the performance path, the summary report used in EE P1.0 covers the requirement, if used. If the ENERGY STAR option was used in EE P1.0, then submit a copy of the summary report from the modeling software as described above for documentation in the prerequisite.

For projects that follow the prescriptive path, provide a narrative describing the additional measures taken per the table.

For projects using the zEPI scale, provide documentation showing the calculations.

EE C1.1.2 Provide output reports from the energy model simulation showing the predicted annual energy consumption of the proposed building. Include both the utility consumption (kwh and therms) and the overall energy consumption (BTUs). Provide a report showing both the site and source energy consumption. Provide a narrative that clearly outlines all deviations from the standard compliance model and the justification for such deviations. Provide a projection of the annual energy generation of the renewable energy systems.

CONSTRUCTION REVIEW

N/A

EE P1.0-C1.1 RESOURCES

1. Title 24 2019, Part 6: https://energycodeace.com/site/custom/public/reference-ace-2019/index.html#!Documents/efficiencystandardscaliforniacodeofregulationstitle24part61.htm
2. 2015 International Energy Conservation Code® published jointly by ICC and ASHRAE:
3. ANSI/ASHRAE/IES Standard 90.1-2016 Energy Standard for Buildings Except Low-Rise Residential Buildings
4. ENERGY STAR: www.energystar.gov/
5. EPA ‘s energy performance tools for calculating the 1 -100 ENERGY STAR score
   - Target Finder: https://www.energystar.gov/buildings/service-providers/design/step-step-process/evaluate-target/epa%E2%80%99s-target-finder-calculator?s=mega
   - Portfolio Manager: https://www.energystar.gov/buildings/facility-owners-and-managers/existing-buildings/use-portfolio-manager?s=mega
6. The Consortium for Energy Efficiency (CEE) provides information on high performance equipment: www.cee1.org

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7. The ASHRAE Advanced Energy Design Guide for K-12 School Buildings: www.ashrae.org/publications/page/1604
8. Commercial Energy Services Network (COMNET)
9. Renewable Energy Rebates: www.dsireusa.org/
10. The Problem with Percent Savings and zEPI: The New Scale for a Net Zero Energy Future by Eley et al. http://www.eley.com/sites/default/files/pdfs/ASHRAE-D-ML-11-029-20110922.pdf
11. NREL 2007. Assessment of the Technical Potential for Achieving New Zero-Energy Buildings in the Commercial Sector, B. Griffith, N. Long, P. Torcellini, and R. Judkoff, NREL/TP-550-41957, December 2007: www.nrel.gov/docs/fy08osti/41957.pdf
12. Zero-Code Calculator: https://zero-code.org/ENERGY%20CALCULATOR/

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EE P2.0 COMMISSIONING
EE C2.1 ENHANCED COMMISSIONING

Commissioning is vitally important to the performance of the school and is the key to achieving and maintaining energy efficiency. Commissioning involves a rigorous quality assurance program that ensures the building and its systems are built and operated as designed and that the school district receives the proper training and documentation needed to operate and maintain the building. No building can perform optimally without adequate maintenance.

Intent

Verify that building elements and systems are designed, installed, and calibrated to operate as intended, and provide for the ongoing accountability and optimization of building energy performance over time.

Buildings, even simple structures, are complex systems of electrical, mechanical, and structural components. High performance buildings are healthy, efficient, environmentally sensitive structures whose performance can be significantly affected if the building has not been designed following the owner's project requirements or constructed according to the designers' specifications.

Commissioning is a rigorous quality assurance program administered by a knowledgeable third party that ensures the building performs as expected.

EE P2.0 COMMISSIONING

PREREQUISITE

4 points

APPLICABILITY: All projects.

VERIFICATION: Design Review, Construction Review

RELATED CRITERIA: OM P1.0 Occupant Training, WE C3.1 Irrigation Systems Commissioning

EE P2.0 REQUIREMENTS

4 points

This prerequisite requires a commissioning process to be in place early in the design process and carries through to the post-occupancy 10-month warranty review and subsequent completion of a commissioning report.

For all new buildings, comply with Title 24 section 120.8 and comply with Title 24, Part 1, Chapter 10, Section 10-103(a)4 for acceptance testing.

ALL of the fundamental best practice commissioning procedures must be implemented:

Engage an independent, third-party commissioning agent (CxA). The commissioning agent will be responsible for commissioning the following critical building systems [1]:

1. Electrical Systems
   - Lighting systems and lighting controls (daylight, occupancy, timing switches, etc.)
   - On-site renewable solar electric or wind systems
2. Mechanical Systems [2]

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- HVAC systems (such as hot water systems, chilled water systems, central air systems, ventilation systems)
- Domestic hot water systems
- Energy management system
- Renewable energy heating systems

3. Plumbing Systems
   - Flow control devices
   - Pumping systems
   - Special hazardous waste treatment systems (e.g. for lab wastes)
   - Domestic hot water systems
   - Graywater systems (if applicable)

EE P2.0 The commissioning scope of services shall include:

- Review Owners Project Requirements (OPR) (formerly known as Design Intent documentation) and Basis of Design (BOD) documentation.
- Conduct a focused review of the design prior to the Construction Documents (CDs) phase.
- Issue Design Review Comments and conduct one back check review prior to submitting Permit Set to the Building Department / AHJ.
- Review commissioning requirements for inclusion in the specifications / CDs.
- Develop and utilize a commissioning plan.
- Conduct a selective review of contractor submittals of commissioned equipment.
- Review the Operations & Maintenance manual.
- Verify installation, functional performance testing (including off-season testing), training, and operations and maintenance documentation. A minimum 20% sampling strategy for testing terminal units and repetitive units is permissible. All major systems must be tested.
- Participate in training of facility staff in accordance with the training plan (OM P1.0).
- Complete a commissioning report.
- Conduct a 10-month, post occupancy warranty review.

EE C2.1 ENHANCED COMMISSIONING

CREDIT

1-2 points APPLICABILITY: All projects.

VERIFICATION: Design Review, Construction Review

SCORING: 1 point each for 2.1.1 and 2.1.2

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EE.C2.1 REQUIREMENTS

This criterion is intended to allow project managers to think beyond the typical scope of a commissioning authority into other useful system testing, including building envelope commissioning, and to seek out a highly skilled professional commissioning agent.

EE C2.1.1 *Certified Commissioning Professional*

1 point The commissioning authority responsible for commissioning is a third party ANSI certified commissioning professional with at least five years' experience in the state where s/he practices.

EE C2.1.2 *Building Envelope Commissioning*

1 point Commission the building envelope using ASTM E2813, the National Institute of Building Sciences (NIBS) Guideline 3 or an equivalent approach. The commissioning authority shall be a third party ANSI certified commissioning professional with at least five years of building envelope commissioning experience in the state where s/he practices

EE P2.0-C2.1 IMPLEMENTATION

This full scope of commissioning applies to a new school. For major renovations/modernizations and a new building on an existing campus this commissioning scope is required based on the scope of the project. The scope of commissioning services for major renovations/modernizations will depend on whether the building envelope is being upgraded.

Qualifications of Commissioning Authority

The CxA should satisfy the qualifications of, and perform in accordance with, the Building Commissioning Association's (BCA) Essential Attributes of Building Commissioning [3].

The CxA must have experience commissioning schools in accordance with this standard. The CxA may be a qualified employee of the school district. An additional point is available per EE C2.1.1 below for hiring a CxA with professional certification/recognition.

Commissioning Scope

The following list describes each of the commissioning steps listed above in greater detail.

- Engage a commissioning agent. The commissioning agent (CxA) directs the commissioning process and should be hired in time for the design development phase. The commissioning services must be performed by an independent third party, i.e. not part of the design or construction management of the project. The CxA may be hired by the owner, the owner's project manager, or the design firm as long as the CxA is not an employee of the design firm and reports to both the school district and the design firm. Review design intent and basis of design documentation. The architect and the design engineer are the most appropriate people to create this document, which should list the owner's project requirements and design intent for each of the systems or features to be commissioned. The CxA will review this document, and a copy of the review shall be provided to the owner.

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- Conduct a focused review of the design prior to the Construction Documents (CDs) phase. This review early in the design process should be focused on an assessment of how well the design meets the owner's design intent. Assessment should be made as to how the design meets the functionality, utility performance, maintainability, sustainability, cost, and indoor environmental quality requirements outlined in the design intent. Evidence of the review is to be documented in the commissioning report.
- The Back Check Review should answer these questions:
    - Does the design meet the owner's design intent?
    - Does the design allow for proper maintenance access?
    - Do the construction documents clearly detail the construction requirements?
    - Do the construction documents clearly define the commissioning requirements?
- Include commissioning requirements in the CDs. All commissioning requirements must be integrated into the CDs to clearly specify the responsibilities and tasks to be performed. Of particular importance are the delineation of the contractors' responsibilities regarding documentation, functional performance testing, occupant and operator training, and the creation of the operations and maintenance manuals.
- Develop commissioning plan. The commissioning plan includes a list of all equipment and systems to be commissioned, delineation of roles for each of the primary commissioning participants, and details on the scope, timeline, and deliverables throughout the commissioning process.
- Conduct a selective review of contractor submittals and shop drawings related to the commissioned systems. Contractor submittals for the systems included in the commissioning scope shall be reviewed by the CxA in conjunction with the designer's review. The review shall focus on the ability of the submitted product to meet the owner's requirements and review comments shall be provided to the owner and the design team.
- Review Operations & Maintenance manual. The Contractor compiles the O&M Manuals prior to commencement of training and the CxA reviews them for completeness, organization and readability [2].

The CxA shall review the O&M Manuals for the following items:

- As-built sequences of operations for all equipment as provided by the design professionals and contractors, including time-of-day schedules and schedule frequency, and detailed point listings with ranges and initial set points.
- Ongoing operating instructions for all energy- and water-saving features and strategies.
- Seasonal operational guidelines.
- Recommendations for recalibration frequency of sensors and actuators by type and use.

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- Guidelines for continuous maintenance of the owner's project requirements (operational requirements) and basis of design (basis of operation).

- Verify Pre-Functional Testing The CxA shall provide the Contractor with the Pre-Functional Checklists (PFC) that include a list of items to inspect and elementary component tests to conduct to verify proper installation of equipment. PFCs are primarily static inspections and procedures to prepare the equipment or system for initial operation. The CxA shall observe, at minimum, the startup procedures for each piece of primary equipment, unless there are multiple units, (in which case a sampling strategy may be used). Extent of CxA observation of Pre-Functional Testing will be at the discretion of the CxA, though spot checking of items on the lists will be performed prior to Functional Testing. PFC's are separate and in addition to the manufacturer's installation and start-up forms and shall be reviewed by the CxA and included in the Commissioning Report. Contractor shall certify that installation, prestart, and startup activities have been completed prior to commencing Functional Testing. Certification shall include completed PFC's, manufacturer installation and startup checklists and the final TAB report approved by the A/E.

- Functional Testing. The CxA shall develop the functional test procedures in a sequential written form, coordinate, oversee and document the actual testing. Functional Performance Tests (FPT) are performed after Prefunctional testing and startup are complete. FPT Test the dynamic function and operation of equipment and systems using manual (direct observation) or monitoring methods. Systems shall be tested under various modes and run through all the control system's sequences of operation while components are verified to be responding as the sequences state. Checklists will be completed during the testing process, deficiencies will be added to the Commissioning Issues Log and each included in the Commissioning Report.

- Participate in training of facility staff in accordance with the training plan**.** The CxA may be charged with reviewing the training plan, developed by the Construction Manager/General Contractor, for adequacy. The CxA may additionally be charged with participating in the training itself. This task is related to OM P1.0 Facility Staff & Occupant Training.

- Complete a commissioning report. The report must show that the building's systems have met the design intent and specifications, have been properly installed, are performing as expected, and that proper O&M documentation and training have been provided. The report should include a compilation of all commissioning documentation described in this criterion, including complete functional testing results and forms and should note any items that have not been resolved at the time the report is issued.

- Ten month warranty, post-occupancy review. The commissioning contract shall contain provisions for a 10-month warranty and post-occupancy review. The review is intended to bring the design, construction, commissioning, and facility staff together to solicit facility staff's comments, suggestions, and areas of concern regarding the systems in their first year of operation. Warranties on any commissioned systems should be reviewed and deficient equipment should be identified and a plan for resolution developed.

MEMBERSHIP

Testing Sampling Criteria

Contractors shall submit to the CxA documentation that they have performed installation and functional performance verification in accordance with the commissioning plan for all equipment components and systems. The functional performance test may be demonstrated to the CxA for a sample of systems that comply with all of the following criteria

- Equipment or systems have similar components and configurations. For component testing, sampling may apply where there are many identical component types with similar applications.
- The systems or equipment have identical sequences of operation, which are implemented using identical control software programming or firmware settings.
- The components and systems to be included in the demonstrated samples shall be chosen by the commissioning authority at the time of demonstration.
- Building Automation System mapping of component to the operators graphic shall be demonstrated for all components.
- The trend logging portions of all functional performance tests shall be completed for 100% of the systems or components.

Failure Testing

The Commissioning Plan must also identify retesting protocols for components and systems that fail initial testing

Cross-Category and Other Considerations

This prerequisite relates to all prerequisites and credits that involve operable building systems, including HVAC, windows, and room controls. Good training is critical for good operations, and good operations are critical for good building performance. The prerequisite also relates to the required Systems Maintenance Plan in OM C4.1. The operations & maintenance manual described here will be part of the plan, along with the inventory and schedule of maintenance.

It is recommended that the owner consider using the commissioning process and provider for additional services including acoustic testing and irrigation commissioning. Qualified commissioning authorities can provide quality control on a range of high performance school systems and strategies.

EE C2.1.1 *Certified Commissioning Professional*

An individual certified by an ANSI/ISO/IEC 17024:2012 accredited organization to lead, plan, coordinate and manage commissioning teams and implement commissioning processes. The individual's accredited certification required by the referenced standard provides a measured level of experience and competence with the various whole building commissioning processes and the ability to deliver quality service. Accredited organizations include, but are not limited to:

- AABC Commissioning Group (ACG) Certified Commissioning Agent Ⅱ: www.commissioning.org/
- ASHRAE CPMP (Commissioning Process Management Professional) certification: https://www.ashrae.org/professional-development/ashrae-certification/certification-types/bcxp-building-commissioning-professional-certification

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- Building Commissioning Association (BCA) certification: www.bcccbonline.org
- Educational certification from University of Wisconsin: cx.engr.wisc.edu/
- NEBB Qualified Commissioning Administrator: www.nebb.org/certified/nebbs_certification_program/
- TABB Certified Commissioning: Supervisorhttps://www.icbcertified.org/site/certifications/index.php

EE C2.1.2 *Building Envelope Commissioning*

When commissioning the envelope, follow ASTM E2813, the National Institute of Building Sciences (NIBS) Guideline 3 or an equivalent method that at minimum includes drawing review, field inspection (construction checklist) and testing for thermal breaks and water leaks, as relevant to the climate. [6] Testing should be done on a completed portion of the building in accordance with ASTM E1186, ASTM E1105, and AAMA 501.2.

EE P2.0-C2.1 DOCUMENTATION

DESIGN REVIEW

EE P2.0 Provide the project's commissioning specifications, commissioning plan and owners project requirements (OPR). Provide a copy of the commissioning agent's contract. CDs must include the project's commissioning specifications documenting that commissioning is required, at what stages and where the commissioning plan may be found for more information.

EE C2.1.1 Provide documentation showing the Commissioning Agent's ANSI certification and experience.

EE C2.1.2 Highlight in the commissioning specification where they require building envelope commissioning and identify NIBS Guidelines or equivalent.

CONSTRUCTION REVIEW

EE P2.0 Provide the final commissioning report.

EE C2.1.2 Provide final commissioning report including a summary of building envelope commissioning.

EE P2.0–C2.1 RESOURCES

1. California Energy Commission, 2019 Title 24: https://ww2.energy.ca.gov/2018publications/CEC-400-2018-020/CEC-400-2018-020-CMF.pdf
2. ASHRAE Guideline 1.1-2007: HVAC&R Technical Requirements for The Commissioning Process: www.techstreet.com/ashrae/cgi-bin/detail?product_id=1573306
3. ASHRAE Guideline 4-2008 (RA 2013): Preparation of Operations & Maintenance Documentation for Building Systems: https://www.techstreet.com/ashrae/standards/guideline-4-2008-ra-2013-preparation-

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of-operating-and-maintenance-documentation-for-building-systems?gateway_code=ashrae&product_id=1852923

4. The Building Commissioning Association, Essential Attributes of Building Commissioning, April 2018: https://www.bcxa.org/membership/essential-attributes/
5. ASHRAE Standard 202-2013 The Commissioning Process: https://www.techstreet.com/ashrae/standards/ashrae-202-2013?gateway_code=ashrae&product_id=1862482
6. The National Clearinghouse for Educational Facilities includes a bibliography on commissioning: http://www.ncef.org/resource-lists/building-commissioning
7. ASTM E2813-18: https://www.astm.org/Standards/E2813.htm
8. National Institutes of Building Sciences, NIBS Guideline 3-2012, Building Enclosure Commissioning Process BECx: http://www.wbdg.org/FFC/NIBS/nibs_gl3.pdf

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EE P3.0 MANDATORY CONTROLS
EE C3.1 ENERGY MANAGEMENT SYSTEM & SUBMETERING

Energy Management Systems (EMS) are important systems for controlling, monitoring and understanding patterns of energy use in schools. Nowadays, an EMS or any number of equivalent systems are standard practice, and schools have choices among proprietary systems developed by the HVAC manufacturer or off-the-shelf products.

Intent

Provide a mechanism to assist school operators to monitor and control the building's energy systems remotely, make adjustments quickly and easily, and control costs.

EE P3.0 MANDATORY CONTROLS

PREREQUISITE

2 points

APPLICABILITY: All Projects

VERIFICATION: Design Review

RELATED CRITERIA: OM P1.0 Training, OM C4.1 Systems Maintenance Plan, EE P2.0 Commissioning, OM P3.0 Benchmarking

EE P3.0 REQUIREMENTS

2 points

Comply with Title 24 requirements in Section 120.2 for space-conditioning system controls and all applicable sections of 130 for lighting and distribution controls.

EE C3.1 ENERGY MANAGEMENT SYSTEM & SUBMETERING

CREDIT

7 points

APPLICABILITY: All Projects

VERIFICATION: Design Review

SCORING: 3 points for 3.1.1 and 2 points for each of 3.1.2 and 3.1.3

RELATED CRITERIA: OM P1.0 Training, OM C4.1 Systems Maintenance Plan, EE P2.0 Commissioning, OM P3.0 Benchmarking

EE C3.1 REQUIREMENTS

EE C3.1.1 *HVAC Systems Control*

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3 points

Install a base level Energy Management System (EMS) or equivalent Building Automation System (BAS) or Building Management System (BMS) to control the operating schedule of HVAC systems throughout the building including terminal units, packaged units, air handling units, make-up air units, centralized hydronic heating and cooling systems, pumps, and fans including fume hoods. Fractional horsepower fans, fractional horsepower pumps and units providing air conditioning to spaces requiring continuous 24/7 cooling such as computer server rooms, network equipment rooms, or walk-in refrigerators and freezers are excluded. The base level EMS shall provide the following energy saving features:

- Schedule unoccupied setback temperature control so that units can heat during unoccupied modes should the space temperature fall below the setback temperature. Setback temperature settings shall be no higher than 60 degrees F.
- Scheduled control of all ventilation outdoor air fans, exhaust fans and outdoor air dampers so that fans are turned off and dampers are closed during unoccupied periods.
- Zoning of systems so that major building areas (i.e. gymnasium, cafeteria, library, classrooms, and administrative offices) can be independently scheduled during non-school hours.
- An override system to temporarily change a unit or zone from unoccupied to occupied mode locally is permitted provided that it is timed and will automatically revert back to the normal operating schedule after no more than four hours. A local override switch that is not on a timer is not permitted. Ventilation outdoor air shall be set to occupied mode if the local override is used.

A centrally located scheduling interface shall be provided so that the operator can schedule the EMS operating mode for weekdays, weekends, and holidays. The scheduler shall be capable of independently scheduling each major building area or zone. If the facility management staff that sets the operating schedule is located at another site, the EMS shall have a web-based interface so that the schedule can be set remotely. Any system – including but not limited to Building Automation System or Building Management System – that includes the above features shall meet this requirement.

EE C3.1.2 *Automated Demand Management.*

2 points

Install an advanced energy management system (EMS) capable of supporting Automated Demand Management functions. System shall be capable of:

- Storing pre-programmed demand management control strategies for specific controlled equipment and/or systems that will, in a safe and controlled manner, increase or decrease electrical demand, (e. g., change cooling setpoints, turn equipment on or off, rotate loads to avoid simultaneous/stacked demand) when triggered.
- Store pre-conditions for triggering and releasing discrete demand control strategies, such as approaching user defined demand thresholds, applicable electricity pricing points, etc.
- Respond to external signals as triggers for implementing and releasing demand management control strategies such as a contracted demand response event. The facility shall either demonstrate compliance with Open ADR 2.0 or demonstrate similar functionality via automated triggers using other communications protocols.

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- Support automated notification of a demand response event scheduled, threshold met, strategies scheduled for triggering, strategies executed and strategies released to normal control.
- Allow for remote access opt out or cancellation of any demand control strategy scheduled or currently in force.
- Allow for remote access user triggering of any demand control strategy not currently in force as well as scheduling triggering any demand control strategy for future triggering and release.
- Energy models should be used to determine appropriate setback temperatures during unoccupied hours.

EE C3.1.3 *Submetering/Data Acquisition and Storage*

2 points

Install a meter data acquisition and storage system for all electrical power used within the building. The system can use the main utility meter as a data source or an owner-supplied submeter provided that all electrical power used in the building is recorded. Data from the system shall at a minimum record and store every 1 minute and shall be available to the operator with no less than 1 hour of the time the energy was consumed. The system shall include a user interface to trend and analyze stored data. Using the EMS, a separate stand-alone system, or a system provided by the local utility company are all acceptable provided that the system meets the requirements described herein. Provide metering at all panelboards.

If both the advanced EMS and data acquisition/submetering options are achieved, the project is eligible for one innovation point from II C8.1.

EE P3.0 & C3.1 IMPLEMENTATION

EE C3.1.1 While energy management systems (EMS) are typically installed with new HVAC and heating systems, care must be taken to specify and install an appropriate system for the district and its maintenance staff. The best EMS for a district is the simplest system that still addresses the school's energy management needs. Increased complexity does not always mean increased value for the district.

Energy management systems can potentially save significant energy, but only if the staff understands how to operate them. With EMS installation, proper training of district staff is absolutely critical. The district must be prepared to budget for staff training and for training new staff when those knowledgeable about the EMS leave employment.

EE C3.1.2 The following are considered exempt from this criterion:

- Unit heaters, cabinet heaters, radiation and convectors located in vestibules, storage rooms, janitor closets, and other unoccupied areas.
- Natural gas and heating oil demand sensors are not required on buildings less than 50,000 ft^2.

Monitoring capabilities of the EMS should allow for comparison between various types of building loads throughout all spaces of the school. This information is valuable and can be used to manage and optimize energy use. By trending and monitoring the building operation, any deviation from the design operation can be identified and corrected before an impact on occupant comfort and energy performance of the building is created. Building

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performance can also be optimized by longer-term trending, observation of performance characteristics, and benchmarking performance against expected operation.

The EMS should include:

- Sensors to trend outdoor air temperature.
- Sensors to monitor and trend equipment status for all equipment with motors greater than ½ hp.
- Indication and trending of damper and valve commanded position.
- Sensors to monitor building electrical, natural gas, and heating oil demand and consumption.
- Sensors to monitor indoor and outdoor CO_2.
- Sensors to monitor and *trend* (create trend logs) controlled variables at the operator interface. Control variables may include air and/or water flow, temperature, pressure, CO_2, and pump or fan speed. Relevant multiplexed data from microprocessors located in chillers, boilers, humidifiers, VAV box controllers, variable speed drives, and other HVAC equipment with multiplexing capabilities may be used in lieu of specifying separate sensors.
- Wells and other ports shall be specified for the installation of calibration devices to facilitate calibration of sensors.
- Points Matrix: A points matrix including all hardwired input and output devices connected to the automation system, all set points, upper and lower control limits.
- Trend Capabilities: Trend requirements including a trend point list and preprogrammed sample of point (performed by controls contractor), sample rate, storage interval, upload interval, custom trend abilities, alarms, and automated trend data review and notification (automated diagnostics).
- System Architecture: A system architecture capable of allowing sampling of these points to facilitate building commissioning and diagnostics without significantly affecting system performance.
- Data Storage: A data storage system with adequate capacity to record trend data for use by building operators. Data export requirements must facilitate user-friendly data access and manipulation.
- Operator Interface: An operator interface designed for remote/web access, monitoring requirements, trend-log reporting and diagnosing building problems through a user-friendly interface. This includes providing a visual (non-text based) operations and reporting interface to facilitate rapid system assessment that utilizes color coding, diagrams of floor plans and graphing capabilities.

EE P3.0 & C3.1 DOCUMENTATION

DESIGN REVIEW

Provide the plans that include the required Energy Management System features, including a System Architecture Diagram highlighting metering of all systems.

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CONSTRUCTION REVIEW

N/A

EE P3.0 & C3.1 RESOURCES

1. Title 24 2019, see subchapters 3 and 4: https://energycodeace.com/site/custom/public/reference-ace-2019/index.html#!Documents/efficiencystandardscaliforniacodeofregulationstitle24part61.htm
2. *Advanced Buildings Benchmark Version 1.1*, by the New Buildings Institute, Inc. pp. 3839

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EE C4.1 ADVANCED VENTILATION STRATEGIES

Natural ventilation is an effective energy design strategy for schools in many climates. This credit offers a bonus for natural ventilation above what is credited in EE C1.1 Superior Energy Efficient Design.

Intent

Provide a bonus for school designs that incorporate natural ventilation, mixed mode, or demand control ventilation. Provide an incentive to install interlocks on doors and windows.

EE C4.1 ADVANCED VENTILATION STRATEGIES

CREDIT

1 point

APPLICABILITY: New schools, a new building on an existing campus, additions and to major renovations/modernizations based on the scope of the project.

VERIFICATION: Design Review

SCORING: 1 point for 4.1.1 or 1 point for 4.1.2

RELATED CRITERIA: EE C1.1 Superior Energy Design, II C7.1 Design for Adaptation & Resilience

EE C4.1 REQUIREMENTS

EE C4.1.1 *Natural Ventilation*

1 point

Design schools such that at least 75% of the classrooms are designed to provide comfort conditions with no mechanical cooling according to the comfort conditions defined in ASHRAE Standard 55-2017 [3].

Naturally ventilated classrooms (with no mechanical cooling) shall meet the classroom ventilation requirements of ASHRAE Standard 62.1-2016 §5.1 or demonstrate that engineered natural ventilation systems satisfy the requirements [2].

EE C4.1.2 *Energy Conservation Interlocks*

1 point

For hybrid systems that use natural ventilation in combination with mechanical cooling, install interlocks or an equivalent mechanism, to prevent heating and cooling equipment from operating when exterior windows or doors are open.

EE C4.1 IMPLEMENTATION

While this criterion applies to modernization projects, the cost of installing interlocks on existing windows can be prohibitive. A good opportunity to install interlocks occurs when the windows are being replaced as part of the project.

Natural Ventilation

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Computer labs, media closets, science labs, or art/ceramic rooms are exceptions, and may install mechanical air-cooling systems.

Comply with ASHRAE 62.1-2019 § 6.4 requirements for classroom natural ventilation or include an engineered natural ventilation system that meets ASHRAE 62.1-2019 requirements. The former requires a minimum operable area in comparison to the classroom size, that openings are unobstructed, and that a means to open the required operable windows or doors is readily accessible, in addition to other requirements. Adequate amounts of ventilation must be supplied to occupied classrooms at all times.

Possible Approach:

Exfiltration by means of low pressurization is sometimes a preferred strategy to passive infiltration to achieve occupant sensible ventilation in locations with poor air quality or relatively high airborne particulate matter (dust storms, proximity to faming or mining operations). An economizer cycle does require parasitic fan energy but provides evenly distributed filtered outside in exchange. Effective passive ventilation requires an air pressure differential across the occupied space to provide sensible and effective ventilation benefits to the occupants. This is difficult to achieve without at least two operable openings (one could be an operable skylight(s) on opposite sides of the space to induce airflow).

Interlock Switches

Each year, significant amounts of energy are lost when teachers or staff members open exterior doors or windows while the HVAC heating and cooling equipment dedicated to that space continues operating. Interlocks installed on windows and doors can be used to shut off this equipment when windows and doors are opened for extended periods. If the heating or cooling equipment provides conditioned air to multiple rooms, the equipment should only be shut down when all related rooms have a window or door open. Interlocks must not turn off supply air fans that are used for ventilation, only equipment that is used to condition the air such as furnaces, heat-pumps, air-conditioner compressors and coil valves. Adequate amounts of ventilation must be supplied to the classroom at all occupied times.

For hybrid spaces, specify and install interlock switches on all densely occupied (greater than 25 people per 1,000 sf) classroom's and non-classroom's operable windows and doors. Consider including a strategy (such as a red light/green light system) to notify staff when the air temperature outside is appropriate for opening windows.

Controls that use some form of time delay must be included so that normal use of doors does not cause the HVAC equipment to cycle on and off unnecessarily. Teachers must be educated on how the system works and why it is needed. The energy savings for natural ventilation are included in the calculations for EE P1.0 Energy Efficient Design and EE C1.1 Superior Energy Efficient Design.

EE C4.1 DOCUMENTATION

DESIGN REVIEW

Provide the mechanical and architectural plans and specifications that cover the required system details.

CONSTRUCTION REVIEW

N/A

EE C4.1 RESOURCES

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See next page.

EE C4.1 RESOURCES

1. ASHRAE Advanced Energy Design Guide for K-12 School Buildings: https://www.ashrae.org/search?q=Advanced%20Energy%20Design%20Guide%20for%20K-12%20School%20Buildings
2. Read-only version of ASHRAE 62.1-2019: https://ashrae.iwrapper.com/ASHRAE_PREVIEW_ONLY_STANDARDS/STD_62.1_2019
3. ASHRAE 55-2017: https://www.techstreet.com/ashrae/standards/ashrae-55-2017?gateway_code=ashrae&product_id=1994974

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EE C5.1 ELECTRIC VEHICLE CHARGING

Intent

Exceed code by providing electric vehicle supply equipment (EVSE) to support electric vehicle charging.

California has a long and successful history of adopting technology-advancing vehicle emission programs to protect public health. The California Air Resources Board is implementing a Zero Emission Vehicle (ZEV) program in order to improve air quality and reducing climate change emissions. By 2025, one in eight new car sales in California is expected to be battery vehicle, fuel cell, or plug-in hybrid. The cumulative volume of on-road plug-in electric vehicles in California is expected to reach over 1.4 million by 2025. This increase in electric vehicles on-road puts California on track to achieve greenhouse gas (GHG) emission reduction goals and will require widespread infrastructure to support charging needs. The California Green Building Standards (CALGreen) Code includes voluntary EV charging standards to provide infrastructure to support future EV charging. This credit provides points for installation of wiring and the electric vehicle supply equipment (EVSE).

EE C5.1 ELECTRIC VEHICLE CHARGING

CREDIT

2 points

APPLICABILITY: New schools, a new building on an existing campus, additions and to major renovations/modernizations based on the scope of the project.

VERIFICATION: Design Review and Construction Review

RELATED CRITERIA: SS C3.1 Minimize Site Disturbance

EE C5.1 REQUIREMENTS

2 points

Install electrical vehicle supply equipment (EVSE) in 2% of all parking spaces included in the project. Clearly identify and reserve these spaces for sole use by plug-in electric vehicles. Parking spaces that include EVSE must be provided separate from, and in addition to, preferred parking spaces for green vehicles.

The EVSE must:

- Provide a Level 2 charging capacity (208 – 240 volts) or greater.
- Comply with the relevant regional or local standard for electrical connectors, such as SAE Surface Vehicle Recommended Practice J1772, SAE Electric Vehicle Conductive Charge Coupler or IEC 62196 of the International Electrotechnical Commission for projects outside the U.S.
- Be networked or Internet addressable and be capable of participating in a demand-response program or time-of-use pricing to encourage off-peak charging.

EE C5.1 IMPLEMENTATION

Whether the use of the charging stations is free is at the district's/school's discretion;

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however, free use will impede the benefit of off-peak charging.

EE C5.1 DOCUMENTATION

DESIGN REVIEW

Submit CDs including plan and specifications showing compliance. Highlight the location and number of EVSE parking spaces on the plan. Provide a calculation showing compliance with the 2% requirement.

CONSTRUCTION REVIEW

Provide 1-3 photos of the installed EVSE.

EE C4.1 RESOURCES

1. *Zero-Emission Vehicles in California: Community Readiness Guidebook Toward 1.5 Million Zero-Emission Vehicles on California Roadways by 2025*, Governor's Office of Planning and Research, Published Fall 2013. http://opr.ca.gov/docs/ZEV_Guidebook.pdf
2. *Zero Emission Vehicle Signs and Pavement Markings, The California Manual on Uniform Traffic Control Devices (California MUTCD)*, The California Department of Transportation, Published September 2006. http://www.dot.ca.gov/hq/traffops/signtech/signdel/policy/13-01.pdf
3. California Code of Regulations, Title 24, Part 11: https://codes.iccsafe.org/content/CAGBSC2019/cover

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WATER (WE)

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WE P1.0 INDOOR POTABLE WATER USE REDUCTION
WE C1.1 ENHANCED INDOOR WATER USE REDUCTION

The growing value of potable water in the United States underscores the importance of lowering demand. Efficient water consumption naturally reduces the amount of water pumped from the ground or transported from reservoirs to cities and towns. In addition, water efficiency reduces the cost and amount of sewage needing treatment after use. Because water-efficient devices can vary in quality and performance, specify only durable, high performance fixtures.

Intent

Maximize water efficiency within buildings to reduce the burden on municipal water supply, aquifers, and wastewater treatment systems.

There is opportunity to achieve additional potable water savings through selection of fixtures with higher efficiency than required in WE P1.0 and/or efficient appliances. Additionally, for flushing, there may also be opportunity to use rainwater, reclaimed water (tertiary treated wastewater) from the municipality, or graywater, among others. These options are subject to what local code allows and what may be available through municipal water treatment, Note that manufacturers may have minimum water quality requirements and that fixture warranties may be voided if water quality fails to meet their specifications.

WE P1.0 INDOOR POTABLE WATER USE REDUCTION

PREREQUISITE

4 points

APPLICABILITY: All Projects

VERIFICATION: Design and Construction Review

WE P1.0 REQUIREMENTS

4 points

Comply with CALGreen, Section 5.303.3 and if applicable 5.303.4.

This prerequisite is prescriptive; no calculations are needed. All indoor water fixtures listed in Table WE 1-1: Fixture Performance Requirements must comply with the listed maximum water consumption figures. These requirements are not averages–every fixture must comply.

WE P1.0 IMPLEMENTATION

Use Table WE 1-1 to identify the maximum consumption rate and other requirements for each fixture.

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Table WE 1-1: Fixture Performance Requirements from CALGreen

Fixture/Fitting Type	Maximum Water Consumption	Other Requirements & Notes	CALGreen Reference
Water closets	1.28 gallons/flush	Tank-type water closets must be WaterSense labeled.	5.303.3.1
Showerheads	1.8 gpm @ 80 psi	Must be WaterSense labeled.	5.303.3.3
Nonresidential lavatory faucets	0.5 gpm @ 60 psi		5.303.3.4
Metering faucets (self-closing)	0.20 gallons/cycle @ 60 psi	There is no WaterSense standard.	5.303.3.4
Kitchen faucets	1.8 gpm @ 60 psi	Must be WaterSense labeled.	5.303.3.4
Urinals	Floor mounted: 0.5 gallons/flush Wall mounted: 0.125 gallons/flush	Flushing urinals must be WaterSense labeled.	5.303.3.2
Food waste disposer	no more than 8gpm per use with auto shut off or modulated to 1gpm when not in use	No WaterSense standard.	5.303.4.1

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WE C1.1 ENHANCED INDOOR POTABLE WATER USE REDUCTION

CREDIT

1-5 points

APPLICABILITY: All Projects, see Implementation for specifics.

VERIFICATION: Design and Construction Review

SCORING: 1-4 points for 1.1.1 and/or 1 point for 1.1.2

WE C1.1 REQUIREMENTS

WE C1.1.1 *Calculated Water Savings*

1-4 points Reduce potable water consumption beyond the savings achieved in WE P1.0 per the following chart. Calculate the baseline and design water consumption using the methodology in Implementation. Use any combination of high efficiency fixtures and appliances in Table WE 1-2, water shut-off, or site-collected water. Points will be awarded based on total calculation of percentage reduced. Percentages between thresholds are implied.

- 20% (1 point)
- 25% (2 points)
- 30% (3 points)
- 35% (4 points)

Table WE 1-2: Enhanced Fixture Performance Targets*

Fixture/Fitting Type	Target Maximum Water Consumption
Showerheads	1.5 gpm @ 80 psi
Water closets – flush valve	1.1 gallons/flush
Commercial pre-rinse spray valves	1.15 gpm @ 60 psi
Commercial washing machines	Must meet ENERGY STAR (<=4.0 gpc/ft3)

*Not exclusive. Any fixture with a higher efficiency than in WE P1.0 is acceptable. Note that faucets lower than .5 gpm, while available on the market, have not been proven viable for handwashing.

AND/OR

WE C1.1.2 *Efficient Appliances*

1 point Specify and install ENERGY STAR or Consortium for Energy Efficiency (CEE) labeled appliances per Table WE 1-3.

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Table WE 1-3: Water-Efficient Appliance Standards*

Appliance	Standard
Dishwashers	ENERGY STAR [6]
Food Steamers	CEE [7]
Ice Machines	ENERGY STAR or CEE

* Other efficient appliances, such as combination ovens, may be available and are strongly encouraged but are not required for this point.

WE C1.1 IMPLEMENTATION

Applicability

This credit applies to all new schools and major renovations/modernizations. It applies to new buildings (classroom/non-classroom) on an existing campus and additions if enough fixtures are provided within the building to meet the occupant load. In cases where compliance with the occupant load ratio is determined on a campus wide basis the calculations should be performed for the entire school site.

WE C1.1.1 *Calculated Water Savings*

To quantify water use reductions, use the CHPS water use spreadsheet to determine baseline and design water consumption. Use any of the following techniques alone or in combination to achieve the target savings.

1. Specify fixtures meeting the maximum water consumption limits in the table below. The list is not exhaustive but any product must have an identifiable baseline in order to be counted. Use of aerators or recalibration (self-closing faucets) is allowed where complying products are not available. Products should be WaterSense labeled, as applicable.
2. Provide shut-off capabilities for water supply to all urinals and water closets to prevent water leakage when unoccupied or use waterless urinals.
3. Use rainwater, reclaimed municipal water, or other non-potable water for flushing.
4. Other techniques with prior approval from CHPS.

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Considerations for Rainwater Catchment & Storage

For some schools, installation of a rainwater catchment system with underground storage tanks is a cost-effective option to provide water for flushing water closets (toilets) and urinals as well as for supplemental irrigation. Catchment systems can decrease some irrigation water demand depending on the size of the fields being irrigated. However, they are unlikely to contribute much to schools with many playing fields and large irrigation demands.

A rainwater catchment system should be designed with a water storage capacity for sewage conveyance and/or irrigation in typical years under average conditions. Oversizing water storage to meet drought conditions will be costly and under sizing storage may simply result in a system that is too small to significantly offset potable water consumption. In addition, rainwater collection and storage systems should be designed to avoid stagnation that could lead to mold growth and accumulation of bacteria. It will be important to check with your plumbing inspector early in the process if you pursue a catchment system.

The underground storage tanks and cisterns could at times run dry during drought conditions. Therefore, it is acceptable for tanks and cisterns to connect to wells or municipal water supplies.

WE P1.0-C1.1 DOCUMENTATION

DESIGN REVIEW

WE P1.0 Provide a plumbing fixture schedule that contains the required flow rates.

WE C1.1.1 Complete the CHPS Water Savings worksheet.

Plans must identify shut-off capabilities for restroom facilities, if applicable.

Provide fixture and appliance schedules as applicable showing the flow rates used in the calculation.

If site-collected water is used, identify the location on the plans and provide a narrative describing the system, including justification for the volume collected. Alternatively, highlight in the specifications where the system is contained. Documentation from SS C5.1 Stormwater & Sedimentation Management may apply.

WE C1.1.2 Specifications or an appliance schedule showing the required labels/certifications.

CONSTRUCTION REVIEW

WE P1.0-C1.1 Provide approved submittals with cover sheet and applicable materials for the water-efficient products purchased.

WE C1.1.2 Provide a photo of the rainwater catchment system or non-potable water recycling system, if applicable.

WE P1.0-C1.1 RESOURCES

1. CALGreen Nonresidential Mandatory Measures: https://codes.iccsafe.org/content/CAGBSC2019/chapter-5-nonresidential-mandatory-measures
2. High-efficiency fixture and fitting standards are available through the American National Standards Institute (ANSI) as published by the American Society of Mechanical Engineers (ASME): www.asme.org/kb/standards#des=A112

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3. Maximum Performance (MaP) tested toilet fixtures: www.map-testing.com
4. US EPA WaterSense® program for efficient fixtures and sensors: www.epa.gov/watersense/
5. California utility-sponsored information, Food Service Technology Center (FSTC), including a list of tested pre-rinse spray valves: https://fishnick.com/equipment/sprayvalves/
6. Alliance for Water Efficiency: http://www.allianceforwaterefficiency.org/Green_Building_Introduction.aspx
7. US EPA ENERGY STAR Products: https://www.energystar.gov/products/appliances
8. Consortium for Energy Efficiency (CEE): https://www.cee1.org/content/cee-program-resources

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WE P2.0 OUTDOOR WATER USE BUDGET
WE C2.1 OUTDOOR WATER USE REDUCTION

Intent

Reduce and optimize potable water use for irrigating recreational and non-recreational landscaping areas.

The use of potable water for irrigation of landscaped areas and playing fields can be an expensive undertaking and can cause significant stress on water bodies, potentially leading to water shortages. A typical natural turf recreation field needs up to 5,000 gallons of water/acre/day during the peak of the irrigation season and in many locations exceeds 7,000 to 8,000 gallons/acre/day. Irrigation systems should only be provided if necessary and should be designed with efficiency in mind.

Irrigation--when necessary--should be limited to early morning hours to minimize evaporation. Potable water use can also be minimized by specifying drought tolerant plants and considering the soil composition to support the plants. New technologies to measure the amount of moisture in soil can be used to alert grounds staff to provide only the quantity of water, and only at the time it is necessary to sustain species life on recreational fields. The US Environmental Protection Agency claims that water savings of 10-20% can be achieved through such technologies. A water budget is a reasonable estimate of the amount of irrigation water required for a specific landscape over a given time interval. Local governments may have a different ordinance from the state model for calculating a water budget.

WE P2.0 OUTDOOR WATER USE BUDGET

PREREQUISITE

3 points

APPLICABILITY: All Projects with irrigation systems, including Major Modernizations based on scope

SCORING: 3 points for either 2.0.1 or 2.0.2

VERIFICATION: Design and Construction Review

WE P2.0 REQUIREMENTS

WE P2.0.1 *Water Use Budget & Irrigation Controls*

3 points

Newly constructed landscape areas equal to or greater than 500 square feet and rehabilitated landscape areas equal to or greater than 1,200 square feet shall comply with CALGreen Section 5.304.6. The team must develop a water budget for landscape (both recreational and non-recreational) and ornamental water use to conform to the California Department of Water Resources Model Water Efficient Landscape Ordinance.

Irrigation systems used for campus landscape, gardens, or recreational areas must have sensors (soil moisture and/or rain sensors) and weather-based irrigation controllers (WBIC) meeting or exceeding WaterSense criteria to manage operation of irrigation systems when there is adequate ambient moisture.

OR

WE P2.0.2 *No Permanent Landscape Irrigation*

3 points

Claim the points if no permanent irrigation system is installed.

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WE C2.1 OUTDOOR WATER USE REDUCTION

CREDIT

2-10 points

APPLICABILITY: All Projects

VERIFICATION: Design and Construction Review

SCORING: 2-6 points for 2.2.1 as indicated and/or 2-4 points for 2.2.2

WE C2.1 REQUIREMENTS

WE C2.1.1 *Non-Recreational Irrigation*

2-6 points

Reduce water consumption (potable water, natural surface water, groundwater, captured rain, or reclaimed water) for irrigation of non-recreational areas by the following amounts over landscape budget baselines using best science-based practices to conserve or restore biodiverse ecosystem function with the use of native seeds or plants (or locally adapted native seeds or plants). Note: The landscape budget baseline is calculated based on current best practices and/or standards from the California Department of Water Resources.

- 20% (2 point)
- 35% (4 points)
- 50% (6 points)

No Non-Recreational Irrigation

Claim the 3 points if no permanent irrigation is installed for non-recreational landscaped areas; school gardens are optional. Project must specify drought resistant plants or grasses in these areas so that irrigation is not needed beyond plant establishment.

AND/OR

WE C2.1.2 *Recreational Irrigation*

2-4 points

As in 2.2.1, reduce water consumption by the following amounts for recreational fields.

- 20% (2 point)
- 50% (4 points)

No Recreational Irrigation

Claim 2 points if no permanent irrigation is installed for recreational landscaped areas. Project must specify drought resistant plants or grasses in these areas so that irrigation is not needed beyond plant establishment.

WE P2.0-C2.1 IMPLEMENTATION

Recreational areas include athletic fields, playing fields, practice fields, etc.

WE P2.0

Develop a water budget for landscape and ornamental use in accordance with the California Department of Water Resources Model Water Efficient Landscape Ordinance (MWELO). [1]

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The Model Water Efficient Landscape Ordinance requires that estimated applied water use cannot exceed the Maximum Applied Water Allowance (MAWA). MAWA means, for design purposes, the upper limit of annual applied water for the established landscaped area as calculated using the procedures below. It is based upon the area's reference evapotranspiration, the ET Adjustment Factor, and the size of the landscaped area.

Estimated applied water use may be the sum of the water recommended through the irrigation schedule.

Calculate the MAWA first for non-recreational areas and then for recreational areas.

A project's MAWA can be calculated using the following formula:

$$MAWA = ET_o \times 0.8 \times LA \times 0.62$$

Where,

MAWA Maximum Applied Water Allowance (gallons per year).

ETo Reference Evapotranspiration (inches of water per year). Evapotranspiration means the quantity of water evaporated from adjacent soil surfaces and transpired by plants during a specific time.

0.8 ET Adjustment Factor. This factor, when applied to evapotranspiration, adjusts for plant factors and irrigation efficiency, two major influences upon the amount of water that needs to be applied to the landscape.

LA Landscaped Area (square foot).

0.62 Conversion Factor. This converts the MAWA from acre-in. per acre per year, to gallons per square foot per year.

Portions of landscaped areas such as parks, playgrounds, athletic fields, or schoolyards where turf provides a playing surface, or serves other recreational purposes, are considered recreational areas and may require water in addition to the MAWA. A statement should be included with the landscape design plan, designating the location and size of recreational areas to be used for such purposes and specifying any needed amount of additional water above the MAWA for non-recreational uses.

The water budget should be reflected in the school landscaping plan and in specifications for efficient irrigation equipment.

Example Calculation

Ouestion:

What is the annual water use budget in gallons for a 50,000 ft² landscaped area in Charlottesville?

Answer:

The ETo for Charlottesville is 30.98 in., so the MAWA is about 768,304 gallons per year, as calculated below:

$$MAWA = ETo \times .08 \times \text{Landscaped Area} \times 0.62$$

$$= 30.98 \times .8 \times 50{,}000 \times 0.62$$

$$= 768{,}305 \text{ gallons per year}$$

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WE C2.2.1-2 Establish a Landscape Design Plan and an Irrigation Design Plan then calculate project water requirements for irrigation of recreational and non-recreational areas.

Irrigation needs for the designed landscape areas must be calculated and compared to the Maximum Applied Water Allowance (MAWA) required by WE C2.0.

Use the following procedure to calculate the irrigation requirements of the designed landscape non-recreational areas.

Step 1: Determine the Landscape Coefficient (KL):

The Landscape Coefficient consists of three elements; Species Factor (ks), Microclimate Factor (kmc) and Density Factor (kd).

$$KL = ks \times kmc \times kd$$

The Species Factor (ks) is used to account for differences in species' water needs. In established landscapes, certain species are known to require relatively large amounts of water to maintain health and appearance while others are known to need very little water. For a sample of Species Factors, use http://www.salinitymanagement.org/Salinity%20Management%20Guide/ew/ew_8.html.

The Microclimate Factor (kmc) is used to account for differences in environmental conditions specific to the landscape. Natural and man-made features can affect temperature, wind speed, light intensity and humidity, which can vary considerably among landscapes. The microclimate factor ranges from 0.5 to 1.4, and is divided into three categories:

Low 0.5 - 0.9

Average 1.0

High 1.1 - 1.4

The average situation refers to conditions where the landscape evapotranspiration rate is not significantly affected by nearby buildings, pavements, reflective surfaces and slopes. When site features increase evaporation potential, a higher condition exists, such as exposed areas, or areas surrounded by heat absorbing materials (e.g. parking lots). Lower conditions exist in shaded areas and areas protected from wind, such as courtyards or north sides of buildings.

The Density Factor (kd) is used to account for differences in vegetation density, or leaf area, among landscape plantings. These differences lead to differences in water loss. The density factor ranges in value from 0.5 to 1.3. This range is divided into three categories:

Low 0.5 - 0.9

Average 1.0

High 1.1 - 1.3

Immature and sparsely planted landscapes typically have less leaf area than mature or densely planted landscapes, and thus lose less water. These plantings are assigned a kd value in the low category. Plantings with mixtures of vegetation types (trees, shrubs, and groundcovers) typically have greater collective leaf areas than plantings with a single vegetation type, and thus will lose more water. These plantings are assigned a density factor value in the high category. Plantings that

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are full but are predominantly of one vegetation type, are assigned to the average category.

Step 2: Determine how much irrigation water is required.

$$ETL = KL \times ETO$$

ETL is the estimated water needed for the planting in inches. KL is the landscape coefficient (see step 1).

ETO is the evapotranspiration rate in inches

Step 3: Calculate Water Applied (WA):

$$WA = A \times 0.62 \times ETL / IE$$

A is area in ft^2.

0.62 is the conversion factor to convert to gallons.

ETL is the estimated water required in inches (see step 2).

IE is the irrigation efficiency: Sprinkler 0.625, Drip 0.90.

Step 4: Perform the above calculations for each specific landscape area.

Step 5: Sum the Total Water Applied (TWA) for each specific area to determine the subtotal in gallons.

Step 6: Subtract the number of gallons of harvested rainwater, graywater, or recycled water used for irrigation to determine the actual volume of potable water required.

Step 7: Use the following formula to determine the reduction in potable water over the landscape budget baseline:

$$\text{Potable Water Reduction (\%)} =$$

$$1 - (\text{actual volume of potable water (gal)} / \text{MAWA (gal)} \times 100$$

WE C2.1.2 *Soil Types*

The best types of soil for playing fields are 3% to 7% organic content and fall into the US Department of Agriculture soil categories:

Soil Type	Watering Requirements
Loamy sand	1 in. per week
Sandy loam	1 in. per week
Loam	1 in. per week

Artificial Turf

Artificial sports turf can be installed, but no credit will be given for water savings because fields tend to require watering for maintenance and heat control.

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WE P2.0-C2.1 DOCUMENTATION

DESIGN REVIEW

WE P2.0 Provide complete landscape drawings identifying irrigation system components and all outputs of the MWELO worksheet. The outputs should reflect the landscape plans provided.

Landscape drawings must include sensors and WBICs. Submit evidence of WaterSense qualification.

WE C2.1 Provide the full calculations.

WE P2.0-C2.1 If there is no permanent irrigation, provide a letter signed by the landscape architect certifying that permanent irrigation systems have not been specified for non-playing field areas AND that only drought resistant plants and grasses have been specified for these areas. Letter must clearly state that no irrigation, manual or otherwise, will be needed in these areas after plants are established. Letter must also indicate the species of drought resistant plants and grasses that have been specified..

CONSTRUCTION REVIEW

WE P2.0 N/A

WE C2.1 Provide approved submittals with cover sheet and applicable materials, photos or other supporting documents that show compliance.

WE P2.0 - C2.1 RESOURCES

1. California Department of Water Resources, Model Water Efficient Landscape Ordinance (WELO): www.water.ca.gov/wateruseefficiency/docs/MWELO09-10-09.pdf
2. For information on local evapotranspiration rates, see lists provided by the Irrigation Association: https://www.irrigation.org/IA/Resources/Tools-Calculators/ET-Resources/IA/Resources/ET-Resources.aspx?hkey=576c5d0f-fee5-415f-b325-2ea2a95083f
3. Local water utility staff, water efficient landscape consultants, Certified Irrigation Designers (www.irrigation.org), and Master Gardeners are good resources for helping achieve C2.1.

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WE C3.1 IRRIGATION SYSTEMS COMMISSIONING

Irrigation system testing and training is a rigorous quality assurance program administered by a knowledgeable party that ensures the irrigation systems perform as expected. Irrigation system testing can help to ensure that water efficiency measures are working properly, and design water savings are achieved.

Intent

Verify that the site's irrigation systems and controls are operating as intended and that effective training has been provided.

WE C3.1 IRRIGATION SYSTEMS COMMISSIONING

CREDIT

1 point

APPLICABILITY: All projects that include irrigation systems.

VERIFICATION: Design and Construction Review

WE C3.1 REQUIREMENTS

1 point

Create an irrigation systems commissioning plan to manage operation and maintenance of irrigation systems. Complete irrigation systems commissioning review during construction and performance testing after installation. Provide documentation for ongoing operations and maintenance. Post the irrigation schedules for each station for each month at the irrigation controller. Based on best science-based practices to conserve or restore biodiverse ecosystem function, adaptively update the operations and maintenance plan, as needed.

WE C3.1 IMPLEMENTATION

Include the irrigation commissioning plan in the specifications. Designate the CSI number, section, and page number. State that irrigation commissioning plan must include:

- Identification of which entity will prepare the irrigation commissioning plan and who will perform the commissioning tasks.
- Review of irrigation system installation during construction, with record of deficiencies found and corrected.
- Performance testing and documentation of results (as compared to specified performance) at least once during the first year of installation.
- Site-specific documentation detailing maintenance requirements and frequency, and operation procedures including a recommended irrigation schedule to apply appropriate water per week to athletic fields.

Acceptance testing shall be included in the specifications and performed on the following, if applicable:

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- Irrigation pipes and fittings. Under static conditions the system pressure loss shall not exceed 3 psi over a one-hour time period.
- Irrigation heads and coverage. The system shall have a measured distribution uniformity (lower quarter) of no less than 65%.
- Back-flow devices.
- Automatic sensors, timers and other controls.

For equipment not listed, the design team shall provide acceptable test results, and the contractor shall certify that the tests were performed and the equipment performs as specified.

WE C3.1 DOCUMENTATION

DESIGN REVIEW

Provide a PDF of the Irrigation Commissioning Plan showing items listed in the Implementation section as well as who will be responsible for the commissioning and when it will occur.

CONSTRUCTION REVIEW

Provide final commissioning report.

WE C3.1 RESOURCES

1. The Irrigation Association has resources on conducting an irrigation audit: https://www.irrigation.org/IA/Resources/Technical-Resources/Irrigation-Auditing/Audit-Guidelines/IA/Resources/Audit-Guidelines.aspx?hkey=d3af0807-efe0-4779-a31f-c6011b23c6d

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SITE (SS)

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SS P1.0 ENVIRONMENTAL SITE ASSESSMENT

Intent

Select sites that are a safe and healthy environment for students and staff and that protect topsoil.

Federal guidelines and some state laws and regulations for school siting were created to prevent schools from being constructed on sites containing pollutants known to be hazardous to student and staff health. The primary tool for reviewing the quality of the site is an Environmental Site Assessment (ESA), following EPA guidelines; however, a state or locality may have additional rules or guidance. A variety of factors, from hazardous materials in the soil to airborne pollutants from nearby sources, are included in the site review process. At existing facilities, an assessment should be undertaken to determine whether there are legacy environmental and health problems on site or in the building prior to modernization.

SS P1.0 ENVIRONMENTAL SITE ASSESSMENT

PREREQUISITE

2 points

APPLICABILITY: All projects.

VERIFICATION: Design Review

RELATED CRITERIA: II C7.1 Design for Adaptation & Resilience

SS P1.0 REQUIREMENTS

SS P1.0 *New Buildings on New Sites*

2 points

Comply with one of the following options, as applicable based on state funding for the school.

Option 1

All siting and environmental impact study requirements of the California Department of Education School Facilities and Transportation Services Division as defined in Title 5, Division 1, Chapter 13 of the California Code of Regulations and Education Code & Public Resources Code [8]. including:

- The air pollution control district, or air quality management district or other agency having jurisdiction in the area must identify facilities which might reasonably be anticipated to emit hazardous air emissions, or to handle hazardous or acutely hazardous material, substances or waste, and a determination is made by the governing board that such facilities will not adversely affect the health of students, staff or teachers.
- A risk assessment and implementation of appropriate mitigation measures, or the establishment of appropriate “buffer zones”, to ensure that the proposed school site would not expose school occupants to significant health or safety risks from rail lines, hazardous material pipelines, high power transmission lines, toxic air emissions or other sources of pollution.

Option 2

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Complete a Phase I Environmental Site Assessment (ESA) in accordance with ASTM E1527-13. If a Phase II ESA is necessary based on the results of Phase I, follow ASTM E1903-11. The ESA must include:

- Identification of facilities within ¼ mile that might reasonably be anticipated to emit hazardous air emissions, or handle hazardous or acutely hazardous material, substances or waste. A determination shall be made (following ASTM 1527-13) that such facilities will not adversely affect the health of students, staff or teachers.
- A risk assessment and implementation of appropriate mitigation measures or the establishment of appropriate "buffer zones" to ensure that the proposed school site would not expose school occupants to significant health or safety risks from rail lines, hazardous material pipelines, high power transmission lines, toxic air emissions from stationary sources, or other sources of pollution including those identified under ASTM 1527-13.
- Written findings verifying that the site is not currently or formerly a hazardous, acutely hazardous substance release, or solid waste disposal site or, if so, that the wastes have been removed in a manner that meets the referenced standard. Also, the written findings must state that the site does not contain pipelines, which carry hazardous wastes or substances other than a natural gas supply line to the school or neighborhood. If hazardous air emissions are identified, the written findings must state that the health risks do not, and will not, constitute an actual or potential danger of public health of students or staff. If corrective measures of chronic or accidental hazardous air emissions are required under an existing order by another jurisdiction, the governing board shall make a finding that the emissions have been mitigated prior to occupancy of the school.
- Identification of train tracks, freeways, or traffic corridors within 500 feet of the site and analyses that neither short-term nor long-term exposure to air pollutants poses significant health risks to students.

The ESA must also include all of the following:

- Site the school with at least the following distances from the edge of respective power easements above ground; 100 feet for 50-133 kV lines, 150 feet for 220-230 kV lines, and 350 feet for 500-550 kV lines.
- The site shall be self-draining, including detention ponds or other engineered systems (lakes) to control and direct water, and free from depressions in which water may stand and be allowed to stagnate. The site shall be kept free from refuse, weed overgrowth, and other hazards. Livestock or poultry shall be located more than fifty (50) feet from food service areas, offices, or classrooms except those offices and classrooms associated with animal husbandry activities.
- The site shall not be located near an above-ground water or fuel storage tank or within 1500 feet of the easement of an above ground or underground pipeline that can pose a safety hazard as determined by a risk analysis study, conducted by a competent professional, which may include certification from a local public utility commission.
- If the site is located in an agricultural area, identify drift problems throughout the year from highly toxic and volatile pesticides. Pesticides under concern are listed as "Restricted Use Products" by the US EPA. If highly toxic and volatile pesticides are identified and not mitigated, the school will not meet this prerequisite.

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- If the school drinking water source is an on-site private well, the well water must be tested by the local health department or authority having jurisdiction to ensure the water is free of harmful contaminants prior to occupancy. The local jurisdiction may require further testing during occupancy.
- The site must not be within 1,000 feet of an active landfill or distance established by local regulation if more stringent.

SS P1.0 *New Buildings on Existing Sites and Major Renovations/Modernizations*

Comply with one of the following options, as applicable.

Option 1

Evaluate site for all siting and environmental impact study requirements of the School Facilities and Transportation Services Division as defined in Title 5, Division 1, Chapter 13 of the California Code of Regulations and Education Code and Public Resources Code, or provide an equivalent environmental assessment including:

- Department of Toxic Substance Control (DTSC), or Phase I site assessment, review for hazardous materials including industrial, agricultural, and naturally occurring pollutants such as asbestos and heavy metals.

Option 2

If a prior ESA was completed when the site was first developed, that ESA should be reviewed for any relevant changes and for completeness of all of the above requirements. If the ESA did not address all of the above requirements, the missing ones must be completed, and mitigation may be necessary. The requirement to be at least 1,000 feet from an active landfill does not apply to existing sites; however, if the new building is proximate to an active landfill, mitigation may be necessary. If no prior ESA was performed, a Phase I ESA should be done meeting all of the above requirements, and a Phase II ESA completed if any hazards are found.

Identify facilities within ¼ mile that might reasonably be anticipated to emit hazardous air emissions or handle hazardous or acutely hazardous material, substances, or waste, including:

- Existing or former hazardous waste disposal sites.
- Existing hazardous materials pipelines (other than natural gas supplied to school).
- Freeways and other busy traffic corridors, large agricultural operations, or rail yards within ¼ mile.
- Other operations that might reasonably be anticipated to emit hazardous air emissions, or to handle hazardous, or extremely hazardous materials, substances or waste.

A determination shall be made (following ASTM 1527-13) that such facilities will not adversely affect the health of students, staff, or teachers. If any of the listed hazards are identified, the project shall provide mitigating measures to reduce the hazards as feasible.

SS P1.0 IMPLEMENTATION

Refer to U.S. EPA's School Siting Guidelines for additional guidance on identification of nearby facilities that may impact the school site, conducting Phase I and Phase II site

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assessments, evaluating potential impacts from nearby sources of air pollution and integrating public involvement into the school siting process.

Public Schools not seeking CDE written approval may verify their compliance with Title 5 standards by providing a copy of the governing board agenda item where the site was evaluated to the Title 5 standards. This is a required action for all districts acquiring property pursuant to Education Code section 17211..

CHPS has adopted the Massachusetts standard for minimum distance from an active landfill of 1,000 feet [7]. If the site is in a locality with a shorter allowable distance and it would be a hardship to meet the 1,000 feet, the ESA should contain an explanation of the circumstances and the mitigation steps that will be taken to minimize pest and pollution exposure at the school.

Public Schools Receiving State Funds

Verification is provided by the California Department of Education's (CDE) School Facilities and Transportation Services Division (SFTD) and the Department of Toxic Substances Control (DTSC) when they evaluate the state-funded new school site.

The Education Code and Public Resources Code sections cited above require that state-funded new schools conduct a health risk analysis of proposed school sites within 500 ft. of a freeway or traffic corridor. This analysis must be done in accordance with Section 44360 of the Health & Safety Code, which requires using guidelines established by the Office of Environmental Health Hazard Assessment. If an analysis indicates significant health risks, the law requires the school district governing board to adopt a statement of Overriding Considerations for the environmental impact report if the school district moves forward with the proposed siting.

To determine if the site is within 500 feet of a freeway, refer to the California Road System Maps available through CalTrans. [6] Other types of roadways may also be relevant to the analysis, depending on the site and the amount and type of traffic, for example a high volume roadway as defined by the state or a trucking corridor.

SS P1.0 DOCUMENTATION

DESIGN REVIEW

Provide any of:

1. A copy of the Phase I Environmental Site Assessment and the Phase II assessment, if applicable, in accordance the requirements above.
2. The "no further action" letter from CDE.
3. A narrative summary of the site review and determinations and mitigation.

CONSTRUCTION REVIEW

N/A

SS P1.0 RESOURCES

1. ASTM Phase I Environmental Assessment Requirements: www.astm.org/Standards/E1527.htm
2. ASTM Phase II Environmental Assessment Requirements: https://www.astm.org/Standards/E1903.htm

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3. US EPA School Siting Guidelines: https://www.epa.gov/sites/production/files/2015-06/documents/school_siting_guidelines-2.pdf
4. US EPA Restricted Use Product List: https://www.epa.gov/sites/production/files/2017-10/documents/rup-report-oct2017.pdf
5. US EPA Travel and Environmental Implications of Schools Siting: https://www.epa.gov/smartgrowth/travel-and-environmental-implications-school-siting
6. CalTrans Office of Highway System and Performance: https://dot.ca.gov/programs/research-innovation-system-information/office-of-highway-system-information-performance
7. Massachusetts School Building Authority regulations on school construction, see 2.05 (4) for the landfill reference: http://www.massschoolbuildings.org/sites/default/files/edit-contentfiles/Documents/Stats_Regs/MSBA_Regs_Program_April-10.pdf
8. California Department of Education regulations: https://www.cde.ca.gov/ls/fa/sf/title5regs.asp

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SS C2.1 SUSTAINABLE SITE USE & SENSITIVE LANDS CONSERVATION

The availability of open areas with natural ecosystems preserves species and habitat and can help keep the environment cleaner. It also offers opportunities for teaching biological and natural sciences and recreation outside of defined play spaces.

Intent

Preserve as much open space as possible to save existing ecosystems and provide natural learning and recreation spaces.

This criterion is intended to mitigate negative impacts on existing ecosystems. Reducing a building footprint, reducing parking and prioritizing emissions-free vehicles, and maximizing open space can reduce disturbance to these systems. Multi-story schools decrease the amount of land used in construction and help preserve existing open space. Reduced parking spaces discourages automobile use, reduces urban heat island effects, and can reduce pollution from stormwater runoff. Prioritizing parking for shared rides and Zero Emissions Vehicles (ZEV) lowers the impact of air pollution on people and wildlife. Combined, these strategies for reducing the footprint of buildings and limiting parking and paving while encouraging alternate means of transportation can minimize the effects on existing ecosystems.

SS C2.1 SUSTAINABLE SITE USE & SENSITIVE LANDS CONSERVATION

CREDIT

1-3 points

APPLICABILITY: All projects

VERIFICATION: Design Review

SCORING: 1 point each for 3.1.1-3.1.3

RELATED CRITERIA: SS C4.1 Central Location & Near Public Transit

SS C2.1 REQUIREMENTS

SS C2.1.1 *Sustainable Site Use*

1 point

Do any two of the following:

- Building Footprint: Design the building to minimize the footprint by having a ratio of gross square footage to footprint square footage of at least 1.4.
- Parking: Do not exceed minimum local parking requirements. Comply with the following, unless they result in more parking than local minimums:

  New Construction and Additions:

  - Size parking capacity not to exceed 2.25 spaces per classroom for elementary and middle schools and 2.25 spaces per classroom plus spaces for 30% of students for high schools.
  - If event parking is provided, it must be permeable.

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- Provide preferred parking spaces and signage for 10% of total parking spaces for carpools, vanpools, and Zero Emission Vehicles (ZEVs).

Major Renovations/Modernizations:

- Add no new parking compared to existing conditions.
- Provide preferred parking spaces and signage totaling 10% of total parking spaces for carpools or vanpools and for Zero Emission Vehicles (ZEVs).

- Open Space: Limit total site development so that open space is 25% more than zoning open space requirements. If no zoning ordinances apply to open space, provide a minimum of 50% vegetated open space. If a school is located in a densely populated area (SS 6.1: Central Location), provide a minimum of 25% vegetated open space.

SS C2.1.2 *Sensitive Lands Conservation*

1 point Do not develop buildings or impervious surfaces on portions of sites that meet any one of the following classifications:

- Land which prior to acquisition for the project was public parkland, conservation land, or land acquired for water supply protection.
- Greenfields, which for the purposes of this criterion, are defined as undeveloped land or lands that are used for agriculture, forestry, or park purposes. Undeveloped lands are defined as lands that have not been in use for a period of 50 years or more and cannot be identified, by visual inspection, as having been developed.
- Land specifically identified as habitat for any species on the federal or state threatened or endangered list.
- Land that is prime farmland, unique farmland, or farmland of statewide importance as defined by the US Department of Agriculture (USDA) Natural Resources Conservation Services NRCS.

SS C2.1.3 *Additional Sensitive Lands Conservation*

1 point Do not develop buildings or impervious surfaces on portions of sites that meet any one of the following classifications:

- Land whose elevation is lower than 5 feet above the elevation of the 100-year flood as defined by FEMA and as shown on the FEMA Flood Insurance Rate Map (FIRM) for the site.
- Land that is within 100 ft. of any wetland as defined by 40 CFR (Code of Federal Regulations) Part 230.3, or within setback distances from wetlands prescribed in state or local regulations, whichever is more stringent.
- Previously undeveloped land that is within 50 feet of a water body, defined as seas, lakes, rivers, streams and tributaries that support or could support aquatic life, recreation or industrial use, consistent with the terminology of the Clean Water Act.

SS C2.1 IMPLEMENTATION

SS C2.1.1 For a new building, addition or major renovation/modernization project to earn these points, calculations must be based on the entire campus, not the individual building or building(s) being modernized. A major modernization project, a new building on an existing campus,

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and an addition can also claim these points if the existing campus already satisfies the requirement.

Demonstrate that the design meets this requirement through the following equation:

$$\frac{\text{Total Floor Area of Building (ft}^2\text{)}}{\text{Total Square Footage of the Building Footprint (ft}^2\text{)}} \geq 1.4$$

Calculate the ratio by dividing the school facility's footprint by the facility's entire square footage including all stories. Said another way, achieving a ratio of 1.4 requires at least 40% of the total building square footage needs to be above the first floor. The building footprint is defined as the ground surface occupied by the structure and excludes awnings, overhangs and projections from the building.

Excess parking spaces encourage increased automobile use, contribute to urban heat island effects, and can increase pollution from stormwater runoff. Design parking so as not to exceed listed amounts, and include clearly marked, preferred parking areas for carpools, vanpools, and Zero Emission Vehicles (ZEVs). If electric charging stations are included, you may apply for an Innovation credit. For the purposes of making calculations for this criterion, classrooms include:

- General classrooms
- Art rooms
- Music classrooms
- Computer labs
- Science labs
- Special needs collaborative and remedial classroom space

For new construction, provide a site plan showing parking layout (indicate total number of parking spaces). Highlight preferred parking spaces and provide a signage schedule or other graphic highlighting Preferred Parking signage. Indicate number of classrooms (as defined for this criterion) and total number of students.

Zero Emission Vehicles (ZEV) are designated by the California Air Resources Board.

For major renovation/modernization, provide an existing site plan showing existing parking conditions (indicate total number of parking spaces) and a site plan of the new parking layout (indicate total number of parking spaces). Highlight preferred parking spaces and provide a signage schedule or other graphic highlighting Preferred Parking signage.

If event parking is provided, it must be permeable (gravel, permeable paving or concrete grid with drainage).

Calculate building and paving areas to determine open space remaining within the site boundary. Calculate building footprint as listed above. Only vegetated areas will be considered open space.

Where state or local zoning ordinances specify open space requirements, open space must measure a minimum of 25% greater than required open space. Where no state or local zoning ordinances apply to open space, vegetated open space must measure a minimum of 50% of total site area.

Where project complies with SS C4.1: Central Location and no state or local zoning ordinances apply to open space, open space must measure a minimum of 25% of total site area.

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When reducing the floor area to footprint ratio, a careful balance must be achieved between the energy benefits and costs of the building envelope, the footprint of the building, and daylighting best practices. Tuck-under parking and sharing of off-site parking facilities can minimize site disturbance.

SS C2.1.2 A new building on an existing campus or additions to existing buildings can earn this point if the site for the new building or addition is not on environmentally sensitive land. For major renovations/modernizations, this point may be earned if it can be verified that the site is not environmentally sensitive land as defined by this criterion.

Protect environmentally sensitive site features, such as wetlands and tree stands, and encourage landscaping and architecture that responds to and includes the school's immediate environment. Provide a current site survey with the school site property boundaries marked in bold.

Greenfields:

During the site selection process, use previously developed sites instead of greenfields. Redevelopment reduces environmental impacts by utilizing established infrastructure and preserving the open space of undeveloped lands.

Habitat: Verify that the proposed site is not habitat to any species on the federal or state, threatened or endangered list. Provide the excerpt of the document indicating that the site is not habitat to any species on the federal or state, threatened or endangered list.

Prime Farmland:

Verify that the proposed site is not prime farmland, unique farmland, or farmland of statewide importance as defined by the US Department of Agriculture (USDA). The Natural Resources Conservation Services (NRCS) division of the USDA maintains the definitions and soil surveys that designate areas as "prime farmland, unique farmland, or farmland of statewide importance." Provide NRCS map indicating site location.

SS C2.1.3 A new building on an existing campus or additions to existing buildings can earn this point if the site for the new building or addition is not on environmentally sensitive land. For major renovations/modernizations, this point may be earned if it can be verified that the site is not environmentally sensitive land as defined by this criterion.

Flood Plain:

Do not construct permanent buildings, or structures to support buildings within the 100-year flood plain. Both federal and state agencies have worked together over the last several decades to prevent construction of buildings in 100-year floodplains to achieve two important results: 1) significant decrease in building damage and liability and 2) restoration of functional floodplains to absorb flood waters and minimize impacts to downstream communities.

"Above the floodplain" means that the building footprint must be above the 100-year flood plain, but the requirement does not apply to non-building areas of the site.

Consult with FEMA to determine the 100-year floodplain for the school site. Verify that the proposed building footprint is located at an elevation five feet or higher than the 100-year floodplain. Provide the site plan indicating site is located five feet or higher than the 100-year flood plain.

Wetlands:

Do not build on sites which are within 100 ft. of a wetland as defined below. Site development includes the school facilities, playing fields and parking lots and construction

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operations that are not related to wetlands improvement. Survey the site to determine if wetlands exist on, or near the site. Verify that all construction activity, including parking lots, playgrounds or any structures are located more than 100 feet from wetlands. Consult with federal regulations 40 CFR § 230, or local, or state rule to determine if an area qualifies as a wetland. Depending on state law, the owner may need to get a determination from a local jurisdiction, such as a conservation commission. If more than one definition exists, use the one that is more stringent. The term wetlands is defined in 40 CFR § 230 as "those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs and similar areas." During construction, protect all wetlands with a fence or other physical barrier that cannot be easily moved (wildlife-permeable barrier, if appropriate) that protect the wetland from equipment parking and traffic, storage of materials, and other construction activities. All construction and maintenance personnel shall be educated about the location and protective measures of the wetlands. In Construction Documents, outline consequences to the contractor if wetland boundaries are not respected.

Water Bodies:

Do not build on sites which are within 50 ft. of a water body as defined below. Site development includes the school facilities, playing fields, parking lots and construction operations that are not related to water body improvement. Survey the site to determine if water bodies exist on or near the site. Verify that all construction activity, including parking lots, playgrounds or any structures are located more than 50 feet from water body.

Water bodies include navigable waters, waters of the contiguous zone, the oceans and adjoining shorelines as well as wetlands and watersheds that feed the water bodies listed. For further guidance, see https://www.epa.gov/wotus-rule/about-waters-united-states.

SS C2.1 DOCUMENTATION

DESIGN REVIEW

SS C2.1.1 *Building Footprint:* CDs, ideally the title page and the code page, must include both the building's gross square footage and the building footprint square footage.

Parking: provide a site plan showing parking layout (indicate total number of parking spaces). Highlight preferred parking spaces and provide a signage schedule or other graphic highlighting preferred parking signage. Indicate number of classrooms (as defined for this criterion) and total number of students.

Open Space: CDs, ideally the title page and the code page, must include the square footage of open space.

SS C2.1.2 *Parkland/Protected Land:* Provide a current site survey with the school site property boundaries marked in bold confirming that there are no former parks, conservation lands, or water protection lands on the site.

Greenfield: Provide evidence of historical property use through submittal of aerial photographs, environmental assessment or similar verification that property is not a greenfield.

Habitat: Provide the excerpt of document indicating that the site is not habitat to any species on the federal or state, threatened, or endangered list.

Prime Farmland: Provide NRCS map indicating site location.

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SS C2.1.3 Provide one or more site plans with the building footprint that:

Flood Plain: Includes the 100-yr flood plain and a line indicating 5' in elevation above the flood line if it crosses the site (use a map from the FEMA web site to identify 100-yr flood plain).

Wetlands: Shows that the site is located more than 100 feet from wetlands. Show location of fencing to mitigate grading impacts on construction site plan or grading plan.

Water Bodies: Shows that the site construction is located more than 50 feet from water bodies.

CONSTRUCTION REVIEW

N/A

SS C2.1 RESOURCES

4. California Air Resources Board, Zero Emission Vehicles (ZEV): www.arb.ca.gov/msprog/zevprog/zevprog.ht
5. Lists of Prime and Statewide Important Farmland Soils are maintained for each soil survey area and may be obtained from the Field Office Technical Guide (FOTG) located in each NRCS field office. County and state offices of the NRCS keep maps showing the status of lands within their jurisdiction. County offices can be located at: offices.sc.egov.usda.gov/locator/app. Maps are also available at websoilsurvey.nrcs.usda.gov/app/HomePage.htm (main page) and websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx (actual map page).

3. EPA wetlands information: https://www.epa.gov/wetlands. Many wetlands are digitally mapped and downloadable from the National Wetlands Inventory, www.fws.gov/wetlands/ or from state, county, or municipal GIS departments or Natural Resources Conservation Service offices.
4. Federal Clean Water Act can be found at and https://www.epa.gov/laws-regulations/summary-clean-water-act
5. Federal Emergency Management Agency (FEMA) Regions: https://www.fema.gov/fema-regional-contacts
6. FEMA Flood Maps: https://msc.fema.gov/portal/home

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SS P3.0 EROSION & POLLUTANT CONTROL DURING CONSTRUCTION
SS C3.1 STORMWATER & SEDIMENTATION MANAGEMENT

Intent

Reduce erosion and negative impacts on water and air quality during construction.

Erosion results when wind and precipitation carry away soil that has not been protected during site clearing and earth moving operations. This leads to degradation of property and sedimentation of local waterways. Mitigation measures to protect soil during construction reduce negative impacts to water and air quality. Best management practices (BMPs) are an established means for reducing runoff and preventing pollution both during construction and during building operation. [1]

SS P3.0 EROSION & POLLUTANT CONTROL DURING CONSTRUCTION

PREREQUISITE

1 point

APPLICABILITY: All projects on sites located near water bodies; additional applicability is contained under Implementation

VERIFICATION: Design and Construction Review

SS P3.0 REQUIREMENTS

SS P3.0 *Erosion & Pollutant Control During Construction*

1 point

On sites of 1 acre or larger, control erosion and the transport of soil and other pollutants off the site during construction. Design and implement a site-specific plan that incorporates the use of best management practices (BMPs) consistent with part 2.2 of the US EPA's National Pollutant Discharge Elimination System (NPDES) 2017 Construction General Permit (CA Construction General Permit 2009-0009-DWQ as amended). [8]

The plan shall meet the following objectives:

- Prevent soil loss by wind and water erosion, including protecting topsoil by stockpiling for reuse.
- Prevent transport of sediment and particulate matter to storm sewers or receiving waters and/or to air.
- Eliminate or reduce off-site discharge of construction waste.
- Establish maintenance commitments on post-construction pollution control measures.

For new construction or additions on sites of less than 1 acre, comply with CALGreen 5.106.2.

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SS C3.1 STORMWATER & SEDIMENTATION MANAGEMENT

SS C3.1 REQUIREMENTS

1 point

Do all of the following:

Stormwater Runoff Rate:

For sites with an existing imperviousness of less than or equal to 50%, limit the post-development peak stormwater runoff discharge rate so that it does not exceed the estimated pre-development rate.

For sites with an existing imperviousness of more than 50%, implement a stormwater management plan that results in a 25% reduction in the rate and quantity of stormwater runoff.

Drainage at Trash Storage Areas:

For all sites, design trash storage areas to provide appropriate drainage from adjoining roofs and pavement to divert stormwater runoff around the trash storage areas. The trash container areas must be screened or walled to prevent off-site transport of trash.

Stormwater Management:

Provide post-construction treatment control best management practices (BMPs). Incorporate either a volumetric or flow-based treatment control design standard, or in combination, as identified below to mitigate (infiltrate, filter or treat) stormwater runoff:

Volumetric Treatment Control BMP

One of the following:

- The 95th percentile 24-hour runoff event determined as the maximized capture stormwater volume for the area, using procedures recommended in https://owl.cwp.org/mdocs-posts/post-construction-manual-managing-stormwater-in-your-community/.
- The volume of runoff produced from a historical-record based reference 24-hour rainfall criterion for “treatment” that achieves approximately the same reduction in pollutant loads achieved by the 95th percentile 24-hour runoff event.

OR

Flow Based Treatment Control BMP

The flow of runoff produced from a rain event:

- equal to at least two times the 95th percentile hourly rainfall intensity for the area; or
- that will result in treatment of the same portion of runoff as treated using volumetric standards above; or
- the intensity-duration-frequency method, with a hydrograph corresponding to a 50-year storm; or
- 0.2 inches per hour.

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SS P3.0 & C3.1 IMPLEMENTATION

SS P3.0 *Erosion & Pollutant Control During Construction*

This point applies only to sites where there is potential for runoff to reach a stream, wetland, pond, lake, etc. either directly or by entering a storm sewer. On sites where there is no surface water body in proximity or where all rain or snowmelt will enter a sanitary sewer or be absorbed directly into the ground, construction BMPs are not needed.

For sites over 1 acre in size, the contractor must develop and implement a site-specific Stormwater Pollution Prevention Plan (SWPPP) that includes specific controls for preventing water and air-borne soils from being carried off-site. Controls must stay in place and be maintained throughout the period of construction. Provide specification language requiring filing of a SWPPP to the agency having jurisdiction. Additionally, the contractor must submit a Notice of Intent (NOI) to the jurisdictional agency. The contractor shall verify with the agency whether any additional requirements apply to the project site.

For sites under 1 acre in size, BMPs are encouraged, and the contractor should prepare a plan similar to a SWPPP to document where and how the BMPs will apply. Provide specification language requiring preparation of the BMPs.

DSA and the State Water Boards have developed BMP guidance for schools. [9]

Note: EPA is currently revising the CGP https://www.epa.gov/npdes/proposed-modification-2017-construction-general-permit-cgp.

SS C3.1 *Stormwater & Sedimentation Management*

Design the project to maintain natural stormwater flows by promoting infiltration, using alternative surfaces (e.g., green roofs or permeable paving materials) and sustainable design strategies. Show BMPs on site plans, civil drawings and specifications. Include calculations to verify required levels are met. Schools should consider using organic, natural turf fertilizers during operation to improve water quality.

If the new project results in an alteration of more than 50% of the impervious surface of a previously existing development, and the existing development was not subject to stormwater treatment measures, then the entire project must be included in the treatment measure design.

If the new project results in an alteration of less than 50% of the impervious surface of a previously existing development, and the existing development was not subject to stormwater treatment measures, then only the new and replaced impervious surface must be included in the treatment system design. In order to earn a point under this criterion, the area of site altered must be greater than 25% of the site area.

For a new school on a greenfield site, the entire project must be included in the treatment measure design.

For the purpose of verifying compliance, the peak stormwater discharge rate is assumed to be directly proportional to the imperviousness of the site. For example, a 25% reduction in imperviousness is assumed to equate to a 25% reduction in the peak stormwater runoff discharge rate.

Provide fully enclosed trash areas or garbage containers with self-closing lids. Drains in this area must go to the sewer conveyance system and not to the storm sewers. Fully enclosing trash areas prevents feral animal intrusion and contamination of stormwater.

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The impervious site area is the sum of the area of each surface multiplied by its runoff coefficient, and the imperviousness of the site is the impervious site area divided by the total site area. Use the runoff coefficients for typical surfaces in the statewide Stormwater Management Handbook or as recommended by US EPA stormwater resources. Other surfaces or systems not listed may be considered if proper documentation is shown for runoff coefficients. Use the manufacturer's information or a "best estimate" for surfaces not included in the table. Calculate the imperviousness of the site both before and after development using the following equations. Note that many sites have vegetated surfaces but are underlain with high clay content soils that do not percolate. For these sites, runoff coefficients for the existing site should be adjusted to reflect higher runoff rates and care should be taken to develop methods for reducing the rate of runoff and increasing infiltration, if possible.

$$\text{ImperviousSiteArea} = \text{SurfaceArea} * \text{RunoffCoefficient}$$

$$\text{Imperviousness} = \text{ImperviousSiteArea} / \text{TotalSiteArea} * 100$$

This calculation should be completed for the proposed development and pre-development conditions. For sites with an existing imperviousness of less than 50%, the post-development imperviousness must be equal to, or less than, the pre-development conditions. In cases where the existing imperviousness is greater than 50%, the post-development imperviousness must be 25% less than the existing conditions.

Example Calculations

Question:

What is the imperviousness of an approximately ½ acre site (20,787 ft²) before and after development? The site is being converted from a *gravel* parking lot (11,420 ft²) to a new school.

Answer:

As calculated in Example 17, the site has an existing imperviousness of 49%. After the site is developed, it is estimated to have an imperviousness of 43%. The post-development site has imperviousness less than the pre-development site, therefore, the peak stormwater runoff may be assumed to be lower and the criterion may be earned.

Example 17: Existing Imperviousness

Surface type	Runoff coefficient	Area (sqft²)	Impervious area (ft²)
Pavement, gravel	0.75	11,420	8,565
Vegetation, flat	0.10	2,332	233
Vegetation, average	0.20	7,035	1,407
Total		20,787	10,205
Imperviousness			49%

Example 17: Developed Imperviousness

Surface type	Runoff coefficient	Area (sqft²)	Impervious area (ft²)
Pavement, pervious	0.60	4,128	2,477
Pavement, brick	0.85	1,072	911
Roof, conventional	0.95	4,020	3,819
Roof, rainwater collection	0.0	3,400	0
Turf, flat	0.25	3,542	886

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Vegetation, average	0.20	4,625	925
Total		20,787	9,018
Imperviousness			43%

Question: What is the imperviousness of an approximately ½ acre site (20,787 ft²) before and after development? The site is being converted from a *paved* parking lot (11,420 ft²) to a new school.

Answer: As calculated in Example 18, the site has an existing imperviousness of 60%. After the site is developed, it is estimated to have an imperviousness of 43%.

60% x 25% = 15%.

60% - (60% x 25%) = 45% > 43%

The site's imperviousness is at least 25% less than it was before development.

Example 18: Existing Imperviousness

Surface type	Runoff coefficient	Area (sqft²)	Impervious area (ft²)
Pavement, gravel	0.95	11,420	10,849
Vegetation, flat	0.10	2,332	233
Vegetation, average	0.20	7,035	1,407
Total		20,787	12,489
Imperviousness			60%

Example 18: Developed Imperviousness

Surface type	Runoff coefficient	Area (sqft²)	Impervious area (ft²)
Pavement, pervious	0.60	4,128	2,477
Pavement, brick	0.85	1,072	911
Roof, conventional	0.95	4,020	3,819
Roof, rainwater collection	0.0	3,400	0
Turf, flat	0.25	3,542	886
Vegetation, average	0.20	4,625	925
Total		20,787	9,018
Imperviousness			43%

SS P3.0& C3.1 DOCUMENTATION

DESIGN REVIEW

SS P3.0 For all sites, the site plan must show the storm sewer/s or water body affected and CDs must include the site runoff control measures (BMPs). For sites over 1 acre, include a copy of the Notice of Intent or SWPPP if complete.

SS C3.1 Complete the SS C3.1 CHPS Worksheet to calculate imperviousness of surfaces. Surfaces identified will be crosschecked with plans.

Provide drawings that identify trash storage areas, how water is diverted from this area, and measures taken to ensure the trash is not transported off-site (walls, screens).

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Provide calculations of the total volume of runoff and the total volume of runoff treated. In addition, drawings must call out where Best Management Practices (BMPs) are located and details where appropriate.

CONSTRUCTION REVIEW

SS P3.0 Provide evidence of the SWPPP or equivalent plan, such as the table of contents or summary list of BMPs utilized, if not provided at Design Review. Provide photos identifying measures taken throughout construction.

SS C3.1 Provide photo(s) of the primary trash storage areas showing appropriate drainage from adjoining roofs, pavement diverting stormwater runoff and screen or wall preventing transport of trash. Provide photos of at least one implemented BMP.

SS P3.0& C3.1 RESOURCES

1. Best Management Practices (BMPs): www.bmpdatabase.org/
2. NPDES Construction General Permit: https://www.epa.gov/sites/production/files/2017-06/documents/2017_cgp_final_permit_508.pdf
3. To verify if your state administers the NPDES program: https://www.epa.gov/npdes/npdes-program-authorizations
4. Stormwater Pollution Prevention Plan: https://www.epa.gov/npdes/developing-stormwater-pollution-prevention-plan-swppp
5. To determine exactly when BMPs are needed: https://www.epa.gov/sites/production/files/2017-07/documents/cgp_flow_chart_do_i_need_a_permit2.pdf
6. US EPA Best Management Practices Guide: https://www.epa.gov/npdes/national-menu-best-management-practices-bmps-stormwater#edu
7. Center for Watershed Protection (CWP): https://www.cwp.org, and CWP's Online Watershed Library (OWL): https://owl.cwp.org
8. CA Construction General Permit: https://www.waterboards.ca.gov/water_issues/programs/stormwater/constpermits.html
9. CA joint-agency publication, *Guidance for Stormwater and Dry Weather Runoff CAPTURE at Schools*: https://www.waterboards.ca.gov/water_issues/programs/stormwater/storms/docs/swrcb_schools_lid_2018fnl.pdf

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SS C4.1 CENTRAL LOCATION & NEAR PUBLIC TRANSIT

Over the lifetime of the building, schools and parents invest significant amounts of time, energy, and money transporting students to and from school. Cars driven by parents, guardians, or the students themselves are one of the largest resource users and sources of pollution. Centrally located sites allow more students to walk or bike to school or take public transportation, while reducing the distance cars must travel.

Intent

To make the school more accessible to its occupants and to promote smart growth through centrally locating new schools close to dense, mixed-use areas to encourage alternatives to automobile use.

SS C4.1 CENTRAL LOCATION & NEAR PUBLIC TRANSIT

CREDIT

2-3 points

APPLICABILITY: All projects

VERIFICATION: Design Review

SCORING: 2 points for 4.1.1 and/or 1 point for 4.1.2

RELATED CRITERIA: SS C5.1 Joint Use of Facilities, SS C6.1 Human-Powered Transportation

SS C4.1 REQUIREMENTS

SS C4.1.1 *Proximity to Students & Community Services*

2 points

Comply with any of the following 4 options:

1. Site is centrally located in which 50% of students are within the following distances: 1 mile for elementary schools, 2 miles for middle and high schools.
2. The school's location is within ½ mile of at least eight basic resident services, such as: supermarket, commercial office building, convenience grocery with fresh food, day care, fitness center, hardware store, pharmacy, laundry or dry cleaner, public library, medical/dental services, senior care facility, public park, post office, bank, community center (for recreation or community education), place of worship, fire station, police station, beauty salon, restaurant, and theater.
3. If the project is in a rural school district as defined by the National Rural and Small Schools Consortium (the district inhabitants number is fewer than 150 per square mile or if the district is located in a county where 60% or more of the population lives in communities of 5,000 or fewer), the school's location meets at least one of the following criteria:
    - Located within ¼ mile of the historic central main street business district. Provide a direct pedestrian connection between the school and the business district that includes walking paths and bicycle paths; or
    - Located on the grounds of a historic schools: one that is or has been the site of the school building(s) constructed before 1940.

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4. If there are long-term energy use or transportation circumstances that make it more efficient to site the school in a centralized location to serve multiple districts, or between schools, submit your own proposal showing why it is more transportation and/or energy efficient.

SS C4.1.2 *Availability of Public Transit System*

1 point Locate building within ¼ mile of a commuter rail, light rail or subway station, or within ⅛ mile of one bus line.

SS C4.1 IMPLEMENTATION

This criterion applies to new schools, a new building on an existing campus, additions and to major modernizations. A major modernization project and a new building on an existing campus may claim this criterion if the existing campus already satisfies the requirement, or if the site is expanded and satisfies the requirement.

For all cases, base calculations must include the total school population, not just the population of the new building, addition or the building(s) being renovated/modernized.

SS C4.1.1 To earn this criterion, calculations must be based on the estimated school population when the school opens or when a new building on an existing campus opens. Develop a site map that identifies the school site and the location of the student population that the school supports. Draw a circle centered on the school using the mile requirement by school level listed in SS.6.1 as the radius.

Schools located near busy arterials or highways are encouraged to develop Walking School Bus programs – see also 6.1.2.

Verify that at least 50% of the school's students are within the circle.

Provide a map showing the ½ mile perimeter around the school and indicating the names and location of eight of the basic services listed in the criterion text box. The ½ mile radius may be drawn from EITHER the front entrance of the school, where the school driveway meets the public way, or from the front door of the school. The front door of the basic service identified on the map must fall within the ½ mile radius. Online tools such as MapQuest® or Google Maps™ may also be submitted as documentation of the ½ mile radius.

Submit a proposal showing why a particular school siting is more transportation and/or energy efficient than other locations.

SS C4.1.2 The energy use and pollution associated with transportation often dwarfs the total lifetime energy used by the school itself. Locating the site close to public transportation, encouraging use of public transportation and carpooling by minimizing parking, and creating bike facilities and safe walking/biking access, all reduce the automobile-related pollution (see SS C6.1). Some school districts offer reduced or subsidized fares for students and staff using public transportation. If sufficient capacity exists, schools can use public transportation to replace district-provided bus service.

SS C4.1 DOCUMENTATION

DESIGN REVIEW

SS C4.1.1 Provide an explanation or methodology, and appropriate back up for the option chosen.

Provide a map showing the required features and distance to the school.

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If an alternative analysis was completed during the environmental review process, this document can provide basis for school site selection.

SS C4.1.2 Provide an area map locating transportation lines within the distance to school as noted. Measure from the main entrance of the school building (i.e. front door), and mark bus stops or stations for commuter rail, light rail, or subway lines.

CONSTRUCTION REVIEW

N/A

SS C4.1 RESOURCES

1. US EPA's Smart Growth site: www.epa.gov/smartgrowth
2. US Census Bureau Population Information: https://www.census.gov/cps/data/cpstablecreator.html
3. Center for Cities and Schools: http://citiesandschools.berkeley.edu/

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SS C5.1 JOINT USE OF FACILITIES

Intent

Allow for more community and neighborhood integration within the school facility and grounds.

Community common-pool resources such as school facilities and grounds, park and recreation space (for example, habitat areas, playgrounds and athletic fields), parking lots, gardens and libraries are shared with the community. Joint-use of school facilities is a growing trend. Increasingly, schools are making their facilities available to community groups during and/or outside school hours, providing mutual benefits to both the school and the community. [1, 2]

The benefits of sharing community common-pool resources have been well documented (Elinor Ostrom, et al), and include social benefits such as communication, trust, cooperation, security, ecological benefits and cost sharing (resource costs such as energy and water use, capital and operating costs).

In planning for shared community common-pool resources, care must be taken to provide for programmatic and operational needs. For example, a school campus shared with joint-use programs must be able to maintain separate access and security between the main campus student areas and the after-hours community joint-access areas. Another example would be a parking lot that could well serve multiple community needs on a 24/7 basis. Similarly, a school garden could be made accessible to qualified community members.

Joint-use facilities may be owned and/or maintained by other organizations or agencies, but be available for school use. If so, the contractual agreement(s) must clearly provide for the long-term benefit to the school community.

SS C5.1 JOINT USE OF FACILITIES

CREDIT

1 point

APPLICABILITY: All projects

VERIFICATION: Design Review

SCORING: 1 point for either 5.1.1 or 5.1.2

SS C5.1 REQUIREMENTS

SS C5.1.1 *Interior Joint Use*

1 point

With community involvement, design one or more interior spaces totaling at least 2,500 ft^2 for use by the community-at-large or appropriate organizations but still owned and maintained by the school. The plans shall designate this area as the "Joint Use Area." Design of the Joint Use Area must include features to keep the rest of the building and occupants separated and secure and must provide access to toilet facilities without compromising security of the non-public portions.

AND do any of the following:

- Provide a separate, independently secured entrance for the Joint Use Area.
- If the Joint Use Area is operated by a non-school entity, provide a separate entrance and bathroom facilities independent of the school use portions of the

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facility. To qualify, the third party must use the facility on a regular (at least weekly) basis.

- Share at least 75% of library space, based on total availability, with the community as a community library. There are no additional security requirements for this option. The 75% of library space may count towards the 2,500 sf.

OR

SS C5.1.2 *School Grounds Joint Use*

1 point Do any two of the following:

- Share at least 75% of school grounds based on total square feet of availability with the community. (1/2 point)
- Share at least 50% of parking spaces, based on total availability, with the community and make those spaces available outside school hours. (1/2 point)
- Share at least 75% of garden space, based on total availability, with the community and make that space available to community members. (1/2 point)

SS C5.1 IMPLEMENTATION

A new building on an existing campus can claim this criterion only if the building is designated as a "Joint Use Area" and the above requirements are satisfied for the whole campus. A renovation/modernization project can claim this criterion if new measures are taken or if the existing campus already satisfies the requirements. Schools with special needs facilities may request a variance based on circumstances.

SS C5.1.1 The most successful schools have a high level of parent and community involvement, but there is a need to control access for security reasons. Therefore, this involvement can be enhanced if a school is designed so that neighborhood meetings, recreation activities, and other community functions can take place at the school in a safe and secure fashion.

Building or renovating a school provides an opportunity for the community to incorporate community programs and services into the building program. During the planning stages, school districts should give careful thought to the types of programs, services, and facilities they may wish to offer via the future school building (e.g., library services, recreation services, meeting space, space for special events, etc.).

Other strategies that contribute to shared use of the school building include designing separate entrances for spaces likely to be shared, adjusting building orientation and layout to separate classroom and administration areas from shared spaces, planning for shared kitchen and toilet facilities, and designing special features into the school that the community can use.

Alternately, the school can incorporate spaces owned and operated by other entities, but make them available for direct access from the school during school hours. These spaces must incorporate separate security and may include separate toilet facilities if school-site facilities are not directly available.

To earn this criterion, the physical design must incorporate measures to facilitate joint-use while providing security for the school. Provide doors or security gates to close off portions of the school that are used during non-school events.

If the joint use facility is administered by another entity, provide a copy of the formal agreement between the school district and outside entity on joint use of facilities, including

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any operations/maintenance provisions and provide copies of applicable insurance policies for use of the facilities by the school if the spaces are owned and maintained by others. Joint-use facilities owned by other entities will be considered for this criterion only if use by the school occurs on a regular (at least weekly) basis. Provide a description of contractually approved use pattern by the school.

SS C5.1.1 Share at least 75% of library space based on total availability, with the community, and make that space available during normal library operating hours as a community library.

Joint use of library space provides both social and ecological benefits. Socially, it provides a place for community social interaction, communication, and building relationships of mutual trust and cooperation. Furthermore, it provides for a node for local information resource sharing. Ecologically it mitigates climate change by reducing redundant facilities.

SS C5.1.2 Joint use of school facilities and grounds is a growing trend across the country. This criterion is intended to encourage schools to share their outdoor space with the community at large or vice versa – to encourage municipalities to allow schools to use local parks, in lieu of having the school construct separate facilities. Either arrangement allows the community to optimize resources dedicated to community common pool needs.

Urban schools lacking adequate outdoor space may consider use of off-site public park and recreation space to comply if such space is within a safe, walkable 1/8 mile route.

Joint use of parking facilities provides both social and ecological benefits. Socially, it provides a node for safe interaction. Ecologically it limits disruption of the landscape, reduces heat island effects and reduces stormwater runoff by minimizing construction of impervious paving.

Joint use parking facilities will only be considered if 50% of a school's parking lot capacity is used by an outside organization on a regular basis, or 50% of the school's parking requirement is satisfied by use of another organization's parking lot.

Share at least 75% of garden space (based on total availability) with the community, and make that space available on a 24/7 basis to qualified community members.

Joint use of garden space provides both social and ecological benefits. Socially, it provides a place for community social interaction, communication, and building relationships of mutual trust and cooperation. Furthermore, it provides for local food security. Ecologically it mitigates climate change by protecting soil fertility, biodiversity, water management, and so forth.

Joint-use garden space will only be considered if 75% of a school's garden space is shared (based on total availability) with the community, and that space is made available to community members. Provide a calculation and a schedule of use substantiating this requirement.

SS C5.1 DOCUMENTATION

DESIGN REVIEW

Provide a letter signed by the project architect and school superintendent, indicating features of the school that enhance its shared use with the community.

SS C5.1.1 Provide a site plan that identifies the joint use area and the bathroom facilities that can be accessed. Provide a copy of the formal Joint Use agreement between the school district and the other entity, and provide copies of applicable insurance policies for use of the space. Include maintenance and operations provisions in any agreement.

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SS C5.1.2 Provide a site plan that identifies the area of recreation space available for joint use. A calculation must be provided on the sheet that includes the total amount of recreation and park space available and the percentage of space available for joint use.

Provide a copy of the agreement between organization(s) and school district, school principal, or school board to provide joint use. The agreement should be signed by both parties and state the facilities/parks to be used and for what purpose. Alternatively, provide copies of applicable insurance policies governing use of the parks or recreational space by the municipality or by the school if the spaces are municipally owned.

CONSTRUCTION REVIEW

N/A unless anything not provided at Design Review

SS C5.1 RESOURCES

1. US EPA SMART Growth, benefits of Smart Growth provisions: www.epa.gov/dced/basic_info.htm
2. New Schools Better Neighborhoods offers information on the benefits of joint-use facilities, examples of join-use projects, joint-use analysis, recommendations, and policies: www.nsbn.org/case/jointuse/.

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SS P6.0 BICYCLE PARKING
SS C6.1 HUMAN-POWERED TRANSPORTATION

Walking, biking, and using scooters and skateboards are a popular and pollution-free form of transportation. When encouraging the use of bicycles, it is important to encourage the safety of pedestrians and bicyclists by providing bike lanes and sidewalks.

Intent

Encourage alternative transportation methods to and from school that increase physical activity, improve health, and reduce dependence on fossil fuels.

SS P6.0 BICYCLE PARKING

PREREQUISITE

0 points

APPLICABILITY: All projects

VERIFICATION: Design and Construction Review

RELATED CRITERIA: SS C4.1 Central Location

SS P6.0 REQUIREMENTS

SS P6.0 Comply with CALGreen Section 5.106.4.2.

SS C6.1 HUMAN-POWERED TRANSPORTATION

CREDIT

1-2 points

APPLICABILITY: All projects

VERIFICATION: Design and Construction Review

SCORING: 1 point for 6.1.1, an additional point for 6.1.2 or 6.1.3

RELATED CRITERIA: SS C4.1 Central Location

SS C6.1 REQUIREMENTS

SS C6.1.1 *Bicycle Accommodation*

1 point

Provide sidewalks or walkways, and bike lanes that extend at least from the school entrance to the end of the school property.

Provide suitable means for the short-term securing of bicycles and scooters outside the school and for skates, skateboards and helmets indoors (including lockers and/or cabinets). The storage must be safe, convenient, and at accessible locations at the following ratio:

- Grades 4-12: 1.5 spaces for every 10 students planned capacity (2 spaces minimum)

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For an additional point, do either 9.1.2 or 9.1.3:

SS C6.1.2 *Community Bike Lanes*

1 point In addition to requirements of 9.1.1, collaborate with local organizations and the municipality to provide safe bike lanes that extend appropriately from the school site at least one mile into neighboring communities or access ways.

OR

SS C6.1.3 *Walking School Bus/Safe Routes to School*

1 point Walking School Bus/Safe Routes to School: for elementary schools that also comply with SS C5.1 Central Location, provide an active Safe Routes to School Program involving parents, students, school and city traffic officers and transportation planners. Program can include walking school buses, bike trains, bike and walk skills training, bike helmet promotion and other active transportation encouragement events.

SS P6.0 & C6.1 IMPLEMENTATION

For a new building, addition or major modernization project to earn these points, the calculations must be based on the number of occupants for the entire campus, not the individual building or building(s) being modernized. A major modernization project, a new building on an existing campus, and an addition can also claim these points if the existing campus already satisfies the requirement.

Calculations must be based on the number of occupants for the entire campus.

SS C6.1.1 The purpose of this criterion is to provide safe access to the school by students and staff who choose to walk or ride their bicycles to school.

To earn these points:

- Bike storage area must be in a prominent location that is easily viewable from a main administrative location or within 100' of a main entrance and accessible from the bicycle lane or route.
- Bike storage area must have sufficient electric lighting.
- Half of bike rack area must be protected from precipitation for schools in areas with more than 20 inches of annual precipitation. Projects are encouraged to employ photovoltaic panels as the roof structure.
- Racks must be fixed in place and must provide for locking of wheel and frame. Additionally, projects are encouraged to provide supplemental bike racks for visitors near the main entrance.

To earn these points, safe bicycle lanes must extend from the school entrance to the ends of the school property to protect and encourage cyclists. There should be no barriers (e.g., fences) on school property line at cycling routes/access points, unless gates that can be locked open during appropriate hours are provided. Work with the local authorities to extend the bike lanes beyond the project limits and across busy roads. Illustrate how site bike lanes relate to neighborhood use patterns. Bike lanes should be designed to accommodate significant traffic (lane width established by the local jurisdiction) and be separated from pedestrian sidewalks and parking.

As a supplement to encouraging bicycle use, projects are encouraged to provide skateboard lockers, racks, or other means of separately and safely storing skateboards,

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scooters, roller skates, and helmets. Where individual lockers or lockable racks are provided, reduce the required number of bike racks by the count of lockers or skateboard racks provided.

Grades K-3 are not included in the ratio. Long-term bicycle/scooter parking, such as indoor lockers or storage rooms, for staff and faculty is eligible for an Innovation point.

SS C6.1.2 In addition to the requirements of SS C6.1.1, provide a map showing the relationship of the school to existing or new bike lanes that extend at least one mile from the school site into neighboring communities.

SS C6.1.3 Provide a description of a Walking School Bus / Safe Routes to School program including a map indicating route(s) and a statement of participant levels and school population. Provide a map indicating routes and showing the relationship of the school to existing or new sidewalks that extend at least one mile from the school site into neighboring communities. Include organizational description listing how program will be implemented and maintained. Provide a written confirmation from the school district that they will institute at least a yearlong program.

SS C6.1 DOCUMENTATION

DESIGN REVIEW

Plans must show the location and number of racks and storage and show bike lanes or bike paths to the edge of school property

CONSTRUCTION REVIEW

SS C6.1.1 Provide photo(s) of the features.

SS C6.1.2 Provide a map showing the relationship of the school to existing or new bike lanes that extend at least one mile from the school site into the neighboring community.

SS C6.1.3 Provide the Safe Routes to School Plan (SRTS). Include photos of strategies implemented to provide safe bike lanes or a network that extends appropriately from the school site at least one mile into neighboring communities or access ways.

SS C6.1 RESOURCES

1. CALGreen Section 5.106: https://up.codes/viewer/california/ca-green-code-2016/chapter/5/nonresidential-mandatory-measures#5.106
2. Safe Routes to Schools http://www.saferoutesinfo.org/
3. Walking School Bus www.walkingschoolbus.org/

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SS C7.1 REDUCE HEAT ISLANDS

Intent

Reduce heat islands to minimize impact on microclimate and human and wildlife habitat.

Heat islands raise temperatures and can impact school communities by increasing peak energy demand, air pollution levels, air conditioning costs, and heat-related illness. Note that the "heat island effect" is largely an urban phenomenon. Dark surfaces, such as pavement, cladding, and roofing absorb heat and radiate it back to surrounding areas. In a city, where there are many dark, heat absorbing surfaces, infrared radiation can easily boost temperatures by 10˚F or more. The heat island effect increases the need for air conditioning (and therefore electricity consumption) and is detrimental to site plantings, local wildlife, and maintaining comfortable temperatures.

Cool roofs and cool walls can significantly reduce school cooling loads and urban heat island effects by reflecting the sun's energy, instead of absorbing, retaining, and radiating it into the occupied spaces below. This criterion is most beneficial for schools with significant cooling loads.

SS C7.1 REDUCE HEAT ISLANDS

CREDIT

1-4 points

APPLICABILITY: All projects

VERIFICATION: Design Review

SCORING: 4 points for any of 7.1.1 or 1 point for any of 7.1.2

SS C7.1 REQUIREMENTS

SS C7.1.1 *Non-Roof & Impervious Surfaces*

4 points

Provide shade (within five years) on at least 50% of non-roof, impervious surfaces on the site, including parking lots, walkways, plazas, etc.

OR

Use light-colored/ high-albedo materials (a Solar Reflectance Index* (SRI) of at least 29) for 50% of the site's non-roof, impervious surfaces.

OR

Use a combination of shading and high-albedo materials for 50% of the site's non-roof surfaces.

*SRI or Solar Reflectance Index is calculated according to ASTM E 1980. Reflectance is calculated according to ASTM E 903, ASTM E 1918 or ASTM C 1549. Emittance is calculated according to ASTME E 408 or ASTM C 1372.

SS C7.1.2 *Cool Roof*

1 point

Use roofing materials that have a Solar Reflectance Index (SRI) as listed below for roof type for a minimum of 75% of the roof surface. See Resources for an SRI calculator. [4]

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Roof Type	Slope	SRI
Low-Sloped Roof	≤2:12	78
Steep-Sloped Roof	>2:12	29

OR

Vegetable Roof

Install a green or vegetated roof equal to at least 25% of the roof surface. Develop a guide and maintenance plan for the green roof. Vegetated Roofs using potable water or reclaimed water or using an in-ground irrigation system shall not be eligible for any points.

OR

Vegetated Wall/Trellis

Provide vegetated wall surface, shading from trees or other landscaping (within 5 years) or exterior shading device shading 30% or more of glazed surfaces that are not north facing, at 9:00am and 3:00pm at the equinox. Vegetated wall/trellis using potable water or reclaimed water for an irrigation system shall not be eligible for any points.

SS C7.1 IMPLEMENTATION

SS C7.1.1 Employ design strategies, materials, and landscaping designs that reduce heat absorption of exterior materials. Note Solar Reflectance Index (SRI) requirements in the drawings and specifications. Provide shade using native or climate-tolerant trees and large shrubs, vegetated trellises, or other exterior structures supporting vegetation. Substitute vegetated surfaces for hard surfaces. Explore elimination of blacktop and the use of new coatings and integral colorants for asphalt to achieve light colored surfaces.

Where artificial turf is provided, provide turf with light aggregate to reduce heat island effect caused by black aggregate. Artificial turf will be considered impervious for the purposes of this criterion.

A site plan or landscaping plan should show trees that contribute to shade and/or highlight light-colored, non- roof impervious surfaces. Consider the latest recommendations and updates for climate ready trees and vegetation for the site(s) from such sources as the USDA and state university extensions in order to reduce the climate vulnerability of vegetation to heat, drought, pests, flooding, etc.

Calculations:

Shading:

- Identify all non-roof impervious surfaces on the project site and sum the total area.
- Identify all trees that contribute shade to non-roof impervious surfaces. Highlight these trees on the plan you submit.
- Calculate the shade coverage provided by these trees after five years of growth on the non-roof impervious surfaces on June 21 at solar noon to determine the maximum shading effect.
- Determine the total area of shade provided for non-roof impervious surfaces. To calculate the percentage of compliant hardscape surfaces, divide the non-roof impervious surface area that is shaded by the total hardscaped area.

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Light-colored/High-Albedo Materials:

- Identify all non-roof impervious surfaces on the project site and sum the total area.
- Calculate the total area of non-roof impervious surfaces designed with light-colored/high-albedo materials. Divide by total—result must be 50%.
- If light-colored/ high-albedo materials are used to achieve this criterion, provide specifications showing an SRI of 29 or better.

Note: Projects may achieve 50% coverage by adding together areas of shading and areas of light-colored/high-albedo materials to total 50%.

SS C7.1.2 *Cool Roofs*

Cool roofs can significantly reduce school cooling loads and urban heat island effects by reflecting the sun's energy, instead of absorbing, retaining, and radiating it into the occupied spaces below. Both the reflectivity and emissivity are important characteristics of cool roofs. A solar reflectance of 0.0 means that all the solar energy hitting the surface is absorbed and none is reflected. Emissivity is the ability of a material to shed infrared radiation.

Schools that do not have significant cooling loads (i.e. schools that do not have significant summer use), are not located in urban areas, or are in areas dominated by winter heating (northern plains) may not wish to pursue this criterion. In these cases, a cool roof can actually result in more energy use in the heating season than it will offset in cooling loads during the summer. Energy modeling can help predict which facilities would be likely to experience an energy benefit by installing a cool roof. To find qualifying roof products, see the Cool Roof Rating Council website at www.coolroofs.org.

While some solar panel systems shade roofing surfaces and decrease heat transmission through the roof, they differ in their emissivity. Projects that wish to earn credit for roof areas covered with solar panels in lieu of cool roofing materials must show reflectance and emissivity properties to assess overall SRI of roof + solar panel assembly.

Vegetated Roofs

Vegetated roofs have been found to significantly reduce both the heating and cooling loads of buildings on which they are implemented. While they may significantly reduce the urban heat island effect by not using traditional building materials, they can also provide increased insulation and help reduce heating costs in the winter months, unlike cool roofs, which can possibly increase a building's energy use during the winter. In addition to improving the insulation of a roof, green roofs greater than 3-inch soil thickness have also been found to considerably lengthen the lifespan of a roof and reduce stormwater runoff. In some cases, implementing a vegetated roof has been found to more than double the lifespan of a roof.

Green roofs may be difficult to implement on existing structures due to limitations on the weight load of the existing roof. Retrofitting roofs with certain types of green roofs may not be possible because the substrate and vegetation placed on the roof will exceed permitted static loading. In addition to issues concerning weight load, waterproofing the existing roof structure can potentially be an obstacle because of the amount of water retained on the roof and the potential for roots to penetrate the waterproof membrane. For an informational database containing more information on the implementation and different kinds of green roofs that exist, see http://www.greenroofs.com/.

Vegetated Walls

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Green walls, shading from trees or other landscaping or exterior shading device can shade glazed areas and prevent intrusion of sunlight into spaces that experience cooling loads. Like cool roofs, care should be taken to assess cooling vs. heating loads in order to determine the overall effect of planting on building energy use. Provide plans and sections to calculate the shading effect of green walls, landscape trees or vegetated trellises on glazing. Provide information about yearly duration of vegetation if deciduous and indicate expected growth within 5 years of planting.

SS C7.1 DOCUMENTATION

DESIGN REVIEW

SS C7.1.1 CDs, likely the landscaping plans, must provide the calculations described under the implementation section.

SS C7.1.2 Construction drawings, including a roof plan or landscaping plan, must include the square footage of total roof surface and the total surface covered by cool roof, or the size of green wall. For cool roofs, the specifications must include the CRRC Product ID#, emissivity and reflectance. For vegetated roofs and/or walls, details should be provided on the Construction Review.

CONSTRUCTION REVIEW

SS C7.1.2 Provide photo(s) of the installed cool roof(s), vegetated roof(s) and/or green wall(s).

SS C7.1 RESOURCES

1. US EPA Heat Island resources and strategies: www.epa.gov/heatisland/
2. Cool Roof Rating Council (CRRC): www.coolroofs.org
3. Solar Reflectance Calculator (SRI): coolcolors.lbl.gov/assets/docs/SRI%20Calculator/SRI-calc10.xls
4. US EPA ENERGY STAR reflected roof products: www.energystar.gov/index.cfm?c=roof_prods.pr_roof_products
5. Lawrence Berkeley National Laboratory (LBNL), Heat Island Group resources: https://heatisland.lbl.gov/resources/guides
6. LBNL Winter heating penalty map: heatisland.lbl.gov/coolscience/cool-science-cool-roofs
7. Database of green roofs: www.greenroofs.com

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SS P8.0 LIGHT POLLUTION PREVENTION
SS C8.1 ENHANCED LIGHT POLLUTION PREVENTION

Night lighting represents a significant source of energy use on campuses and can adversely affect the nighttime environment, while well-designed lighting can ensure safety, security, and beneficial use of properties. Avoidance of unnecessary lighting reduces resource use and minimizes the potential adverse environmental effects on the nighttime environment. Approaches may range from “dark campus” programs to careful controls on direction, intensity, duration, and spectrum of lighting.

Intent

Reduce or eliminate uses of artificial night lighting that are not needed or contribute to light pollution.

SS P8.0 LIGHT POLLUTION PREVENTION

PREREQUISITE

0 points

APPLICABILITY: All projects.

VERIFICATION: Design and Construction Review

RELATED CRITERIA: EE P1.0 Energy Efficient Design

SS P8.0 REQUIREMENTS

0 points

Comply with CALGreen Section 5.106.8, which addresses lighting zones, backlight, uplight, and glare ratings.

SS C8.1 ENHANCED LIGHT POLLUTION PREVENTION

CREDIT

1-2 points

APPLICABILITY: All projects.

VERIFICATION: Design and Construction Review

SCORING: 1 point each for 12.1.1 and 12.1.2

RELATED CRITERIA: EE P1.0 Energy Efficient Design

SS C8.1 REQUIREMENTS

SS C8.1.1 *Auto-Controlled Outdoor Lighting*

1 point

All outdoor non-emergency lighting will be automatically controlled to turn off after hours. Provide manual override capability for after-hours use with timed automatic shut-off (dark campus scenario).

AND/OR

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SS C8.1.2 *Fully Shielded Outdoor Lighting*

1 point

All outdoor lighting for general illumination and color rendition shall be fully shielded, except decorative lamps, which may be partially shielded if less than 2000 fixture lumens or unshielded if less than 20 fixture lumens.

Total outdoor light output per acre shall not exceed 50,000 lumens per acre, of which only 5,000 lumens may be partially shielded or unshielded in rural or park settings or 100,000 lumens per acre of which only 10,000 lumens may be partially shielded or unshielded in all other settings. Sports fields are considered separately. See below.

Sports fields shall be considered Sports Class IV as defined by the illuminating Engineering Society of North America (IESNA) [1] and lighting of them considered Class 1 (Color Rendition) lighting. Illumination of sports fields is exempt from the lumens per acre limits, but shall be designed to achieve no more than the minimum illumination levels defined for Sports Class IV by the IESNA and use only fully shielded fixtures that permit no light to be emitted above the horizontal and be extinguished within 30 minutes of the end of play.

Except for areas requiring color rendition (e.g., sports fields), outdoor lighting for general illumination shall not have a color temperature exceeding 3200 K.

SS C8.1 IMPLEMENTATION

Unnecessary light pollution will be moderated by the prerequisite EE P3.0 that requires controls to automatically turn off unnecessary interior and exterior lighting after hours.

SS C8.1 *Product Information & Plans*

Definitions

Emergency Lighting

"Emergency Lighting" used here will be considered any lighting required for occupants' safety in and around the building. Examples include:

1. Lighting providing the minimum required for the means of egress that must be maintained at all times any space served by the means of egress is occupied, and may not be controlled by motion sensors.

2. Lighting in areas designated as security or emergency areas. Parking lot lighting is not considered security lighting.

3. Emergency lights upon activation during loss of power.

4. Lighting in spaces where an automatic shutoff would endanger occupant safety or security.

Fully Shielded (Light Fixture)

A light fixture constructed in such a manner that all light emitted by the fixture, either directly from the lamp or a diffusing element, or indirectly by reflection or refraction from any part of the fixture, is projected below the horizontal. Any structural part of the light fixture providing this shielding must be permanently affixed, and part of the fixture, not part of any surrounding building or architectural elements.

Partially Shielded (Light Fixture)

A light fixture constructed and mounted such that most light emitted by the fixture, either directly from the lamp or a diffusing element, or indirectly by reflection or refraction from any part of the fixture, is projected below the horizontal. Light emitted

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at or above the horizontal direction (sideways or upwards) arises only from decorative elements or strongly colored or diffusing materials such as "honey" or colored glass or plastic. Fixtures using spot or flood lamps are considered partially shielded if the lamps are aimed no higher than 45 degrees above straight down (half-way between straight down and straight to the side).

SS C8.1 DOCUMENTATION

DESIGN REVIEW

SS P8.0 Provide a fixture schedule showing the BUG rating for each exterior fixture. Alternatively, cut sheets may be submitted at Design Review or Construction Review.

SS C8.1 Drawings should indicate the location and mounting height of all site building mounted exterior fixtures clearly indicated by fixture type designations relating to the lighting fixture schedule.

Provide a fixture schedule with manufacturers and model numbers, and manufacturers spec sheets, with a clear description of the specified lamps, wattage, (Illuminating Engineering Society of North America) IESNA cutoff classification and shielding accessories for each fixture.

Provide site plan indicating all exterior lighting with different fixtures referenced. Provide exterior light fixture data indicating lumens, CRI, cutoff & color temperature, as appropriate. Provide calculation of lumens per acre.

CONSTRUCTION REVIEW

Provide approved submittal with cover sheet and cut sheets for compliant light fixtures.

SS C8.1 RESOURCES

1. CALGreen Section 5.106: https://codes.iccsafe.org/content/CAGBSC2019/chapter-5-nonresidential-mandatory-measures
2. IDA approved lighting fixtures: www.darksky.org/outdoorlighting/74-manufacturers
3. Illuminating Engineering Society (IES): www.iesna.org/
4. International Dark Sky Association: www.darksky.org/
5. Lighting Handbook, 10th Edition, by IES: www.ies.org/handbook/pdf/

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SS C9.1 LIVING SCHOOLYARDS, OUTDOOR CLASSROOMS & GREENERY ***NEW***

Greenery and usable green spaces have many benefits. They have been shown to improve physical and mental health of children and adults. They have also been shown to increase students' attention in class. Green spaces also promote carbon sequestration, enhance biodiversity around the development, increase stormwater retention, and improve the microclimate. In urban areas, green spaces reduce the heat island effect and provide much needed respite from the built environment.

Intent

To provide living, natural, green schoolyards that connect children and adults to nature, promote carbon sequestration, enhance biodiversity of the site, improve rainfall interception, improve the microclimate, reduce heat islands, increase attention in class, and promote better health for students and staff.

Green Schoolyards is a practice in which "Living school grounds are richly layered outdoor environments that strengthen local ecological systems while providing place-based, hands-on learning resources for children and youth of all ages," per Sharon Danks, CEO, Green Schoolyards America. CHPS has adopted the principles of green schoolyards promoted by Green Schoolyards America, in particular the essential elements of immersive, place-based, community-building natural areas where students can explore freely.

Outdoor Classrooms have been part of the CHPS framework since 2009 within the School Gardens credit and became a distinct credit in the Hawaii CHPS Criteria in 2011. With the SARS-CoV-2 pandemic, outdoor classrooms took prominence as an essential consideration. CHPS allows high flexibility in the design and use of outdoor learning spaces while ensuring that fundamentals of a high performance learning area are provided.

Green Plot Ratio (GnPR) is a measure of how much greenery is present on a site, providing an indicator of how well the landscape promotes the values listed above. Green Plot Ratio was developed for urban areas but is useful on any type of site and can be used in conjunction with overall landscape design, green schoolyards planning, and outdoor classroom design. Green Plot Ratio is an alternative option for establishing sufficient greenery on tight sites lacking space for a distinct natural schoolyard or an outdoor classroom.

In conjunction with II C2.1.3 School Gardens, II C2.1.1 Demonstration Areas, II C8.1 Biophilic & Responsive Design, and SS C5.1 Joint Use of Facilities, living schoolyards, outdoor classrooms, and substantial greenery contribute to a high performance campus.

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SS C9.1 LIVING SCHOOLYARDS, OUTDOOR CLASSROOMS & GREENERY

CREDIT

1-3 points

PROJECT TYPE: All projects, Modernizations must have sufficient site work in the scope

VERIFICATION: Design Review, Construction Review

SCORING: 2 points for 9.1.1 or 9.1.2, 1 point for 9.1.3

RELATED CRITERIA: II C2.1.1 Demonstration Areas and 2.1.3 School Gardens, II C6.1 Low/Zero Carbon School, II C8.1 Biophilic & Responsive Design, EQ C13.1 Views, WE

P1.0 Outdoor Water Use Budget, WE C2.1 Outdoor Water Use Reduction, SS C2.1 Sustainable Site Use & Sensitive Lands Conservation, SS C5.1 Joint Use of Facilities

SS C9.1 REQUIREMENTS

SS C9.1.1 *Green Schoolyards*

2 points

Green Schoolyards are living outdoor spaces where children interact with and learn from nature. Green Schoolyards integrate play structures, seating, and other structures with nature in order to improve the ecosystem and provide a creative, nature-based activity space. Design and install a green schoolyard that meets the requirements and at least two of the optional features listed below. Green schoolyards can be much more than listed here. Refer to Green Schoolyards America https://www.greenschoolyards.org/ for information and inspiration.

Requirements:

- Contiguous gross square footage shall be large enough for at least 36 students to move freely, and the greater of:
  - 1500 sf minimum, or
  - For new construction, at least equal to 50% of planned hard-surface schoolyard, or
  - For modernizations and additions, converts at least 30% of the existing hard-surface schoolyard.
- No asphalt and other impermeable hard surfaces and no lawn requiring maintenance.
- Provide a variety of places to sit, rest, recreate, observe, and experience the outdoors and that support flexible gathering sizes.
- For existing school sites, the soil must be tested as in II C2.1.3 School Gardens or new soil must be installed.
- Include diverse plantings. Incorporate at least 3 native tree and plant varieties, selecting species that are hardy enough for a schoolyard and that provide seasonal shade. Monocultures are not allowed.
- Be accessible and usable by students of all abilities. [1]

Optional Features:

- For playgrounds, use natural fall zone materials, such as sand or deep mulch, to soften the feel and improve permeability. Crumb rubber does not qualify.
- Create focus around an existing natural feature, such as a stand of trees, a creek, a large rocky area, etc.
- Make the green schoolyard accessible to the community for use during non-school hours.
- Create a physical connection to the school garden, to a Demonstration Area or to another high performance feature of the school, such as Low Impact Development stormwater capture system, renewable energy system, or drought tolerant landscaping. Provide ways for students to move freely between the areas if they are not the same.
- Incorporate low impact development stormwater retention features, such as bioswales or rain gardens.

SS C9.1.2 *Outdoor Classroom*

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2 points

Provide at least one outdoor classroom on the school site with the following features:

- Permanently accessible seating for a minimum capacity of 25-32 students for elementary and middle Schools, and a minimum of 25-35 for high schools. The seating should be durable, using natural materials where possible (i.e. tree stumps, wooden benches) and minimize the potential for abuse and damage from vandalism such as skateboarding, yet be flexible enough to accommodate public safety measures, such as distancing and capacity reductions. Outdoor classrooms shall meet CDC and/or local county and district public health best practices, whichever is adopted by the school district. Other furnishings are optional based on curriculum.
- An easily viewable instructional area, free from direct glare from all student seats. Four (4) linear feet of instructional surface is desirable, but not required.
- Provide protection from weather (i.e. direct sunlight, rain, traffic or fumes, and harsh winds).
- The space shall be accessible, or on an accessible route, and signage designating the Outdoor Classroom is highly encouraged, but not mandatory if only 1 classroom is provided.
- Include strategies to mitigate acoustical and visual distractions such as traffic (both major paths of travel within the school and vehicular), parking or recreational spaces, using natural or living materials for screening or sound barriers and much as possible.
- Provide access to utilities (outdoor power, wifi, water) and some means of securable storage for educational support.

SS C9.1.3 *Green Plot Ratio*

1 point

The quantity of greenery in the project can be measured using Green Plot Ratio (GnPR). Achieve a GnPR of at least 1.2 using the calculation shown in Implementation. Only exterior spaces accessible to students are used in calculating the GnPR. If the project scope includes 50% or more of campus, then the calculations must be based on the entire site. If the scope includes less than 50% of campus, then only the scope area must be included.

- The exterior site area shall include:
  - Vertical gardens if visible to students.
  - Swimming pools.
  - Green roofs, roof gardens, and balcony gardens should be included if accessible to the students. The building footprint is not included in the green plot ratio, unless there is an accessible fully planted green roof.
- It shall not include:
  - Year-round bodies of water such as permanent retention ponds and lakes.
  - Easements across campus on which the school has no control.
  - Covered, paved exterior spaces such as covered walkways.
- The school must have a minimum of 50 sf of exterior site area per student.

Note: Owners wishing to pursue a climate-positive landscaping design approach, such as promoted by https://climatepositivedesign.com/challenge, may pursue an Innovation point in II C9.1 by proposing a methodology and a design.

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SS C9.1. IMPLEMENTATION

SS C9.1.1-2 *Green Schoolyards and Outdoor Classrooms*

Visit Green Schoolyards America [1] for extensive information and case studies on installations of both creative, nature-based schoolyards and outdoor classrooms across the country. For more examples, there are CHPS schools in Hawaii and Colorado with outdoor classrooms; contact CHPS to learn more.

SS C9.1.3 *Green Plot Ratio*

The Green Plot Ratio (GnPR) is a measure of the leaf area per sqft of site. To calculate the GnPR, the leaf area index (LAI) is used. Leaf area index is one-sided green leaf area per unit ground surface area, so it does not have a unit. There are various web sites giving measured LAI of trees.

Use the calculation below (contained in the CHPS GnPR worksheet or create your own). LAI is leaf area index. Leaf area index is one-sided green leaf area per unit ground surface area, so it does not have a unit. There are various web sites giving measured LAI of trees.

LAI and canopy are calculated for the trees 10 years after project completion for new trees and plants and existing conditions or 10 years after project completion for existing trees and plants. The purpose of the table above is to simplify the process of calculating the green plot ratio. Examples of trees species and their category for the above calculation:

Open canopy / smaller: Lagerstroemia indica,

Intermediate canopy / medium: pinus ponderosa, eucalyptus globulus

Dense canopy / larger: Liriodendron tulipifera, California native Quercus

For large mature trees, it is an option to propose an estimated LAI and canopy size. The LAI can be estimated using data from existing studies. For example, mature sequoia sempervirens can have a LAI much more than the above table (LAI of 16 for example).

Note: The inclusion of species not native to CA in the table is representative only and does not endorse including those species in the landscape design. Ideally, designers will choose native and climate-hardy species.

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Green Plot Ratio (GnPR)					
Category	**Sub category**	**LAI value (A)**	**Canopy area/sqft (B)**	**Quantity/ Planted area (C)**	**Leaf area (A) X (B) X (C)**
Trees	open canopy /smaller	2.5	500		
	intermediate canopy / medium/ conifers / eucalyptus	3.0	600		
	dense canopy / larger	4.0	700		
	palms	2.5	200		
Shrubs		3.5	NA		
Turf / ground cover		1.0	NA		
Vertical greenery		2.0	NA		
				(X) Total leaf area (sqft)	
				(Y) Site area (sqft) *	
				(X/Y) Green Plot Ratio	

* Exterior site area accessible to students. Excludes building area.

SS C9.1 DOCUMENTATION

DESIGN REVIEW

SS C9.1.1-2 Provide the site plan, any grading and drainage, planting plans and details for any features such as benches, or water features, showing the green schoolyard, natural open space, or outdoor classroom space(s) including the compliance with required minimum square footages and required features. For modernizations, submit “Before” photos of the existing conditions of schoolyard or outdoor classroom location(s).

SS SC9.1.3 Submit a site plan and planting plan with exterior site area per student, and GnPR calculations (CHPS worksheet or custom) if ready. For existing schools, also submit photos of existing exterior open spaces/green spaces and an aerial view in addition to above site and planting plans or other documentation of greenery, new or existing, that meets the requirements.

CONSTRUCTION REVIEW

SS C9.1 Submit 2-3 photos of completed green spaces. For GnPR, submit the CHPS worksheet if not done at Design Review.

SS C9.1 RESOURCES

1. Green Schoolyards America: https://www.greenschoolyards.org
   Inclusive Design pages: https://www.greenschoolyards.org/inclusive-design
2. LAI values compiled from 554 studies at https://daac.ornl.gov/VEGETATION/guides/LAI_Woody_Plants.html
3. Ong, B. L. (2002) Green plot ratio: An ecological measure for architecture and urban planning *Landscape and Urban Planning*

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4. Dadvand P, et al. (2015) *Green spaces and cognitive development in primary schoolchildren* Proceedings of the National Academy of Science of the United States of America
5. Ong, B. L. et al. (2012) Green plot ratio: Past, Present & Future *iNTA2012 Conference*
6. Kardan O, et al. (2015) *Neighborhood greenspace and health in a large urban center* Scientific Reports
7. Dadvand P, et al. (2015) *The association between greenness and traffic-related air pollution at schools.* Sci Total Environ
8. Sunyer J, et al. (2015) Association between traffic-related air pollution in schools and cognitive development in primary school children: A prospective cohort study. PLoS Med
9. Dadvand P, et al. (2016) *Green spaces and spectacles use in schoolchildren in Barcelona* Environmental Research
10. Singapore BCA Green Mark: https://www.bca.gov.sg/green_mark/

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MW P1.0 STORAGE & COLLECTION OF RECYCLABLES AND ORGANIC WASTE

Providing easily accessible recycling and composting to students, teachers and staff ensures a significant portion of solid waste can be diverted from landfills and incineration/transformation facilities. Diverting paper, cardboard, metals, plastics and organics diminishes the need to extract virgin materials and reduces the generation of greenhouse gases (GHG).

Intent

Facilitate the separation and collection of materials for recycling and composting.

MW P1.0 STORAGE & COLLECTION OF RECYCLABLES AND ORGANIC WASTE

PREREQUISITE

2 points

APPLICABILITY: All Projects

VERIFICATION: Design and Construction Review

MW P1.0 REQUIREMENTS

MW P1.0 *All New Buildings*

2 points

Comply with CALGreen Section 5.410.1 or local recycling or composting ordinance if more restrictive. Additionally, provide easily accessible areas serving the entire school that are dedicated to the collection and storage of materials for recycling. There must be at least one centralized collection point (e.g. loading dock or other common area where waste is typically collected), and ability for separation of recyclables and organic waste where waste is disposed of for classrooms and common areas such as cafeterias, landscaped areas, gyms or multi-purpose rooms.

Provide means for recycling inside each classroom. Administration areas must have one central recycling station set up per 20 employees.

When local waste service providers have ability to divert food waste, provide means for collection of organic waste in food preparation and dining areas. Credit for food waste composting onsite or offsite is given in MW C1.1.

Schools in rural areas are exempt from organic waste recycling as allowed under CALGreen 5.410.1.

For this section, recycling also includes the composting, anaerobic digestion, chipping, grinding, etc. of organic waste. “Organic waste” means green waste, landscape and pruning waste, and nonhazardous wood waste. For the purpose of the criterion, food waste is not included in the definition of organics. Food waste is covered in MW C1.1.

MW P1.0 IMPLEMENTATION

For sizing guidelines on spaces for storage and handling of recyclable and organic material, refer to CalRecycle’s *Recycling Space Allocation Guide.* [1]

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Early in the design phase, be sure to reserve space for recycling functions and show areas dedicated to the collection of recyclable and organic materials on floor plans. Consider the question of how recyclable materials will be collected and removed from classrooms, teachers' prep rooms, and offices. When recycling bins are used, they should be able to accommodate a 75% diversion rate (from normal waste basket contents) and be easily accessible to students and staff as well as custodial staff. Consider bin designs that allow for easy cleaning to avoid health issues. Consider how custodial or food service daily or weekly operations can be utilized for an organic waste program for landscape waste and food.

MW P1.0 DOCUMENTATION

DESIGN REVIEW

Site and classroom plans must include the centralized collection point and recycling bins/dumpsters/areas in classrooms and common areas such as cafeteria or multi-purpose room. If there is a local ordinance, provide a copy.

For Condition 3, provide documentation that specific services do not exist to justify why space for the material is not provided.

CONSTRUCTION REVIEW

Provide photos of the centralized recyclables and organic wastes collection point and typical classroom/common area recycling bins/dumpsters.

MW P1.0 RESOURCES

1. CalRecycle Recycling Space Allocation Guide: https://www2.calrecycle.ca.gov/Publications/Details/832
2. CALGreen Chapter 5: https://codes.iccsafe.org/content/CAGBSC2019/chapter-5-nonresidential-mandatory-measures
3. US EPA School Recycling: https://archive.epa.gov/wastes/conserve/tools/localgov/web/html/school.html
4. US EPA List of Common Recyclables: www.epa.gov/recycle/how_recycle.html
5. US EPA Food Waste: https://www.epa.gov/sustainable-management-food
6. Grasscycling: www.calrecycle.ca.gov/organics/grasscycling/
7. US EPA Toolkit for Starting a Recycling Program

   https://archive.epa.gov/region4/rcra/mgtoolkit/web/html/improving.htmll
8. Foam Recycling Information for Schools: https://www.homeforfoam.com/schools

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MW C1.1 FOOD WASTE REDUCTION AND PREVENTION

Food waste is the single largest component of waste disposed in landfills, where it generates methane--a greenhouse gas that is 72 times more potent than CO_2. [1] Preventing food waste is not only the best way to keep edible food from being thrown away but it is also the best way to reduce the damaging environmental impacts food waste has on our world.

Intent

Reduce the amount of edible and non-edible food waste going to the landfill.

MW C1.1 FOOD WASTE REDUCTION AND PREVENTION

CREDIT

3 points

APPLICABILITY: All Projects

VERIFICATION: Construction Review

SCORING: 1 point each for 1.1.1-1.1.3

MW C1.1 REQUIREMENTS

MW C1.1.1 *Share Table*

1 point

Reduce the amount of edible food wasted by providing a space within the eating area for a "share table" or other space for students to place and remove unwanted packaged or pre-portioned food. This area may include both refrigerated and non-refrigerated space where the contents are visible from the outside and readily accessible to students. (1, 2)

MW C1.1.2 *Storage & Donation*

1 point

Provide adequate space for the collection and storage of uneaten, edible food for recovery and donation to charitable organizations such as food banks, pantries, or other food recovery organizations, either on-site or to be backhauled to a central kitchen for consolidated collection. For schools serving food prepared at a central location, space should be large enough to hold several collection bins. Refrigerated space should be included to maintain freshness until collection.

MW C1.1.3 *Composting*

1 point

Provide adequate interior and exterior space for the collection and processing of food waste through an on-site or off-site composting system. Collection and processing systems should be sized to divert all food waste from the landfill by composting all scraps from food preparation and uneaten plated food.

MW C1.1 IMPLEMENTATION

Use the EPA's Food Recovery Hierarchy [7] to prioritize actions to take to prevent wasted food and to divert food waste from ending up in a landfill. This is a school-wide endeavor that involves students, teachers, school staff, nutrition, local health department, waste haulers and the community.

Managing Food Waste

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All non-edible food waste should be diverted from the landfill. According to the US EPA's Food Recovery Hierarchy, animal feed is the next best use, but may not be possible in many areas. Composting on or off school grounds is a viable solution.

Food compost facilities on school grounds must be properly constructed and managed. Composting is the decomposition of organic materials, in this case food scraps from food preparation in the kitchen and left over food on plates. Composting food waste helps to keep the organic materials out of the landfill and turns the wasted food into a product that can be useful as a soil amendment.

On-site composting facilities can reduce the cost of hauling materials and are usually exempted from solid waste regulations. Consult state and local jurisdiction authorities for composting regulations and guidance on permit requirements prior to beginning a compost project. Or contract with a local food waste hauler. [8]

Preventing Edible Food from Being Wasted

Schools across the nation are educating students about preventing food from being wasted. This starts by taking only what they will eat and understanding what edible food can be shared with other students or donated to local food banks or pantries.

Successful implementation of an edible food recovery program though sharing and donation hinges on several factors, including:

1) health department approval
2) school district approval and commitment
3) providing adequate space for collection
4) distribution to recipient organizations
5) education
6) staff input

Providing adequate, accessible space is best provided in the design phase of the project. Both USDA and StopWaste [5,6] provide tips on where to place share tables. Support staff responsible for managing the program should be consulted. Local food banks and pantries can explain any requirements they have for providing adequate space for collection of food to be donated.

Considerations should be made early in the design phase for the varying eating habits of the grades being served by the school.

MW C1.1 DOCUMENTATION

DESIGN REVIEW

Provide drawings showing the location of share table or recycling/composting infrastructure.

CONSTRUCTION REVIEW

Provide up to 3 photos showing composting spaces, collection bins, or share table, etc.

MW C1.1 RESOURCES

1. Intergovernmental Panel on Climate Change (IPCC) Fourth Assessment Report 2007: Working Group I: The Physical Science Basis: https://www.ipcc.ch/publications_and_data/ar4/wg1/en/ch2s2-10-2.html

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2. US EPA Guide to Conducting Student Food Waste Audits: A Resource for Schools: https://www.epa.gov/sustainable-management-food/guide-conducting-student-food-waste-audits-resource-schools
3. US EPA Sustainable Management of Food: https://www.epa.gov/sustainable-management-food
4. US EPA How to Prevent Wasted Food Through Source Reduction: https://www.epa.gov/sustainable-management-food/how-prevent-wasted-food-through-source-reduction
5. USDA The Use of Share Tables in Child Nutrition Programs: https://www.fns.usda.gov/use-share-tables-child-nutrition-programs
6. StopWaste: HELPING SCHOOLS SAVE FOOD: Food Share Table http://www.stopwaste.org/resource/food-share-table-guide
7. US EPA Food Recovery Hierarchy: https://www.epa.gov/sustainable-management-food/food-recovery-hierarchy
8. US EPA Reducing the Impact of Wasted Food by Feeding the Soil and Composting: https://www.epa.gov/sustainable-management-food/reducing-impact-wasted-food-feeding-soil-and-composting

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MW P2.0 CONSTRUCTION SITE WASTE MANAGEMENT
MW C2.1 CONSTRUCTION SITE WASTE MANAGEMENT

Intent

Divert construction and demolition waste from landfills.

This criterion is very feasible in many parts of the United States. Even if there are limited recycling facilities or waste management recycling companies in the project area, construction waste management can still take place through a sub-contractor sorting the waste into multiple dumpsters. The cost is then associated with the dumpster costs and hauling charges. Recycling construction and demolition (C&D) materials reduces demand for virgin resources and diminishes the need for landfill space. Meet local ordinance requirements concerning C&D materials at construction sites, if applicable; and develop and implement a C&D waste management plan, quantifying material diversion by weight.

MW P2.0 CONSTRUCTION SITE WASTE MANAGEMENT

PREREQUISITE

0 points

APPLICABILITY: All Projects

VERIFICATION: Design and Construction Review

MW P2.0 REQUIREMENTS

MW P2.0

Comply with CALGreen Section 5.408.1, which requires at least 65% (by weight) of non-hazardous construction and demolition waste to be recycled or salvaged.

MW C2.1 CONSTRUCTION SITE WASTE MANAGEMENT

CREDIT

2-4 points

APPLICABILITY: All Projects

VERIFICATION: Design and Construction Review

SCORING: 2-4 points for 2.1.1 or 3 points for 2.1.2

MW C2.1 REQUIREMENTS

MW C2.1.1 *Recycle, Reuse, Salvage*

2-4 points

Recycle, reuse, and/or salvage at least 50% (by weight) of non-hazardous construction and demolition waste, not including land clearing and associated debris. Points awarded per the thresholds below.

- 50% (2 points)
- 75% (3 points)
- 90% (4 points)

OR

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MW C2.1.2 *Waste Recovery Plan*

3 points Develop a comprehensive Waste Recovery Plan such that a minimum of 50% (by weight) of non-hazardous construction and demolition waste, not including land clearing and associated debris is reused or salvaged by donating or selling to a reuse organization within 1000 miles.

MW P2.0 & C2.1 IMPLEMENTATION

Successful salvage, recycling, and diversion of construction and demolition materials is usually the result of a well thought out waste management plan and on-site training for contractors and subcontractors.

Compliance calculations for this criterion must be based on weight. Many recycling and landfill facilities weigh incoming materials. Shipments that cannot be weighed can be estimated based on their volume and density.

$$\text{Recycle Rate (\%)} = \text{Recycled Waste [Tons]} / (\text{Recycled Waste [Tons]} + \text{Garbage [Tons]}) \times 100$$

Note: DO NOT include materials classified as hazardous wastes in these calculations. The Construction Waste Management Plan should detail the following components:

- The diversion percentage goals for C&D wastes, e.g., 75%. A 90% recycling rate will receive additional points.
- Recycling/reuse strategies and processes for onsite recycling, deconstruction and salvage, e.g., scheduling of different stages of deconstruction to best remove recyclable or salvageable materials intact.
- On-site communication: the general contractor will detail communication strategies for construction workers and subcontractors about the recycling program and goals.
- Waste management documentation: The construction waste management plan will specify documents needed to show waste diversion—e.g., weight tickets for all wastes removed from the site including recycled and salvaged materials.
- Recycling summary: Recycling and waste data will be collected into a summary document for construction documentation.

For projects pursuing MW C2.1.4, include a section called "Waste Recovery Plan" in the Construction Waste Management Plan. Identify reuse organizations within 1000 miles that will purchase or accept the donation of construction waste for reuse. The identified organization must intend to reuse the waste as-is or sell the material for the intent of re-use.

During construction, collect the receipts from the reuse organization that shows the donated or sold items and weight of the donated or sold items form construction & demolition recycling waste.

MW P2.0 & C2.1 DOCUMENTATION

DESIGN REVIEW

MW P2.0-C2.1 Provide specifications or general notes to the contractor to implement a Construction Waste Management Plan. The documentation must contain the required diversion rate through recycling, composting or salvage, compliant and preferred facilities to receive the debris,

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and identify that the contractor is responsible to maintain documentation (weight tickets / receipts) for all debris leaving the site to be summarized and submitted after construction as a diversion summary.

CONSTRUCTION REVIEW

Provide a diversion summary and back up documentation for where debris was taken.

MW P2.0 & C2.1 RESOURCES

1. Whole Building Design Guide, *Construction Waste Management*, 10/17/2016: https://www.wbdg.org/resources/construction-waste-management
2. US EPA C&D: https://www.epa.gov/smm/sustainable-management-construction-and-demolition-materials

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MW C3.1 CERTIFIED WOOD & RECYCLED CONTENT MATERIALS

Sustainably sourcing materials is an important component of healthy, green schools. Wood grown and harvested in an ecological manner is a truly sustainable material that is renewable, biodegradable, energy efficient and recyclable. The Forest Stewardship Council (FSC) guidelines help to ensure wood is grown and harvested with responsible forest management practices. [5]

Intent

Reduce the environmental impacts associated with harvesting or extraction and processing of wood and virgin materials.

The number and variety of products using recycled-content materials expands every year. Using these materials closes the recycling loop by creating markets for materials collected through recycling programs across the country. It also reduces the use of virgin materials and landfill waste. Recycled-content alternatives exist for all major building materials and surfaces. Recycled content may contain hazardous materials, however. Products with recycled content, including crumb rubber, must not contain lead, other heavy metals, or other contaminants.

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MW C3.1 CERTIFIED WOOD & RECYCLED CONTENT MATERIALS

CREDIT

1-3 points

APPLICABILITY: All Projects

VERIFICATION: Construction Review

SCORING: 1 point for 3.1.1 and/or 1-2 points for 3.1.2

MW C3.1 REQUIREMENTS

MW C3.1.1 *Certified Wood*

1 point

Use a minimum of 50% of wood-based materials, by cost, certified in accordance with one of the following programs. This includes, but is not limited to, framing, flooring, finishes and built in cabinetry.

- Forest Stewardship Council (FSC) [5]
- NWFA Responsible Procurement Program (RPP) for flooring products only [6]

MW C3.1.2 *Recycled Content*

1-2 points

Select one of the following approaches to identify materials specified with recycled content:

Prescriptive Approach:

For 1 point, specify and install at least four major materials from Table MW3-1, Minimum Recycled Content Levels. For 2 points, specify and install at least eight major materials.

OR

Performance Approach:

The weighted average recycled-content value by cost is at least 10% (post-consumer + ½ pre-consumer) for 1 point or at least 20% for 2 points.

MW C3.1 IMPLEMENTATION

Compliance for this credit may be demonstrated by selecting a CHPS Pre-Approved product, as applicable, listed in the CHPS product database at https://zerodocs.com/chps-certified-products/. [2]

MW C3.1.1 *Certified Wood*

Refer to one of the wood certification programs listed above for wood building components that comply with the requirements and incorporate them into the material selection for the project.

The National Wood Flooring Association [4] has developed the Responsible Procurement Program that provides a management structure for wood sources to transition over time to meet the Forest Stewardship Council (FSC) standards. CHPS encourages other wood industries to develop similar improvement plans.

To perform the calculation for this criterion, determine the cost of total new wood-based products and the cost of certified wood-based products. Exclude all labor costs, project overhead and fees. Divide the total cost of certified wood products by the total cost of all new wood products that are incorporated into the permanent construction. Multiply this result by 100 to determine the percentage of wood products that are certified. Be sure to use the total wood products cost for the project in the denominator of the calculation equation.

$$\text{Certified Wood Material Portion } [\%] =$$

$$\text{Certified Wood Products Cost } [\$] \,/\, \text{Total New Wood Based Products Cost } [\$] \times 100$$

MW C3.1.2 *Recycled Content*

Recycled content is either a post-consumer (collected from end users) or secondary material. Pre-consumer, also known as post-industrial or secondary, waste is collected from manufacturers and industry. The objective of this criterion is to maximize post-consumer recycled content; therefore, pre-consumer recycled content is discounted 50% for the calculations.

Recycled content claims must be in accordance with the International Organization for Standardization document ISO 14021:2016 – Environmental labels and declarations.

A "major" material is defined as those materials covering more than 50% of a major building surface (such as parking areas, floor, roof, partitions, walls) or serving a structural function throughout the majority of the facility or area. For example, credit would not be issued if tackable wall panels were used in only one classroom. Recycled content products with minimum recycled content levels must be used throughout the project.

Fly ash generated from municipal solid waste incinerators is not an acceptable recycled content material under this criterion, nor is fly ash generated as a coal combustion by-product where the coal plant is fired with hazardous waste, medical waste or tire-derived fuel.

Mercury concentration should not be more than 5.5 ppb (0.0055 mg/L) as determined by a Toxic Characteristic Leaching Procedure (TCLP) following EPA 7470A. Most US fly ash has mercury content of 2 ppb or less. This is a level that is deemed acceptable for drinking water in the US and is safe for use in construction. Furthermore, when this mercury is bound in the matrix of construction materials, the scientific literature indicates that it does not leach out, even when subjected to more aggressive conditions than anticipated in real life. Certain combinations of coal types and power plant combustion may produce fly ash with higher

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mercury content, though this appears to be rare.

Specifications should include that products must not contain lead or other heavy metals. Crumb rubber should be avoided in playgrounds and in turf fields because of the risk of lead content. Recycled cork is an available and preferable option.

Note: If tire derived products are used indoors, they must also meet EQ C6.1 standards for low-emitting materials.

Prescriptive Approach:

Use Tab MW3-1 to identify the minimum required recycled content level for specified products. Either use the value to select products or calculate the recycled content of already selected products to determine if they meet the minimum.

Asterisked products must meet their minimum total recycled content level entirely with post-consumer content.

For all other products, pre-consumer content may count as half credit toward the minimum total recycled content required. For example, the 30% total recycled content requirement for acoustical ceiling tiles could be met by a product with 60% secondary content or one with 10% post-consumer content and 40% secondary recycled content.

$$\text{Total Recycled Content} = \text{Post-Consumer Recycled Content} + \tfrac{1}{2}\,\text{Pre-Consumer Recycled Content}$$

TABLE MW3-1: Minimum Recycled Content Levels

Category	Product	Total Recycled Content	Post-Consumer Recycled Content
Building Insulation	Fiberglass Insulation	30%*	30%
	Cellulose Insulation (Including Cotton and Denim)	75%*	75%
Flooring	Nylon Carpet (Total) Weight	10%*	10%
	Polyester Carpet Fiber Face	25%*	25%
	Plastic	40%	0%
	Linoleum	40%	0%
	Vinyl	40%	0%
	Rubber (non-tire-derived)	40%	0%
	Tire-derived Rubber	50%*	50%
	Glass	50%*	50%
	Ceramic	45%	0%
Acoustical Ceiling Tiles and Wall Panels	Glass	30%	0%
	Recycled Newspaper, Slag Wool, Aluminum	30%	0%
Countertops	Paper	30%*	30%
	Glass	50%*	50%
	Ceramic Tile	45%	0%
Cabinetry	Medium Density Fiberboard	80%	0%

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Category	Product	Total Recycled Content	Post-Consumer Recycled Content
Wall Coverings	Tackable Wall Panels	100%*	100%
	Paint	50%*	50%
Aggregate Base and Subbase	Recycled Aggregate	50%	0%
Structural Concrete	Fly Ash, Rice Hull Ash, or other Pozzolanic Materials (See credit restrictions on claiming credit for fly ash.)	25%	0%
Structural Steel	Basic Oxygen Furnace (BOF) Produced Steel	25%*	25%
	Electric Arc Furnace (EAF) Produced Steel	56%*	56%
Shower/Restroom Partitions	Plastic	20%	0%
	Steel	25%	0%
Windows	Fiberglass Frame	15%	0%
Roofing Materials	Steel	25%	0%
	Aluminum	20%	0%
	Fiber (Felt) or Fiber Composite	50%*	0%
	Tire-derived Products	50%*	50%
	Plastic or Plastic/ Rubber Composite	100%*	100%
Playground Equipment	Plastic	90%	90%
	BOF Steel, EAF Steel	25%, 56%	25%, 56%
	Aluminum	25%*	25%
Playground Surfaces	Plastic	10%*	10%
	Tire-derived	100%*	100%
Landscaping Products	Compost, Co-compost, and Mulch	80%*	80%
Plastic Lumber and Timbers	Plastic	10%*	10%
Parking Stops	Plastic	10%*	10%
	Tire-derived Products	100%*	100%
New product categories not listed by EPA may be considered provided the value exceeds 5% of the total project material cost. A default value of 35% of the total construction cost can be used for total project material cost, e.g. for a $5,000,000 major modernization project, the new product category would need to be worth at least $87,500 = (.35 X 5000000) X .05.		20%	10%
All other product categories listed by EPA (To receive credit, products must also have a life cycle assessment to ensure there are no environmental or health tradeoffs).		25%	0%

[1] Table MW3-1 is adapted from the US EPA Comprehensive Procurement Guidelines, www.epa.gov/cpg/ and from readily available industry information.

* Denotes products for which only post-consumer content is allowed in the calculation.

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Performance Approach:

Another method to verify compliance with this criterion is to use the performance approach. The weighted average of recycled-content value is calculated using the following equations:

- Recycled Content Value (RCV): Calculate the Recycled Content Value of each product by multiplying the cost of the product by the percent of post-consumer recycled content and then adding ½ of the cost of the product multiplied by the percent of pre-consumer recycled content. Material Cost is the construction cost of each individual material excluding all labor costs, project overhead, and fees.

$$\text{RCV} = (\%\ \text{postconsumer recycled content x material cost}) +$$

$$0.5\ \text{x}\ (\%\ \text{pre-consumer recycled content x material cost})$$

- Total Recycled Content Value: Total Recycled-content Value is the sum of the postconsumer and pre- consumer recycled-content value of all recycled-content products.

$$\sum\text{RCV} = \text{RCV Product A} + \text{RCV Product B} + \text{RCV Product C, etc.}$$

- Verify RCV of each recycled product DOES NOT exceed 25% of ∑RCV: If RCV of Product A is greater than 25% of ∑RCV, then 25% (∑RCV) must be substituted for the value of Product A in the Total Recycled Content Value equation. This step must be repeated for each product to verify that no one material accounts for more than 25% of the ∑RCV.

$$\text{RCV Product A} \leq (25\%)\ (\sum\text{RCV})$$

(If RCV of Product A is greater than 25% of ∑RCV, then 25% (∑RCV) must be substituted for the value of Product A in the Total Recycled Content Value equation. Repeat equation for each product.)

Weighted Average Recycled Content Value (%): The Weighted Average Recycled Content Value is calculated by dividing the Total Recycled-Content Value (∑RCV) by the Total Project Material Cost. The Total Project Material Cost is the construction cost of all materials excluding all labor costs, project overhead, and fees. A default value of 35% of the total construction costs can be used for the Total Project Material Cost.

$$\text{Weighted Average Recycled Content Value } [\%] =$$

$$\text{Total Material Cost } [\$]/\text{Total Recycled Content Value } [\$]\ \text{x}\ 100$$

MW C3.1 DOCUMENTATION

DESIGN REVIEW

N/A

CONSTRUCTION REVIEW

For all products, complete the CHPS Materials Worksheet. If the product has a CHPS Pre-Approved Certificate, no submittals are necessary.

For all other products, provide the following:

MW C3.1.1 Provide cut sheets for materials with the required recycled content. If the product has a CHPS Pre-Approved certificate, use the approved recycled content amount in the calculation.

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MW C3.1.2 Provide proof of purchase and evidence of certification such as chain-of-custody or FSC or NWFA label for installed products.

MW C3.1 RESOURCES

1. For life cycle evaluations (EPDs and HPDs), see Scientific Certification Systems (SCS) Global Services: www.scsglobalservices.com/certified-green-products-guide or Sustainable Minds Transparency Catalog: http://www.transparencycatalog.com/
2. Free product search for CHPS Pre-Approved products on Zerodocs.com: https://zerodocs.com/chps-certified-products/
3. US EPA's Comprehensive Procurement Guideline (CPG) Program: https://www.epa.gov/smm/comprehensive-procurement-guideline-cpg-program
4. Information about recycled content in steel: www.recycle-steel.org
5. Forest Stewardship Council Website at: www.fscus.org
6. National Wood Flooring Association – Responsible Procurement Program www.nwfa.org/rpp.aspx

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MW C4.1 BUILDING REUSE

Some states have banned the disposal of construction materials from landfills, which forces schools to consider other ways of dealing with demolition waste, including whether to reuse any elements. [1] Reusing parts of the building can save significant money and resources while greatly reducing the amount of construction waste.

Intent

Reduce waste and costs by reusing the building envelope and/or interior materials, either from on site or off site.

Care must be taken to ensure that any environmental hazards such as toxins, lead, and asbestos have been identified and addressed. The impact of the existing building envelope on many important high-performance areas such as space programming, energy performance, opportunities for daylighting, and indoor air quality must be considered too. Develop a list of benefits and tradeoffs, and make the decision to reuse exterior elements, interior materials, or salvaged materials based upon the overall, integrated design tradeoffs.

MW C4.1 BUILDING REUSE

CREDIT

1-2 points

APPLICABILITY: All projects that reuse the building shell.

VERIFICATION: Design and Construction Review

SCORING: 1-2 points for percentage reused

MW C4.1 REQUIREMENTS

Building Shell Reuse

Reuse large portions of existing structures during renovation or redevelopment projects. Maintain at least 25% of existing building structure and shell (exterior skin and framing, excluding window assemblies). Hazardous materials that are remediated as part of the project scope AND elements requiring replacement due to unsound material condition must be excluded from the calculation of the percent maintained. Points are allocated by threshold as follows:

- Maintain 25% of existing structure and shell (1 point)
- Maintain 50% of existing structure and shell (2 points)

MW C4.1 IMPLEMENTATION

For new schools to satisfy this criterion, the new school must be in an existing (previously non-school) facility. For new buildings on an existing campus, this criterion would apply in the instance of an existing building, for instance a maintenance shed, being converted into conditioned space for classrooms, administration, or other school functions. In addition, this criterion pertains to a case where a building next to an existing school is purchased by the school district and converted into classrooms or other school space.

Percentage of reused structural materials (foundation, slab on grade, beams, floor and roof decks, etc.) and shell materials (roof and exterior walls) should be estimated in square feet.

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Average together the structural and shell reuse percentages. The average will be used to determine the overall reuse percentage for the building.

$$\text{Building Reuse (\%)} =$$

$$100 \text{ x [Reused (floor+ roof area + ground floor/slab) +}$$

$$\text{Reused (exterior wall area excluding window assemblies)] /}$$

$$\text{[Total (floor+ roof area + ground floor/slab) +}$$

$$\text{Total (exterior wall area excluding window assemblies)].}$$

Note: This criterion will be subject to review if design changes are made affecting the amount of existing structure and shell that are retained.

May apply for Innovation points (II 9.1) if maintain 50% non-structural elements (interior walls, doors, floor coverings, and ceiling systems) in at least 50% of completed building (including additions).

MW C4.1 DOCUMENTATION

DESIGN REVIEW

Drawings or equivalent instructions to contractor demolition plans and features to remain.

CONSTRUCTION REVIEW

Maintain photos taken before and after of major or large reuse of structural or shell elements to be provided if audited only

MW C4.1 RESOURCES

1. CALGreen Chapter 5: https://codes.iccsafe.org/content/CAGBSC2019/chapter-5-nonresidential-mandatory-measures
2. US EPA information on reducing construction waste: https://www.epa.gov/smm/sustainable-management-construction-and-demolition-materials

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MW C5.1 ENVIRONMENTAL PRODUCT DECLARATIONS

Environmental product declarations (EPDs) help manufacturers and specifiers make better decisions when selecting materials so that the materials used provide minimal impact on the environment and human health throughout their lifecycles.

Intent

Specify materials that have been evaluated for their lifecycle impacts on the environment.

Manufacturers and specifiers that are committed to understanding their products' impact on the environment and on human health should be recognized for their efforts.

MW C5.1 ENVIRONMENTAL PRODUCT DECLARATIONS

CREDIT

2 points

APPLICABILITY: All projects

VERIFICATION: Construction Review

MW C5.1 REQUIREMENTS

Select 10 products that contain a third party certified Environmental Product Declaration conforming to the requirements of ISO 14025 on Type III environmental declarations and/or ISO 21930 on environmental declarations of building products. The EPD must justify the omission of any impact category in narrative form within the document. Products may have an EPD to the European standard EN 15804 or an equivalent LCA for embodied carbon.

MW C5.1 IMPLEMENTATION

ISO 14025 Environmental Labels and Declarations -- Type III Environmental Declarations -- Principles and Procedures

ISO 14025 establishes the principles and procedures for developing Type III environmental declarations (EPD). [1] It specifically establishes the use of the ISO 14040 series of standards on life-cycle assessment in the development of these declarations. Type III environmental declarations prepared in accordance with this standard are intended to present quantified environmental life cycle product information to enable comparisons between products fulfilling the same function.

ISO 21930 Sustainability in Building Construction -- Environmental Declaration of Building Products

Building on the framework and requirements described in ISO 14025, ISO 21930 contains specifications and requirements for Type III environmental declarations (EPD) of building products. The standard recommends that Type III declarations for building products account for all life cycle stages of the product. Omission of life cycle stages must be justified.

ISO 21930 Requirements for At Least Three Life Cycle Stages:

- product stage (raw material supply, transport to production, manufacturing: "cradle to gate")

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- building stage (transport to building site, building installation, use, maintenance and repair, replacement)
- end of life stage (demolition, transport, disposal / recycling)

ISO 21930 Minimum Requirements for Verifier Competence (ISO 19011:2002, clause 3.14) including:

- Knowledge of relevant industry, product and product-related environmental matters
- Process and product knowledge of the product category
- Expert on LCA and methodology for LCA work
- Knowledge of the relevant standards in the field of environmental labeling and declarations, and life cycle assessment
- Knowledge of the regulatory framework in which requirements for environmental declarations have been prepared
- Knowledge of the program for Type III environmental declarations

Embodied Carbon – EN 15804 and Equivalent

Understanding the embodied carbon in construction materials is an important step toward reducing the climate footprint of buildings. EN 15804 is a European standard that may not be in wide use in the U.S.; however, it provides a path for selecting and specifying products. [7] Other methods for whole building life cycle analysis (WBLCA) may also be used in an EPD. EPDs that disclose embodied carbon are allowed here and in II C6.1 Low/Zero GHG School.

MW C5.1 DOCUMENTATION

DESIGN REVIEW

N/A

CONSTRUCTION REVIEW

Completed CHPS Materials Worksheet and approved submittal with cover sheet and applicable materials. Provide cut sheets for materials claimed to have the required environmental product declarations. Provide the environmental product declarations.

MW C5.1 RESOURCES

1. ZeroDocs Product & Specification Resource*: https://zerodocs.com/chps-certified-products/
2. Sustainable Minds Transparency Catalog*: http://www.transparencycatalog.com/
3. Library of common chemicals and products, Pharos: https://www.pharosproject.net/
4. EPD International AB: https://www.environdec.com
5. Article explaining EN 15804 and embodied carbon: http://www.greenspec.co.uk/building-design/embodied-energy/

*Official CHPS' partner for pre-approved product listings

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OPERATIONS (OM)

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OM P1.0 FACILITY STAFF & OCCUPANT TRAINING

The design and construction of the school may incorporate all the latest high performance features, yet problems after occupancy can occur simply because important information is not transferred from the design and construction teams to the school facilities and maintenance staff or to the building occupants. Training for facilities and maintenance staff is essential to the performance of the building but is often not performed or is hastily completed.

Intent

Training is the foundation of effective maintenance programs and is an essential tool to maintain and receive the high performance benefits such as protecting indoor air quality, thermal and visual comfort and maintaining superior energy performance.

Training the teachers and administration staff in how they can control their room environments provides them with an important understanding that will also help the facilities staff keep the building performing optimally and help maintain good air quality and comfort in the classrooms.

OM P1.0 FACILITY STAFF & OCCUPANT TRAINING

PREREQUISITE

2 points

APPLICABILITY: All Projects

VERIFICATION: Construction Review

RELATED CRITERIA: EE P2.0 Commissioning, EQ C11.1 Controllability of Indoor Environment, WE P2.0 Outdoor Water Use Reduction, OM C5.1 Indoor Environmental Management

OM P1.0 REQUIREMENTS

2 points

Do all of the following:

Facility Staff Training and Operations & Maintenance Manual

Facility staff must receive training and operation & maintenance (O&M) documentation on all building systems included in the commissioning scope of work under the EE P3.0 Commissioning Prerequisite as well as systems related to high performance – lighting and shading controls, maintenance of finishes, green cleaning, etc., depending on the scope of the project.

Teacher & Administrative Staff Training and User's Guide

Teachers, administrators, and support staff must be provided with training on operations of lighting, heating, and cooling systems in classrooms, offices, gymnasiums, auditoriums etc. When the school opens, or the modernization is completed, provide training and a brief and easy to understand manual, kiosks, educational display, or demonstration area for school occupants on the high performance aspects of the school. A User's Guide, explaining basic systems operations, shall be developed and available either electronically for download or in a central school location.

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OM P1.0 IMPLEMENTATION

Facility Staff Training and Operations Manual

Provide Operations & Maintenance training for facilities and maintenance staff on all major building systems from bulleted list in EE P3.0 Commissioning. It is typical to specify training requirements in the construction contract and subsequently, the general contractor arranges for equipment vendors, controls contractors etc. to teach building operators how to use and maintain their new equipment. The training may be overseen by the commissioning agent to ensure that the facilities staff receives the materials and hours of training stipulated in the construction contract. It is vital that facility and maintenance staff attend these training sessions.

Compile an Operations & Maintenance Manual. The manual should provide detailed O&M information for all equipment and products installed. It should be specifically written for maintenance and facility staff. The construction contractor typically furnishes the O&M manuals and the commissioning agent reviews the completed O&M Manual for completeness and clarity.

Teacher & Administrative Staff Training and User's Guide

Create a brief and concise (1-2 page) classroom "User's Guide" for teachers and administrative staff (see Appendix for example) explaining how to operate their room lighting and HVAC systems. It is ideal if the temperature settings are included in this users guide so that when occupants understand the limits of the HVAC system, they may file fewer complaints. A User's Guide should be posted in every room of the school.

Use the staff user's guide to conduct facility operations training for staff. Provide a short introduction for all school staff explaining how classroom systems work, such as lighting and temperature controls, particularly if classrooms that have operable windows and air conditioning systems and daylight harvesting. Include the process for requesting repairs or creating work orders for maintenance staff to keep the building functioning optimally.

Training should also address other ways the teachers and staff can maintain air quality, such as outfitting spaces with low emitting furniture, using green products for cleaning and activities, and utilizing natural ventilation when available.

OM P1.0 DOCUMENTATION

DESIGN REVIEW

N/A

CONSTRUCTION REVIEW

For facility and maintenance staff training, submit a copy of the O&M Manual and a written report that demonstrates completion of the training. The report shall include: the date of training, list of attendees, and a summary of what was covered. Meeting minutes, if any, may be submitted in lieu of a separate report.

For teacher and admin staff training, submit a copy of the User's Guide and a written report containing: the date of training, list of attendees, and a summary of what was covered. Meeting minutes, if any, may be submitted in lieu of a separate report.

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OM P1.0 RESOURCES

1. ASHRAE Guideline 16: The HVAC Commissioning Process
2. ASHRAE Guideline 4: Preparation of Operations & Maintenance Documentation for Building Systems.
3. On-Demand Indoor Air Quality Training Webinars: https://www.epa.gov/iaq-schools/demand-training-webinars
4. Indoor Air Quality Master Class Professional Training Webinar Series: https://www.epa.gov/iaq-schools/indoor-air-quality-master-class-webinar-series-calendar#register
5. Indoor Air Quality Knowledge-to-Action Webinar Professional Training Series: https://www.epa.gov/iaq-schools/indoor-air-quality-knowledge-action-webinar-series-calendar

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OM C2.1 POST-OCCUPANCY TRANSITION

Numerous post occupancy studies over the past decade have shown that a key cause of underperforming buildings is a lack of communication. Post-Occupancy Transition requirements aim to address this weakness by capturing feedback from users and operators and using that feedback to better communicate design intent and operation in a three-part process.

Intent

To ensure that facilities actually perform to design expectations and meet the Owner's operations requirements, by both obtaining user feedback and transferring design knowledge during the critical handoff phase after construction.

Reach Out – with a brief Post Occupancy Survey to obtain feedback shortly after training is complete.

Engage – in an integrated post-occupancy transition meeting 3 months after substantial completion. Review the results of the survey and ensure that the occupants understand how to control and best use their buildings, are comfortable, can work effectively, and have realistic expectations. The goal is to confirm that operators are efficiently running systems and meeting the needs of the users and that the entire group balances saving energy and staying comfortable, noise versus ventilation, daylight and shading devices versus the impact on energy use and technology systems, plug load and energy conservation.

Enhance - the feedback gained through this interaction helps the design team, school, and district facilities staff better understand users' needs and experience of the building to fine tune, de-bug, and correct systems and record lessons learned. This is an opportunity to create a virtuous circle to encourage the development of a body of knowledge and a process that helps the users into the future maintain a high performance environment and institutional knowledge, in spite of the usual obstacles of change of personnel, change of programs and the like.

OM C2.1 POST OCCUPANCY TRANSITION

CREDIT

2 points APPLICABILITY: All Projects

VERIFICATION: Construction Review

OM C2.1 REQUIREMENTS

2 points Do all the following:

Post-Occupancy Survey (POS)

Conduct a brief Post Occupancy survey for the project after the prerequisite (Facility Staff and Occupant Training) process is complete but within 3 months of occupancy. Survey must be given to all staff and faculty. Prepare the results for distribution at the Post-Occupancy Transition meeting.

Post-Occupancy Transition Meeting & Action Items

Conduct an integrated design and operations meeting 3 months after occupancy. Ensure the required representatives attend. Distribute the results of the POS for discussion; determine action items for adjustments to building systems and/or further education for occupants. The school or district must commit to complete the action items as determined the Post-Occupancy Transition Meeting within 9 months of occupancy to fine tune and

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correct systems.

OM C2.1 IMPLEMENTATION

The post-occupancy evaluation survey may be accomplished by conducting the CHPS occupancy survey template or a tool like the Center for the Built Environment's IEQ online surveys. [1, 2] The survey may also be developed in-house to conform to the needs of the project. The survey should be distributed to all staff and faculty.

The integrated design and operations meeting attendees should include design team, maintenance and operations staff representatives, user representatives – teachers and school staff representatives, school administration representatives, school custodian, and preferably student representatives.

Reference the Usable Building Trust website for talking points regarding effective approaches to post-occupancy surveys, user behavior, and transition for design and construction to operations. [3]

OM C2.1 DOCUMENTATION

DESIGN REVIEW

N/A

CONSTRUCTION REVIEW

Submit a copy of the Post-Occupancy Survey, Post-Occupancy Transition meeting notes and list of attendees.

Submit written confirmation that transition action items will be addressed within 9 months of occupancy.

OM C2.1 RESOURCES

1. CHPS Sample Occupancy Survey: provided upon request
2. University of California, Berkeley, Research on Indoor Environmental Quality: https://www.cbe.berkeley.edu/research/research_ieq.htm
3. Usable Buildings Trust has guidance on occupancy surveys and using the feedback. A password is required for free downloads: https://usablebuildings.co.uk/
4. Energy Savings Plus Health Guide: https://www.epa.gov/iaq-schools/protecting-iaq-during-school-energy-efficiency-retrofit-projects-energy-savings-plus

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OM P3.0 ENERGY & GHG PERFORMANCE BENCHMARKING

Intent

Track energy and water use and GHG emissions over time to ensure continued high performance, maximize savings, and monitor the climate impact of the building.

Benchmarking school energy use can be one of the most straightforward and simple methods available to help keep a school operating efficiently. Energy benchmarking typically shows how a school is operating compared to its peers or to itself—with multiple years of utility data—and shows how well a school operates from year to year. Good benchmarking systems account for yearly changes in weather and track energy use per square foot per year. Tracking water use is a companion to tracking energy use because of the inherent energy savings from water efficiency. GHG emissions are also easy to piggyback on energy tracking using standard multipliers. Some benchmarking tools calculate GHG emissions automatically.

OM P3.0 ENERGY & GHG PERFORMANCE BENCHMARKING

PREREQUISITE

2 points

APPLICABILITY: All Projects

VERIFICATION: Design Review

RELATED CRITERIA: EE P1.0/C1.1 Energy Efficient Design

OM P3.0 REQUIREMENTS

2 points

The school must 1) adopt a policy of benchmarking to track its energy and water use and GHG emissions over time and 2) commit to conducting a post-occupancy analysis of the school's energy performance and water use after 1-2 years or perform recommissioning after 2-5 years.

OM P3.0 IMPLEMENTATION

Benchmarking

There are two options for benchmarking. The school/district must adopt a written policy identifying which option will be used and what the baseline year is. An additional point is available in II C4.1 School Master Plan for creating a GHG emissions baseline according to the protocol.

Benchmarking must be done at a minimum annually but can be done more frequently, such as seasonally.

Option 1: Portfolio Manager:

Use EPA's Portfolio Manager. Portfolio Manager generates an ENERGY STAR score from 1-100 using data on energy usage, space attributes, and operating hours. A school that achieves at least a 75 achieves the ENERGY STAR level. Schools using Portfolio Manager will need to go to the website, create an account, and follow the instructions for inputting data and generating reports. Portfolio Manager also tracks water and waste usage as well as GHG emissions.

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Option 2: Self-Benchmarking or Other Local Benchmarking Tool:

3a.) Use the school's own energy model created at design of the building. If a model was done according to the guidelines contained in EE P1.0 and contains information on plug load and operating hours, it will provide the most suitable benchmark for the school. Utility data, including kWh, therms, and costs, must be tracked annually by the school, normalized using heating degree days, and organized in a way that allows them to be analyzed against the model, i.e. total costs over time must be calculated. Under this option, the school would need to use a different tool to track water usage and calculate GHG emissions.

3b.) If the school's utility, a state agency, municipality, or other local entity offers a benchmarking tool or service, use it in accordance with its provisions. Other third party tools are also allowed as long as they offer the ability to run comparisons over time and normalize data by space and heating degree days. Again, if water and GHG tracking is not included, the school will need to come up with its own system or identify a different third party system.

Post-Occupancy Study and Recommissioning

Committing to perform a post-occupancy analysis or to recommission the school years after it is designed and built to the CHPS Criteria helps ensure the high performance features of the school continue to provide benefits over the life of the school.

A post-occupancy analysis of resource use essentially combines recommissioning and benchmarking to evaluate the building's performance. Systems are typically checked to see how they are working and utility bills are recorded and evaluated against a baseline. The post-occupancy analysis must include, at a minimum, an evaluation of energy and water use and may include occupant or end-user surveys regarding thermal comfort, air quality, and acoustical comfort. The post-occupancy study should cover at least one full heating and one full cooling season.

Recommissioning involves having a commissioning agent re-check the systems after a couple years of operation. Recommissioning can be done by the original commissioning agent or by a different one, but should be performed by someone meeting the same qualifications described in EE P2.0. The scope of recommissioning should follow the original commissioning scope for testing and balancing and any other aspects that might be appropriate.

OM P3.0 DOCUMENTATION

DESIGN REVIEW

For all options, submit a letter from the district identifying which benchmarking program will be used and commit to tracking energy performance after 1-2 years or perform recommissioning after 2-5 years.

For Option 1, for New Construction projects, submit a copy of the initial Statement of Energy Design Intent with the preliminary ENERGY STAR design score from EE P1.0-C1.1 calculated using Target Finder or Portfolio Manager. Note: If a design project was saved in Portfolio Manager, the same project record can be used to add metered energy data. The tool will show a comparison of design and operating energy data for the school. For Renovations/Modernizations, submit a copy of the initial Statement of Energy Design Intent (SEDI) report from Portfolio Manager using the first* year of metered data as the baseline year.

*The baseline year for the facility should be established after the start-time or commissioning

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phase has been completed to ensure that all equipment and systems are operating as intended. For Option 3a, identify the person who will be responsible.

For Option 2b, provide a screenshot or brochure or other evidence showing what the tool is.

For both 2a and 2b, identify how water usage will be tracked.

CONSTRUCTION REVIEW

N/A

OM P3.0 RESOURCES

1. US EPA Portfolio Manager: https://www.energystar.gov/benchmark
2. California Energy Commission, Bright Schools program: http://www.energy.ca.gov/efficiency/brightschools

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OM C4.1 HIGH PERFORMANCE OPERATIONS & SYSTEM MAINTENANCE PLAN

One of the prime methods to maintain, enhance or promote high performance operation is to monitor and benchmark the ongoing performance of schools once occupied. There are seven key metrics that should be tracked: energy efficiency, thermal comfort, visual comfort, indoor air quality, acoustics, water efficiency, waste reduction, and greenhouse gas emissions.

Intent

Ensure that the school project meets its design intent in providing a healthy, efficient, and environmentally responsive place to learn and work. Keep key building systems properly maintained over time and ensure on-going performance and system life.

Other highly effective techniques to sustain high performance is by designation of key positions in a school system: A district wide manager to oversee energy and water usage, performance targets and coordinate efficiency policies and foster behavioral change; and, at the school site level, the designation of an advocate to promote these policies.

The Systems Maintenance Plan is one of the most important features of a high performance school since it establishes the practices that will continue to ensure the school is operated according to its high performance intent. The Systems Maintenance Plan is a key part of commissioning and has a strong connection to other energy efficiency performance items such as energy benchmarking.

OM C4.1 HIGH PERFORMANCE OPERATIONS & SYSTEM MAINTENANCE PLAN

1-5 points

APPLICABILITY: All Projects

VERIFICATION: Construction Review

SCORING: 1 point each for 4.1.1-4.1.3, 2 points for 4.1.4

RELATED CRITERIA: EE P2.0 Commissioning, OM P3.0 Energy Benchmarking, OM C5.1 Indoor Air Quality Management

OM C4.1 REQUIREMENTS

OM C4.1.1 *Monitoring and Benchmarking*

1 point Commit to monitor any three metrics beyond energy efficiency and GHG (OM P1.0) for a minimum of 3 years post-occupancy. See Implementation for guidance.

AND/OR

OM C4.1.2 *Designated Resource Manager*

1 point The school administration must designate a permanent energy and water manager(s) to set performance targets, monitor usage, and coordinate and support school level advocates.

AND/OR

OM C4.1.3 *Designated Advocate*

1 point Designate a school-based advocate to provide education and awareness on energy and

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water reduction programs and targets to promote behavioral change.

OM C4.1.4 *Systems Maintenance Plan*

2 points

The administration must create a school Systems Maintenance Plan that includes an inventory of all equipment in the new or renovated school with a schedule of all preventative and routine maintenance needed. The plan should clearly define who is responsible for performing the task, as well as the overall management of maintenance activities. The inventory and plan should cover the following systems:

1. Electrical Systems
   - Lighting fixtures and controls (daylight, occupancy, timing switches, etc.)
   - On-site renewable solar electric or wind systems
   - Telecommunication systems
   - Electrical distribution systems
   - Life and safety systems
2. HVAC Systems
   - HVAC systems (such as hot water systems, chilled water systems, central air systems, ventilation systems)
   - Domestic hot water systems
   - Energy Management system
   - Renewable energy heating systems (if applicable)
3. Plumbing Systems
   - Flow control devices
   - Pumping systems
   - Special hazardous waste treatment systems (e.g. for lab wastes)
   - Domestic hot water systems
   - Graywater systems (if applicable)
4. Building Envelope and Roofing Systems (particularly acid management)
5. Significant Plug Loads
6. Other High Performance systems as applicable.

OM C4.1 IMPLEMENTATION

OM C4.1.1 *Monitoring & Benchmarking*

The benchmarking metrics to target are: thermal comfort, indoor air quality, acoustics, visual quality (lighting), waste generation, and water usage. The following tools may be used:

Thermal Comfort: a) Manufacturer-provided building monitoring product, which sometimes come free of charge with installation of the system; b) Occupant survey; c) Manual or automated data collection and analysis.

Indoor Air Quality (IAQ): a) EPA's IAQ mobile monitoring app: https://www.epa.gov/iaq-schools/school-iaq-assessment-mobile-app and a walk-through checklist; b) Occupant survey; c) Manufacturer-provided monitoring product, often offered by ventilation systems manufacturers; d) Manual data collection and analysis.

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Acoustics: a) Manual data collection and analysis; b) Occupant survey.

Visual Quality (Lighting):a) Lighting companies may offer products or services; b) Manual measurement and analysis; c) Occupant survey..

Waste Generation: a) Portfolio Manager; b) Manual waste audit.

Water Efficiency: a) Portfolio Manager; b) Manual fixture audit.

OM C4.1.2-3 *Designated Individuals*

Designated individuals who can focus on monitoring performance and assist others with implementing behavioral or operational changes are important for high performance maintenance of the school. Programs do not need to be created from scratch; EPA and others have tools and programs that schools can use. See Resources.

OM C4.1.4 *Systems Maintenance Plan*

Like conventional schools, all high performance schools and their systems require preventive and routine maintenance. The Systems Maintenance Plan encourages districts to plan for preventive and routine maintenance tasks and invest adequate funds in the maintenance of their school facilities. Preventive and routine maintenance tasks include cleanings, calibrations, component replacements, and general inspections. Operations and maintenance manuals and commissioning reports developed during the commissioning process should be used as references for developing the maintenance plan. The plan must clearly define who is responsible for performing the task, its frequency, as well as the overall management of maintenance activities.

The plan can be in the form of a spreadsheet, manual, calendar or any other printed or electronic document that is conducive to a list of equipment and maintenance tasks with dates.

OM C4.1 DOCUMENTATION

DESIGN REVIEW

N/A

CONSTRUCTION REVIEW

OM C4.1.1 Provide a copy of a resolution, written policy, or similar commitment.

OM C4.1.2-3 Provide signed confirmation from the administration that a designated, permanent energy and water manager(s) has been hired and a school-based advocate has been hired or volunteered. The confirmation should include the name(s) but does not need to include contact information.

Submit program outline or plan for your behavior-based energy and/or water conservation program as applies to this project, baseline, and any interim results or energy savings reporting.

OR

Submit a copy of the district MOU with Alliance to Save Energy for the PowerSave Schools Program, or equivalent documentation for a similar established program.

OM C4.1.4 Provide a copy of the Systems Maintenance Plan that includes an inventory of building system components and all regularly scheduled preventative and routine maintenance tasks and their frequency over the lifetime of the building systems or equipment.

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OM C4.1 RESOURCES

1. CHPS Sample Occupant Survey: provided upon request
2. EPA Portfolio Manager: https://www.energystar.gov/buildings/facility-owners-and-managers/existing-buildings/use-portfolio-manager
3. PowerSave Schools, Alliance to Save Energy: www.ase.org/projects/powersave-schools
4. Alliance for Climate Education: www.acespace.org
5. Center for Green Schools, Powering Down: www.centerforgreenschools.org/Libraries/Resources_Documents/Behavior-based_Efficiency.sflb.ashx
6. EPA's Indoor Air Quality Tools for Schools: https://www.epa.gov/iaq-schools/indoor-air-quality-tools-schools-action-kit
7. EPA's Energy Savings Plus Health : Indoor Air Quality Guidelines for School Building Upgrades: https://www.epa.gov/iaq-schools/protecting-iaq-during-school-energy-efficiency-retrofit-projects-energy-savings-plus, and Interactive Air Quality Planner: https://www.epa.gov/iaq-schools/technical-resources-energy-savings-plus-health
8. Northeast Energy Efficiency Partnerships (NEEP): http://www.neep.org/initiatives/energy-efficient-buildings/high-performance-schools
9. Useful information on O&M planning for schools, *NE-CHPS Operations & Maintenance Guide:* https://neep.org/sites/default/files/resources/omg%20update_dec%202018%20final.pdf

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OM C5.1 INDOOR ENVIRONMENTAL MANAGEMENT

According to the US Environmental Protection Agency (US EPA), the indoor environment may contain levels of air pollutants that are 2-5 times higher, and occasionally 100 times higher, than outdoor levels. Poor indoor air quality (IAQ) can cause headaches, fatigue, asthma attacks, and ultimately absenteeism. Asthma can be a leading cause of school absenteeism due to chronic illness (US EPA).

Intent

Protect student and staff health and the environment by monitoring and correcting indoor air quality problems, reducing the risk of exposure to hazardous cleaning products and practices, and reduce the risk of pesticide exposure.

Cleaning practices, response protocols when a problem is reported, and pest management all contribute to good indoor air and environmental quality. An Indoor Environmental Management Plan guides staff in preventing and addressing issues. The use of green cleaning products and practices supports the goal of maintaining a healthy, safe, and clean environment for students, faculty, and staff. Integrated pest management focuses on using effective, least-toxic methods to prevent pests and the health hazards they may bring with them as well as reduces the potential exposure of occupants to pesticides.

OM C5.1 INDOOR ENVIRONMENTAL MANAGEMENT

CREDIT

1-3 points

APPLICABILITY: All Projects

VERIFICATION: Design Review, Construction Review

RELATED CRITERIA: All of EQ

SCORING: 1 point for each of 5.1.1-5.1.3

OM C5.1 REQUIREMENTS

OM C5.1.1 *Indoor Environmental Management Plan*

1 point

Develop and adopt an indoor environmental management plan using the US EPA's Tools for Schools Program [1] or equivalent indoor health & safety program at the school district level. [4] Assign staff to the program and commit to take significant action within a two-year period, such as staff training, policy implementation, development of personnel infrastructure for problem solving and reporting issues, or IAQ assessment activities such as school walk-throughs, data collection, mapping, and/or action plans.

OM C5.1.2 *Green Cleaning*

1 point

For schools that do their own cleaning:

At the district or governing body level, establish a resolution or policy including the following green cleaning and maintenance requirements:

- Purchase of only environmentally preferable and safer cleaning products that are certified by Green Seal or EcoLogo programs. If no third party certification is available for a specialty product, then EPA's Safer Choice (formerly Design for the Environment) label may be used. [5,6,7]
- Prohibition of aerosol and plug-in air fresheners.

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- Use of only CRI certified vacuums or other HEPA vacuums. [8]
- Prohibition of teachers and staff bringing in their own products.

As applicable, create an audit of current product inventory (if any) and purchasing practices to identify where green items or approaches can be used as replacements. If a green product policy already exists, review it and update it for references to current or new product certifications.

For schools that use a cleaning service:

Ensure that the contract requires the use of green cleaning supplies meeting nationally recognized standards and requires training for custodial staff. Alternatively, the vendor can be certified by the International Janitorial Cleaning Services Association (IJCSA) (11).

OM C5.1.3 *Integrated Pest Management*

Develop and support an Integrated Pest Management (IPM) Plan (12) that emphasizes a least-toxic approach to IPM.

AND

Design the project's exterior walls, foundation, attics, roofs, interior partitions and ceilings in food storage areas, food preparation and disposal areas, utility chases and penetrations, for integrated pest management by making it difficult for pests to enter the building including, as applicable (13):

- Blocking openings in the enclosure larger than 1/4" by 3/8".
- Use mesh or screens on openings required for airflow.
- Caulk all cracks larger than 1/16".
- Any landscape planting must be located at least two feet from buildings.
- Facades should be designed to discourage birds from roosting.
- Select dumpsters that seal tightly and are easy for people to open and close, and enclosure designed to discourage pest infestation in buildings.
- Make all kitchen surfaces easy to degrease.

OM C5.1 IMPLEMENTATION

OM C5.1.1 EPA's Tools for Schools is not a plan per se. It is a set of resources and best practices that school staff can use to implement an IEQ management plan. The Tools for Schools Action Kit [1] contains several checklists by department that can readily be turned into a plan. Typical plans also identify the responsible staff people, reporting and response requirements, remediation and corrective action requirements, and may include dispute resolution. The Wisconsin Department of Public Instruction has created a model IEQ management plan available online. It includes many of the features of Tools for Schools and is set up to be easily adopted by any school. [4]

OM C5.1.2 Environmentally preferable and safer cleaners are those that are currently certified to any of the following standards:

Green Seal, GS-37 Cleaning Products for Industrial and Institutional Use, 2013, or other related Green Seal product standard. Product must be certified to display the Green Seal mark.

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EcoLogo, UL Global Network, Janitorial & Janitorial Products standards (relevant product category standard). Product must be certified to display the EcoLogo mark.

Vacuum cleaners must carry certification from the Carpet and Rug Institute (CRI) or contain a HEPA filter.

Janitorial staff should try to limit cleaning activities performed during school hours to protect vulnerable occupants.

The green cleaning policy should include proper procedures for the safe handling and storage of cleaning chemicals, and an overview on staff training requirements.

OM C5.1.3 An appropriate IPM plan, specified to be a least-toxic approach, reduces the need to apply chemical sprays or deploy bait traps in order to control pest populations. A successful plan eliminates food, water, and shelter for pests, thereby decreasing the likelihood that pests will enter school facilities. The control of food and its restriction to appropriate locations in the facility decreases pest problems and increases Indoor air quality through the elimination of pest contaminants and chemical control agents.

Consider also designing school fencing and turf/landscape bed margins to prevent weed encroachment and the need for herbicides, including:

- Installing weed barrier mow strips under fencing that is ½ inch beneath final mow height of adjacent turf, that extends at least four inches from the widest part of the fence on both sides, and that will support the deck of a mechanical mower.
- Installing curbing between turf and other porous landscape features (landscape beds, gardens, mulch or sand play boxes, mulched paths, etc.) that extends vertically a minimum of six inches below grade and extends four inches horizontally at the turf margin.

OM C5.1 DOCUMENTATION

DESIGN REVIEW

OM C5.1.1 N/A

OM C5.1.2 N/A

OM C5.1.3 Provide a copy of the plan, if ready. Drawings must show the measures, such as location of plantings and screening/blocking of openings, selected to improve pest management. Alternatively, provide a list or brief description of the measures.

CONSTRUCTION REVIEW

OM C5.1.1 Provide evidence of the plan, such as the executive summary or table of contents or minutes or vote documenting adoption of the plan, or provide a written commitment to develop the plan within 9 months of occupancy. The plan or the commitment must identify the person responsible and show that significant implementation of the plan will begin within a two-year period.

OM C5.1.2 Submit the green cleaning policy or resolution covering the required areas. Submit the completed audit, if any. Or provide a copy of the contract with the cleaning vendor highlighting the appropriate sections.

OM C5.1.3 Submit the Integrated Pest Management (IPM) plan, if not provided at Design Review.

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OM C5.1 RESOURCES

Indoor Environmental Management

1. US EPA's IAQ Tools for Schools Action Kit: www.epa.gov/iaq/schools/actionkit.html
2. To identify state-specific requirements and other applicable approaches to IAQ management, see the Environmental Law Institute's list of IAQ laws and regulations by state:https://www.eli.org/sites/default/files/docs/greenbuilding/schools_2018.pdf
3. US EPA's IAQ mobile app is a tool for measuring air quality: https://www.epa.gov/iaq-schools/school-iaq-assessment-mobile-app
4. Wisconsin Department of Public Instruction has developed a model IEQ Management Plan for schools using many of the Tools for Schools approaches: https://dpi.wi.gov/sms/facilities/indoor-environmental-quality-plan

Green Cleaning

5. Green Seal: www.greenseal.org
6. UL Environment, EcoLogo: https://spot.ul.com
7. US EPA Safer Choice: https://www.epa.gov/saferchoice/products
8. Carpet and Rug Institute (CRI) certified vacuums: https://carpet-rug.org/testing/seal-of-approval-program/certified-vacuums/
9. ASTM E1971-05(2011), Standard Guide for Stewardship for the Cleaning of Commercial and Institutional Buildings http://www.astm.org/cgi-bin/resolver.cgi?E1971
10. Sustainable Jersey Schools cleaning audit information: http://www.sustainablejerseyschools.com/actions-certification/actions/?type=1336777436&tx_sjcert_action%5BactionObject%5D=76&tx_sjcert_action%5Baction%5D=getPDF&tx_sjcert_action%5Bcontroller%5D=Action&cHash=d6c4bc0e520dee0b2b32259f07fbc52f
11. International Janitorial Cleaning Services Association (IJCSA): http://www.ijcsa.org/green-cleaning-certification
12. Green Seal Commercial & Institutional Cleaning Standard: https://www.greenseal.org/green-seal-standards/gs-42/

Integrated Pest Management

13. US EPA IPM in Schools: https://www.epa.gov/safepestcontrol/integrated-pest-management-ipm-principles
14. Beyond Pesticides: www.beyondpesticides.org
15. For general information and several tools, including a model IPM plan: https://ipminstitute.org/projects/school-ipm-2020/resources/
16. People with a LEED User account can assess an IPM template here: https://leeduser.buildinggreen.com/credit/EBOM-2009/SSc3#tab-docs

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OM P6.0 ANTI-IDLING MEASURES
OM C6.1 ADDITIONAL ANTI-IDLING MEASURES

According to the US Environmental Protection Agency (US EPA) [1] and others, exposure to vehicle exhaust, even at low levels, is a serious health hazard and can cause respiratory problems such as asthma and bronchitis. Diesel emissions are well-documented asthma triggers and may increase the severity of asthma attacks. Other types of air pollution, including ultrafine particles, can impact heart and brain health [2,3]. Such particles can make their way indoors in buildings near busy roadways.

Intent

Reduce the health and environmental effects of vehicle exhaust and decrease use of fuel by preventing unnecessary vehicle idling.

OM P6.0 ANTI-IDLING MEASURES

PREREQUISITE

point

APPLICABILITY: All Projects

VERIFICATION: Design Review, Construction Review

RELATED CRITERIA: SS C2.1 Sustainable Site Use

OM P6.0 REQUIREMENTS

Comply with 13 CCR 2480, which states that any driver of a school bus, school pupil activity bus, youth bus, general public paratransit vehicle, transit bus or of a commercial motor vehicle:

- Must turn off the bus or vehicle engine upon stopping at a school or within 100 feet of a school, and must not turn the bus or vehicle engine on more than 30 seconds before beginning to depart from a school or from within 100 feet of a school; and
- Must not cause or allow a bus or vehicle to idle at any location greater than 100 feet from a school for more than five consecutive minutes or a period or periods aggregating more than five minutes in any one hour.

OM C6.1 ADDITIONAL ANTI-IDLING MEASURES

CREDIT

1 point

APPLICABILITY: All Projects

VERIFICATION: Design Review, Construction Review

RELATED CRITERIA: SS C2.1 Sustainable Site Use

OM C6.1 REQUIREMENTS

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- Adopt a no idling policy that applies to all school buses operating in the school district and all vehicles operating in the school grounds. The policy must include the following provisions: School bus drivers will shut off bus engines upon reaching destination, and buses will not idle for more than five minutes while waiting for passengers. This rule applies to all bus use including daily route travel, field trips, and transportation to and from athletic events. School buses should not be restarted until they are ready to depart and there is a clear path to exit the pick-up area.
- Post signage expressly prohibiting the idling of all vehicles for more than five minutes in the school zone.
- Transportation operations staff will evaluate and shorten bus routes whenever possible, particularly for older buses with the least effective emissions control.
- All school district bus drivers will complete a "no idling" training session at least once. All bus drivers will receive a copy of the school district's No Idling Policy at the beginning of every school year.

OM P6.0& C6.1 IMPLEMENTATION

The term "school grounds" shall mean in, on or within 100 feet of the school, including any athletic field or facility and any playground used for school purposes or functions which are owned by a municipality or school district, regardless of proximity to a school building, as well as any parking lot appurtenant to such school, athletic field, facility or playground.

Establish the length of time an operator on school grounds may idle an engine before such idling becomes prolonged, and the limited circumstances under which the prolonged idling of an engine shall be permitted, including periods necessary to operate defrosting, heating or cooling equipment to ensure the health or safety of a driver or passengers or to operate auxiliary equipment and to undergo inspection or during maintenance.

Prohibit an operator of a school bus from idling a school bus engine while waiting for children to board or exit a bus on school grounds and from starting a school bus engine for any unnecessary period of time in advance of leaving the school grounds, unless the registrar determines that a school bus engine must be fully engaged in order to operate safety devices or that such idling prohibition would otherwise compromise the safety of children boarding or exiting a bus. Such regulations shall further prescribe templates for "no idling" signage to be posted by schools.

OM P6.0 & C6.1 DOCUMENTATION

DESIGN REVIEW

Provide a copy of the adopted anti-idling policy. Provide drawings showing the locations of the anti-idling signage to be installed.

CONSTRUCTION REVIEW

Provide photo(s) of the installed anti-idling signage.

OM P6.0 & C6.1 RESOURCES

MEMBER COPY

1. US Environmental Protection Agency: Diesel Exhaust and Your Health https://www.epa.gov/mobile-source-pollution/research-health-effects-exposure-risk-mobile-source-pollution
2. Tufts University has a study on ultrafine particles from vehicles and their impacts on health: https://sites.tufts.edu/cafeh/
3. AirNow is the home of EPA's information on air quality and health: https://www.airnow.gov/air-quality-and-health

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OM C7.1 GREEN POWER

School districts and municipalities have the opportunity to purchase green power in multiple forms, including Renewable Energy Certificates (RECs) or Power Purchase Agreements (PPAs). These mechanisms allow schools to use green power without constructing an on-site renewable power system. CHPS has adopted the Zero-Code approach for quantifying off-site generation and applying it toward school usage. [2]

Intent

Reduce the use of fossil fuel energy sources.

OM C7.1 GREEN POWER

CREDIT

1-2 points

APPLICABILITY: All Projects

VERIFICATION: Design Review

RELATED CRITERIA: EE P1.0/C1.1 Energy Efficient Design, II C4.1 School Master Plan, II C6.1 Low/Zero GHG School

OM C7.1 REQUIREMENTS

1-2 points

Contract for (or commit to) off-site renewables, green power and/or RECs for 15 years, at an adjusted annual quantity of at lesat 75% of estimated building energy consumption. Purchased energy quantities shall be adjusted by weighting factors derived from the "Zero Code Off-site Procurement of Renewable Energy Technical Support Document" (April 2018), as follows:

Class 1 (Self Owned Off-Site, Community Solar, Virtual PPA, REIFs) = 0.75

Class 2 (Direct Access, Green Retail Tariffs) = 0.55

Class 3 (Unbundled RECs) = 0.20

Alternative approaches are allowed with CHPS approval.

Calculation:

$$\text{Purchased Renewables} \times \text{Adjustment Factor} = \text{Adjusted Purchased Renewables}$$

$$\text{Adjusted Purchased Renewables} / \text{Total Building Energy Usage} = \%\ \text{off} - \text{site renewables}$$

Purchased Renewables must meet all other requirements of Zero Code.

If green power is purchased at the district level, it must be allocated to the project to achieve the point. If the electricity utility provides green power at no additional cost, school can claim this credit.

Points are awarded per the following thresholds:

- 75% of estimated building consumption (1 point)
- 100% of estimated building consumption (2 points)

OM C7.1 IMPLEMENTATION

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RECs

For each megawatt-hour of power generated and supplied to the electric grid through renewable electricity generation (solar, wind, ocean thermal, wave, tidal, landfill gas and "low emission" bio-energy sources), a REC is issued for trade on the open market. Both new and old RECs can be purchased by retail electricity suppliers or renewable electricity suppliers for resale to customers. Consumers can purchase RECs through programs or companies across the country. When a consumer purchases RECs, the RECs are effectively retired and taken out of circulation, which contributes to the increased demand for generation and sale of additional renewable electricity.

An interesting characteristic of renewable energy certificates is that they can be purchased from any location in the country, however, purchasing RECs from local generation sources means that the environmental benefits are experienced locally.

PPAs

Power Purchase Agreements are a contractual means for a site-owner and a renewable energy installer to work together to provide green power on-site when the site-owner does not wish to outright own the system. In a PPA, the system is owned and maintained by the installer (ownership may also be by a third party investor), and the site-owner purchases the power generated by the system for the contracted price. Typically, PPAs are structured so that the site-owner eventually has the right to own the system. The benefits of a PPA to a site- owner are that the upfront capital costs of installation and the ongoing maintenance costs are borne by the installer. Theoretically, a PPA allows the installer to build a larger system at the site than might otherwise be possible (site conditions are still the primary determinants of system size), therefore offsetting a larger portion of the site's fossil fuel use.

OM C7.1 DOCUMENTATION

DESIGN REVIEW

Provide a copy of a written commitment by the district or school governing body to purchase at least 75% of annual electricity needs as green power through Green-e Energy certified RECs or a renewable energy system through a PPA. The document must specify at least a 2-year period.

CONSTRUCTION REVIEW

N/A

OM C7.1 RESOURCES

1. Article on where to buy RECs: https://www.energysage.com/alternative-energy-solutions/renewable-energy-credits-recs/where-to-buy-renewable-energy-credits-recs/
2. Zero-Code: https://zero-code.org/wp-content/uploads/2018/04/Zero-Code-TSD-OffSiteRenewables.pdf

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TABLE A: MAJOR MODERNIZATION REQUIREMENTS – *UNDER DEVELOPMENT*

Prerequisite	Systems and Surfaces Substantially Improved	Requirement
II P1.0 Integrated Design		Always Required; flexibility in timing of meetings allowed
II P2.0 Central Educational Display		Required only in gut rehab or building conversion
EQ P1.0 Ventilation & IAQ	HVAC	Required, some exceptions may apply
EQ P2.0 Off-Gassing	Interior Surfaces	Always Required
EQ P3.0 Outdoor Moisture Management	Envelope, Site	Required based on scope
EQ P6.0 Low Emitting Materials	Paints & Coatings Flooring Composite Wood	Required for each category substantially improved
EQ P10.0 Thermal Comfort	HVAC, Envelope, Interior	Required based on scope
EQ P12.0 Glare Protection	Envelope	Required only if impacts least 70% of classrooms, libraries & administrative spaces. Exceptions: Structural constraints, physical constraints, i.e., HVAC or electrical conduit systems, rooms without exterior access or site obstructions, but must still meet 50% threshold.
EQ P15.0 Acoustical Performance	Interior	Reverberation time; if includes windows/doors/walls then noise transmission within scope
	HVAC	Background noise
	Envelope	Background noise and exterior noise if includes windows/doors/walls
EE P1.0 Energy Efficient Design	HVAC, Envelope, Lighting	Performance or prescriptive parts of Title 24 are triggered by specific scope; always required for additions
EE P2.0 Commissioning		Always Required
EE P3.0 Mandatory Controls	Lighting, HVAC	Required based on scope
WE P1.0 Indoor Potable Water Use Reduction	Interior Systems	Required if plumbing fixtures are in scope
WE P2.0 Outdoor Water Use Budget	Site	Required only if irrigation is in scope
SS P1.0 Environmental Site Assessment		Always Required
SS P3.0 Erosion & Pollutant Control During Construction	Site, Envelope, HVAC	Required based on scope
SS P6.0 Bicycle Parking	Site, Envelope	Required if addition is in scope
SS P8.0 Outdoor Light Pollution Prevention	Outdoor Lighting	Required if outdoor lighting in scope

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TABLE A Continued

Prerequisite	Systems and Surfaces Substantially Improved	Requirement
MW P1.0 Storage & Collection of Recyclables and Organic Waste	Envelope, Interior	Always Required
MW P2.0 Construction Waste Management	All	Always Required
OM P1.0 Facility Staff & Occupant Training	All	Required for facility staff on systems in scope
	HVAC, Lighting, Interior	Required for teachers & staff on systems they use
OM P3.0 Energy & GHG Performance Benchmarking	HVAC, Lighting, Envelope	Required when more than 50% of school is within pertinent scope of work
OM P6.0 ATCM to Limit Idling at Schools		Not Required

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TABLE B: NON-CLASSROOM REQUIREMENTS[12]

Prerequisite	Requirement
II P1.0 Integrated Design	Always Required
II P2.0 Central Educational Display	Required for buildings with student use
EQ P1.0 Ventilation & IAQ	Required based on scope
EQ P2.0 Off-Gassing	Required based on scope
EQ P3.0 Outdoor Moisture Management	Required based on scope
EQ P6.0 Low Emitting Materials	Required based on scope
EQ P10.0 Thermal Comfort	Required if classroom, library, or admin spaces in scope
EQ P12.0 Glare Protection	Required if admin spaces or libraries are part of scope
EQ P15.0 Acoustical Performance	Not required unless there is a core learning classroom
EE P1.0 Energy Efficient Design	Required based on scope
EE P2.0 Commissioning	Always Required
EE P3.0 Mandatory Controls	Required based on scope
WE P1.0 Indoor Potable Water Use Reduction	Required if plumbing fixtures are in scope
WE P2.0 Outdoor Water Use Budget	Required if irrigation is in scope
SS P1.0 Environmental Site Assessment	Always Required
SS P3.0 Erosion & Pollutant Control During Construction	Required based on site size
SS P6.0 Bicycle Parking	Required based on code
SS P8.0 Light Pollution Reduction	Required based on scope
MW P1.0 Storage & Collection of Recyclables and Organic Waste	Required based on scope
MW P2.0 Construction Waste Management	Always Required
OM P1.0 Facility Staff & Occupant Training	Required based on scope
OM P3.0 Energy & GHG Performance Benchmarking	Required based on scope
OM P6.0 ATCM to Limit Idling at Schools	Required if drop off area is in scope

1. Non-classroom is defined as having up to 1 core learning classroom. Ancillary learning spaces, such as practice rooms, do not count as classrooms for the purpose of prerequisites.
2. For non-classroom modernization scopes, refer to Table A as well.

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GUIDELINES FOR COMMUNITY NOISE

Edited by

Birgitta Berglund
Thomas Lindvall
Dietrich H Schwela

This WHO document on the *Guidelines for Community Noise* is the outcome of the WHO-expert task force meeting held in London, United Kingdom, in April 1999. It bases on the document entitled "Community Noise" that was prepared for the World Health Organization and published in 1995 by the Stockholm University and Karolinska Institute.

World Health Organization, Geneva
Cluster of Sustainable Development and Healthy Environment (SDE)
Department for Protection of the Human Environment (PHE)
Occupational and Environmental Health (OEH)

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Foreword

Noise has always been an important environmental problem for man. In ancient Rome, rules existed as to the noise emitted from the ironed wheels of wagons which battered the stones on the pavement, causing disruption of sleep and annoyance to the Romans. In Medieval Europe, horse carriages and horse back riding were not allowed during night time in certain cities to ensure a peaceful sleep for the inhabitants. However, the noise problems of the past are incomparable with those of modern society. An immense number of cars regularly cross our cities and the countryside. There are heavily laden lorries with diesel engines, badly silenced both for engine and exhaust noise, in cities and on highways day and night. Aircraft and trains add to the environmental noise scenario. In industry, machinery emits high noise levels and amusement centres and pleasure vehicles distract leisure time relaxation.

In comparison to other pollutants, the control of environmental noise has been hampered by insufficient knowledge of its effects on humans and of dose-response relationships as well as a lack of defined criteria. While it has been suggested that noise pollution is primarily a "luxury" problem for developed countries, one cannot ignore that the exposure is often higher in developing countries, due to bad planning and poor construction of buildings. The effects of the noise are just as widespread and the long term consequences for health are the same. In this perspective, practical action to limit and control the exposure to environmental noise are essential. Such action must be based upon proper scientific evaluation of available data on effects, and particularly dose-response relationships. The basis for this is the process of risk assessment and risk management.

The extent of the noise problem is large. In the European Union countries about 40 % of the population are exposed to road traffic noise with an equivalent sound pressure level exceeding 55 dB(A) daytime and 20 % are exposed to levels exceeding 65 dB(A). Taking all exposure to transportation noise together about half of the European Union citizens are estimated to live in zones which do not ensure acoustical comfort to residents. More than 30 % are exposed at night to equivalent sound pressure levels exceeding 55 dB(A) which are disturbing to sleep. The noise pollution problem is also severe in cities of developing countries and caused mainly by traffic. Data collected alongside densely travelled roads were found to have equivalent sound pressure levels for 24 hours of 75 to 80 dB(A).

The scope of WHO's effort to derive guidelines for community noise is to consolidate actual scientific knowledge on the health impacts of community noise and to provide guidance to environmental health authorities and professional trying to protect people from the harmful effects of noise in non-industrial environments. Guidance on the health effects of noise exposure of the population has already been given in an early publication of the series of Environmental Health Criteria. The health risk to humans from exposure to environmental noise was evaluated and guidelines values derived. The issue of noise control and health protection was briefly addressed.
At a WHO/EURO Task Force Meeting in Düsseldorf, Germany, in 1992, the health criteria and guideline values were revised and it was agreed upon updated guidelines in consensus. The essentials of the deliberations of the Task Force were published by Stockholm University and

Karolinska Institute in 1995. In an recent Expert Task Force Meeting convened in April 1999 in London, United Kingdom, the Guidelines for Community Noise were extended to provide global coverage and applicability, and the issues of noise assessment and control were addressed in more detail. This document is the outcome of the consensus deliberations of the WHO Expert Task Force.

Dr Richard Helmer
Director, Department of Protection of the Human Environment
Cluster Sustainable Development and Healthy Environments

Preface

Community noise (also called environmental noise, residential noise or domestic noise) is defined as noise emitted from all sources except noise at the industrial workplace. Main sources of community noise include road, rail and air traffic, industries, construction and public work, and the neighbourhood. The main indoor sources of noise are ventilation systems, office machines, home appliances and neighbours. Typical neighbourhood noise comes from premises and installations related to the catering trade (restaurant, cafeterias, discotheques, etc.); from live or recorded music; sport events including motor sports; playgrounds; car parks; and domestic animals such as barking dogs. Many countries have regulated community noise from road and rail traffic, construction machines and industrial plants by applying emission standards, and by regulating the acoustical properties of buildings. In contrast, few countries have regulations on community noise from the neighbourhood, probably due to the lack of methods to define and measure it, and to the difficulty of controlling it. In large cities throughout the world, the general population is increasingly exposed to community due to the sources mentioned above and the health effects of these exposures are considered to be a more and more important public health problem. Specific effects to be considered when setting community noise guidelines include: interference with communication; noise-induced hearing loss; sleep disturbance effects; cardiovascular and psycho-physiological effects; performance reduction effects; annoyance responses; and effects on social behaviour.

Since 1980, the World Health Organization (WHO) has addressed the problem of community noise. Health-based guidelines on community noise can serve as the basis for deriving noise standards within a framework of noise management. Key issues of noise management include abatement options; models for forecasting and for assessing source control action; setting noise emission standards for existing and planned sources; noise exposure assessment; and testing the compliance of noise exposure with noise immission standards. In 1992, the WHO Regional Office for Europe convened a task force meeting which set up guidelines for community noise. A preliminary publication of the Karolinska Institute, Stockholm, on behalf of WHO, appeared in 1995. This publication served as the basis for the globally applicable *Guidelines for Community Noise* presented in this document. An expert task force meeting was convened by WHO in March 1999 in London, United Kingdom, to finalize the guidelines.

The *Guidelines for Community Noise* have been prepared as a practical response to the need for action on community noise at the local level, as well as the need for improved legislation, management and guidance at the national and regional levels. WHO will be pleased to see that these guidelines are used widely. Continuing efforts will be made to improve its content and structure. It would be appreciated if the users of the *Guidelines* provide feedback from its use and their own experiences. Please send your comments and suggestions on the WHO *Guidelines for Community Noise – Guideline document* to the Department of the Protection of the Human Environment, Occupational and Environmental Health, World Health Organization, Geneva, Switzerland (Fax: +41 22-791 4123, e-mail: schwelad@who.int).

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The World Health Organization thanks all who have contributed to the preparation of this document, *Guidelines for Community Noise*. The international, multidisciplinary group of contributors to, and reviewers of, the *Guidelines* are listed in the "Participant list" in Annex 6. Special thanks are due to the chairpersons and workgroups of the WHO expert task force meeting held in London, United Kingdom, in March 1999: Professor Thomas Lindvall, who acted as the chairperson of the meeting, Professor Birgitta Berglund, Dr John Bradley and Professor Gerd Jansen, who chaired the three workgroups. Special contributions from those who provided the background papers and who contributed to the success of the WHO expert meeting are gratefully acknowledged:

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Professor Shabih Haider Zaidi, Dow Medical College, Karachi , Pakistan;

Particular thanks are due to the Ministry of Environment of Germany, which provided the funding to convene the WHO expert task force meeting in London, United Kingdom, in March 1999 to produce the Guidelines for Community Noise.

Executive Summary

1. Introduction

Community noise (also called environmental noise, residential noise or domestic noise) is defined as noise emitted from all sources except noise at the industrial workplace. Main sources of community noise include road, rail and air traffic; industries; construction and public work; and the neighbourhood. The main indoor noise sources are ventilation systems, office machines, home appliances and neighbours.

In the European Union about 40% of the population is exposed to road traffic noise with an equivalent sound pressure level exceeding 55 dB(A) daytime, and 20% are exposed to levels exceeding 65 dB(A). When all transportation noise is considered, more than half of all European Union citizens is estimated to live in zones that do not ensure acoustical comfort to residents. At night, more than 30% are exposed to equivalent sound pressure levels exceeding 55 dB(A), which are disturbing to sleep. Noise pollution is also severe in cities of developing countries. It is caused mainly by traffic and alongside densely-travelled roads equivalent sound pressure levels for 24 hours can reach 75–80 dB(A).

In contrast to many other environmental problems, noise pollution continues to grow and it is accompanied by an increasing number of complaints from people exposed to the noise. The growth in noise pollution is unsustainable because it involves direct, as well as cumulative, adverse health effects. It also adversely affects future generations, and has socio-cultural, esthetic and economic effects.

2. Noise sources and measurement

Physically, there is no distinction between sound and noise. Sound is a sensory perception and the complex pattern of sound waves is labeled noise, music, speech etc. Noise is thus defined as unwanted sound.

Most environmental noises can be approximately described by several simple measures. All measures consider the frequency content of the sounds, the overall sound pressure levels and the variation of these levels with time. Sound pressure is a basic measure of the vibrations of air that make up sound. Because the range of sound pressures that human listeners can detect is very wide, these levels are measured on a logarithmic scale with units of decibels. Consequently, sound pressure levels cannot be added or averaged arithmetically. Also, the sound levels of most noises vary with time, and when sound pressure levels are calculated, the instantaneous pressure fluctuations must be integrated over some time interval.

Most environmental sounds are made up of a complex mix of many different frequencies. Frequency refers to the number of vibrations per second of the air in which the sound is propagating and it is measured in Hertz (Hz). The audible frequency range is normally considered to be 20–20 000 Hz for younger listeners with unimpaired hearing. However, our hearing systems are not equally sensitive to all sound frequencies, and to compensate for this various types of filters or frequency weighting have been used to determine the relative strengths of frequency components making up a particular environmental noise. The A-weighting is most

commonly used and weights lower frequencies as less important than mid- and higher-frequencies. It is intended to approximate the frequency response of our hearing system.

The effect of a combination of noise events is related to the combined sound energy of those events (the equal energy principle). The sum of the total energy over some time period gives a level equivalent to the average sound energy over that period. Thus, LAeq,T is the energy average equivalent level of the A-weighted sound over a period T. LAeq,T should be used to measure continuing sounds, such as road traffic noise or types of more-or-less continuous industrial noises. However, when there are distinct events to the noise, as with aircraft or railway noise, measures of individual events such as the maximum noise level (LAmax), or the weighted sound exposure level (SEL), should also be obtained in addition to LAeq,T. Time-varying environmental sound levels have also been described in terms of percentile levels.

Currently, the recommended practice is to assume that the equal energy principle is approximately valid for most types of noise and that a simple LAeq,T measure will indicate the expected effects of the noise reasonably well. When the noise consists of a small number of discrete events, the A-weighted maximum level (LAmax) is a better indicator of the disturbance to sleep and other activities. In most cases, however, the A-weighted sound exposure level (SEL) provides a more consistent measure of single-noise events because it is based on integration over the complete noise event. In combining day and night LAeq,T values, night-time weightings are often added. Night-time weightings are intended to reflect the expected increased sensitivity to annoyance at night, but they do not protect people from sleep disturbance.

Where there are no clear reasons for using other measures, it is recommended that LAeq,T be used to evaluate more-or-less continuous environmental noises. Where the noise is principally composed of a small number of discrete events, the additional use of LAmax or SEL is recommended. There are definite limitations to these simple measures, but there are also many practical advantages, including economy and the benefits of a standardized approach.

3. Adverse health effects of noise

The health significance of noise pollution is given in chapter 3 of the *Guidelines* under separate headings according to the specific effects: noise-induced hearing impairment; interference with speech communication; disturbance of rest and sleep; psychophysiological, mental-health and performance effects; effects on residential behaviour and annoyance; and interference with intended activities. This chapter also considers vulnerable groups and the combined effects of mixed noise sources.

Hearing impairment is typically defined as an increase in the threshold of hearing. Hearing deficits may be accompanied by tinnitus (ringing in the ears). Noise-induced hearing impairment occurs predominantly in the higher frequency range of 3 000–6 000 Hz, with the largest effect at 4 000 Hz. But with increasing LAeq,8h and increasing exposure time, noise-induced hearing impairment occurs even at frequencies as low as 2 000 Hz. However, hearing impairment is not expected to occur at LAeq,8h levels of 75 dB(A) or below, even for prolonged occupational noise exposure.

Worldwide, noise-induced hearing impairment is the most prevalent irreversible occupational hazard and it is estimated that 120 million people worldwide have disabling hearing difficulties.

In developing countries, not only occupational noise but also environmental noise is an increasing risk factor for hearing impairment. Hearing damage can also be caused by certain diseases, some industrial chemicals, ototoxic drugs, blows to the head, accidents and hereditary origins. Hearing deterioration is also associated with the ageing process itself (presbyacusis).

The extent of hearing impairment in populations exposed to occupational noise depends on the value of LAeq,8h, the number of noise-exposed years, and on individual susceptibility. Men and women are equally at risk for noise-induced hearing impairment. It is expected that environmental and leisure-time noise with a LAeq,24h of 70 dB(A) or below will not cause hearing impairment in the large majority of people, even after a lifetime exposure. For adults exposed to impulse noise at the workplace, the noise limit is set at peak sound pressure levels of 140 dB, and the same limit is assumed to be appropriate for environmental and leisure-time noise. In the case of children, however, taking into account their habits while playing with noisy toys, the peak sound pressure should never exceed 120 dB. For shooting noise with LAeq,24h levels greater than 80 dB(A), there may be an increased risk for noise-induced hearing impairment.

The main social consequence of hearing impairment is the inability to understand speech in daily living conditions, and this is considered to be a severe social handicap. Even small values of hearing impairment (10 dB averaged over 2 000 and 4 000 Hz and over both ears) may adversely affect speech comprehension.

Speech intelligibility is adversely affected by noise. Most of the acoustical energy of speech is in the frequency range of 100–6 000 Hz, with the most important cue-bearing energy being between 300–3 000 Hz. Speech interference is basically a masking process, in which simultaneous interfering noise renders speech incapable of being understood. Environmental noise may also mask other acoustical signals that are important for daily life, such as door bells, telephone signals, alarm clocks, fire alarms and other warning signals, and music.

Speech intelligibility in everyday living conditions is influenced by speech level; speech pronunciation; talker-to-listener distance; sound level and other characteristics of the interfering noise; hearing acuity; and by the level of attention. Indoors, speech communication is also affected by the reverberation characteristics of the room. Reverberation times over 1 s produce loss in speech discrimination and make speech perception more difficult and straining. For full sentence intelligibility in listeners with normal hearing, the signal-to-noise ratio (i.e. the difference between the speech level and the sound level of the interfering noise) should be at least 15 dB(A). Since the sound pressure level of normal speech is about 50 dB(A), noise with sound levels of 35 dB(A) or more interferes with the intelligibility of speech in smaller rooms. For vulnerable groups even lower background levels are needed, and a reverberation time below 0.6 s is desirable for adequate speech intelligibility, even in a quiet environment.

The inability to understand speech results in a large number of personal handicaps and behavioural changes. Particularly vulnerable are the hearing impaired, the elderly, children in the process of language and reading acquisition, and individuals who are not familiar with the spoken language.

Sleep disturbance is a major effect of environmental noise. It may cause primary effects during sleep, and secondary effects that can be assessed the day after night-time noise exposure. Uninterrupted sleep is a prerequisite for good physiological and mental functioning, and the primary effects of sleep disturbance are: difficulty in falling asleep; awakenings and alterations

of sleep stages or depth; increased blood pressure, heart rate and finger pulse amplitude; vasoconstriction; changes in respiration; cardiac arrhythmia; and increased body movements. The difference between the sound levels of a noise event and background sound levels, rather than the absolute noise level, may determine the reaction probability. The probability of being awakened increases with the number of noise events per night. The secondary, or after-effects, the following morning or day(s) are: reduced perceived sleep quality; increased fatigue; depressed mood or well-being; and decreased performance.

For a good night's sleep, the equivalent sound level should not exceed 30 dB(A) for continuous background noise, and individual noise events exceeding 45 dB(A) should be avoided. In setting limits for single night-time noise exposures, the intermittent character of the noise has to be taken into account. This can be achieved, for example, by measuring the number of noise events, as well as the difference between the maximum sound level and the background sound level. Special attention should also be given to: noise sources in an environment with low background sound levels; combinations of noise and vibrations; and to noise sources with low-frequency components.

Physiological Functions. In workers exposed to noise, and in people living near airports, industries and noisy streets, noise exposure may have a large temporary, as well as permanent, impact on physiological functions. After prolonged exposure, susceptible individuals in the general population may develop permanent effects, such as hypertension and ischaemic heart disease associated with exposure to high sound levels. The magnitude and duration of the effects are determined in part by individual characteristics, lifestyle behaviours and environmental conditions. Sounds also evoke reflex responses, particularly when they are unfamiliar and have a sudden onset.

Workers exposed to high levels of industrial noise for 5–30 years may show increased blood pressure and an increased risk for hypertension. Cardiovascular effects have also been demonstrated after long-term exposure to air- and road-traffic with LAeq,24h values of 65–70 dB(A). Although the associations are weak, the effect is somewhat stronger for ischaemic heart disease than for hypertension. Still, these small risk increments are important because a large number of people are exposed.

Mental Illness. Environmental noise is not believed to cause mental illness directly, but it is assumed that it can accelerate and intensify the development of latent mental disorders. Exposure to high levels of occupational noise has been associated with development of neurosis, but the findings on environmental noise and mental-health effects are inconclusive. Nevertheless, studies on the use of drugs such as tranquillizers and sleeping pills, on psychiatric symptoms and on mental hospital admission rates, suggest that community noise may have adverse effects on mental health.

Performance. It has been shown, mainly in workers and children, that noise can adversely affect performance of cognitive tasks. Although noise-induced arousal may produce better performance in simple tasks in the short term, cognitive performance substantially deteriorates for more complex tasks. Reading, attention, problem solving and memorization are among the cognitive effects most strongly affected by noise. Noise can also act as a distracting stimulus and impulsive noise events may produce disruptive effects as a result of startle responses.

Noise exposure may also produce after-effects that negatively affect performance. In schools around airports, children chronically exposed to aircraft noise under-perform in proof reading, in

persistence on challenging puzzles, in tests of reading acquisition and in motivational capabilities. It is crucial to recognize that some of the adaptation strategies to aircraft noise, and the effort necessary to maintain task performance, come at a price. Children from noisier areas have heightened sympathetic arousal, as indicated by increased stress hormone levels, and elevated resting blood pressure. Noise may also produce impairments and increase in errors at work, and some accidents may be an indicator of performance deficits.

Social and Behavioural Effects of Noise; Annoyance. Noise can produce a number of social and behavioural effects as well as annoyance. These effects are often complex, subtle and indirect and many effects are assumed to result from the interaction of a number of non-auditory variables. The effect of community noise on annoyance can be evaluated by questionnaires or by assessing the disturbance of specific activities. However, it should be recognized that equal levels of different traffic and industrial noises cause different magnitudes of annoyance. This is because annoyance in populations varies not only with the characteristics of the noise, including the noise source, but also depends to a large degree on many non-acoustical factors of a social, psychological, or economic nature. The correlation between noise exposure and general annoyance is much higher at group level than at individual level. Noise above 80 dB(A) may also reduce helping behaviour and increase aggressive behaviour. There is particular concern that high-level continuous noise exposures may increase the susceptibility of schoolchildren to feelings of helplessness.

Stronger reactions have been observed when noise is accompanied by vibrations and contains low-frequency components, or when the noise contains impulses, such as with shooting noise. Temporary, stronger reactions occur when the noise exposure increases over time, compared to a constant noise exposure. In most cases, LAeq,24h and L_{dn} are acceptable approximations of noise exposure related to annoyance. However, there is growing concern that all the component parameters should be individually assessed in noise exposure investigations, at least in the complex cases. There is no consensus on a model for total annoyance due to a combination of environmental noise sources.

Combined Effects on Health of Noise from Mixed Sources. Many acoustical environments consist of sounds from more than one source, i.e. there are mixed sources, and some combinations of effects are common. For example, noise may interfere with speech in the day and create sleep disturbance at night. These conditions certainly apply to residential areas heavily polluted with noise. Therefore, it is important that the total adverse health load of noise be considered over 24 hours, and that the precautionary principle for sustainable development be applied.

Vulnerable Subgroups. Vulnerable subgroups of the general population should be considered when recommending noise protection or noise regulations. The types of noise effects, specific environments and specific lifestyles are all factors that should be addressed for these subgroups. Examples of vulnerable subgroups are: people with particular diseases or medical problems (e.g. high blood pressure); people in hospitals or rehabilitating at home; people dealing with complex cognitive tasks; the blind; people with hearing impairment; fetuses, babies and young children; and the elderly in general. People with impaired hearing are the most adversely affected with respect to speech intelligibility. Even slight hearing impairments in the high-frequency sound range may cause problems with speech perception in a noisy environment. A majority of the population belongs to the subgroup that is vulnerable to speech interference.

4. Guideline values

In chapter 4, guideline values are given for specific health effects of noise and for specific environments.

Specific health effects.

Interference with Speech Perception. A majority of the population is susceptible to speech interference by noise and belongs to a vulnerable subgroup. Most sensitive are the elderly and persons with impaired hearing. Even slight hearing impairments in the high-frequency range may cause problems with speech perception in a noisy environment. From about 40 years of age, the ability of people to interpret difficult, spoken messages with low linguistic redundancy is impaired compared to people 20–30 years old. It has also been shown that high noise levels and long reverberation times have more adverse effects in children, who have not completed language acquisition, than in young adults.

When listening to complicated messages (at school, foreign languages, telephone conversation) the signal-to-noise ratio should be at least 15 dB with a voice level of 50 dB(A). This sound level corresponds on average to a casual voice level in both women and men at 1 m distance. Consequently, for clear speech perception the background noise level should not exceed 35 dB(A). In classrooms or conference rooms, where speech perception is of paramount importance, or for sensitive groups, background noise levels should be as low as possible. Reverberation times below 1 s are also necessary for good speech intelligibility in smaller rooms. For sensitive groups, such as the elderly, a reverberation time below 0.6 s is desirable for adequate speech intelligibility even in a quiet environment.

Hearing Impairment. Noise that gives rise to hearing impairment is by no means restricted to occupational situations. High noise levels can also occur in open air concerts, discotheques, motor sports, shooting ranges, in dwellings from loudspeakers, or from leisure activities. Other important sources of loud noise are headphones, as well as toys and fireworks which can emit impulse noise. The ISO standard 1999 gives a method for estimating noise-induced hearing impairment in populations exposed to all types of noise (continuous, intermittent, impulse) during working hours. However, the evidence strongly suggests that this method should also be used to calculate hearing impairment due to noise exposure from environmental and leisure time activities. The ISO standard 1999 implies that long-term exposure to LAeq,24h noise levels of up to 70 dB(A) will not result in hearing impairment. To avoid hearing loss from impulse noise exposure, peak sound pressures should never exceed 140 dB for adults, and 120 dB for children.

Sleep Disturbance. Measurable effects of noise on sleep begin at LAeq levels of about 30 dB. However, the more intense the background noise, the more disturbing is its effect on sleep. Sensitive groups mainly include the elderly, shift workers, people with physical or mental disorders and other individuals who have difficulty sleeping.

Sleep disturbance from intermittent noise events increases with the maximum noise level. Even if the total equivalent noise level is fairly low, a small number of noise events with a high maximum sound pressure level will affect sleep. Therefore, to avoid sleep disturbance, guidelines for community noise should be expressed in terms of the equivalent sound level of the

noise, as well as in terms of maximum noise levels and the number of noise events. It should be noted that low-frequency noise, for example, from ventilation systems, can disturb rest and sleep even at low sound pressure levels.

When noise is continuous, the equivalent sound pressure level should not exceed 30 dB(A) indoors, if negative effects on sleep are to be avoided. For noise with a large proportion of low-frequency sound a still lower guideline value is recommended. When the background noise is low, noise exceeding 45 dB LAmax should be limited, if possible, and for sensitive persons an even lower limit is preferred. Noise mitigation targeted to the first part of the night is believed to be an effective means for helping people fall asleep. It should be noted that the adverse effect of noise partly depends on the nature of the source. A special situation is for newborns in incubators, for which the noise can cause sleep disturbance and other health effects.

Reading Acquisition. Chronic exposure to noise during early childhood appears to impair reading acquisition and reduces motivational capabilities. Evidence indicates that the longer the exposure, the greater the damage. Of recent concern are the concomitant psychophysiological changes (blood pressure and stress hormone levels). There is insufficient information on these effects to set specific guideline values. It is clear, however, that daycare centres and schools should not be located near major noise sources, such as highways, airports, and industrial sites.

Annoyance. The capacity of a noise to induce annoyance depends upon its physical characteristics, including the sound pressure level, spectral characteristics and variations of these properties with time. During daytime, few people are highly annoyed at LAeq levels below 55 dB(A), and few are moderately annoyed at LAeq levels below 50 dB(A). Sound levels during the evening and night should be 5–10 dB lower than during the day. Noise with low-frequency components require lower guideline values. For intermittent noise, it is emphasized that it is necessary to take into account both the maximum sound pressure level and the number of noise events. Guidelines or noise abatement measures should also take into account residential outdoor activities.

Social Behaviour. The effects of environmental noise may be evaluated by assessing its interference with social behavior and other activities. For many community noises, interference with rest/recreation/watching television seem to be the most important effects. There is fairly consistent evidence that noise above 80 dB(A) causes reduced helping behavior, and that loud noise also increases aggressive behavior in individuals predisposed to aggressiveness. In schoolchildren, there is also concern that high levels of chronic noise contribute to feelings of helplessness. Guidelines on this issue, together with cardiovascular and mental effects, must await further research.

Specific environments.

A noise measure based only on energy summation and expressed as the conventional equivalent measure, LAeq, is not enough to characterize most noise environments. It is equally important to measure the maximum values of noise fluctuations, preferably combined with a measure of the number of noise events. If the noise includes a large proportion of low-frequency components, still lower values than the guideline values below will be needed. When prominent low-frequency components are present, noise measures based on A-weighting are inappropriate. The difference between dB(C) and dB(A) will give crude information about the presence of low-frequency components in noise, but if the difference is more than 10 dB, it is recommended that

a frequency analysis of the noise be performed. It should be noted that a large proportion of low-frequency components in noise may increase considerably the adverse effects on health.

In Dwellings. The effects of noise in dwellings, typically, are sleep disturbance, annoyance and speech interference. For bedrooms the critical effect is sleep disturbance. Indoor guideline values for bedrooms are 30 dB LAeq for continuous noise and 45 dB LAmax for single sound events. Lower noise levels may be disturbing depending on the nature of the noise source. At night-time, outside sound levels about 1 metre from facades of living spaces should not exceed 45 dB LAeq, so that people may sleep with bedroom windows open. This value was obtained by assuming that the noise reduction from outside to inside with the window open is 15 dB. To enable casual conversation indoors during daytime, the sound level of interfering noise should not exceed 35 dB LAeq. The maximum sound pressure level should be measured with the sound pressure meter set at "Fast".

To protect the majority of people from being seriously annoyed during the daytime, the outdoor sound level from steady, continuous noise should not exceed 55 dB LAeq on balconies, terraces and in outdoor living areas. To protect the majority of people from being moderately annoyed during the daytime, the outdoor sound level should not exceed 50 dB LAeq. Where it is practical and feasible, the lower outdoor sound level should be considered the maximum desirable sound level for new development.

In Schools and Preschools. For schools, the critical effects of noise are speech interference, disturbance of information extraction (e.g. comprehension and reading acquisition), message communication and annoyance. To be able to hear and understand spoken messages in class rooms, the background sound level should not exceed 35 dB LAeq during teaching sessions. For hearing impaired children, a still lower sound level may be needed. The reverberation time in the classroom should be about 0.6 s, and preferably lower for hearing impaired children. For assembly halls and cafeterias in school buildings, the reverberation time should be less than 1 s. For outdoor playgrounds the sound level of the noise from external sources should not exceed 55 dB LAeq, the same value given for outdoor residential areas in daytime.

For preschools, the same critical effects and guideline values apply as for schools. In bedrooms in preschools during sleeping hours, the guideline values for bedrooms in dwellings should be used.

In Hospitals. For most spaces in hospitals, the critical effects are sleep disturbance, annoyance, and communication interference, including warning signals. The LAmax of sound events during the night should not exceed 40 dB(A) indoors. For ward rooms in hospitals, the guideline values indoors are 30dB LAeq, together with 40 dB LAmax during night. During the day and evening the guideline value indoors is 30 dB LAeq. The maximum level should be measured with the sound pressure instrument set at "Fast".

Since patients have less ability to cope with stress, the LAeq level should not exceed 35 dB in most rooms in which patients are being treated or observed. Attention should be given to the sound levels in intensive care units and operating theaters. Sound inside incubators may result in health problems for neonates, including sleep disturbance, and may also lead to hearing impairment. Guideline values for sound levels in incubators must await future research.

Ceremonies, Festivals and Entertainment Events. In many countries, there are regular ceremonies, festivals and entertainment events to celebrate life periods. Such events typically

produce loud sounds, including music and impulsive sounds. There is widespread concern about the effect of loud music and impulsive sounds on young people who frequently attend concerts, discotheques, video arcades, cinemas, amusement parks and spectator events. At these events, the sound level typically exceeds 100 dB LAeq. Such noise exposure could lead to significant hearing impairment after frequent attendances.

Noise exposure for employees of these venues should be controlled by established occupational standards; and at the very least, the same standards should apply to the patrons of these premises. Patrons should not be exposed to sound levels greater than 100 dB LAeq during a four-hour period more than four times per year. To avoid acute hearing impairment the LAmax should always be below 110 dB.

Headphones. To avoid hearing impairment from music played back in headphones, in both adults and children, the equivalent sound level over 24 hours should not exceed 70 dB(A). This implies that for a daily one hour exposure the LAeq level should not exceed 85 dB(A). To avoid acute hearing impairment LAmax should always be below 110 dB(A). The exposures are expressed in free-field equivalent sound level.

Toys, Fireworks and Firearms. To avoid acute mechanical damage to the inner ear from impulsive sounds from toys, fireworks and firearms, adults should never be exposed to more than 140 dB(lin) peak sound pressure level. To account for the vulnerability in children when playing, the peak sound pressure produced by toys should not exceed 120 dB(lin), measured close to the ears (100 mm). To avoid acute hearing impairment LAmax should always be below 110 dB(A).

Parkland and Conservation Areas. Existing large quiet outdoor areas should be preserved and the signal-to-noise ratio kept low.

Table 1 presents the WHO guideline values arranged according to specific environments and critical health effects. The guideline values consider all identified adverse health effects for the specific environment. An adverse effect of noise refers to any temporary or long-term impairment of physical, psychological or social functioning that is associated with noise exposure. Specific noise limits have been set for each health effect, using the lowest noise level that produces an adverse health effect (i.e. the critical health effect). Although the guideline values refer to sound levels impacting the most exposed receiver at the listed environments, they are applicable to the general population. The time base for LAeq for "daytime" and "night-time" is 12–16 hours and 8 hours, respectively. No time base is given for evenings, but typically the guideline value should be 5–10 dB lower than in the daytime. Other time bases are recommended for schools, preschools and playgrounds, depending on activity.

It is not enough to characterize the noise environment in terms of noise measures or indices based only on energy summation (e.g., LAeq), because different critical health effects require different descriptions. It is equally important to display the maximum values of the noise fluctuations, preferably combined with a measure of the number of noise events. A separate characterization of night-time noise exposures is also necessary. For indoor environments, reverberation time is also an important factor for things such as speech intelligibility. If the noise includes a large proportion of low-frequency components, still lower guideline values should be applied. Supplementary to the guideline values given in Table 1, precautions should be taken for vulnerable groups and for noise of certain character (e.g. low-frequency components, low background noise).

Table 1: Guideline values for community noise in specific environments.

Specific environment	Critical health effect(s)	L_{Aeq} [dB(A)]	Time base [hours]	L_{Amax} fast [dB]
Outdoor living area	Serious annoyance, daytime and evening Moderate annoyance, daytime and evening	55 50	16 16	- -
Dwelling, indoors Inside bedrooms	Speech intelligibility & moderate annoyance, daytime & evening Sleep disturbance, night-time	35 30	16 8	 45
Outside bedrooms	Sleep disturbance, window open (outdoor values)	45	8	60
School class rooms & pre-schools, indoors	Speech intelligibility, disturbance of information extraction, message communication	35	during class	-
Pre-school bedrooms, indoor	Sleep disturbance	30	sleeping-time	45
School, playground outdoor	Annoyance (external source)	55	during play	-
Hospital, ward rooms, indoors	Sleep disturbance, night-time Sleep disturbance, daytime and evenings	30 30	8 16	40 -
Hospitals, treatment rooms, indoors	Interference with rest and recovery	#1		
Industrial, commercial shopping and traffic areas, indoors and outdoors	Hearing impairment	70	24	110
Ceremonies, festivals and entertainment events	Hearing impairment (patrons:<5 times/year)	100	4	110
Public addresses, indoors and outdoors	Hearing impairment	85	1	110
Music and other sounds through headphones/ earphones	Hearing impairment (free-field value)	85 #4	1	110
Impulse sounds from toys, fireworks and firearms	Hearing impairment (adults) Hearing impairment (children)	- -	- -	140 #2 120 #2
Outdoors in parkland and conservations areas	Disruption of tranquillity	#3		

#1: As low as possible.
#2: Peak sound pressure (not LAF, max) measured 100 mm from the ear.

#3: Existing quiet outdoor areas should be preserved and the ratio of intruding noise to natural background sound should be kept low.
#4: Under headphones, adapted to free-field values.

5. Noise Management

Chapter 5 is devoted to noise management with discussions on: strategies and priorities in managing indoor noise levels; noise policies and legislation; the impact of environmental noise; and on the enforcement of regulatory standards.

The fundamental goals of noise management are to develop criteria for deriving safe noise exposure levels and to promote noise assessment and control as part of environmental health programmes. These basic goals should guide both international and national policies for noise management. The United Nation's Agenda 21 supports a number of environmental management principles on which government policies, including noise management policies, can be based: the principle of precaution; the "polluter pays" principle; and noise prevention. In all cases, noise should be reduced to the lowest level achievable in the particular situation. When there is a reasonable possibility that the public health will be endangered, even though scientific proof may be lacking, action should be taken to protect the public health, without awaiting the full scientific proof. The full costs associated with noise pollution (including monitoring, management, lowering levels and supervision) should be met by those responsible for the source of noise. Action should be taken where possible to reduce noise at the source.

A legal framework is needed to provide a context for noise management. National noise standards can usually be based on a consideration of international guidelines, such as these *Guidelines for Community Noise*, as well as national criteria documents, which consider dose-response relationships for the effects of noise on human health. National standards take into account the technological, social, economic and political factors within the country. A staged program of noise abatement should also be implemented to achieve the optimum health protection levels over the long term.

Other components of a noise management plan include: noise level monitoring; noise exposure mapping; exposure modeling; noise control approaches (such as mitigation and precautionary measures); and evaluation of control options. Many of the problems associated with high noise levels can be prevented at low cost, if governments develop and implement an integrated strategy for the indoor environment, in concert with all social and economic partners. Governments should establish a "National Plan for a Sustainable Noise Indoor Environment" that applies both to new construction as well as to existing buildings.

The actual priorities in rational noise management will differ for each country. Priority setting in noise management refers to prioritizing the health risks to be avoided and concentrating on the most important sources of noise. Different countries have adopted a range of approaches to noise control, using different policies and regulations. A number of these are outlined in chapter 5 and Appendix 2, as examples. It is evident that noise emission standards have proven insufficient and that the trends in noise pollution are unsustainable.

The concept of environmental an environmental noise impact analysis is central to the philosophy of managing environmental noise. Such an analysis should be required before implementing any project that would significantly increase the level of environmental noise in a community (typically, greater than a 5 dB increase). The analysis should include: a baseline description of the existing noise environment; the expected level of noise from the new source; an assessment of the adverse health effects; an estimation of the population at risk; the calculation of exposure-response relationships; an assessment of risks and their acceptability; and a cost-benefit analysis.

Noise management should:

1. Start monitoring human exposures to noise.
2. Have health control require mitigation of noise immissions, and not just of noise source emissions. The following should be taken into consideration:
    - specific environments such as schools, playgrounds, homes, hospitals.
    - environments with multiple noise sources, or which may amplify the effects of noise.
    - sensitive time periods such as evenings, nights and holidays.
    - groups at high risk, such as children and the hearing impaired.
3. Consider the noise consequences when planning transport systems and land use.
4. Introduce surveillance systems for noise-related adverse health effects.
5. Assess the effectiveness of noise policies in reducing adverse health effects and exposure, and in improving supportive "soundscapes".
6. Adopt these *Guidelines for Community Noise* as intermediary targets for improving human health.
7. Adopt precautionary actions for a sustainable development of the acoustical environments.

Conclusions and recommendations

In chapter 6 are discussed: the implementation of the guidelines; further WHO work on noise; and research needs are recommended.

Implementation. For implementation of the guidelines it is recommended that:

- Governments should protection the population from community noise and consider it an integral part of their policy of environmental protection.
- Governments should consider implementing action plans with short-term, medium-term and long-term objectives for reducing noise levels.
- Governments should adopt the *Health Guidelines for Community Noise* values as targets to be achieved in the long-term.
- Governments should include noise as an important public health issue in environmental impact assessments.
- Legislation should be put in place to allow for the reduction of sound levels.
- Existing legislation should be enforced.
- Municipalities should develop low noise implementation plans.

- Cost-effectiveness and cost-benefit analyses should be considered potential instruments for meaningful management decisions.
- Governments should support more policy-relevant research.

Future Work. The Expert Task Force worked out several suggestions for future work for the WHO in the field of community noise. WHO should:

- Provide leadership and technical direction in defining future noise research priorities.
- Organize workshops on how to apply the guidelines.
- Provide leadership and coordinate international efforts to develop techniques for designing supportive sound environments (e.g. "soundscapes").
- Provide leadership for programs to assess the effectiveness of health-related noise policies and regulations.
- Provide leadership and technical direction for the development of sound methodologies for environmental and health impact plans.
- Encourage further investigation into using noise exposure as an indicator of environmental deterioration (e.g. black spots in cities).
- Provide leadership and technical support, and advise developing countries to facilitate development of noise policies and noise management.

Research and Development. A major step forward in raising the awareness of both the public and of decision makers is the recommendation to concentrate more research and development on variables which have monetary consequences. This means that research should consider not only dose-response relationships between sound levels, but also politically relevant variables, such as noise-induced social handicap; reduced productivity; decreased performance in learning; workplace and school absenteeism; increased drug use; and accidents.

In Appendices 1–6 are given: bibliographic references; examples of regional noise situations (African Region, American Region, Eastern Mediterranean Region, South East Asian Region, Western Pacific Region); a glossary; a list of acronyms; and a list of participants.

1. Introduction

Community noise (also called environmental noise, residential noise or domestic noise) is defined as noise emitted from all sources, except noise at the industrial workplace. Main sources of community noise include road, rail and air traffic, industries, construction and public work, and the neighbourhood. Typical neighbourhood noise comes from premises and installations related to the catering trade (restaurant, cafeterias, discotheques, etc.); from live or recorded music; from sporting events including motor sports; from playgrounds and car parks; and from domestic animals such as barking dogs. The main indoor sources are ventilation systems, office machines, home appliances and neighbours. Although many countries have regulations on community noise from road, rail and air traffic, and from construction and industrial plants, few have regulations on neighbourhood noise. This is probably due to the lack of methods to define and measure it, and to the difficulty of controlling it. In developed countries, too, monitoring of compliance with, and enforcement of, noise regulations are weak for lower levels of urban noise that correspond to occupationally controlled levels (>85 dB LAeq,8h; Frank 1998). Recommended guideline values based on the health effects of noise, other than occupationally-induced effects, are often not taken into account.

The extent of the community noise problem is large. In the European Union about 40% of the population is exposed to road traffic noise with an equivalent sound pressure level exceeding 55 dBA daytime; and 20% is exposed to levels exceeding 65 dBA (Lambert & Vallet 19 1994). When all transportation noise is considered, about half of all European Union citizens live in zones that do not ensure acoustical comfort to residents. At night, it is estimated that more than 30% is exposed to equivalent sound pressure levels exceeding 55 dBA, which are disturbing to sleep. The noise pollution problem is also severe in the cities of developing countries and is caused mainly by traffic. Data collected alongside densely traveled roads were found to have equivalent sound pressure levels for 24 hours of 75–80 dBA (e.g. National Environment Board Thailand 19 1990; Mage & Walsh 19 1998).

(a) In contrast to many other environmental problems, noise pollution continues to grow, accompanied by an increasing number of complaints from affected individuals. Most people are typically exposed to several noise sources, with road traffic noise being a dominant source (OECD-ECMT 19 1995). Population growth, urbanization and to a large extent technological development are the main driving forces, and future enlargements of highway systems, international airports and railway systems will only increase the noise problem. Viewed globally, the growth in urban environmental noise pollution is unsustainable, because it involves not simply the direct and cumulative adverse effects on health. It also adversely affects future generations by degrading residential, social and learning environments, with corresponding economical losses (Berglund 1998). Thus, noise is not simply a local problem, but a global issue that affects everyone (Lang 1999; Sandberg 1999) and calls for precautionary action in any environmental planning situation.

The objective of the World Health Organization (WHO) is the attainment by all peoples of the highest possible level of health. As the first principle of the WHO Constitution the definition of

'health' is given as: "A state of complete physical, mental and social well-being and not merely the absence of disease or infirmity". This broad definition of health embraces the concept of well-being and, thereby, renders noise impacts such as population annoyance, interference with communication, and impaired task performance as 'health' issues. In 1992, a WHO Task Force also identified the following specific health effects for the general population that may result from community noise: interference with communication; annoyance responses; effects on sleep, and on the cardiovascular and psychophysiological systems; effects on performance, productivity, and social behavior; and noise-induced hearing impairment (WHO 1993; Berglund & Lindvall 1995; *cf.* WHO 1980). Hearing damage is expected to result from both occupational and environmental noise, especially in developing countries, where compliance with noise regulation is known to be weak (Smith 1998).

Noise is likely to continue as a major issue well into the next century, both in developed and in developing countries. Therefore, strategic action is urgently required, including continued noise control at the source and in local areas. Most importantly, joint efforts among countries are necessary at a system level, in regard to the access and use of land, airspace and seawaters, and in regard to the various modes of transportation. Certainly, mankind would benefit from societal reorganization towards healthy transport. To understand noise we must understand the different types of noise and how we measure it, where noise comes from and the effects of noise on human beings. Furthermore, noise mitigation, including noise management, has to be actively introduced and in each case the policy implications have to be evaluated for efficiency.

This document is organized as follows. In Chapter 2 noise sources and measurement are discussed, including the basic aspects of source characteristics, sound propagation and transmission. In Chapter 3 the adverse health effects of noise are characterized. These include noise-induced hearing impairment, interference with speech communication, sleep disturbance, cardiovascular and physiological effects, mental health effects, performance effects, and annoyance reactions. This chapter is rounded out by a consideration of combined noise sources and their effects, and a discussion of vulnerable groups. In Chapter 4 the Guideline values are presented. Chapter 5 is devoted to noise management. Included are discussions of: strategies and priorities in the management of indoor noise levels; noise policies and legislation; environmental noise impact; and enforcement of regulatory standards. In Chapter 6 implementation of the WHO Guidelines is discussed, as well as future WHO work on noise and its research needs. In Appendices 1–6 are given: bibliographic references; examples of regional noise situations (African Region, American Region, Eastern Mediterranean Region, South East Asian Region, Western Pacific Region); a glossary; a list of acronyms; and a list of participants.

2. Noise sources and their measurement

2.1. Basic Aspects of Acoustical Measurements

Most environmental noises can be approximately described by one of several simple measures. They are all derived from overall sound pressure levels, the variation of these levels with time and the frequency of the sounds. Ford (1987) gives a more extensive review of various environmental noise measures. Technical definitions are found in the glossary in Appendix 3.

2.1.1. Sound pressure level

The sound pressure level is a measure of the air vibrations that make up sound. All measured sound pressures are referenced to a standard pressure that corresponds roughly to the threshold of hearing at 1 000 Hz. Thus, the sound pressure level indicates how much greater the measured sound is than this threshold of hearing. Because the human ear can detect a wide range of sound pressure levels (10–102 Pascal (Pa)), they are measured on a logarithmic scale with units of decibels (dB). A more technical definition of sound pressure level is found in the glossary.

The sound pressure levels of most noises vary with time. Consequently, in calculating some measures of noise, the instantaneous pressure fluctuations must be integrated over some time interval. To approximate the integration time of our hearing system, sound pressure meters have a standard *Fast* response time, which corresponds to a time constant of 0.125 s. Thus, all measurements of sound pressure levels and their variation over time should be made using the *Fast* response time, to provide sound pressure measurements more representative of human hearing. Sound pressure meters may also include a *Slow* response time with a time constant of 1 s, but its sole purpose is that one can more easily estimate the average value of rapidly fluctuating levels. Many modern meters can integrate sound pressures over specified periods and provide average values. It is not recommended that the *Slow* response time be used when integrating sound pressure meters are available.

Because sound pressure levels are measured on a logarithmic scale they cannot be added or averaged arithmetically. For example, adding two sounds of equal pressure levels results in a total pressure level that is only 3 dB greater than each individual sound pressure level. Consequently, when two sounds are combined the resulting sound pressure level will be significantly greater than the individual sound levels only if the two sounds have similar pressure levels. Details for combining sound pressure levels are given in Appendix 2.

2.1.2. Frequency and frequency weighting

The unit of frequency is the Hertz (Hz), and it refers to the number of vibrations per second of the air in which the sound is propagating. For tonal sounds, frequency is associated with the perception of pitch. For example, orchestras often tune to the frequency of 440 Hz. Most environmental sounds, however, are made up of a complex mix of many different frequencies. They may or may not have discrete frequency components superimposed on noise with a broad

frequency spectrum (i.e. sound with a broad range of frequencies). The audible frequency range is normally considered to range from 20–20 000 Hz. Below 20 Hz we hear individual sound pulses rather than recognizable tones. Hearing sensitivity to higher frequencies decreases with age and exposure to noise. Thus, 20 000 Hz represents an upper limit of audibility for younger listeners with unimpaired hearing.

Our hearing systems are not equally sensitive to all sound frequencies (ISO 1987a). Thus, not all frequencies are perceived as being equally loud at the same sound pressure level, and when calculating overall environmental noise ratings it is necessary to consider sounds at some frequencies as more important than those at other frequencies. Detailed frequency analyses are commonly performed with standard sets of octave or 1/3 octave bandwidth filters. Alternatively, Fast Fourier Transform techniques or other types of filters can be used to determine the relative strengths of the various frequency components making up a particular environmental noise.

Frequency weighting networks provide a simpler approach for weighting the importance of different frequency components in one single number rating. The A-weighting is most commonly used and is intended to approximate the frequency response of our hearing system. It weights lower frequencies as less important than mid- and higher-frequency sounds. C-weighting is also quite common and is a nearly flat frequency response with the extreme high and low frequencies attenuated. When no frequency analysis is possible, the difference between A-weighted and C-weighted levels gives an indication of the amount of low frequency content in the measured noise. When the sound has an obvious tonal content, a correction to account for the additional annoyance may be used (ISO 1987b).

2.1.3. Equivalent continuous sound pressure level

According to the equal energy principle, the effect of a combination of noise events is related to the combined sound energy of those events. Thus, measures such as the equivalent continuous sound pressure level (LAeq,T) sum up the total energy over some time period (T) and give a level equivalent to the average sound energy over that period. Such average levels are usually based on integration of A-weighted levels. Thus LAeq,T is the average energy equivalent level of the A-weighted sound over a period T.

2.1.4. Individual noise events

It is often desired to measure the maximum level (LAmax) of individual noise events. For cases such as the noise from a single passing vehicle, LAmax values should be measured using the *Fast* response time because it will give a good correlation with the integration of loudness by our hearing system. However, for very short-duration impulsive sounds it is often desirable to measure the instantaneous peak amplitude to assess potential hearing-damage risk. If actual instantaneous pressure cannot be determined, then a time-integrated 'peak' level with a time constant of no more than 0.05 ms should be used (ISO 1987b). Such peak readings are often made using the C- (or linear) frequency weightings.

Alternatively, discrete sound events can be evaluated in terms of their A-weighted sound exposure level (SEL, for defintion see appendix 5). The total amount of sound energy in a

particular event is assessed by the SEL. One can add up the SEL values of individual events to calculate a LAeq,T over some time period, T, of interest. In some cases the SEL may provide more consistent evaluations of individual noise events because they are derived from the complete history of the event and not just one maximum value. However, A-weighted SEL measurements have been shown to be inadequate for assessing the (perceived) loudness of complex impulsive sounds, such as those from large and small weapons (Berglund et al. 1986). In contrast, C-weighted SEL values have been found useful for rating impulsive sounds such as gun shots (Vos 1996; Buchta 1996; ISO 1987b).

2.1.5. Choice of noise measure

LAeq,T should be used to measure continuing sounds such as road traffic noise, many types of industrial noises and noise from ventilation systems in buildings. When there are distinct events to the noise such as with aircraft or railway noise, measures of the individual events should be obtained (using, for example, LAmax or SEL), in addition to LAeq,T measurements.

In the past, time-varying environmental sound levels have also been described in terms of percentile levels. These are derived from a statistical distribution of measured sound levels over some period. For example, L10 is the A-weighted level exceeded 10% of the time. L10 values have been widely used to measure road-traffic noise, but they are usually found to be highly correlated measures of the individual events, as are LAmax and SEL. L90 or L95 can be used as a measure of the general background sound pressure level that excludes the potentially confounding influence of particular local noise events.

2.1.6. Sound and noise

Physically, there is no distinction between sound and noise: sound is a sensory perception evoked by physiological processes in the auditory brain. The complex pattern of sound waves is perceptually classified as "Gestalts" and are labeled as noise, music, speech, etc. Consequently, it is not possible to define noise exclusively on the basis of the physical parameters of sound. Instead, it is common practice to define noise simply as unwanted sound. However, in some situations noise may adversely affect health in the form of acoustical energy.

2.2. Sources of Noise

This section describes various sources of noise that can affect a community. Namely, noise from industry, transportation, and from residential and leisure areas. It should be noted that equal values of LAeq,T for different sources do not always imply the same expected effect.

2.2.1. Industrial noise

Mechanized industry creates serious noise problems. It is responsible for intense noise indoors as well as outdoors. This noise is due to machinery of all kinds and often increases with the power of the machines. Sound generation mechanisms of machinery are reasonably well understood. The noise may contain predominantly low or high frequencies, tonal components,

be impulsive or have unpleasant and disruptive temporal sound patterns. Rotating and reciprocating machines generate sound that includes tonal components; and air-moving equipment tends also to generate noise with a wide frequency range. The high sound pressure levels are caused by components or gas flows that move at high speed (for example, fans, steam pressure relief valves), or by operations involving mechanical impacts (for example, stamping, riveting, road breaking). Machinery should preferably be silenced at the source.

Noise from fixed installations, such as factories or construction sites, heat pumps and ventilation systems on roofs, typically affect nearby communities. Reductions may be achieved by encouraging quieter equipment or by zoning of land into industrial and residential areas. Requirements for passive (sound insulating enclosures) and active noise control, or restriction of operation time, may also be effective.

2.2.2. Transportation noise

Transportation noise is the main source of environmental noise pollution, including road traffic, rail traffic and air traffic. As a general rule, larger and heavier vehicles emit more noise than smaller and lighter vehicles. Exceptions would include: helicopters and 2- and 3-wheeled road vehicles.

The noise of road vehicles is mainly generated from the engine and from frictional contact between the vehicle and the ground and air. In general, road-contact noise exceeds engine noise at speeds higher than 60 km/h. The physical principle responsible for generating noise from tire-road contact is less well understood. The sound pressure level from traffic can be predicted from the traffic flow rate, the speed of the vehicles, the proportion of heavy vehicles, and the nature of the road surface. Special problems can arise in areas where the traffic movements involve a change in engine speed and power, such as at traffic lights, hills, and intersecting roads; or where topography, meteorological conditions and low background levels are unfavourable (for example, mountain areas).

Railway noise depends primarily on the speed of the train, but variations are present depending upon the type of engine, wagons, and rails and their foundations, as well as the roughness of wheels and rails. Small radius curves in the track, such as may occur for urban trains, can lead to very high levels of high-frequency sound referred to as wheel squeal. Noise can be generated in stations because of running engines, whistles and loudspeakers, and in marshaling yards because of shunting operations. The introduction of high-speed trains has created special noise problems with sudden, but not impulsive, rises in noise. At speeds greater than 250 km/h, the proportion of high-frequency sound energy increases and the sound can be perceived as similar to that of overflying jet aircraft. Special problems can arise in areas close to tunnels, in valleys or in areas where the ground conditions help generate vibrations. The long-distance propagation of noise from high-speed trains will constitute a problem in the future if otherwise environment-friendly railway systems are expanded.

Aircraft operations generate substantial noise in the vicinity of both commercial and military airports. Aircraft takeoffs are known to produce intense noise, including vibration and rattle. The landings produce substantial noise in long low-altitude flight corridors. The noise is

produced by the landing gear and automatic power regulation, and also when reverse thrust is applied, all for safety reasons. In general, larger and heavier aircraft produce more noise than lighter aircraft. The main mechanism of noise generation in the early turbojet-powered aircraft was the turbulence created by the jet exhaust mixing with the surrounding air. This noise source has been significantly reduced in modern high by-pass ratio turbo-fan engines that surround the high-velocity jet exhaust with lower velocity airflow generated by the fan. The fan itself can be a significant noise source, particularly during landing and taxiing operations. Multi-bladed turbo-prop engines can produce relatively high levels of tonal noise. The sound pressure level from aircraft is, typically, predicted from the number of aircraft, the types of airplanes, their flight paths, the proportions of takeoffs and landings and the atmospheric conditions. Severe noise problems may arise at airports hosting many helicopters or smaller aircraft used for private business, flying training and leisure purposes. Special noise problems may also arise inside airplanes because of vibration. The noise emission from future superjets is unknown.

A sonic boom consists of a shock wave in the air, generated by an aircraft when it flies at a speed slightly greater than the local speed of sound. An aircraft in supersonic flight trails a sonic boom that can be heard up to 50 km on either side of its ground track, depending upon the flight altitude and the size of the aircraft (Warren 1972). A sonic boom can be heard as a loud double-boom sound. At high intensity it can damage property.

Noise from military airfields may present particular problems compared to civil airports (von Gierke & Harris 1987). For example, when used for night-time flying, for training interrupted landings and takeoffs (so-called touch-and-go), or for low-altitude flying. In certain instances, including wars, specific military activities introduce other intense noise pollution from heavy vehicles (tanks), helicopters, and small and large fire-arms.

2.2.3. Construction noise and building services noise

Building construction and excavation work can cause considerable noise emissions. A variety of sounds come from cranes, cement mixers, welding, hammering, boring and other work processes. Construction equipment is often poorly silenced and maintained, and building operations are sometimes carried out without considering the environmental noise consequences. Street services such as garbage disposal and street cleaning can also cause considerable disturbance if carried out at sensitive times of day. Ventilation and air conditioning plants and ducts, heat pumps, plumbing systems, and lifts (elevators), for example, can compromise the internal acoustical environment and upset nearby residents.

2.2.4. Domestic noise and noise from leisure activities

In residential areas, noise may stem from mechanical devices (e.g. heat pumps, ventilation systems and traffic), as well as voices, music and other kinds of sounds generated by neighbours (e.g. lawn movers, vacuum cleaners and other household equipment, music reproduction and noisy parties). Aberrant social behavior is a well-recognized noise problem in multifamily dwellings, as well as at sites for entertainment (e.g. sports and music events). Due to predominantly low-frequency components, noise from ventilation systems in residential buildings may also cause considerable concern even at low and moderate sound pressure levels.

The use of powered machines in leisure activities is increasing. For example, motor racing, off-road vehicles, motorboats, water skiing, snowmobiles etc., and these contribute significantly to loud noises in previously quiet areas. Shooting activities not only have considerable potential for disturbing nearby residents, but can also damage the hearing of those taking part. Even tennis playing, church bell ringing and other religious activities can lead to noise complaints.

Some types of indoor concerts and discotheques can produce extremely high sound pressure levels. Associated noise problems outdoors result from customers arriving and leaving. Outdoor concerts, fireworks and various types of festivals can also produce intense noise. The general problem of access to festivals and leisure activity sites often adds to road traffic noise problems. Severe hearing impairment may also arise from intense sound produced as music in headphones or from children's toys.

2.3. The Complexity of Noise and Its Practical Implications

2.3.1. The problem

One must consider many different characteristics to describe environmental noises completely. We can consider the sound pressure level of the noise and how this level varies over a variety of periods, ranging from minutes or seconds to seasonal variations over several months. Where sound pressure levels vary quite substantially and rapidly, such as in the case of low-level jet aircraft, one might also want to consider the rate of change of sound pressure levels (Berry 1995; Kerry et al. 1997). At the same time, the frequency content of each noise will also determine its effect on people, as will the number of events when there are relatively small numbers of discrete noisy events. Combinations of these characteristics determine how each type of environmental noise affects people. These effects may be annoyance, sleep disturbance, speech interference, increased stress, hearing impairment or other health-related effects.

Thus, in total there is a very complex multidimensional relationship between the various characteristics of the environmental noise and the effects it has on people. Unfortunately, we do not completely understand all of the complex links between noise characteristics and the resulting effects on people. Thus, current practice is to reduce the assessment of environmental noise to a small number of quite simple quantities that are known to be reasonably well related to the effects of noise on people (LAeq,T for continuing sounds and LAmax or SEL where there are a small number of distinct noise events). These simple measures have the distinct advantage that they are relatively easy and inexpensive to obtain and hence are more likely to be widely adopted. On the other hand, they may ignore some details of the noise characteristics that relate to particular types of effects on people.

2.3.2. Time variation

There is evidence that the pattern of noise variation with time relates to annoyance (Berglund et al. 1976). It has been suggested that the equal-energy principle is a simple concept for obtaining a measure representative of the annoyance of a number of noise events. For example, the LAeq,T of the noise from a busy road may be a good indicator of the annoyance this noise may

cause for nearby residents. However, such a measure may not be very useful for predicting the disturbance to sleep of a small number of very noisy aircraft fly-overs. The disturbance caused by small numbers of such discrete events is usually better related to maximum sound pressure levels and the number of events.

While using LAeq,T measures is the generally accepted approach, it is still important to appreciate the limitations and errors that may occur. For example, some years ago measures that assessed the variation of sound pressure levels with time were popular. Subsequently, these have been shown not to improve predictions of annoyance with road traffic noise (Bradley 1978). However, it is possible that time variations may contribute to explaining the very different amounts of annoyance caused by equal LAeq,T levels of road-traffic noise, train noise and aircraft noise (*cf.* Miedema & Vos 1998).

More regular variations of sound pressure levels with time have been found to increase the annoying aspects of the noise. For example, noises that vary periodically to create a throbbing or pulsing sensation can be more disturbing than continuous noise (Bradley 1994b). Research suggests that variations at about 4 per second are most disturbing (Zwicker 1989). Noises with very rapid onsets could also be more disturbing than indicated by their LAeq,T (Berry 1995; Kerry et al. 1997).

LAeq,T values can be calculated for various time periods and it is very important to specify this period. It is quite common to calculate LAeq,T values separately for day- and night-time periods. In combining day and night LAeq,T values it is usually assumed that people will be more sensitive to noise during the night-time period. A weighting is thus normally added to night-time LAeq,T values when calculating a combined measure for a 24 hour period. For example, day-night sound pressure measures commonly include a 10 dB night-time weighting. Other night-time weightings have been proposed, but it has been suggested that it is not possible to determine precisely an optimum value for night-time weightings from annoyance survey responses, because of the large variability in responses within groups of people (Fields 1986; see also Berglund & Lindvall 1995). Night-time weightings are intended to indicate the expected increased sensitivity to annoyance at night and do not protect people from sleep disturbance.

2.3.3. Frequency content and loudness

Noise can also be characterized by its frequency content. This can be assessed by various types of frequency analysis to determine the relative contributions of the frequency components to the total noise. The combined effects of the different frequencies on people, perceived as noise, can be approximated by simple frequency weightings. The A-weighting is now widely used to obtain an approximate, single-number rating of the combined effects of the various frequencies. The A-weighting response is a simplification of an equal-loudness contour. There is a family of these equal-loudness contours (ISO 1987a) that describe the frequency response of the hearing system for a wide range of frequencies and sound pressure levels. These equal-loudness contours can be used to determine the perceived loudness of a single frequency sound. More complicated procedures have been derived to estimate the perceived loudness of complex sounds (ISO 1975). These methods involve determining the level of the sound in critical bands and the mutual masking of these bands.

Many studies have compared the accuracy of predictions based on A-weighted levels with those based on other frequency weightings, as well as more complex measures such as loudness levels and perceived noise levels (see also Berglund & Lindvall 1995). The comparisons depend on the particular effect that is being predicted, but generally the correlation between the more complex measures and subjective scales are a little stronger. A-weighted measures have been particularly criticized as not being accurate indicators of the disturbing effects of noises with strong low-frequency components (Kjellberg et al. 1984; Persson & Björkman 1988; Broner & Leventhall 1993; Goldstein 1994). However, these differences in prediction accuracy are usually smaller than the variability of responses among groups of people (Fields 1986; see also Berglund & Lindvall 1995). Thus, in practical situations the limitations of A-weighted measures may not be so important.

In addition to equal-loudness contours, equal-noisiness contours have also been developed for calculating perceived noise levels (PNL) (Kryter 1959; Kryter 1994; see also section 2.7.2). Critics have pointed out that in addition to equal-loudness and equal-noisiness contours, we could have many other families of equal-sensation contours corresponding to other attributes of the noises (Molino 1974). There seems to be no limit to the possible complexity and number of such measures.

2.3.4. Influence of ambient noise level

A number of studies have suggested that the annoyance effect of a particular noise would depend on how much that noise exceeded the level of ambient noise. This has been shown to be true for noises that are relatively constant in level (Bradley 1993), but has not been consistently found for time-varying noises such as aircraft noise (Gjestland et al. 1990; Fields 1998). Because at some time during an aircraft fly-over the noise almost always exceeds the ambient level, responses to this type of noise are less likely to be influenced by the level of the ambient noise.

2.3.5. Types of noise

A number of studies have concluded that equal levels of different noise types lead to different annoyance (Hall et al. 1981; Griffiths 1983; Miedema 1993; Bradley 1994a; Miedema & Vos 1998). For example, equal LAeq,T levels of aircraft noise and road traffic noise will not lead to the same mean annoyance in groups of people exposed to these noises. This may indicate that the LAeq,T measure is not a completely satisfactory description of these noises and perhaps does not completely reflect the characteristics of these noises that lead to annoyance. Alternatively, the differences may be attributed to various other factors that are not part of the noise characteristics (e.g. Flindell & Stallen 1999). For example, it has been said that aircraft noise is more disturbing, because of the associated fear of aircraft crashing on people's homes (cf. Berglund & Lindvall 1995).

2.3.6. Individual differences

Finally, there is the problem of individual response differences. Different people will respond quite differently to the same noise stimulus (Job 1988). These individual differences can be

quite large and it is often most useful to consider the average response of groups of people exposed to the same sound pressure levels. In annoyance studies the percentage of highly annoyed individuals is usually considered, because it correlates better with measured sound pressure levels. Individual differences also exist for susceptibility to hearing impairment (e.g. Katz 1994).

2.3.7. Recommendations

In many cases we do not have specific, accurate measures of how annoying sound will be and must rely on the simpler quantities. As a result, current practice is to assume that the equal energy principle is approximately valid for most types of noise, and that a simple LAeq,T type measure will indicate reasonably well the expected effects of the noise. Where the noise consists of a small number of discrete events, the A-weighted maximum level (LAmax) will be a better indicator of the disturbance to sleep and other activities. However, in most cases the A-weighted sound exposure level (SEL) will provide a more consistent measure of such single-noise events, because it is based on an integration over the complete noise event.

2.4. Measurement Issues

2.4.1. Measurement objectives

The details of noise measurements must be planned to meet some relevant objective or purpose. Some typical objectives would include:

a. Investigating complaints.
b. Assessing the number of persons exposed.
c. Compliance with regulations.
d. Land use planning and environmental impact assessments.
e. Evaluation of remedial measures.
f. Calibration and validation of predictions.
g. Research surveys.
h. Trend monitoring.

The sampling procedure, measurement location, type of measurements and the choice of equipment should be in accord with the objective of the measurements.

2.4.2. Instrumentation

The most critical component of a sound pressure meter is the microphone, because it is difficult to produce microphones with the same precision as the other, electronic components of a pressure meter. In contrast, it is usually not difficult to produce the electronic components of a microphone with the desired sensitivity and frequency-response characteristics. Lower quality microphones will usually be less sensitive and so cannot measure very low sound pressure levels. They may also not be able to accurately measure very high sound pressure levels found closer to loud noise sources. Lower quality microphones will also have less well-defined frequency-response characteristics. Such lower quality microphones may be acceptable for survey type

measurements of overall A-weighted levels, but would not be preferred for more precise measurements, including detailed frequency analysis of the sounds.

Sound pressure meters will usually include both A- and C-weighting frequency-response curves. The uses of these frequency weightings were discussed above. They may also include a linear weighting. Linear weightings are not defined in standards and may in practice be limited by the response of the particular microphone being used. Instead of, or in addition to, frequency-response weightings, more complex sound pressure meters can also include sets of standard bandpass filters, to permit frequency analysis of sounds. For acoustical measurements, octave and one-third octave bandwidth filters are widely used with centre frequencies defined in standards (ISO 1975b).

The instantaneous sound pressures are integrated with some time constant to provide sound pressure levels. As mentioned above most meters will include both *Fast*- and *Slow*-response times. *Fast*-response corresponds to a time constant of 0.125 s and is intended to approximate the time constant of the human hearing system. *Slow*-response corresponds to a time constant of 1 s and is an old concept intended to make it easier to obtain an approximate average value of fluctuating levels from simple meter readings.

Standards (IEC 1979) classify sound pressure meters as type 1 or type 2. Type 2 meters are adequate for broad band A-weighted level measurements, where extreme precision is not required and where very low sound pressure levels are not to be measured. Type 1 meters are usually much more expensive and should be used where more precise results are needed, or in cases where frequency analysis is required.

Many modern sound pressure meters can integrate sound pressure levels over some specified time period, or may include very sophisticated digital processing capabilities. Integrating meters make it possible to directly obtain accurate measures of LAeq,T values over a user-specified time interval, T. By including small computers in some sound pressure meters, quite complex calculations can be performed on the measured levels and many such results can be stored for later read out. For example, some meters can determine the statistical distribution of sound pressure levels over some period, in addition to the simple LAeq,T value. Recently, hand-held meters that perform loudness calculations in real time have become available. Continuing rapid developments in instrumentation capabilities are to be expected.

2.4.3. Measurement locations

Where local regulations do not specify otherwise, measurements of environmental noise are usually best made close to the point of reception of the noise. For example, if there is concern about residents exposed to road traffic noise it is better to measure close to the location of the residents, rather than close to the road. If environmental noises are measured close to the source, one must then estimate the effect of sound propagation to the point of reception. Sound propagation can be quite complicated and estimates of sound pressure levels at some distance from the source will inevitably introduce further errors into the measured sound pressure levels. These errors can be avoided by measuring at locations close to the point of reception.

Measurement locations should normally be selected so that there is a clear view of the sound source and so that the propagation of the sound to the microphone is not shielded or blocked by structures that would reduce the incident sound pressure levels. For example, measurements of aircraft noise should be made on the side of the building directly exposed to the noise. The position of the measuring microphone relative to building façades or other sound-reflective surfaces is also important and will significantly influence measured sound pressure levels (ISO 1978). If the measuring microphone is located more than several meters from reflecting surfaces, it will provide an unbiased indication of the incident sound pressure level. At the other extreme, when a measuring microphone is mounted on a sound-reflecting surface, such as a building façade, sound pressure levels will be increased by 6 dB, because the direct and reflected sound will coincide. Some standards recommend a position 2 m from the façade and an associated 3 dB correction (ISO 1978; ASTM 1992). The effect of façade reflections must be accounted for to represent the true level of the incident sound. Thus, while locating the measuring microphone close to the point of reception is desirable, it leads to some other issues that must be considered to accurately interpret measurement results. Where exposures are measured indoors, it is necessary to measure at several positions to characterize the average sound pressure level in a room. In other situations, it may be necessary to measure at the position of the exposed person.

2.4.4. Sampling

Many environmental noises vary over time, such as for different times of day or from season to season. For example, road traffic noise may be considerably louder during some hours of the day but much quieter at night. Aircraft noise may vary with the season due to different numbers of aircraft operations. Although permanent noise monitoring systems are becoming common around large airports, it is usually not possible to measure sound pressure levels continuously over a long enough period of time to completely define the environmental noise exposure. In practice, measurements usually only sample some part of the total exposure. Such sampling will introduce uncertainties in the estimates of the total noise exposure.

Traffic noise studies have identified various sampling schemes that can introduce errors of 2-3 dB in estimates of daytime LAeq,T values and even larger errors in night-time sound pressure levels (Vaskor et al. 1979). These errors relate to the statistical distributions of sound pressure levels over time (Bradley et al. 1979). Thus, the sampling errors associated with road traffic noise may be quite different from those associated with other noise, because of the quite different variations of sound pressure levels over time. It is also difficult to give general estimates of sampling errors due to seasonal variations. When making environmental noise measurements it is important that the measurement sample is representative of all of the variations in the noise in question, including variations of the source and variations in sound propagation, such as due to varying atmospheric conditions.

2.4.5. Calibration and quality assurance

Sound pressure meters can be calibrated using small calibrated sound sources. These devices are placed on the measurement microphone and produce a known sound pressure level with a specified accuracy. Such calibrations should be made at least daily, and more often if there is

some possibility that handling of the sound pressure meter may have modified its sensitivity. It is also important to have a complete quality assurance plan. This should require annual calibration of all noise measuring equipment to traceable standards and should clearly specify correct measurement and operating procedures (ISO 1994).

2.5. Source Characteristics and Sound Propagation

To make a correct assessment of noise it is important to have some appreciation of the characteristics of environmental noise sources and of how sound propagates from them. One should consider the directionality of noise sources, the variability with time and the frequency content. If these are in some way unusual, the noise may be more disturbing than expected. The most common types of environmental noise sources are directional and include: road-traffic noise, aircraft noise, train noise, industrial noise and outdoor entertainment facilities (*cf.* section 2.2). All of these types of environmental noise are produced by multiple sources, which in many cases are moving. Thus, the characteristics of individual sources, as well as the characteristics of the combined sources, must be considered.

For example, we can consider the radiation of sound from individual vehicles, as well as from a line of vehicles on a particular road. Sound from an ideal point source (i.e. non-directional source) will spread out spherically and sound pressure levels would decrease 6 dB for each doubling of distance from the source. However, for a line of such sources, or for an integration over the complete pass-by of an individual moving source, the combined effect leads to sound that spreads cylindrically and to sound pressure levels that decrease at 3 dB per doubling of distance. Thus, there are distinct differences between the propagation of sound from an ideal point source and from moving sources. In practice one cannot adequately assess the noise from a fixed source with measurements at a single location; it is essential to measure in a number of directions from the source. If the single source is moving, it is necessary to measure over a complete pass-by, to account for sound variation with direction and time.

In most real situations this simple behaviour is considerably modified by reflections from the ground and from other nearby surfaces. One expects that when sound propagates over loose ground, such as grass, that some sound energy will be absorbed and sound pressure levels will actually decrease more rapidly with distance from the source. Although this is approximately true, the propagation of sound between sources and receivers close to the ground is much more complicated than this. The combination of direct and ground-reflected sound can combine in a complex manner which can lead to strong cancellations at some frequencies and not at others (Embleton & Piercy 1976). Even at quite short source-to-receiver distances, these complex interference effects can significantly modify the propagating sound. At larger distances (approximately 100 m or more), the propagation of sound will also be significantly affected by various atmospheric conditions. Temperature and wind gradients as well as atmospheric turbulence can have large effects on more distant sound pressure levels (Daigle et al. 1986). Temperature and wind gradients can cause propagating sound to curve either upwards or downwards, creating either areas of increased or decreased sound pressure levels at points quite distant from the source. Atmospheric turbulence can randomize sound so that the interference effects resulting from combinations of sound paths are reduced. Higher frequency sound is absorbed by air depending on the exact temperature and relative humidity of the air (Crocker &

Price 1975; Ford 1987). Because there are many complex effects, it is not usually possible to accurately predict sound pressure levels at large distances from a source.

Using barriers or screens to block the direct path from the source to the receiver can reduce the propagation of sound. The attenuating effects of the screen are limited by sound energy that diffracts or bends around the screen. Screens are more effective at higher frequencies and when placed either close to the sound source or the receiver; they are less effective when placed far from the receiver. Although higher screens are better, in practice it is difficult to achieve more than about a 10 dB reduction. There should be no gaps in the screen and it must have an adequate mass per unit area. A long building can be an effective screen, but gaps between buildings will reduce the sound attenuation.

In some cases, it may be desirable to estimate environmental sound pressure levels using mathematical models implemented as computer programmes (House 1987). Such computer programmes must first model the characteristics of the source and then estimate the propagation of the sound from the source to some receiver point. Although such prediction schemes have several advantages, there will be some uncertainty as to the accuracy of the predicted sound pressure levels. Such models are particularly useful for road traffic noise and aircraft noise, because it is possible to create data bases of information describing particular sources. For more varied types of noise, such as industrial noise, it would be necessary to first characterize the noise sources. The models then sum up the effects of multiple sources and calculate how the sound will propagate to receiver points. Techniques for estimating sound propagation are improving and the accuracy of these models is also expected to improve. These models can be particularly useful for estimating the combined effect of a large number of sources over an extended period of time. For example, aircraft noise prediction models are typically used to predict average yearly noise exposures, based on the combination of aircraft events over a complete year. Such models can be applied to predict sound pressure level contours around airports for these average yearly conditions. This is of course much less expensive than measuring at many locations over a complete one year-period. However, such models can be quite complex, and require skilled users and accurate data bases. Because environmental noise prediction models are still developing, it is advisable to confirm predictions with measurements.

2.6. Sound transmission Into and Within Buildings

Sources of environmental noise are usually located outdoors; for example, road traffic, aircraft or trains. However, people exposed to these noises are often indoors, inside their home or some other building. It is, therefore, important to understand how environmental noises are transmitted into buildings. Most of the same fundamentals discussed earlier apply to airborne sound propagation between homes in multifamily dwellings, via common walls and floors. However, within buildings we can also consider impact sound sources, such as footsteps, as well as airborne sounds.

The amount of incident sound that is transmitted through a building façade is measured in terms of the sound reduction index. The sound reduction index, or transmission loss, is defined as 10 times the logarithm of the ratio of incident-to-transmitted sound power, and it describes in decibels how much the incident sound is reduced on passing through a particular panel. This

index of constructions usually increases with the frequency of the incident sound and with the mass of the construction (Kremer 1950). Thus, heavier or more massive constructions tend to have higher sound reductions. When it is not possible to achieve the desired transmission loss by increasing the mass of a panel, increased sound reduction can be achieved by a double panel construction. The two layers should be isolated with respect to vibrations and there should be sound absorbing material in the cavity. Such double panel constructions can provide much greater sound reduction than a single panel. Because sound reduction is also greater at higher frequencies most problems occur at lower frequencies, where most environmental noise sources produce relatively high sound pressure levels.

The sound reduction of buildings can be measured in standard laboratory tests, where the test panel is constructed in an opening between two reverberant test chambers (ISO 1995; ASTM 1997). In these tests sound fields are quite diffuse in both test chambers and the sound reduction index is calculated as the difference between the average sound pressure levels in the two rooms, plus a correction involving the area of the test panel and the total sound absorption in the receiving room. The sound reduction of a complete building façade can also be measured in the field using either natural environmental noises or test signals from loudspeakers (ISO 1978; ASTM 1992). In either case the noise, as transmitted through the façade, must be greater in level than other sounds in the receiving room. For this outdoor-to-indoor sound propagation case, the measured sound reduction index will also depend on the angle of incidence of the outdoor sound, as well as the position of the outdoor measuring microphone relative to the building façade. Corrections of up to 6 dB must be made to the sound pressure level measured outdoors, to account for the effect of reflections from the façade (see also section 2.4.3).

The sound reduction of most real building façades is determined by a combination of several different elements. For example, a wall might include windows, doors or some other type of element. If the sound reduction index values of each element are known, the values for the combined construction can be calculated from the area-weighted sums of the sound energy transmitted through each separate element. Although parts of the building façade, such as massive wall constructions, can be very effective barriers to sound, the sound reduction index of the complete façade is often greatly reduced by less effective elements such as windows, doors or ventilation openings. Completely open windows as such would have a sound reduction index of 0 dB. If window openings makes up 10% of the area of a wall, the sound reduction index of the combined wall and open window could not exceed 10 dB. Thus it is not enough to specify effective sound reducing façade constructions, without also solving the problem of adequate ventilation that does not compromise the sound transmission reduction by the building façade.

Sound reduction index values are measured at different frequencies and from these, single number ratings are determined. Most common are the ISO weighted sound reduction index (ISO 1996) and the equivalent ASTM sound transmission class (ASTM 1994a). However, in their original form these single number ratings are only appropriate for typical indoor noises that usually do not have strong low frequency components. Thus, they are usually not appropriate single number ratings of the ability of a building façade to block typical environmental noises. More recent additions to the ISO procedure have included source spectrum corrections intended to correct approximately for other types of sources (ISO 1996). Alternatively, the ASTM-Outdoor-Indoor Transmission Class rating calculates the A-weighted level reduction to a

standard environmental noise source spectrum (ASTM 1994b). Within buildings the impact sound insulation index can be measured with a standard impact source and determined according to ISO and ASTM standards (ISO 1998; ASTM 1994c 1996)

2.7. More Specialized Noise Measures

2.7.1. Loudness and perceived noise levels

There are procedures to accurately rate the loudness of complex sounds (Zwicker 1960; Stevens 1972; ISO 1975a). These usually start from a 1/3 octave spectrum of the noise. The combination of the loudness contributions of each 1/3 octave band with estimates of mutual masking effects, leads to a single overall loudness rating in sones. A similar system for rating the noisiness of sounds has also been developed (Kryter 1994). Again a 1/3 octave spectrum of the noise is required and the 1/3 octave noise levels are compared with a set of equal-noisiness contours. The individual 1/3 octave band noisiness estimates are combined to give an overall perceived noise level (PNL) that is intended to accurately estimate subjective evaluations of the same sound. The PNL metric was initially developed to rate jet aircraft noise.

PNL values will vary with time, for example when an aircraft flies by a measuring point. The effective perceived noise level measure (EPNL) is derived from PNL values and is intended to provide a complete rating of an aircraft fly-over. EPNL values add both a duration correction and a tone correction to PNL values. The duration correction ensures that longer duration events are rated as more disturbing. Similarly, noise spectra that seem to have prominent tonal components are rated as more disturbing by the tone-correction procedure. There is some evidence that these tone corrections are not always successful in improving predictions of adverse responses to noise events (Scharf & Hellman 1980). EPNL values are used in the certification testing of new aircraft. These more precise measures ensure that the noise from new aircraft is rated as accurately as possible.

2.7.2. Aviation noise measures

There are many measures for evaluating the long-term average sound pressure levels from aircraft near airports (Ford 1987; House 1987). They include different frequency weightings, different summations of levels and numbers of events, as well as different time-of-day weightings. Most measures are based on either A-weighted or PNL-weighted sound pressure levels. Because of the many other large uncertainties in predicting community response to aircraft noise, there seems little justification for using the more complex PNL-weighted sound pressure levels and there is a trend to change to A-weighted measures.

Most aviation noise measures are based on an equal energy approach and hence they sum up the total energy of a number of aircraft fly-overs. However, some older measures were based on different combinations of the level of each event and the number of events. These types of measures are gradually being replaced by measures based on the equal energy hypothesis such as LAeq,T values. There is also a range of time-of-day weightings incorporated into current aircraft noise measures. Night-time weightings of 6–12 dB are currently in use. Some countries also include an intermediate evening weighting.

The day-night sound pressure level L_{dn} (von Gierke 1975; Ford 1987) is an LAeq,T based measure with a 10 dB night-time weighting. It is based on A-weighted sound pressure levels and the equal energy principle. The noise exposure forecast (NEF) (Bishop & Horonjeff 1967) is based on the EPNL values of individual aircraft events and includes a 12 dB night-time weighting. It sums multiple events on an equal energy basis. However, the Australian variation of the NEF measure has a 6 dB evening weighting and a 6 dB night-time weighting (Bullen & Hede 1983). The German airport noise equivalent level (LEQ(FLG)) is based on A-weighted levels, but does not follow the equal energy principle.

The weighted equivalent continuous perceived noise level (WECPNL) measure (Ford 1987) proposed by ICAO is based on the equal energy principle and maximum PNL values of aircraft fly-overs. However, in Japan an approximation to this measure is used and is based on maximum A-weighted levels. The noise and number index (NNI), formerly used in the United Kingdom, was derived from maximum PNL values but was not based on the equal energy principle. An approximation to the original version of the NNI has been used in Switzerland and is based on maximum A-weighted levels of aircraft fly-overs, but its use will soon be discontinued. Changes in these measures are slow because their use is often specified in national legislation. However, several countries have changed to measures that are based on the equal energy principle and A-weighted sound pressure levels.

2.7.3. Impulsive noise measures

Impulsive sounds, such as gun shots, hammer blows, explosions of fireworks or other blasts, are sounds that significantly exceed the background sound pressure level for a very short duration. Typically each impulse lasts less than one second. Measurements with the meter set to 'Fast' response (section 2.1.1) do not accurately represent impulsive sounds. Therefore the meter response time must be shorter to measure such impulse type sounds. C-weighted levels have been found useful for ratings of gun shots (ISO 1987). Currently no mathematical description exists which unequivocally defines impulsive sounds, nor is there a universally accepted procedure for rating the additional annoyance of impulsive sounds (HCN 1997). Future versions of ISO Standard 1996 (present standard in ISO 1987b) are planned to improve this situation.

2.7.4. Measures of speech intelligibility

The intelligibility of speech depends primarily on the speech-to-noise ratio. If the level of the speech sounds are 15 dB or more above the level of the ambient noise, the speech intelligibility at 1 m distance will be close to 100% (Houtgast 1981; Bradley 1986b). This can be most simply rated in terms of the speech-to-noise ratio of the A-weighted speech and noise levels. Alternatively, the speech intelligibility index (formerly the articulation index) can be used if octave or 1/3 octave band spectra of the speech and noise are available (ANSI 1997).

When indoors, speech intelligibility also depends on the acoustical properties of the space. The acoustical properties of spaces have for many years been rated in terms of reverberation times. The reverberation time is approximately the time it takes for a sound in a room to decrease to inaudibility after the source has been stopped. Optimum reverberation times for speech have

been specified as a function of the size of the room. In large rooms, such as lecture halls and theaters, a reverberation time for speech of about 1 s is recommended. In smaller rooms such as classrooms, the recommended value for speech is about 0.6 s (Bradley 1986b,c). More modern measures of room acoustics have been found to be better correlates of speech intelligibility, and some combine an assessment of both the speech/noise ratio and room acoustics (Bradley 1986a,c). The most widely known is the speech transmission index (STI) (Houtgast & Steeneken 1983), or the abbreviated version of this measure referred to as RASTI (Houtgast & Steeneken 1985; IEC 1988). In smaller rooms, such as school classrooms, the conventional approach of requiring adequately low ambient noise levels, as well as some optimum reverberation time, is probably adequate to ensure good speech intelligibility (Bradley 1986b). In larger rooms and other more specialized situations, use of the more modern measures may be helpful.

2.7.5. Indoor noise ratings

The simplest procedure for rating levels of indoor noise is to measure them in terms of integrated A-weighted sound pressure levels, as measured by LAeq,T. As discussed earlier, this approach has been criticized as not being the most accurate rating of the negative effects of various types of noises, and is thought to be particularly inadequate when there are strong low-frequency components. Several more complex rating schemes are available based on octave band measurements of indoor noises. In Europe the noise rating system (Burns 1968), and in North America the noise criterion (Beranek 1971), both include sets of equal-disturbance type contours. Measured octave band sound pressure levels are compared with these contours and an overall noise rating is determined. More recently, two new schemes have been proposed: the balanced noise criterion procedure (Beranek 1989) and the room criterion system (Blazier 1998). These schemes are based on a wider range of octave bands extending from 16–8 000 Hz. They provide both a numerical and a letter rating of the noise. The numerical part indicates the level of the central frequencies important for speech communication and the letter indicates whether the quality of the sound is predominantly low-, medium- or high-frequency in nature. Extensive comparisons of these room noise rating procedures have yet to be performed. Because the newer measures include a wider range of frequencies, they can better assess a wider range of noise problems.

2.8. Summary

Where there are no clear reasons for using other measures, it is recommended that LAeq,T be used to evaluate more-or-less continuous environmental noises. LAeq,T should also be used to assess ongoing noises that may be composed of individual events with randomly varying sound pressure levels. Where the noise is principally composed of a small number of discrete events the additional use of LAmax or SEL is recommended. As pointed out in this chapter, there are definite limitations to these simple measures, but there are also many practical advantages, including economy and the benefits of a standardized approach.

The sound pressure level measurements should include all variations over time to provide results that best represent the noise in question. This would include variations in both the source and in propagation of the noise from the source to the receiver. Measurements should normally be

made close to typical points of reception. The accuracy of the measurements and the details of the measurement procedure must be adapted to the type of noise and to other details of the noise exposure. Assessment of speech intelligibility, aviation noise or impulse noise may require the use of more specialized methods. Where the exposed people are indoors and noise measurements are made outdoors, the sound attenuating properties of the building façade must also be measured or estimated.

3. Adverse Health Effects Of Noise

3.1. Introduction

The perception of sounds in day-to-day life is of major importance for human well-being. Communication through speech, sounds from playing children, music, natural sounds in parklands, parks and gardens are all examples of sounds essential for satisfaction in every day life. Conversely, this document is related to the adverse effects of sound (noise). According to the International Programme on Chemical Safety (WHO 1994), an adverse effect of noise is defined as a change in the morphology and physiology of an organism that results in impairment of functional capacity, or an impairment of capacity to compensate for additional stress, or increases the susceptibility of an organism to the harmful effects of other environmental influences. This definition includes any temporary or long-term lowering of the physical, psychological or social functioning of humans or human organs. The health significance of noise pollution is given in this chapter under separate headings, according to the specific effects: noise-induced hearing impairment; interference with speech communication; disturbance of rest and sleep; psychophysiological, mental-health and performance effects; effects on residential behaviour and annoyance; as well as interference with intended activities. This chapter also considers vulnerable groups and the combined effects of sounds from different sources. Conclusions based on the details given in this chapter are given in Chapter 4 as they relate to guideline values.

3.2. Noise-Induced Hearing Impairment

Hearing impairment is typically defined as an increase in the threshold of hearing. It is assessed by threshold audiometry. Hearing handicap is the disadvantage imposed by hearing impairment sufficient to affect one's personal efficiency in the activities of daily living. It is usually expressed in terms of understanding conventional speech in common levels of background noise (ISO 1990). Worldwide, noise-induced hearing impairment is the most prevalent irreversible occupational hazard. In the developing countries, not only occupational noise, but also environmental noise is an increasing risk factor for hearing impairment. In 1995, at the World Health Assembly, it was estimated that there are 120 million persons with disabling hearing difficulties worldwide (Smith 1998). It has been shown that men and women are equally at risk of noise-induced hearing impairment (ISO 1990; Berglund & Lindvall 1995).

Apart from noise-induced hearing impairment, hearing damage in populations is also caused by certain diseases; some industrial chemicals; ototoxic drugs; blows to the head; accidents; and hereditary origins. Deterioration of hearing capability is also associated with the aging process *per se* (presbyacusis). Present knowledge of the physiological effects of noise on the auditory system is based primarily on laboratory studies on animals. After noise exposure, the first morphological changes are usually found in the inner and outer hair cells of the cochlea, where the stereocilia become fused and bent. After more prolonged exposure, the outer and inner hair cells related to transmission of high-frequency sounds are missing. See Berglund & Lindvall (1995) for further discussion.

The ISO Standard 1999 (ISO 1990) gives a method for calculating noise-induced hearing impairment in populations exposed to all types of noise (continuous, intermittent, impulse) during working hours. Noise exposure is characterized by LAeq over 8 hours (LAeq,8h). In the Standard, the relationships between LAeq,8h and noise-induced hearing impairment are given for frequencies of 500–6 000 Hz, and for exposure times of up to 40 years. These relations show that noise-induced hearing impairment occurs predominantly in the high-frequency range of 3 000–6 000 Hz, the effect being largest at 4 000 Hz. With increasing LAeq,8h and increasing exposure time, noise-induced hearing impairment also occurs at 2 000 Hz. But at LAeq,8h levels of 75 dBA and lower, even prolonged occupational noise exposure will not result in noise-induced hearing impairment (ISO 1990). This value is equal to that specified in 1980 by the World Health Organization (WHO 1980a).

The ISO Standard 1999 (ISO 1990) specifies hearing impairment in statistical terms (median values, and percentile fractions between 0.05 and 0.95). The extent of noise-induced hearing impairment in populations exposed to occupational noise depends on the value of LAeq,8h and the number of years of noise exposure. However, for high LAeq,8h values, individual susceptibility seems to have a considerable effect on the rate of progression of hearing impairment. For daily exposures of 8–16 h, noise-induced hearing impairment can be reasonably well estimated from LAeq,8h extrapolated to the longer exposure times (Axelsson et al. 1986). In this adaptation of LAeq,8h for daily exposures other than 8 hours, the equal energy principle is assumed to be applicable. For example, the hearing impairment due to a 16 h daily exposure is equivalent to that at LAeq,8h plus 3 dB ($LAeq,16h = LAeq,8h + 10*\log_{10}(16/8) = LAeq,8h + 3$ dB. For a 24 h exposure, $LAeq,24h = LAeq,8h + 10*\log_{10}(24/8) = LAeq,8h + 5$ dB).

Since the calculation method specified in the ISO Standard 1999 (ISO 1990) is the only universally adopted method for estimating occupational noise-induced hearing impairment, attempts have been made to assess whether the method is also applicable to hearing impairment due to environmental noise, including leisure-time noise. There is ample evidence that shooting noise, with LAeq,24h values of up to 80 dB, induces the same hearing impairment as an equivalent occupational noise exposure (Smoorenburg 1998). Moreover, noise-induced hearing impairment studies from motorbikes are also in agreement with results from ISO Standard 1999 (ISO 1990). Hearing impairment in young adults and children 12 years and older has been assessed by LAeq on a 24 h time basis, for a variety of environmental and leisure-time exposure patterns (e.g. Passchier-Vermeer 1993; HCN 1994). These include pop music in discotheques and concerts (Babisch & Ising 1989; ISO 1990); pop music through headphones (Ising et al. 1994; Struwe et al. 1996; Passchier-Vermeer et al. 1998); music played by brass bands and symphony orchestras (van Hees 1992). The results are in agreement with values predicted by the ISO Standard 1999 method on the basis of adjusted time.

In the publications cited above, exposure to noise with known characteristics, such as duration and level, was related to hearing impairment. In addition to these publications, there is also an extensive literature showing hearing impairment in populations exposed to specific types of non-occupational noise, although these exposures are not well characterized. These noises originate from shooting, motorcycling, snowmobile driving, playing in arcades, listening to music at concerts and through headphones, using noisy toys, and fireworks (e.g. Brookhouser et al. 1992; see also Berglund & Lindvall 1995). Although the characteristics of these exposures are to a

certain extent unknown, the details in the publications suggest that LAeq,24h values of these exposures exceed 70 dB.

In contrast, epidemiological studies failed to show hearing damage in populations exposed to an LAeq,24h of less than 70 dB (Lindemann et al. 1987). The data imply that even a lifetime exposure to environmental and leisure-time noise with an LAeq,24h <70 dBA would not cause hearing impairment in the large majority of people (over 95%). Overall, the results of many studies strongly suggest that the method from ISO Standard 1999 can also be used to estimate hearing impairment due to environmental and leisure-time noise, in addition to estimating the effects of occupational noise exposure.

Although the evidence suggests that the calculation method from ISO Standard 1999 (ISO 1990) should also be accepted for environmental and leisure time noise exposures, large-scale epidemiological studies of the general population do not exist to support this proposition. Taking into account the limitations of the studies, care should be taken with respect to the following aspects:

a. Data from animal experiments indicate that children may be more vulnerable in acquiring noise-induced hearing impairment than adults.

b. At very high instantaneous sound pressure levels, mechanical damage to the ear may occur (Hanner & Axelsson 1988). Occupational limits are set at peak sound pressure levels of 140 dB (EU 1986a). For adults exposed to environmental and leisure-time noise, this same limit is assumed to be valid. In the case of children, however, taking into account their habits while playing with noisy toys, peak sound pressure levels should never exceed 120 dB.

c. For shooting noise with LAeq,24h over 80 dB, studies on temporary threshold shift suggest the possibility of an increased risk for noise-induced hearing impairment (Smoorenburg 1998).

d. Risk for noise-induced hearing impairment may increase when the noise exposure is combined with exposure to vibrations, the use of ototoxic drugs, or some chemicals (Fechter 1999). In these circumstances, long-term exposure to LAeq,24h of 70 dBA may induce small hearing impairments.

e. It is uncertain whether the relationships between hearing impairment and noise exposure given in ISO Standard 1999 (ISO 1990) are applicable for environmental sounds of short rise time. For example, in the case of military low-altitude flying areas (75–300 m above ground) LAmax values of 110–130 dB occur within seconds after the onset of the sound.

Usually noise-induced hearing impairment is accompanied by an abnormal loudness perception which is known as loudness recruitment (*cf.* Berglund & Lindvall 1995). With a considerable loss of auditory sensitivity, some sounds may be perceived as distorted (paracusis). Another sensory effect that results from noise exposure is tinnitus (ringing in the ears). Commonly,

tinnitus is referred to as sounds that are emitted by the inner ear itself (physiological tinnitus). Tinnitus is a common and often disturbing accompaniment of occupational hearing impairment (Vernon and Moller 1995) and has become a risk for teenagers attending pop concerts and discotheques (Hetu & Fortin 1995; Passchier-Vermeer et al. 1998; Axelsson & Prasher 1999). Noise-induced tinnitus may be temporary, lasting up to 24 hours after exposure, or may have a more permanent character, such as after prolonged occupational noise exposure. Sometimes tinnitus is due to the sound produced by the blood flow through structures in the ear.

The main social consequence of hearing impairment is an inability to understand speech in daily living conditions, which is considered a severe social handicap. Even small values of hearing impairment (10 dB averaged over 2 000 and 4 000 Hz, and over both ears) may have an effect on the understanding of speech. When the hearing impairment exceeds 30 dB (again averaged over 2 000 and 4 000 Hz and both ears) a social hearing handicap is noticeable (*cf.* Katz 1994; Berglund & Lindvall 1995).

In the past, hearing protection has mainly emphasized occupational noise exposures at high values of LAeq,8h, or situations with high impulsive sounds. The near-universal adoption of an LAeq,8h value of 85 dB (or lower) as the limit for unprotected occupational noise exposure, together with requirements for personal hearing protection, has made cases of severe unprotected exposures more rare. This is particularly true for developed countries. However, monitoring of compliance and enforcement action for sound pressure levels just over the limits may be weak, especially in non-industrial environments in developed countries (Franks 1998), as well as in occupational and urban environments in developing countries (Smith 1998). Nevertheless, regulations for occupational noise exposure exist almost worldwide and exposures to occupational noise are to a certain extent under control.

On the other hand, environmental noise exposures due to a number of noisy activities, especially those during leisure-time activities of children and young adults, have scarcely been regulated. Given both the increasing number of noisy activities and the increasing exposure duration, such as loud music in cars and the use of Walkmen and Discmen, regulatory activities in this field are to be encouraged. Dose-response data are lacking for the general population. However, judging from the limited data for study groups (teenagers, young adults and women), and the assumption that time of exposure can be equated with sound energy, the risk for hearing impairment would be negligible for LAeq,24h values of 70 dBA over a lifetime. To avoid hearing impairment, impulse noise exposures should never exceed 140 dB peak sound pressure in adults, and 120 dB peak sound pressure in children.

3.3. Interference with Speech Communication

Noise interference with speech comprehension results in a large number of personal disabilities, handicaps and behavioural changes. Problems with concentration, fatigue, uncertainty and lack of self-confidence, irritation, misunderstandings, decreased working capacity, problems in human relations, and a number of stress reactions have all been identified (Lazarus 1998). Particularly vulnerable to these types of effects are the hearing impaired, the elderly, children in the process of language and reading acquisition, and individuals who are not familiar with the spoken language (e.g., Lazarus 1998). Thus, vulnerable persons constitute a substantial

proportion of a country's population.

Most of the acoustical energy of speech is in the frequency range 100–6 000 Hz, with the most important cue-bearing energy being between 300–3 000 Hz. Speech interference is basically a masking process in which simultaneous, interfering noise renders speech incapable of being understood. The higher the level of the masking noise, and the more energy it contains at the most important speech frequencies, the greater will be the percentage of speech sounds that become indiscernible to the listener. Environmental noise may also mask many other acoustical signals important for daily life, such as door bells, telephone signals, alarm clocks, fire alarms and other warning signals, and music (e.g., Edworthy & Adams 1996). The masking effect of interfering noise in speech discrimination is more pronounced for hearing-impaired persons than for persons with normal hearing, particularly if the interfering noise is composed of speech or babble.

As the sound pressure level of an interfering noise increases, people automatically raise their voice to overcome the masking effect upon speech (increase of vocal effort). This imposes an additional strain on the speaker. For example, in quiet surroundings, the speech level at 1 m distance averages 45–50 dBA, but is 30 dBA higher when shouting. However, even if the interfering noise is moderately loud, most of the sentences during ordinary conversation can still be understood fairly well. Nevertheless, the interpretation required for compensating the masking effect of the interfering sounds, and for comprehending what was said, imposes an additional strain on the listener. One contributing factor could be that speech spoken loudly is more difficult to understand than speech spoken softly, when compared at a constant speech-to-noise ratio (*cf.* Berglund & Lindvall 1995).

Speech levels vary between individuals because of factors such as gender and vocal effort. Moreover, outdoor speech levels decrease by about 6 dB for a doubling in the distance between talker and listener. Speech intelligibility in everyday living conditions is influenced by speech level, speech pronunciation, talker-to-listener distance, sound pressure levels, and to some extent other characteristics of interfering noise, as well as room characteristics (e.g. reverberation). Individual capabilities of the listener, such as hearing acuity and the level of attention of the listener, are also important for the intelligibility of speech. Speech communication is affected also by the reverberation characteristics of the room. For example, reverberation times greater than 1 s produce loss in speech discrimination. Longer reverberation times, especially when combined with high background interfering noise, make speech perception more difficult. Even in a quiet environment, a reverberation time below 0.6 s is desirable for adequate speech intelligibility by vulnerable groups. For example, for older hearing-handicapped persons, the optimal reverberation time for speech intelligibility is 0.3–0.5 s (Plomp 1986).

For complete sentence intelligibility in listeners with normal hearing, the signal-to-noise ratio (i.e. the difference between the speech level and the sound pressure level of the interfering noise) should be 15–18 dBA (Lazarus 1990). This implies that in smaller rooms, noise levels above 35 dBA interferes with the intelligibility of speech (Bradley 1985). Earlier recommendations suggested that sound pressure levels as high as 45 dBA would be acceptable (US EPA 1974). With raised voice (increased vocal effort) sentences may be 100% intelligible for noise levels of up to 55 dBA; and sentences spoken with straining vocal effort can be 100% intelligible with

noise levels of about 65 dBA. For speech to be intelligible when listening to complicated messages (at school, listening to foreign languages, telephone conversation), it is recommended that the signal-to-noise ratio should be at least 15 dBA. Thus, with a speech level of 50 dBA, (at 1 m distance this level corresponds to a casual speech level of both women and men), the sound pressure level of interfering noise should not exceed 35 dBA. For vulnerable groups even lower background levels are needed. If it is not possible to meet the strictest criteria for vulnerable persons in sensitive situations (e.g. in classrooms), one should strive for as low background levels as possible.

3.4. Sleep Disturbance

Uninterrupted sleep is known to be a prerequisite for good physiological and mental functioning of healthy persons (Hobson 1989); sleep disturbance, on the other hand, is considered to be a major environmental noise effect. It is estimated that 80-90% of the reported cases of sleep disturbance in noisy environments are for reasons other than noise originating outdoors. For example, sanitary needs; indoor noises from other occupants; worries; illness; and climate (e.g. Reyner & Horne 1995). Our understanding of the impact of noise exposure on sleep stems mainly from experimental research in controlled environments. Field studies conducted with people in their normal living situations are scarce. Most of the more recent field research on sleep disturbance has been conducted for aircraft noise (Fidell et al. 1994 1995a,b 1998; Horne et al. 1994 1995; Maschke et al. 1995 1996; Ollerhead et al. 1992; Passchier-Vermeer 1999). Other field studies have examined the effects of road traffic and railway noise (Griefahn et al. 1996 1998).

The primary sleep disturbance effects are: difficulty in falling asleep (increased sleep latency time); awakenings; and alterations of sleep stages or depth, especially a reduction in the proportion of REM-sleep (REM = rapid eye movement) (Hobson 1989). Other primary physiological effects can also be induced by noise during sleep, including increased blood pressure; increased heart rate; increased finger pulse amplitude; vasoconstriction; changes in respiration; cardiac arrhythmia; and an increase in body movements (cf. Berglund & Lindvall 1995). For each of these physiological effects, both the noise threshold and the noise-response relationships may be different. Different noises may also have different information content and this also could affect physiological threshold and noise-response relationships (Edworthy 1998).

Exposure to night-time noise also induces secondary effects, or so-called after effects. These are effects that can be measured the day following the night-time exposure, while the individual is awake. The secondary effects include reduced perceived sleep quality; increased fatigue; depressed mood or well-being; and decreased performance (Öhrström 1993a; Passchier-Vermeer 1993; Carter 1996; Pearsons et al. 1995; Pearsons 1998).

Long-term effects on psychosocial well-being have also been related to noise exposure during the night (Öhrström 1991). Noise annoyance during the night-time increased the total noise annoyance expressed by people in the following 24 h. Various studies have also shown that people living in areas exposed to night-time noise have an increased use of sedatives or sleeping pills. Other frequently reported behavioural effects of night-time noise include closed bedroom windows and use of personal hearing protection. Sensitive groups include the elderly, shift

workers, persons especially vulnerable to physical or mental disorders and other individuals with sleeping difficulties.

Questionnaire data indicate the importance of night-time noise on the perception of sleep quality. A recent Japanese investigation was conducted for 3 600 women (20–80 years old) living in eight roadside zones with different road traffic noise. The results showed that four measures of perceived sleep quality (difficulty in falling asleep; waking up during sleep; waking up too early; feelings of sleeplessness one or more days a week) correlated significantly with the average traffic volumes during night-time. An in-depth investigation of 19 insomnia cases and their matched controls (age,work) measured outdoor and indoor sound pressure levels during sleep (Kageyama et al. 1997). The study showed that road traffic noise in excess of 30 dB LAeq for nighttime induced sleep disturbance, consistent with the results of Öhrström (1993b).

Meta-analyses of field and laboratory studies have suggested that there is a relationship between the SEL for a single night-time noise event and the percentage of people awakened, or who showed sleep stage changes (e.g. Ollerhead et al. 1992; Passchier-Vermeer 1993; Finegold et al. 1994; Pearsons et al. 1995). All of these studies assumed that the number of awakenings per night for each SEL value is proportional to the number of night-time noise events. However, the results have been criticized for methodological reasons. For example, there were small groups of sleepers; too few original studies; and indoor exposure was estimated from outdoor sound pressure levels (NRC-CNRC 1994; Beersma & Altena 1995; Vallet 1998). The most important result of the meta-analyses is that there is a clear difference in the dose-response curves for laboratory and field studies, and that noise has a lower effect under real-life conditions (Pearsons et al. 1995; Pearsons 1998).

However, this result has been questioned, because the studies were not controlled for such things as the sound insulation of the buildings, and the number of bedrooms with closed windows. Also, only two indicators of sleep disturbance were considered (awakening and sleep stage changes). The meta-analyses thus neglected other important sleep disturbance effects (Öhrström 1993b; Carter et al. 1994a; Carter et al. 1994b; Carter 1996; Kuwano et al. 1998). For example, for road traffic noise, perceived sleep quality is related both to the time needed to fall asleep and the total sleep time (Öhrström & Björkman 1988). Individuals who are more sensitive to noise (as assessed by different questionnaires) report worse sleep quality both in field studies and in laboratory studies.

A further criticism of the meta-analyses is that laboratory experiments have shown that habituation to night-time noise events occurs, and that noise-induced awakening decreases with increasing number of sound exposures per night. This is in contrast to the assumption used in the meta-analyses, that the percentage of awakenings is linearly proportional to the number of night-time noise events. Studies have also shown that the frequency of noise-induced awakenings decreases for at least the first eight consecutive nights. So far, habituation has been shown for awakenings, but not for heart rate and after effects such as perceived sleep quality, mood and performance (Öhrström and Björkman 1988).

Other studies suggest that it is the difference in sound pressure levels between a noise event and background, rather than the absolute sound pressure level of the noise event, that determines the

reaction probability. The time interval between two noise events also has an important influence of the probability of obtaining a response (Griefahn 1977; *cf.* Berglund & Lindvall 1995). Another possible factor is the person's age, with older persons having an increased probability of awakening. However, one field study showed that noise-induced awakenings are independent of age (Reyner & Horne 1995).

For a good sleep, it is believed that indoor sound pressure levels should not exceed approximately 45 dB LAmax more than 10–15 times per night (Vallet & Vernet 1991), and most studies show an increase in the percentage of awakenings at SEL values of 55–60 dBA (Passchier-Vermeer 1993; Finegold et al. 1994; Pearsons et al. 1995). For intermittent events that approximate aircraft noise, with an effective duration of 10–30 s, SEL values of 55–60 dBA correspond to a LAmax value of 45 dB. Ten to 15 of these events during an eight-hour night-time implies an LAeq,8h of 20–25 dB. This is 5–10 dB below the LAeq,8h of 30 dB for continuous night-time noise exposure, and shows that the intermittent character of noise has to be taken into account when setting night-time limits for noise exposure. For example, this can be achieved by considering the number of noise events and the difference between the maximum sound pressure level and the background level of these events.

Special attention should also be given to the following considerations:

a. Noise sources in an environment with a low background noise level. For example, night-traffic in suburban residential areas.

b. Environments where a combination of noise and vibrations are produced. For example, railway noise, heavy duty vehicles.

c. Sources with low-frequency components. Disturbances may occur even though the sound pressure level during exposure is below 30 dBA.

If negative effects on sleep are to be avoided the equivalent sound pressure level should not exceed 30 dBA indoors for continuous noise. If the noise is not continuous, sleep disturbance correlates best with LAmax and effects have been observed at 45 dB or less. This is particularly true if the background level is low. Noise events exceeding 45 dBA should therefore be limited if possible. For sensitive people an even lower limit would be preferred. It should be noted that it should be possible to sleep with a bedroom window slightly open (a reduction from outside to inside of 15 dB). To prevent sleep disturbances, one should thus consider the equivalent sound pressure level and the number and level of sound events. Mitigation targeted to the first part of the night is believed to be effective for the ability to fall asleep.

3.5. Cardiovascular and Physiological Effects

Epidemiological and laboratory studies involving workers exposed to occupational noise, and general populations (including children) living in noisy areas around airports, industries and noisy streets, indicate that noise may have both temporary and permanent impacts on physiological functions in humans. It has been postulated that noise acts as an environmental stressor (for a review see Passchier-Vermeer 1993; Berglund & Lindvall 1995). Acute noise exposures activate the autonomic and hormonal systems, leading to temporary changes such as increased blood pressure, increased heart rate and vasoconstriction. After prolonged exposure, susceptible individuals in the general population may develop permanent effects, such as hypertension and ischaemic heart disease associated with exposures to high sound pressure levels (for a review see Passchier-Vermeer 1993; Berglund & Lindvall 1995). The magnitude and duration of the effects are determined in part by individual characteristics, lifestyle behaviours and environmental conditions. Sounds also evoke reflex responses, particularly when they are unfamiliar and have a sudden onset.

Laboratory experiments and field quasi-experiments show that if noise exposure is temporary, the physiological system usually returns - after the exposure terminates - to a normal (pre-exposure) state within a time in the range of the exposure duration. If the exposure is of sufficient intensity and unpredictability, cardiovascular and hormonal responses may appear, including increases in heart rate and peripheral vascular resistance; changes in blood pressure, blood viscosity and blood lipids; and shifts in electrolyte balance (Mg/Ca) and hormonal levels (epinephrine, norepinephrine, cortisol). The first four effects are of interest because of noise-related coronary heart disease (Ising & Günther 1997). Laboratory and clinical data suggest that noise may significantly elevate gastrointestinal motility in humans.

By far the greatest number of occupational and community noise studies have focused on the possibility that noise may be a risk factor for cardiovascular disease. Many studies in occupational settings have indicated that workers exposed to high levels of industrial noise for 5–30 years have increased blood pressure and statistically significant increases in risk for hypertension, compared to workers in control areas (Passchier-Vermeer 1993). In contrast, only a few studies on environmental noise have shown that populations living in noisy areas around airports and on noisy streets have an increased risk for hypertension. The overall evidence suggests a weak association between long-term environmental noise exposure and hypertension (HCN 1994; Berglund & Lindvall 1995; IEH 1997), and no dose-response relationships could be established.

Recently, an updated summary of available studies for ischaemic heart disease has been presented (Babisch 1998a; Babisch 1998b; Babisch et al. 1999; see also Thompson 1996). The studies reviewed include case-control and cross-sectional designs, as well as three longitudinal studies. However, it has not yet been possible to conduct the most advanced quantitative integrated analysis of the available studies. Relative risks and their confidence intervals could be estimated only for the classes of high noise levels (mostly >65 dBA during daytime) and low levels (mostly <55 dBA during daytime), rather than a range of exposure levels. For methodological reasons identified in the meta-analysis, a cautious interpretation of the results is warranted (Lercher et al. 1998).

Prospective studies that controlled for confounding factors suggest an increase in ischaemic heart disease when the noise levels exceed 65–70 dB for LAeq (6–22). (For road traffic noise, the difference between LAeq (6-22h) and LAeq,24h usually is of the order of 1.5 dB). When orientation of the bedroom, window opening habits and years of exposure are taken into account, the risk of heart disease is slightly higher (Babisch et al. 1998; Babisch et al. 1999). However, disposition, behavioural and environmental factors were not sufficiently accounted for in the analyses carried out to date. In epidemiological studies the lowest level at which traffic noise had an effect on ischaemic heart disease was 70 dB for LAeq,24h (HCN 1994).

The overall conclusion is that cardiovascular effects are associated with long-term exposure to LAeq,24h values in the range of 65–70 dB or more, for both air- and road-traffic noise. However, the associations are weak and the effect is somewhat stronger for ischaemic heart disease than for hypertension. Nevertheless, such small risks are potentially important because a large number of persons are currently exposed to these noise levels, or are likely to be exposed in the future. Furthermore, only the average risk is considered and sensitive subgroups of the populations have not been sufficiently characterized. For example, a 10% increase in risk factors (a relative risk of 1.1) may imply an increase of up to 200 cases per 100 000 people at risk per year. Other observed psychophysiological effects, such as changes in stress hormones, magnesium levels, immunological indicators, and gastrointestinal disturbances are too inconsistent for conclusions to be drawn about the influence of noise pollution.

3.6. Mental Health Effects

Mental health is defined as the absence of identifiable psychiatric disorders according to current norms (Freeman 1984). Environmental noise is not believed to be a direct cause of mental illness, but it is assumed that it accelerates and intensifies the development of latent mental disorder. Studies on the adverse effects of environmental noise on mental health cover a variety of symptoms, including anxiety; emotional stress; nervous complaints; nausea; headaches; instability; argumentativeness; sexual impotency; changes in mood; increase in social conflicts, as well as general psychiatric disorders such as neurosis, psychosis and hysteria. Large-scale population studies have suggested associations between noise exposure and a variety of mental health indicators, such as single rating of well-being; standard psychological symptom profiles; the intake of psychotropic drugs; and consumption of tranquilizers and sleeping pills. Early studies showed a weak association between exposure to aircraft noise and psychiatric hospital admissions in the general population surrounding an airport (see also Berglund & Lindvall 1995). However, the studies have been criticized because of problems in selecting variables and in response bias (Halpern 1995).

Exposure to high levels of occupational noise has been associated with development of neurosis and irritability; and exposure to high levels of environmental noise with deteriorated mental health (Stansfeld 1992). However, the findings on environmental noise and mental health effects are inconclusive (HCN 1994; Berglund & Lindvall 1995; IEH 1997). The only longitudinal study in this field (Stansfeld et al. 1996) showed an association between the initial level of road traffic noise and minor psychiatric disorders, although the association for increased anxiety was weak and non-linear. It turned out that psychiatric disorders are associated with noise sensitivity,

rather than with noise exposure, and the association was found to disappear after adjustment for baseline trait anxiety. These and other results show the importance of taking vulnerable groups into account, because they may not be able to cope sufficiently with unwanted environmental noise (e.g. Stansfeld 1992). This is particularly true of children, the elderly and people with preexisting illnesses, especially depression (IEH 1997). Despite the weaknesses of the various studies, the possibility that community noise has adverse effects on mental health is suggested by studies on the use of medical drugs, such as tranquilizers and sleeping pills, on psychiatric symptoms and on mental hospital admission rates.

3.7. The Effects of Noise on Performance

It has been documented in both laboratory subjects and in workers exposed to occupational noise, that noise adversely affects cognitive task performance. In children, too, environmental noise impairs a number of cognitive and motivational parameters (Cohen et al. 1980; Evans & Lepore 1993; Evans 1998; Hygge et al. 1998; Haines et al. 1998). However, there are no published studies on whether environmental noise at home also impairs cognitive performance in adults. Accidents may also be an indicator of performance deficits. The few field studies on the effects of noise on performance and safety showed that noise may produce some task impairment and increase the number of errors in work, but the effects depend on the type of noise and the task being performed (Smith 1990).

Laboratory and workplace studies showed that noise can act as a distracting stimulus. Also, impulsive noise events (e.g. sonic booms) may produce disruptive effects as a result of startle responses. In the short term, noise-induced arousal may produce better performance of simple tasks, but cognitive performance deteriorates substantially for more complex tasks (i.e. tasks that require sustained attention to details or to multiple cues; or tasks that demand a large capacity of working memory, such as complex analytical processes). Some of the effects are related to loss in auditory comprehension and language acquisition, but others are not (Evans & Maxwell 1997). Among the cognitive effects, reading, attention, problem solving and memory are most strongly affected by noise. The observed effects on motivation, as measured by persistence with a difficult cognitive task, may either be independent or secondary to the aforementioned cognitive impairments.

Two types of memory deficits have been identified under experimental noise exposure: incidental memory and memory for materials that the observer was not explicitly instructed to focus on during a learning phase. For example, when presenting semantic information to subjects in the presence of noise, recall of the information content was unaffected, but the subjects were significantly less able to recall, for example, in which corner of the slide a word had been located. There is also some evidence that the lack of "helping behavior" that was noted under experimental noise exposure may be related to inattention to incidental cues (Berglund & Lindvall 1995). Subjects appear to process information faster in working memory during noisy performance conditions, but at a cost of available memory capacity. For example, in a running memory task, in which subjects were required to recall in sequence letters that they had just heard, subjects recalled recent items better under noisy conditions, but made more errors farther back into the list.

Experimental noise exposure consistently produces negative after-effects on performance (Glass & Singer 1972). Following exposure to aircraft noise, schoolchildren in the vicinity of Los Angeles airport were found to be deficient in proofreading, and in persistence with challenging puzzles (Cohen et al. 1980). The uncontrollability of noise, rather than the intensity of the noise, appears to be the most critical variable. The only prospective study on noise-exposed schoolchildren, designed around the move of the Munich airport (Hygge et al. 1996; Evans et al. 1998), confirmed the results of laboratory and workplace studies in adults, as well the results of the Los Angeles airport study with children (Cohen et al. 1980). An important finding was that some of the adaptation strategies for dealing with aircraft noise, such as tuning out or ignoring the noise, and the effort necessary to maintain task performance, come at a price. There is heightened sympathetic arousal, as indicated by increased levels of stress hormone, and elevation of resting blood pressure (Evans et al. 1995; Evans et al. 1998). Notably, in the airport studies reported above, the adverse effects were larger in children with lower school achievement.

For aircraft noise, it has been shown that chronic exposure during early childhood appears to impair reading acquisition and reduces motivational capabilities. Of recent concern are concomitant psychophysiological changes (blood pressure and stress hormone levels). Evidence indicates that the longer the exposure, the greater the damage. It seems clear that daycare centers and schools should not be located near major sources of noise, such as highways, airports and industrial sites.

3.8. Effects of Noise on Residential Behaviour and Annoyance

Noise annoyance is a global phenomenon. A definition of annoyance is "a feeling of displeasure associated with any agent or condition, known or believed by an individual or group to adversely affect them" (Lindvall & Radford 1973; Koelega 1987). However, apart from "annoyance", people may feel a variety of negative emotions when exposed to community noise, and may report anger, disappointment, dissatisfaction, withdrawal, helplessness, depression, anxiety, distraction, agitation, or exhaustion (Job 1993; Fields et al. 1997 1998). Thus, although the term annoyance does not cover all the negative reactions, it is used for convenience in this document.

Noise can produce a number of social and behavioural effects in residents, besides annoyance (for review see Berglund & Lindvall 1995). The social and behavioural effects are often complex, subtle and indirect. Many of the effects are assumed to be the result of interactions with a number of non-auditory variables. Social and behavioural effects include changes in overt everyday behaviour patterns (e.g. closing windows, not using balconies, turning TV and radio to louder levels, writing petitions, complaining to authorities); adverse changes in social behaviour (e.g. aggression, unfriendliness, disengagement, non-participation); adverse changes in social indicators (e.g. residential mobility, hospital admissions, drug consumption, accident rates); and changes in mood (e.g. less happy, more depressed).

Although changes in social behaviour, such as a reduction in helpfulness and increased aggressiveness, are associated with noise exposure, noise exposure alone is not believed to be sufficient to produce aggression. However, in combination with provocation or pre-existing anger or hostility, it may trigger aggression. It has also been suspected that people are less willing to help, both during exposure and for a period after exposure. Fairly consistent evidence

shows that noise above 80 dBA is associated with reduced helping behaviour and increased aggressive behaviour. Particularly, there is concern that high-level continuous noise exposures may contribute to the susceptibility of schoolchildren to feelings of helplessness (Evans & Lepore 1993)

The effects of community noise can be evaluated by assessing the extent of annoyance (low, moderate, high) among exposed individuals; or by assessing the disturbance of specific activities, such as reading, watching television and communication. The relationship between annoyance and activity disturbances is not necessarily direct and there are examples of situations where the extent of annoyance is low, despite a high level of activity disturbance. For aircraft noise, the most important effects are interference with rest, recreation and watching television. This is in contrast to road traffic noise, where sleep disturbance is the predominant effect (Berglund & Lindvall 1995).

A number of studies have shown that equal levels of traffic and industrial noises result in different magnitudes of annoyance (Hall et al. 1981; Griffiths 1983; Miedema 1993; Bradley 1994a; Miedema & Vos 1998). This has led to criticism (e.g. Kryter 1994; Bradley 1994a) of averaged dose-response curves determined by meta-analysis, which assumed that all traffic noises are the same (Fidell et al. 1991; Fields 1994a; Finegold et al. 1994). Schultz (1978) and Miedema & Vos (1998) have synthesized curves of annoyance associated with three types of traffic noise (road, air, railway). In these curves, the percentage of people highly or moderately annoyed was related to the day and night continuous equivalent sound level, L_{dn}. For each of the three types of traffic noise, the percentage of highly annoyed persons in a population started to increase at an L_{dn} value of 42 dBA, and the percentage of moderately annoyed persons at an L_{dn} value of 37 dBA (Miedema & Vos 1998). Aircraft noise produced a stronger annoyance response than road traffic, for the same L_{dn} exposure, consistent with earlier analyses (Kryter 1994; Bradley 1994a). However, caution should be exercised when interpreting synthesized data from different studies, since five major parameters should be randomly distributed for the analyses to be valid: personal, demographic, and lifestyle factors, as well as the duration of noise exposure and the population experience with noise (Kryter 1994).

Annoyance in populations exposed to environmental noise varies not only with the acoustical characteristics of the noise (source, exposure), but also with many non-acoustical factors of social, psychological, or economic nature (Fields 1993). These factors include fear associated with the noise source, conviction that the noise could be reduced by third parties, individual noise sensitivity, the degree to which an individual feels able to control the noise (coping strategies), and whether the noise originates from an important economic activity. Demographic variables such as age, sex and socioeconomic status, are less strongly associated with annoyance. The correlation between noise exposure and general annoyance is much higher at the group level than at the individual level, as might be expected. Data from 42 surveys showed that at the group level about 70% of the variance in annoyance is explained by noise exposure characteristics, whereas at the individual level it is typically about 20% (Job 1988).

When the type and amount of noise exposure is kept constant in the meta-analyses, differences between communities, regions and countries still exist (Fields 1990; Bradley 1996). This is well demonstrated by a comparison of the dose-response curve determined for road-traffic noise

(Miedema & Vos 1998) and that obtained in a survey along the North-South transportation route through the Austrian Alps (Lercher 1998b). The differences may be explained in terms of the influence of topography and meteorological factors on acoustical measures, as well as the low background noise level on the mountain slopes.

Stronger reactions have been observed when noise is accompanied by vibrations and contains low frequency components (Paulsen & Kastka 1995; Öhrström 1997; for review see Berglund et al. 1996), or when the noise contains impulses, such as shooting noise (Buchta 1996; Vos 1996; Smoorenburg 1998). Stronger, but temporary, reactions also occur when noise exposure is increased over time, in comparison to situations with constant noise exposure (e.g. HCN 1997; Klæboe et al. 1998). Conversely, for road traffic noise, the introduction of noise protection barriers in residential areas resulted in smaller reductions in annoyance than expected for a stationary situation (Kastka et al. 1995).

To obtain an indicator for annoyance, other methods of combining parameters of noise exposure have been extensively tested, in addition to metrics such as LAeq,24h and L_{dn}. When used for a set of community noises, these indicators correlate well both among themselves and with LAeq,24h or L_{dn} values (e.g. HCN 1997). Although LAeq,24h and L_{dn} are in most cases acceptable approximations, there is a growing concern that all the component parameters of the noise should be individually assessed in noise exposure investigations, at least in the complex cases (Berglund & Lindvall 1995).

3.9. The Effects of Combined Noise Sources

Many acoustical environments consist of sounds from more than one source. For these environments, health effects are associated with the total noise exposure, rather than with the noise from a single source (WHO 1980b). When considering hearing impairment, for example, the total noise exposure can be expressed in terms of LAeq,24h for the combined sources. For other adverse health effects, however, such a simple model most likely will not apply. It is possible that some disturbances (e.g. speech interference, sleep disturbance) may more easily be attributed to specific noises. In cases where one noise source clearly dominates, the magnitude of an effect may be assessed by taking into account the dominant source only (HCN 1997). Furthermore, at a policy level, there may be little need to identify the adverse effect of each specific noise, unless the responsibility for these effects is to be shared among several polluters (*cf.* The Polluter Pays Principle in Chapter 5, UNCED 1992).

There is no consensus on a model for assessing the total annoyance due to a combination of environmental noise sources. This is partly due to a lack of research into the temporal patterns of combined noises. The current approach for assessing the effects of "mixed noise sources" is limited to data on "total annoyance" transformed to mathematical principles or rules of thumb (Ronnebaum et al. 1996; Vos 1992; Miedema 1996; Berglund & Nilsson 1997). Models to assess the total annoyance of combinations of environmental noises may not be applicable to those health effects for which the mechanisms of noise interaction are unknown, and for which different cumulative or synergistic effects cannot be ruled out. When noise is combined with different types of environmental agents, such as vibrations, ototoxic chemicals, or chemical odours, again there is insufficient knowledge to accurately assess the combined effects on health

(Berglund & Lindvall 1995; HCN 1994; Miedema 1996; Zeichart 1998; Passchier-Vermeer & Zeichart 1998). Therefore, caution should be exercised when trying to predict the adverse health effects of combined factors in residential populations.

The evidence on low-frequency noise is sufficiently strong to warrant immediate concern. Various industrial sources emit continuous low-frequency noise (compressors, pumps, diesel engines, fans, public works); and large aircraft, heavy-duty vehicles and railway traffic produce intermittent low-frequency noise. Low-frequency noise may also produce vibrations and rattles as secondary effects. Health effects due to low-frequency components in noise are estimated to be more severe than for community noises in general (Berglund et al. 1996). Since A-weighting underestimates the sound pressure level of noise with low-frequency components, a better assessment of health effects would be to use C-weighting.

In residential populations heavy noise pollution will most certainly be associated with a combination of health effects. For example, cardiovascular disease, annoyance, speech interference at work and at home, and sleep disturbance. Therefore, it is important that the total adverse health load over 24 hours be considered and that the precautionary principle for sustainable development is applied in the management of health effects (see Chapter 5).

3.10. Vulnerable Groups

Protective standards are essentially derived from observations on the health effects of noise on "normal" or "average" populations. The participants of these investigations are selected from the general population and are usually adults. Sometimes, samples of participants are selected because of their easy availability. However, vulnerable groups of people are typically underrepresented. This group includes people with decreased personal abilities (old, ill, or depressed people); people with particular diseases or medical problems; people dealing with complex cognitive tasks, such as reading acquisition; people who are blind or who have hearing impairment; fetuses, babies and young children; and the elderly in general (Jansen 1987; AAP 1997). These people may be less able to cope with the impacts of noise exposure and be at greater risk for harmful effects.

Persons with impaired hearing are the most adversely affected with respect to speech intelligibility. Even slight hearing impairments in the high-frequency range may cause problems with speech perception in a noisy environment. From about 40 years of age, people typically demonstrate an impaired ability to understand difficult, spoken messages with low linguistic redundancy. Therefore, based on interference with speech perception, a majority of the population belongs to the vulnerable group.

Children have also been identified as vulnerable to noise exposure (see Agenda 21: UNCED 1992). The evidence on noise pollution and children's health is strong enough to warrant monitoring programmes at schools and preschools to protect children from the effects of noise. Follow up programmes to study the main health effects of noise on children, including effects on speech perception and reading acquisition, are also warranted in heavily noise polluted areas (Cohen et al. 1986; Evans et al. 1998).

The issue of vulnerable subgroups in the general population should thus be considered when developing regulations or recommendations for the management of community noise. This consideration should take into account the types of effects (communication, recreation, annoyance, etc.), specific environments (*in utero*, incubator, home, school, workplace, public institutions, etc.) and specific lifestyles (listening to loud music through headphones, or at discotheques and festivals; motor cycling, etc.).

4. Guideline Values

4.1. Introduction

The human ear and lower auditory system continuously receive stimuli from the world around us. However, this does not mean that all the acoustical inputs are necessarily disturbing or have harmful effects. This is because the auditory nerve provides activating impulses to the brain that enable us to regulate the vigilance and wakefulness necessary for optimal performance. On the other hand, there are scientific reports that a completely silent world can have harmful effects, because of sensory deprivation. Thus, both too little sound and too much sound can be harmful. For this reason, people should have the right to decide for themselves the quality of the acoustical environment they live in.

Exposure to noise from various sources is most commonly expressed as the average sound pressure level over a specific time period, such as 24 hours. This means that identical average sound levels for a given time period could be derived from either a large number of sound events with relatively low, almost inaudible levels, or from a few events with high sound levels. This technical concept does not fully agree with common experience on how environmental noise is experienced, or with the neurophysiological characteristics of the human receptor system.

Human perception of the environment through vision, hearing, touch, smell and taste is characterized by a good discrimination of stimulus intensity differences, and by a decaying response to a continuous stimulus (adaptation or habituation). Single sound events cannot be discriminated if the interval between events drops below a threshold value; if this occurs, the sound is interpreted as continuous. These characteristics are linked to survival, since new and different stimuli with low probability and high information value indicate warnings. Thus, when assessing the effects of environmental noise on people it is relevant to consider the importance of the background noise level, the number of events, and the noise exposure level independently.

Community noise studies have traditionally considered noise annoyance from single specific sources such as aircraft, road traffic or railways. In recent years, efforts have been made to compare the results from road traffic, aircraft and railway surveys. Data from a number of sources show that aircraft noise is more annoying than road traffic noise, which, in turn, is more annoying than railway noise. However, there is not a clear understanding of the mechanisms that create these differences. Some populations may also be at greater risk for the harmful effects of noise. Young children (especially during language acquisition), the blind, and perhaps fetuses are examples of such populations. There are no definite conclusions on this topic, but the reader should be alerted that guidelines in this report are developed for the population at large; guidelines for potentially more vulnerable groups are addressed only to a limited extent.

In the following, guideline values are summarized with regard to specific environments and effects. For each environment and situation, the guideline values take into consideration the identified health effects and are set, based on the lowest levels of noise that affect health (critical health effect). Guideline values typically correspond to the lowest effect level for general populations, such as those for indoor speech intelligibility. By contrast, guideline values for

annoyance have been set at 50 or 55 dBA, representing daytime levels below which a majority of the adult population will be protected from becoming moderately or seriously annoyed, respectively.

In these *Guidelines for Community Noise* only guideline values are presented. These are essentially values for the onset of health effects from noise exposure. It would have been preferred to establish guidelines for exposure-response relationships. Such relationships would indicate the effects to be expected if standards were set above the WHO guideline values and would facilitate the setting of standards for sound pressure levels (noise immission standards). However, exposure-response relationships could not be established as the scientific literature is very limited. The best-studied exposure-response relationship is that between L_{dn} and annoyance (WHO 1995a; Berglund & Lindvall 1995; Miedema & Vos 1998). Even the most recent relationships between integrated noise levels and the percentage of highly or moderately annoyed people are still being scrutinized. The results of a forthcoming meta-analysis are expected to be published in the near future (Miedema, personal communication).

4.2. Specific Effects

4.2.1. Interference with communication

Noise tends to interfere with auditory communication, in which speech is a most important signal. However, it is also vital to be able to hear alarming and informative signals such as door bells, telephone signals, alarm clocks, fire alarms etc., as well as sounds and signals involved in occupational tasks. The effects of noise on speech discrimination have been studied extensively and deal with this problem in lexical terms (mostly words but also sentences). For communication distances beyond a few metres, speech interference starts at sound pressure levels below 50 dB for octave bands centered on the main speech frequencies at 500, 1 000 and 2 000 Hz. It is usually possible to express the relationship between noise levels and speech intelligibility in a single diagram, based on the following assumptions and empirical observations, and for speaker-to-listener distance of about 1 m:

a. Speech in relaxed conversation is 100% intelligible in background noise levels of about 35 dBA, and can be understood fairly well in background levels of 45 dBA.

b. Speech with more vocal effort can be understood when the background sound pressure level is about 65 dBA.

A majority of the population belongs to groups sensitive to interference with speech perception. Most sensitive are the elderly and persons with impaired hearing. Even slight hearing impairments in the high-frequency range may cause problems with speech perception in a noisy environment. From about 40 years of age, people demonstrate impaired ability to interpret difficult, spoken messages with low linguistic redundancy, when compared to people aged 20–30 years. It has also been shown that children, before language acquisition has been completed, have more adverse effects than young adults to high noise levels and long reverberation times.

For speech outdoors and for moderate distances, the sound level drops by approximately 6 dB for

a doubling of the distance between speaker and listener. This relationship is also applicable to indoor conditions, but only up to a distance of about 2 m. Speech communication is affected also by the reverberation characteristics of the room, and reverberation times beyond 1 s can produce a loss in speech discrimination. A longer reverberation time combined with background noise makes speech perception still more difficult.

Speech signal perception is of paramount importance, for example, in classrooms or conference rooms. To ensure any speech communication, the signal-to-noise relationship should exceed zero dB. But when listening to complicated messages (at school, listening to foreign languages, telephone conversation) the signal-to-noise ratio should be at least 15 dB. With a voice level of 50 dBA (at 1 m distance this corresponds on average to a casual voice level in both women and men), the background level should not exceed 35 dBA. This means that in classrooms, for example, one should strive for as low background levels as possible. This is particularly true when listeners with impaired hearing are involved, for example, in homes for the elderly. Reverberation times below 1 s are necessary for good speech intelligibility in smaller rooms; and even in a quiet environment a reverberation time below 0.6 s is desirable for adequate speech intelligibility for sensitive groups.

4.2.2. Noise-induced hearing impairment

The ISO Standard 1999 (ISO 1990) gives a method of calculating noise-induced hearing impairment in populations exposed to all types of occupational noise (continuous, intermittent, impulse). However, noise-induced hearing impairment is by no means restricted to occupational situations alone. High noise levels can also occur in open-air concerts, discotheques, motor sports, shooting ranges, and from loudspeakers or other leisure activities in dwellings. Other loud noise sources, such as music played back in headphones and impulse noise from toys and fireworks, are also important. Evidence strongly suggests that the calculation method from ISO Standard 1999 for occupational noise (ISO 1990) should also be used for environmental and leisure time noise exposures. This implies that long term exposure to LAeq,24h of up to 70 dBA will not result in hearing impairment. However, given the limitations of the various underlying studies, care should be taken with respect to the following:

a. Data from animal experiments indicate that children may be more vulnerable in acquiring noise-induced hearing impairment than adults.

b. At very high instantaneous sound pressure levels mechanical damage to the ear may occur (Hanner & Axelsson 1988). Occupational limits are set at peak sound pressure levels of 140 dBA (EU 1986a). For adults, this same limit is assumed to be in order for exposure to environmental and leisure time noise. In the case of children, however, considering their habits while playing with noisy toys, peak sound pressure levels should never exceed 120 dBA.

c. For shooting noise with LAeq,24h over 80 dB, studies on temporary threshold shift suggest there is the possibility of an increased risk for noise-induced hearing impairment (Smoorenburg 1998).

d. The risk for noise-induced hearing impairment increases when noise exposure is combined with vibrations, ototoxic drugs or chemicals (Fechter 1999). In these circumstances, long-term exposure to LAeq,24h of 70 dB may induce small hearing impairments.

e. It is uncertain whether the relationships in ISO Standard 1999 (ISO 1990) are applicable to environmental sounds having a short rise time. For example, in the case of military low-altitude flying areas (75–300 m above ground) LAmax values of 110–130 dB occur within seconds after onset of the sound.

In conclusion, dose-response data are lacking for the general population. However, judging from the limited data for study groups (teenagers, young adults and women), and on the assumption that time of exposure can be equated with sound energy, the risk for hearing impairment would be negligible for LAeq,24h values of 70 dB over a lifetime. To avoid hearing impairment, impulse noise exposures should never exceed a peak sound pressure of 140 dB peak in adults, and 120 dB in children.

4.2.3. Sleep disturbance effects

Electrophysiological and behavioral methods have demonstrated that both continuous and intermittent noise indoors lead to sleep disturbance. The more intense the background noise, the more disturbing is its effect on sleep. Measurable effects on sleep start at background noise levels of about 30 dB LAeq. Physiological effects include changes in the pattern of sleep stages, especially a reduction in the proportion of REM sleep. Subjective effects have also been identified, such as difficulty in falling asleep, perceived sleep quality, and adverse after-effects such as headache and tiredness. Sensitive groups mainly include elderly persons, shift workers and persons with physical or mental disorders.

Where noise is continuous, the equivalent sound pressure level should not exceed 30 dBA indoors, if negative effects on sleep are to be avoided. When the noise is composed of a large proportion of low-frequency sounds a still lower guideline value is recommended, because low-frequency noise (e.g. from ventilation systems) can disturb rest and sleep even at low sound pressure levels. It should be noted that the adverse effect of noise partly depends on the nature of the source. A special situation is for newborns in incubators, for which the noise can cause sleep disturbance and other health effects.

If the noise is not continuous, LAmax or SEL are used to indicate the probability of noise-induced awakenings. Effects have been observed at individual LAmax exposures of 45 dB or less. Consequently, it is important to limit the number of noise events with a LAmax exceeding 45 dB. Therefore, the guidelines should be based on a combination of values of 30 dB LAeq,8h and 45 dB LAmax. To protect sensitive persons, a still lower guideline value would be preferred when the background level is low. Sleep disturbance from intermittent noise events increases with the maximum noise level. Even if the total equivalent noise level is fairly low, a small

number of noise events with a high maximum sound pressure level will affect sleep.

Therefore, to avoid sleep disturbance, guidelines for community noise should be expressed in terms of equivalent sound pressure levels, as well as LAmax/SEL and the number of noise events. Measures reducing disturbance during the first part of the night are believed to be the most effective for reducing problems in falling asleep.

4.2.4. Cardiovascular and psychophysiological effects

Epidemiologial studies show that cardiovascular effects occur after long-term exposure to noise (aircraft and road traffic) with LAeq,24h values of 65–70 dB. However, the associations are weak. The association is somewhat stronger for ischaemic heart disease than for hypertension. Such small risks are important, however, because a large number of persons are currently exposed to these noise levels, or are likely to be exposed in the future. Other possible effects, such as changes in stress hormone levels and blood magnesium levels, and changes in the immune system and gastro-intestinal tract, are too inconsistent to draw conclusions. Thus, more research is required to estimate the long-term cardiovascular and psychophysiological risks due to noise. In view of the equivocal findings, no guideline values can be given.

4.2.5. Mental health effects

Studies that have examined the effects of noise on mental health are inconclusive and no guideline values can be given. However, in noisy areas, it has been observed that there is an increased use of prescription drugs such as tranquilizers and sleeping pills, and an increased frequency of psychiatric symptoms and mental hospital admissions. This strongly suggests that adverse mental health effects are associated with community noise.

4.2.6. Effects on performance

The effects of noise on task performance have mainly been studied in the laboratory and to some extent in work situations. But there have been few, if any, detailed studies on the effects of noise on human productivity in community situations. It is evident that when a task involves auditory signals of any kind, noise at an intensity sufficient to mask or interfere with the perception of these signals will also interfere with the performance of the task. A novel event, such as the start of an unfamiliar noise, will also cause distraction and interfere with many kinds of tasks. For example, impulsive noises such as sonic booms can produce disruptive effects as the result of startle responses; and these types of responses are more resistant to habituation.

Mental activities involving high load in working memory, such as sustained attention to multiple cues or complex analysis, are all directly sensitive to noise and performance suffers as a result. Some accidents may also be indicators of noise-related effects on performance. In addition to the direct effects on performance, noise also has consistent after-effects on cognitive performance with tasks such as proof-reading, and on persistence with challenging puzzles. In contrast, the performance of tasks involving either motor or monotonous activities is not always degraded by noise.

Chronic exposure to aircraft noise during early childhood appears to damage reading acquisition. Evidence indicates that the longer the exposure, the greater the damage. Although there is insufficient information on these effects to set specific guideline values, it is clear that day-care centres and schools should not be located near major noise sources, such as highways, airports and industrial sites.

4.2.7. Annoyance responses

The capacity of a noise to induce annoyance depends upon many of its physical characteristics, including its sound pressure level and spectral characteristics, as well as the variations of these properties over time. However, annoyance reactions are sensitive to many non-acoustical factors of social, psychological or economic nature, and there are also considerable differences in individual reactions to the same noise. Dose-response relations for different types of traffic noise (air, road and railway) clearly demonstrate that these noises can cause different annoyance effects at equal LAeq,24h values. And the same type of noise, such as that found in residential areas around airports, can also produce different annoyance responses in different countries.

The annoyance response to noise is affected by several factors, including the equivalent sound pressure level and the highest sound pressure level of the noise, the number of such events, and the time of day. Methods for combining these effects have been extensively studied. The results are not inconsistent with the simple, physically based equivalent energy theory, which is represented by the LAeq noise index.

Annoyance to community noise varies with the type of activity producing the noise. Speech communication, relaxation, listening to radio and TV are all examples of noise-producing activities. During the daytime, few people are seriously annoyed by activities with LAeq levels below 55 dB; or moderately annoyed with LAeq levels below 50 dB. Sound pressure levels during the evening and night should be 5–10 dB lower than during the day. Noise with low-frequency components require even lower levels. It is emphasized that for intermittent noise it is necessary to take into account the maximum sound pressure level as well as the number of noise events. Guidelines or noise abatement measures should also take into account residential outdoor activities.

4.2.8. Effects on social behaviour

The effects of environmental noise may be evaluated by assessing the extent to which it interferes with different activities. For many community noises, interference with rest, recreation and watching television seem to be the most important issues. However, there is evidence that noise has other effects on social behaviour: helping behaviour is reduced by noise in excess of 80 dBA; and loud noise increases aggressive behavior in individuals predisposed to aggressiveness. There is concern that schoolchildren exposed to high levels of chronic noise could be more susceptible to helplessness. Guidelines on these issues must await further research.

4.3. Specific Environments

Noise measures based solely on LAeq values do not adequately characterize most noise environments and do not adequately assess the health impacts of noise on human well-being. It is also important to measure the maximum noise level and the number of noise events when deriving guideline values. If the noise includes a large proportion of low-frequency components, values even lower than the guideline values will be needed, because low-frequency components in noise may increase the adverse effects considerably. When prominent low-frequency components are present, measures based on A-weighting are inappropriate. However, the difference between dBC (or dBlin) and dBA will give crude information about the presence of low-frequency components in noise. If the difference is more than 10 dB, it is recommended that a frequency analysis of the noise be performed.

4.3.1. Dwellings

In dwellings, the critical effects of noise are on sleep, annoyance and speech interference. To avoid sleep disturbance, indoor guideline values for bedrooms are 30 dB LAeq for continuous noise and 45 dB LAmax for single sound events. Lower levels may be annoying, depending on the nature of the noise source. The maximum sound pressure level should be measured with the instrument set at "*Fast*".

To protect the majority of people from being seriously annoyed during the daytime, the sound pressure level on balconies, terraces and outdoor living areas should not exceed 55 dB LAeq for a steady, continuous noise. To protect the majority of people from being moderately annoyed during the daytime, the outdoor sound pressure level should not exceed 50 dB LAeq. These values are based on annoyance studies, but most countries in Europe have adopted 40 dB LAeq as the maximum allowable level for new developments (Gottlob 1995). Indeed, the lower value should be considered the maximum allowable sound pressure level for all new developments whenever feasible.

At night, sound pressure levels at the outside façades of the living spaces should not exceed 45 dB LAeq and 60 dB LAmax, so that people may sleep with bedroom windows open. These values have been obtained by assuming that the noise reduction from outside to inside with the window partly open is 15 dB.

4.3.2. Schools and preschools

For schools, the critical effects of noise are on speech interference, disturbance of information extraction (e.g. comprehension and reading acquisition), message communication and annoyance. To be able to hear and understand spoken messages in classrooms, the background sound pressure level should not exceed 35 dB LAeq during teaching sessions. For hearing impaired children, an even lower sound pressure level may be needed. The reverberation time in the classroom should be about 0.6 s, and preferably lower for hearing-impaired children. For assembly halls and cafeterias in school buildings, the reverberation time should be less than 1 s. For outdoor playgrounds, the sound pressure level of the noise from external sources should not

exceed 55 dB LAeq, the same value given for outdoor residential areas in daytime.

For preschools, the same critical effects and guideline values apply as for schools. In bedrooms in preschools during sleeping hours, the guideline values for bedrooms in dwellings should be used.

4.3.3. Hospitals

For most spaces in hospitals, the critical effects of noise are on sleep disturbance, annoyance and communication interference, including interference with warning signals. The LAmax of sound events during the night should not exceed 40 dB indoors. For wardrooms in hospitals, the guideline values indoors are 30 dB LAeq, together with 40 dB LAmax during the night. During the day and evening the guideline value indoors is 30 dB LAeq. The maximum level should be measured with the instrument set at "*Fast*".

Since patients have less ability to cope with stress, the equivalent sound pressure level should not exceed 35 dB LAeq in most rooms in which patients are being treated or observed. Particular attention should be given to the sound pressure levels in intensive care units and operating theatres. Sound inside incubators may result in health problems, including sleep disturbance, and may lead to hearing impairment in neonates. Guideline values for sound pressure levels in incubators must await future research.

4.3.4. Ceremonies, festivals and entertainment events

In many countries, there are regular ceremonies, festivals and other entertainment to celebrate life events. Such events typically produce loud sounds including music and impulsive sounds. There is widespread concern about the effect of loud music and impulse sounds on young people who frequently attend concerts, discotheques, video arcades, cinemas, amusement parks and spectator events, etc. The sound pressure level is typically in excess of 100 dB LAeq. Such a noise exposure could lead to significant hearing impairment after frequent attendance.

Noise exposure for employees of these venues should be controlled by established occupational standards. As a minimum, the same standards should apply to the patrons of these premises. Patrons should not be exposed to sound pressure levels greater than 100 dB LAeq during a 4-h period, for at most four times per year. To avoid acute hearing impairment the LAmax should always be below 110 dB.

4.3.5. Sounds through headphones

To avoid hearing impairment in both adults and children from music and other sounds played back in headphones, the LAeq,24h should not exceed 70 dB. This implies that for a daily one-hour exposure the LAeq should not exceed 85 dB. The exposures are expressed in free-field equivalent sound pressure levels. To avoid acute hearing impairment, the LAmax should always be below 110 dB.

4.3.6. Impulsive sounds from toys, fireworks and firearms

To avoid acute mechanical damage to the inner ear, adults should never be exposed to more than 140 dB peak sound pressure. To account for the vulnerability in children, the peak sound pressure level produced by toys should not surpass 120 dB, measured close to the ears (100 mm). To avoid acute hearing impairment, LAmax should always be below 110 dB.

4.3.7. Parkland and conservation areas

Existing large quiet outdoor areas should be preserved and the signal-to-noise ratio kept low.

4.4. WHO Guideline Values

The WHO guideline values in Table 4.1 are organized according to specific environments. When multiple adverse health effects are identified for a given environment, the guideline values are set at the level of the lowest adverse health effect (the critical health effect). An adverse health effect of noise refers to any temporary or long-term deterioration in physical, psychological or social functioning that is associated with noise exposure. The guideline values represent the sound pressure levels that affect the most exposed receiver in the listed environment.

The time base for LAeq for "daytime" and "night-time" is 16 h and 8 h, respectively. No separate time base is given for evenings alone, but typically, guideline value should be 5 –10 dB lower than for a 12 h daytime period. Other time bases are recommended for schools, preschools and playgrounds, depending on activity.

The available knowledge of the adverse effects of noise on health is sufficient to propose guideline values for community noise for the following:

a. Annoyance.
b. Speech intelligibility and communication interference.
c. Disturbance of information extraction.
d. Sleep disturbance.
e. Hearing impairment.

The different critical health effects are relevant to specific environments, and guideline values for community noise are proposed for each environment. These are:

a. Dwellings, including bedrooms and outdoor living areas.
b. Schools and preschools, including rooms for sleeping and outdoor playgrounds.
c. Hospitals, including ward and treatment rooms.
d. Industrial, commercial shopping and traffic areas, including public addresses, indoors and outdoors.
e. Ceremonies, festivals and entertainment events, indoors and outdoors.
f. Music and other sounds through headphones.
g. Impulse sounds from toys, fireworks and firearms.

h. Outdoors in parkland and conservation areas.

It is not enough to characterize the noise environment in terms of noise measures or indices based only on energy summation (e.g. LAeq), because different critical health effects require different descriptions. Therefore, it is important to display the maximum values of the noise fluctuations, preferably combined with a measure of the number of noise events. A separate characterization of noise exposures during night-time would be required. For indoor environments, reverberation time is also an important factor. If the noise includes a large proportion of low frequency components, still lower guideline values should be applied.

Supplementary to the guideline values given in Table 4.1, precautionary recommendations are given in Section 4.2 and 4.3 for vulnerable groups, and for noise of a certain character (e.g. low-frequency components, low background noise), respectively. In Section 3.10, information is given regarding which critical effects and specific environments are considered relevant for vulnerable groups, and what precautionary noise protection would be needed in comparison to the general population.

Table 4.1: Guideline values for community noise in specific environments.

Specific environment	Critical health effect(s)	LAeq [dB]	Time base [hours]	LAmax, fast [dB]
Outdoor living area	Serious annoyance, daytime and evening Moderate annoyance, daytime and evening	55 50	16 16	- -
Dwelling, indoors Inside bedrooms	Speech intelligibility and moderate annoyance, daytime and evening Sleep disturbance, night-time	35 30	16 8	 45
Outside bedrooms	Sleep disturbance, window open (outdoor values)	45	8	60
School class rooms and pre-schools, indoors	Speech intelligibility, disturbance of information extraction, message communication	35	during class	-
Pre-school bedrooms, indoors	Sleep disturbance	30	sleeping -time	45
School, playground outdoor	Annoyance (external source)	55	during play	-
Hospital, ward rooms, indoors	Sleep disturbance, night-time Sleep disturbance, daytime and evenings	30 30	8 16	40 -
Hospitals, treatment rooms, indoors	Interference with rest and recovery	#1		
Industrial, commercial shopping and traffic areas, indoors and outdoors	Hearing impairment	70	24	110
Ceremonies, festivals and entertainment events	Hearing impairment (patrons:<5 times/year)	100	4	110
Public addresses, indoors and outdoors	Hearing impairment	85	1	110
Music through headphones/ earphones	Hearing impairment (free-field value)	85 #4	1	110
Impulse sounds from toys, fireworks and firearms	Hearing impairment (adults) Hearing impairment (children)	- -	- -	140 #2 120 #2
Outdoors in parkland and conservation areas	Disruption of tranquillity	#3		

#1: as low as possible;
#2: peak sound pressure (not LAmax, fast), measured 100 mm from the ear;
#3: existing quiet outdoor areas should be preserved and the ratio of intruding noise to natural background sound should be kept low;
#4: under headphones, adapted to free-field values

5. Noise Management

The goal of noise management is to maintain low noise exposures, such that human health and well-being are protected. The specific objectives of noise management are to develop criteria for the maximum safe noise exposure levels, and to promote noise assessment and control as part of environmental health programmes. This is not always achieved (Jansen 1998). The United Nations' Agenda 21 (UNCED 1992), as well as the European Charter on Transport, Environment and Health (London Charter 1999), both support a number of environmental management principles on which government policies, including noise management policies, can be based. These include:

a. **The precautionary principle**. In all cases, noise should be reduced to the lowest level achievable in a particular situation. Where there is a reasonable possibility that public health will be damaged, action should be taken to protect public health without awaiting full scientific proof.

b. **The polluter pays principle**. The full costs associated with noise pollution (including monitoring, management, lowering levels and supervision) should be met by those responsible for the source of noise.

c. **The prevention principle**. Action should be taken where possible to reduce noise at the source. Land-use planning should be guided by an environmental health impact assessment that considers noise as well as other pollutants.

The government policy framework is the basis of noise management. Without an adequate policy framework and adequate legislation it is difficult to maintain an active or successful noise management programme. A policy framework refers to transport, energy, planning, development and environmental policies. The goals are more readily achieved if the interconnected government policies are compatible, and if issues which cross different areas of government policy are co-ordinated.

5.1. Stages in Noise Management

A legal framework is needed to provide a context for noise management (Finegold 1998; Hede 1998a). While there are many possible models, an example of one is given in Figure 5.1. This model depicts the six stages in the process for developing and implementing policies for community noise management. For each policy stage, there are groups of 'policy players' who ideally would participate in the process.

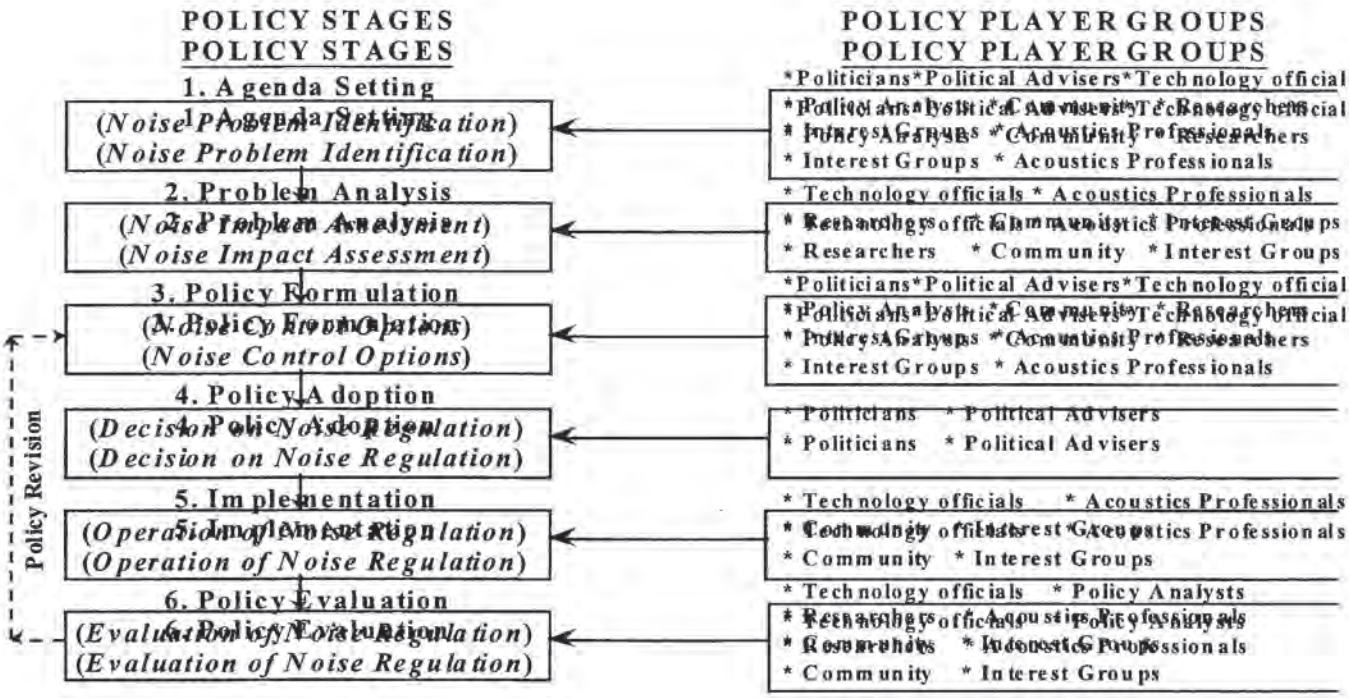


Figure 5.1. A model of the policy process for community noise management (Hede 1998a)

When goals and policies have been developed, the next stage is the development of the strategy or plan. Figure 5.2 summarizes the stages involved in the development of a noise management strategy. Specific abatement measures 19 are listed in Table 5.1.

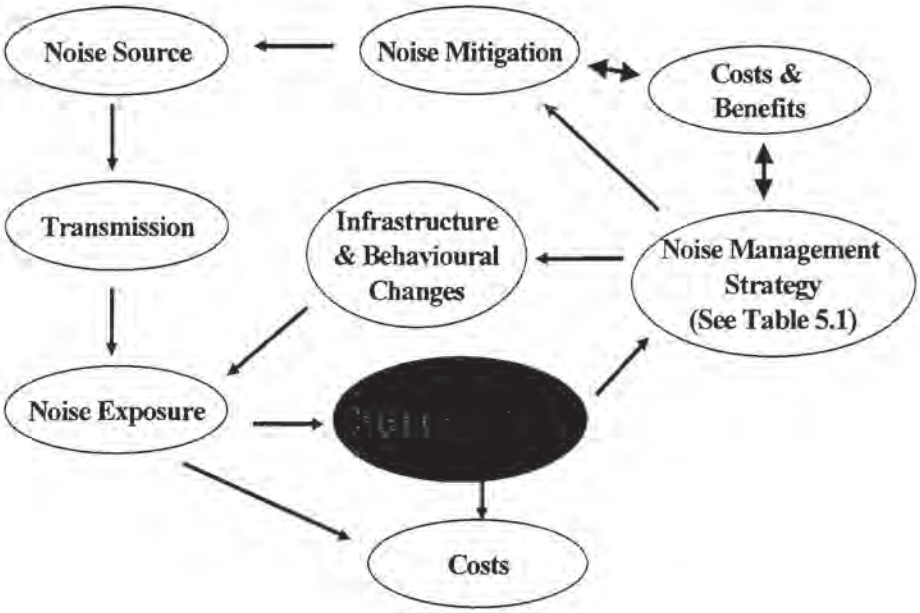


Figure 5.2. Stages involved in the development of a noise abatement strategy.

Table 5.1. Recommended Noise Management Measures (following EEA 1995)

Legal measures	Examples
Control of noise emissions	Emission standards for road and off-road vehicles; emission standards for construction equipment; emission standards for plants; national regulations, EU Directives
Control of noise transmission	Regulations on sound-obstructive measures
Noise mapping and zoning around roads, airports, industries	Initiation of monitoring and modeling programmes
Control of noise immissions	Limits for exposure levels such as national immission standards; noise monitoring and modeling; regulations for complex noise situations; regulations for recreational noise
Speed limits	Residential areas; hospitals
Enforcement of regulations	Low Noise Implementation Plan
Minimum requirements for acoustical properties of buildings	Construction codes for sound insulation of building parts
Engineering Measures	
Emission reduction by source modification	Tyre profiles; low-noise road surfaces; changes in engine properties
New engine technology	Road vehicles; aircraft; construction machines
Transmission reduction	Enclosures around machinery; noise screens
Orientation of buildings	Design and structuring of tranquille uses; using buildings for screening purposes
Traffic management	Speed limits; guidance of traffic flow by electronic means
Passive protection	Ear plugs; ear muffs; insulation of dwellings; façade design
Implementation of land-use planning	Minimum distance between industrial, busy roads and residential areas; location of tranquillity areas; by-pass roads for heavy traffic; separating out incompatible functons
Education and information	
Raising public awareness	Informing the public on the health impacts of noise, enforcement action taken, noise levels, complaints
Monitoring and modeling of soundscapes	Publication of results
Sufficient number of noise experts	University or highschool curricula
Initiation of research and development	Funding of information generation according to scientific research needs
Initiation of behaviour changes	Speed reduction when driving; use of horns; use of loudspeakers for advertisements

The process outlined in Figure 5.2 can start with the development of noise standards or guidelines. Ideally, it should also involve the identification and mapping of noise sources and exposed communities. Meteorological conditions and noise levels would also normally be monitored. These data can be used to validate the output of models that estimate noise levels. Noise standards and model outputs may be considered in devising noise control tactics aimed at achieving the noise standards. Before being enforced, current control tactics need to be revised, and if the standards are achieved they need continued enforcement. If the standards are not achieved after a reasonable period of time, the noise control tactics may need to be revised.

National noise standards can usually be based on a consideration of international guidelines, such as these Guidelines for Community Noise, as well as national criteria documents, which consider dose-response relations for the effects of noise on human health. National standards take into account the technological, social, economic, political and other factors specific for the country.

In many cases monitoring may show that noise levels are considerably higher than established guidelines. This may be particularly true in developing countries, and the question has to be raised as to whether national standards should reflect the optimum levels needed to protect human health, when this objective is unlikely to be achieved in the short- or medium-term with available resources. In some countries noise standards are set at levels that are realistically attainable under prevailing technological, social, economic and political conditions, even though they may not be fully consistent with the levels needed to protect human health. In such cases, a staged programme of noise abatement should be implemented to achieve the optimum health protection levels over the long term. Noise standards periodically change after reviews, as conditions in a country change over time, and with improved scientific understanding of the relationship between noise pollution and the health of the population. Noise level monitoring (Chapter 2) is used to assess whether noise levels at particular locations are in compliance with the standards selected.

5.2. Noise Exposure Mapping

A crucial component of a low-noise implementation plan is a reasonably quantitative knowledge of exposure (see Figure 5.2). Exposure should be mapped for all noise sources impacting a community; for example, road traffic, aircraft, railway, industry, construction, festivals and human activity in general. For some components of a noise exposure map or noise exposure inventory, accurate data may be available. In other cases, exposure can be calculated from the characteristics of the mechanical processes. While estimates of noise emissions are needed to develop exposure maps, measurements should be undertaken to confirm the veracity of the assumptions used in the estimates. Sample surveys may be used to provide an overall picture of the noise exposure. Such surveys would take account of all the relevant characteristics of the noise source. For example motor vehicle emissions may be estimated by calculations involving the types of vehicles, their number, their age and the characteristic properties of the road surface.

In developing countries, there is usually a lack of appropriate statistical information to produce noise exposure estimates. However, where action is needed to lower noise levels, the absence of comprehensive information should not prevent the development of provisional noise exposure estimates. Basic information about the exposed population, transport systems, industry and other

relevant factors can be used to calculate provisional noise exposures. These can then be used to develop and implement interim noise management plans. The preliminary exposure estimates can be revised as more accurate information becomes available.

5.3. Noise Exposure Modeling

As indicated in Chapter 2 modeling is a powerful tool for the interpolation, prediction and optimization of control strategies. However, models need to be validated by monitoring data. A strength of models is that they enable examination and comparison of the consequences for noise exposure of the implementation of the various options for improving noise. However, the accuracy of the various models available depends on many factors, including the accuracy of the source emissions data and details of the topography (for which a geographical information system may be used). For transportation noise parameters such as the number, type and speed of vehicles, aircraft or trains, and the noise characteristics of each individual event must be known. An example of a model is the annoyance prediction model of the Government of the Netherlands (van den Berg 1996).

5.4. Noise Control Approaches

An integrated noise policy should include several control procedures: measures to limit the noise at the source, noise control within the sound transmission path, protection at the receiver's site, land-use planning, education and raising of public awareness. Ideally, countries should give priority to precautionary measures that prevent noise, but they must also implement measures to mitigate existing noise problems.

5.4.1. Mitigation measures

The most effective mitigation measure is to reduce noise emissions at the source. Therefore, regulations with noise level limits for the main noise sources should be introduced.

Road traffic noise. Limits on the noise emission of vehicles have been introduced in many countries (Sandberg 1995). Such limits, together with the relevant measuring methods, should also be introduced in other regions of the world. Besides these limits a special class of "low-noise trucks" has been introduced in Europe. These trucks follow state-of-the-art noise control and are widely used in Austria and Germany (Lang 1995). Their use is encouraged by economic incentives; for example, low-noise trucks are excepted from a night-time ban on certain routes, and their associated taxes are lower than for other trucks. In Europe, the maximum permissible noise levels range from 69 dBA for motor vehicles to 77 dBA for cars, and 83 dBA for heavy two-wheeled vehicles to 84 dBA for trucks. A number of European Directives give permissible sound levels for motor vehicles and motorcycles (EU 1970; EU 1978; EU 1996a; EU 1997). In addition to noise level limits for new vehicles (type test), noise emissions of vehicles already in use should be controlled regularly. Limits on the sound pressure levels for vehicles reduce the noise emission from the engines.

However, the main noise from traffic on highways is rolling noise. This may be reduced by quiet road surfaces (porous asphalt, "drain asphalt") or by selection of quiet tires. Road traffic

noise may also be reduced by speed limits, provided the limits are enforced. For example, reducing the speed of trucks from 90 to 60 km/h on concrete roads would reduce the maximum sound pressure level by 5 dB, and the equivalent sound pressure level by 4 dB. Decreasing the speed of cars from 140 to 100 km/h would result in the same noise reduction (WHO 1995a). In the central parts of cities a speed limit of 30 km/h may be introduced. At 30 km/h cars produce maximum sound pressure levels that are 7 dB lower, and equivalent sound pressure levels that are 5 dB lower, than cars driving at 50 km/h.

Noise emission from road traffic may be further reduced by a night-time ban for all vehicles, or especially for heavy vehicles. Traffic management designed to ensure uniform traffic flow in towns also serves to reduce noise. "Low-noise behaviour" of drivers should be encouraged as well, by advocating defensive driving manners. In some countries, car drivers use their horns frequently, which results in noise with high peak levels. The unnecessary use of horns within cities should be forbidden, especially during night-time, and this rule should be enforced.

Railway noise and noise from trams. The main noise sources are the engine and the wheel-rail contact. Noise at the source can be reduced by well-maintained rails and wheels, and by the use of disc brakes. Sound pressure levels may vary by more than 10 dB, depending on the type of railway material. Replacement of steel wheels by rubber wheels could also reduce noise from railways and trams substantially. Other measures include innovations in engine and track technology (Moehler 1988; Öhrström & Skånberg 1996).

Aircraft noise. The noise emission of aircraft is limited by ICAO Annex 16, Chapter 2 and Chapter 3, which estimates maximum potential sound emissions under certification procedures (ICAO 1993). Aircraft following the norms of Chapter 3 represent the state-of-the-art of noise control of the 1970s. In many countries, non-certified aircraft (i.e. aircraft not fulfilling the ICAO requirements) are not permitted and Chapter 2 aircraft may not be registered again. After the year 2002 only Chapter 3 aircraft will be allowed to operate in many countries.

Similar legislation should be adopted in other countries. The use of low-noise aircraft may also be encouraged by setting noise-related charges (that is, landing charges that are related not only to aircraft weight and capacity, but also to noise emission). Examples of systems for noise-related financial charges are given in OECD 1991 (see also OECD-ECMT 1995). Night-time aircraft movements should be discouraged where they impact residential communities. Particular categories of aircraft (such as helicopters, rotorcraft and supersonic aircraft) pose additional problems that require appropriate controls. For subsonic airplanes two EU Directive give the permissible sound levels (EU 1980; EU 1989).

Machines and Equipment. Noise emission has to be considered a main property of all types of machines and equipment. Control measures include design, insulation, enclosure and maintenance.

Consumers should be encouraged to take noise emission into account when buying a product. Declaring the A-weighted sound power level of a product would assist the consumer in making this decision. The introduction of sound labeling is a major tool for reducing the noise emission of products on the market. For example, within the European Community, "permissible sound

levels" and "sound power levels" have to be stated for several groups of machines; for example, lawn mowers, construction machines and household equipment (EU 1984a-f; EU 1986b,c). For other groups of machines sound level data have been compiled and are state-of-the-art with respect to noise control.

A second step would be the introduction of limits on the sound power levels for certain groups of machines, heating and ventilation systems (e.g. construction machines, household appliances). These limits may be set by law, in recommendations and by consumers, using state-of-the-art measurements. There have also been promising developments in the use of active noise control (involving noise cancellation techniques). These are to be encouraged.

Noise control within the sound transmission path. The installation of noise barriers can protect dwellings close to the traffic source. In several European countries noise barrier regulations have been established (WHO 1995b), but in practice they are often not adequately implemented. These regulations must define:

a. Measuring and calculation methods for deriving the equivalent sound pressure level of road or railway traffic, and schemes for determining the effectiveness of the barrier.

b. The sound pressure limits that are to be achieved by installing barriers.

c. The budgetary provisions.

d. The responsible authority.

Noise protection at the receiver's site. This approach is mainly used for existing situations. However, this approach must also be considered for new and, eventually, for old buildings in noisy areas. Residential buildings near main roads with heavy traffic, or near railway lines, may be provided with sound-proofed windows.

5.4.2. Precautionary measures

With careful planning, noise exposure can be avoided or reduced. A sufficient distance between residential areas and an airport will make noise exposure minimal, although the realization of such a situation is not always possible. Additional insulation of houses can help to reduce noise exposure from railroad and road traffic. For new buildings, standards or building codes should describe the positions of houses, as well as the ground plans of houses with respect to noise sources. The required sound insulation of the façades should also be described. Various countries have set standards for the maximum sound pressure levels in front of buildings and for the minimum sound insulation values required for façades.

Land use planning. Land use planning is one of the main tools for noise control and includes:

a. Calculation methods for predicting the noise impact caused by road traffic, railways,

airports, industries and others.

b. Noise level limits for various zones and building types. The limits should be based on annoyance responses to noise.

c. Noise maps or noise inventories that show the existing noise situation. The construction of noise-sensitive buildings in noisy areas, or the construction of noisy buildings in quiet areas may thus be avoided.

Suggestions on how to use land use planning tools are given in several dedicated books (e.g. Miller & de Roo 1997). Different zones, such as quiet areas, hospitals, residential areas, commercial and industrial districts, can be characterized by the maximum equivalent sound pressure levels permissible in the zones. Examples of this approach can be found in OECD 1991 (also see OECD-ECMT 1995). More emphasis needs to be given to the design or retrofit of urban centres, with noise management as a priority (e.g. "soundscapes").

It is recommended that countries adopt the precautionary principle in their national noise policies. This principle should be applied to all noise situations where adverse noise effects are either expected or possible, even when the noise is below standard values.

Education and public awareness. Noise abatement policies can only be established if basic knowledge and background material is available, and the people and authorities are aware that noise is an environmental hazard that needs to be controlled. It is, therefore, necessary to include noise in school curricula and to establish scientific institutes to study acoustics and noise control. People working in such institutes should have the option of studying in other countries and exchanging information at international conferences. Dissemination of noise control information to the public is an issue for education and public awareness. Ideally, national and local advisory groups should be formed to promote the dissemination of information, to establish uniform methods of noise measurement and impact assessment, and to participate in the development and implementation of educational and public awareness programmes.

5.5. Evaluation of Control Options

Unless legal constraints in a country prescribe a particular option, the evaluation of control options must take into account technical, financial, social, health and environmental factors. The speed with which control options can be implemented, and their enforceability, must also be considered. Although considerable improvements in noise levels have been achieved in some developed countries, the financial costs have been high, and the resource demands of some of these approaches make them unsuitable for the poorer developing countries.

Technical factors. There needs to be confidence that the selected options are technically practical given the resources of the region. It must be possible to bring a selected option into operation, and maintain the expected level of performance in the long term, given the resources available. This may require regular staff training and other programmes, especially in developing countries.

Financial factors. The selected options must be financially viable in the long term. This may require a comparative cost-benefit assessment of different options. These assessments must include not only the capital costs of bringing an option into operation, but also the costs of maintaining the expected level of performance in the long term.

Social factors. The costs and benefits of each option should be assessed for social equity, and the potential impact of an option on people's way of life, community structures and cultural traditions must be considered. Impacts may include disruption or displacement of residents, changes of land-use, and impacts on community, culture and recreation. Some impacts can be managed; in other cases, the impacts of an option can be mitigated by substitution of resources or uses.

Health and environmental factors. The costs and benefits of each option should be assessed for health and environmental factors. This may involve use of dose-response relations, or risk assessment techniques.

Effect-oriented and source-oriented principles. Noise control requirements in European countries are typically determined from the effects of noise on health and the environment (effect oriented) (e.g. Gottlob 1995; ten Wolde 1998). Increased noise emissions may be permitted if there would be no adverse health impacts, or if noise standards would not be exceeded. Action may be taken to reduce noise levels when it is shown that adverse health impacts will occur, or when noise levels exceed limits. Other countries base their noise management policies on the requirement for best available technology, or for best available techniques that do not entail excessive cost (source-oriented) (e.g. for aircraft noise, ICAO 1993; for road traffic noise, Sandberg 1995). Most developed countries apply a combination of both source-oriented and effect-oriented principles (EU 1996b; Jansen 1998; ten Wolde 1998).

5.6. Management of Indoor Noise

In modern societies, human beings spend most of their time in indoor environments. Pollution and degradation of the indoor environment cause illness, increased mortality, loss of productivity, and have major economic and social implications. Indoor noise problems are related to inadequate urban planning, design, operation and maintenance of buildings, and to the materials and equipment in buildings. Problems with indoor noise affect all types of buildings, including homes, schools, offices, health care facilities and other public and commercial buildings. The health effects of indoor noise include an increase in the rates of diseases and disturbances described in chapter 2. World-wide, the medical and social cost associated with these illnesses, and the related reduction in human productivity, can result in substantial economic losses.

Protection against noise generated within a building, or originating from outside the building, is a very complex problem. Soundproofing of ceilings, walls, doors and windows against airborne noise is important. Soundproofing of ceilings has to be sufficient to absorb sounds due to treading. Finally, noise emissions from the technological devices in the house must be sufficiently low. Governments should provide measurement protocols and data for use in reducing noise exposures in buildings. Governments should also be encouraged to support

research on the relationship between noise levels inside buildings and health effects.

5.6.1. Government policy on indoor noise

Many of the problems associated with high noise levels can be prevented at low cost if governments develop and implement an integrated strategy for the indoor environment, in concert with all social and economic partners. Governments should establish a "National Plan for a Sustainable Indoor Noise Environment", that would apply to new construction as well as to existing buildings. Governments should set up a specific structure at an appropriate governmental level to achieve acceptable sound exposure levels within buildings. An example of existing documents that provide guidance and regulations, including strategies and management for the design of buildings, is given by Jansen & Gottlob (1996).

Guidance/education. Because our understanding of indoor noise is still developing, government activity should be focused on raising the awareness of various audiences. This education can take the form of providing general information, as well as providing technical guidance and training on how to minimize indoor noise levels. General information presented in the form of documents, videos, and other media can bring indoor noise issues to the attention of the general public and building professionals, including architects

Research support. Research is needed to develop technology for indoor noise diagnosis, mitigation and control. Efforts are also required to provide economical and practical alternatives for mitigation and control. Better means of measuring the effectiveness of absorption devices are needed; and diagnostic tools that are inexpensive and easy to use also need to be developed to help facility personnel. There is a particular need, too, for improving soundproofing methods, their implementation and for predicting the health effects of soundproofing techniques.

To provide accurate information for use in setting priorities for public health problems, governments should support problem assessment and surveys of indoor noise conditions. Building surveys are also necessary to provide baseline information about building characteristics and noise levels. When combined with occupant health surveys, these studies will help to establish the correlations between noise levels and adverse health effects. Surveys should be conducted to identify building types or vintages in which problems occur more frequently. The results of these studies will support effective risk reduction programmes. Epidemiological studies are also needed to aid in differentiating between noise-related symptoms and those due to other causes. Moreover, epidemiological studies are needed to assist in quantifying the extent of risk for indoor noise levels.

Economic research is needed to measure the costs of indoor noise control strategies to individuals, businesses and society. This includes developing methods for quantifying productivity loss and increased health costs due to noise, and for measuring the costs of various control strategies, including increased soundproofing and source control.

Development of standards and protocols. Efforts should be made to protect public health by setting reasonable noise exposure limits (immission standards) from known dose-response relationships. In cases where dose-response relationships have yet to be determined, but where

health effects are generally recognized, exposure limits should be set conservatively and take into account risk, economic impact and feasibility. Efforts should also be made to incorporate noise-related specifications into building codes. Areas to target with building codes include ventilation design, building envelope design, site preparation, materials selection and commissioning. Standards and other regulations governing the use of sound proofing materials should also be developed.

Individuals involved in the diagnosis and mitigation of indoor noise problems should be trained in the multidisciplinary nature of the noise field. By instituting a series of credentials that recognize and highlight areas of expertise, consumers would be provided with the information to make informed choices when procuring indoor noise services. Companies which provide such services should be officially accredited. Guidelines or standards for sound emissions of air-conditioners, power generators and other building devices, would also provide useful information for manufacturers, architects, design engineers, building managers and others who play a role in selecting products used indoors.

5.6.2. Design considerations

Site investigation. Potential sites should be evaluated to determine whether they are prone to indoor noise problems. This evaluation should be consistent with national and local land use planning guidelines. Sites should be investigated to determine past uses and whether any sources of sound remain as a result. The potential for outdoor noise being carried to the site from adjacent areas, such as busy streets, should also be evaluated.

Building design. Buildings should be designed to be soundproof, to improve control over indoor noise. Soundproofing requires that outside noise be prevented from entering the building, and this should be estimated as part of the architectural and engineering design process. When soundproofing for outdoor noise, the total indoor noise load and the desired quality of the indoor space should be considered. Adequate soundproofing against outdoor noise is important in residential as well as commercial properties, and should be re-evaluated when interior spaces are rebuilt or renovated.

Indoor Spaces. The architectural layout should aim to reduce noise and provide a good sound quality to the space. This would include designing indoor spaces to have sufficiently short reverberation times. Designers and contractors should be encouraged to use sound-absorbing materials that lead to lower indoor noise levels, and materials with the best sound-absorbing properties should be specified. However, use of these materials should not be the only solution (Harris 1991). Possible conflicts with other environmental demands should also be identified; for example, the special demands by allergic people.

5.6.3. Indoor noise level control

Building maintenance personnel should be trained to understand the indoor noise aspects of their work, and be aware of how their work can directly impact the health and comfort of occupants. Many maintenance activities directly affect indoor noise levels, and some may indicate potential problems. Preventive maintenance is essential for the building systems to operate correctly and

to provide suitable comfort conditions and low indoor noise levels. Detailed maintenance logs should be kept for all equipment. A schedule should be developed for routine equipment checks and calibration of control system components. Selection of low-noise domestic products should encouraged as far as is possible.

5.6.4. Resolving indoor noise problems

Addressing occupant complaints and symptoms. When complaints are received from occupants of a building, the cognizant authority should be responsive. The initial investigation into the cause of the complaint may be conducted by the in-house management staff, and they should continue an investigation as far as possible. If necessary, they should be responsible for hiring an outside consultant

Building diagnostic procedures. After receiving complaints related to indoor noise levels, facility personnel or consultants should attempt to identify the cause of the problem through an iterative process of information collection and hypothesis testing. To begin, a walkthrough inspection of the building, including the affected areas and the mechanical systems serving these spaces is required. A walkthrough can provide information on the soundproofing system of the building, the sound pathways and sound sources. Visual indicators of sound sources and soundproofing malfunctions should be evaluated first. Symptom logs and schedules of building activities may provide enough additional information to resolve the problem.

If a walkthrough alone does not provide a solution, measurements of sound pressure levels at various locations should be taken, and indoor and ambient levels of noise pollution should be compared. As part of the investigation, the absorption characteristics of walls and ceilings should be evaluated. Sophisticated sampling methods may be necessary to provide proof of a problem to the building owner or other responsible party. The results may be used to confirm a hypothesis or ascertain the source of the indoor noise problem. Whenever a problem is discovered during the investigation, a remedy to the situation should be attempted and a determination made of whether the complaint has been resolved.

In some cases, it should be recognized that difficulties in interpreting the sampling results may exist. The costs of certain types of testing should also be taken into account. Simple, cost-effective screening methods should be developed to make sampling a more attractive option for both investigators and clients. Finally, it must be remembered that several factors cause symptoms similar to those induced by noise pollution. Examples include air pollutants, ergonomics, lighting, vibration and psychosocial factors. Consequently, any investigation of noise complaints should also evaluate non-noise factors.

5.7. Priority Setting in Noise Management

Priorities in noise management will differ between countries, according to policy objectives, needs and capabilities. Priority setting in noise management refers to prioritizing health risks and concentrating on the most important sources of noise. For effective noise management, the goals, policies and noise control schemes have to be defined. Goals for noise management include eliminating noise, or reducing noise to acceptable levels, and avoiding the adverse health

effects of noise on human health. Policies for noise management encompass laws and regulations for setting noise standards and for ensuring compliance. The amount of information to be included in low-noise implementation plans and the use of cost-benefit comparisons also fall within the purview of noise management policies. Techniques for noise control include source control, barriers in noise pathways and receiver protection. Adequate calculation models for noise propagation, as well as programmes for noise monitoring, are part of an overall noise control scheme.

As emphasized above, a framework for a political, regulatory and administrative approach is required to guarantee the consistent and transparent promulgation of noise standards. This ensures a sound and practical framework for risk-reducing measures and for the selection of abatement strategies.

5.7.1. Noise policy and legislation

Noise is both a local and a global problem. Governments in every country have a responsibility to set up policies and legislation for controlling community noise. There is a direct relationship between the level of development in a country and the degree of noise pollution impacting its people. As a society develops, it increases its level of urbanization and industrialization, and the extent of its transportation system. Each of these developments brings an increase in noise load. Without appropriate intervention the noise impact on communities will escalate (see Figure 5.3). If governments implement only weak noise policies and regulations, they will not be able to prevent a continuous increase in noise pollution and associated adverse health effects. Failure to enforce strong regulations is ineffective in combating noise as well.

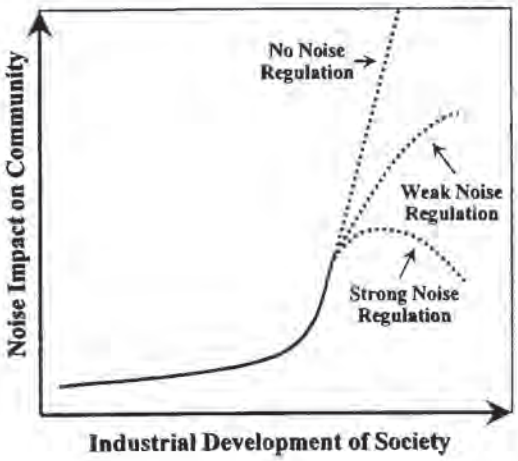


Figure 5.3. Relationship between noise regulation and impact with development (from Hede 1998b)

Policies for noise regulatory standards at the municipal, regional, national and supranational levels are usually determined by the legislatures. The regulatory standards adopted strongly depend on the risk management strategies of the legislatures, and can be influenced by sociopolitical considerations and/or international agreements. Although regulatory standards may be country specific, in general the following issues are taken into consideration:

a. Identification of the adverse public health effects that are to be avoided.

b. Identification of the population to be protected.

c. The type of parameters describing noise and the limit applicable to the parameters.

d. Applicable monitoring methodology and its quality assurance.

e. Enforcement procedures to achieve compliance with noise regulatory standards within a defined time frame.

f. Emission control measures and emission regulatory standards.

g. Immission standards (limits for sound pressure levels).

h. Identification of authorities responsible for enforcement.

i. Resource commitment.

Regulatory standards may be based solely on scientific and technical data showing the adverse effects of noise on public health. But other aspects are usually considered, either when setting standards or when designing appropriate noise abatement measures. These other aspects include the technological feasibility, costs of compliance, prevailing exposure levels, and the social,

economic and cultural conditions. Several standards may be set. For example, effect-oriented regulatory standards may be set as a long-term goal, while less-stringent standards are adopted for the short term. As a consequence, noise regulatory standards differ widely from country to country (WHO 1995a; Gottlob 1995).

Noise regulatory standards can set the reference point for emission control and abatement policies at the national, regional or municipal levels, and can thus strongly influence the implementation of noise control policies. In many countries, exceeding regulatory standards is linked to an obligation to develop abatement action plans at the municipal, regional or national levels (low-noise implementation plans). Such plans have to address all relevant sources of noise pollution.

5.7.2. Examples of noise policies

Different countries have adopted a range of policies and regulations for noise control. A number of these are outlined in this section as examples.

Argentina. In Argentina, a national law recently limited the daily 8-h exposure to industrial noise to 80 dB, and it has had beneficial effects on hearing impairment and other hearing disorders among workers. In general, industry has responded by introducing constant controls on noise sources, combined with hearing tests and medical follow-ups for workers. Factory owners have recruited permanent health and safety engineers who control noise, supply advice on how to make further improvements, and routinely assess excessive noise levels. The engineers also provide education in personal protection and in the correct use of ear plugs, mufflers etc.

At the municipal level two types of noise have been considered. Unnecessary noise, which is forbidden; and excessive noise, which is defined for neighbourhood activities (zones), and for which both day and night-time maximum limits have been introduced. The results have been relatively successful in mitigating unwanted noise effects. At the provincial level, similar results have been accomplished for many cities in Argentina and Latin America.

Australia. In Australia, the responsibility for noise control is shared primarily by state and local governments. There are nationally-agreed regulatory standards for airport planning and new vehicle noise emissions. The Australian Noise Exposure Forecast (ANEF) index is used to describe how much aircraft noise is received at locations around an airport (DoTRS 1999). Around all airports, planning controls restrict the construction of dwellings within the 25 ANEF exposure contour and require sound insulation for those within 20 ANEF. Road traffic noise limits are set by state governments, but vary considerably in both the exposure metric and in maximum allowable levels. New vehicles are required to comply with stringent design rules for noise and air emissions. For example, new regulation in New South Wales adopts LAeq as the metric and sets noise limits of 60 dBA for daytime, and 55 dBA for night-time, along new roads. Local governments set regulations restricting noise emissions for household equipment, such as air conditioners, and the hours of use for noisy machines such as lawn mowers.

Europe. In Europe, noise legislation is not generally enforced. As a result, environmental noise

levels are often higher than the legislated noise limits. Moreover, there is a gap between long-term political goals and what represents a "good acoustical environment". One reason for this gap is that noise pollution is most commonly regulated only for new land use or for the development of transportation systems, whereas enlargements at existing localities may be approved even though noise limits or guideline values are already surpassed (Gottlob 1995). A comprehensive overview of the noise situation in Europe is given in the Green Paper (EU 1996b), which was established to give noise abatement a higher priority in policy making. The Green Paper outlines a new framework for noise policy in Europe with the following options for future action:

a. Harmonizing the methods for assessing noise exposure, and encouraging the exchange of information among member states.

b. Establishing plans to reduce road traffic noise by applying newer technologies and fiscal instruments.

c. Paying more attention to railway noise in view of the future extension of rail networks.

d. Introducing more stringent regulation on air transport and using economic instruments to encourage compliance.

e. Simplifying the existing seven regulations on outdoor equipment by proposing a Framework Directive that covers a wider range of equipment, including construction machines and others.

Pakistan. In Pakistan, the Environmental Protection Agency is responsible for the control of air pollution nationwide. However, only recently have controls been enforced in Sindh in an attempt to raise public awareness and carry out administrative control on road vehicles producing noise (Zaidi, personal communication).

South Africa. In South Africa, noise control is three decades old. It began with codes of practice issued by the South African Bureau of Standards to address noise pollution in various sectors of the country (e.g. see SABS 1994 1996; and the contribution of Grond in Appendix 2). In 1989, the Environment Conservation Act made provision for the Minister of Environmental Affairs and Tourism to make regulations for noise, vibration and shock (DEAT 1989). These regulations were published in 1990 and local authorities could apply to the Minister to make them applicable in their areas. Later, the act was changed to make it obligatory for all authorities to apply the regulations. However, according to the new Constitution of South Africa of 1996, legislative responsibility for noise control rests exclusively with provincial and local authorities. The noise control regulations will apply to local authorities in South Africa as soon as they are published in the provinces. This will not only give local authorities the power to enforce the regulations, but also place an obligation on them to see that the regulations are enforced.

Thailand. In 1996, noise pollution regulations in Thailand stipulated that not more than 70 dBA LAeq,24h should be allowed in residential areas, and the maximum level of noise in industry

should be no more than 85 dBA Leq 8h (Prasansuk 1997).

United States of America. Environmental noise was not addressed as a national policy issue in the USA until the implementation of the Noise Control Act of 1972. This congressional act directed the US Environmental Protection Agency to publish scientific information about noise exposure and its effects, and to identify acceptable levels of noise exposure under various conditions. The Noise Control Act was supposed to protect the public health and well-being with an adequate margin of safety. This was accomplished in 1974 with the publication of the US EPA "Levels Document" (US EPA 1974). It addressed issues such as the use of sound descriptions to describe sound exposure, the identification of the most important human effects resulting from noise exposure, and the specification of noise exposure criteria for various effects. Subsequent to the publication of the US EPA "Levels Document", guidelines for conducting environmental impact analysis were developed (Finegold et al. 1998). The day-night average sound level was thus established as the predominant sound descriptor for most environmental noise exposure.

It is evident from these examples that noise policies and regulations vary considerably across countries and regions. Moves towards global noise policies need to be encouraged to ensure that the world population gains the maximum health benefits from new developments in noise control.

5.7.3. Noise emission standards have proven to be inadequate

Much of the progress towards solving the noise pollution problem has come from advanced technology, which in turn has come about mainly as a result of governmental regulations (e.g. OECD-ECMT 1995). So far, however, the introduction of noise emission standards for vehicles has had limited impact on exposure to transportation noise, especially from aircraft and road traffic noise (Sandberg 1995). In part, this is because changes in human behaviour (of polluters, planners and citizens) have tended to offset some of the gains made. For example, mitigation efforts such as developing quieter vehicles, moving people to less noise-exposed areas, improving traffic systems and direct noise abatement and control (sound insulation, barriers etc.), have been counteracted by increases in the number of roads and highways built, by the number of traffic movements, and by higher driving speeds and the number of kilometers driven (OECD 1991; OECD-ECMT 1995).

Traffic planning and correction policies may diminish the number of people exposed to the very high community noise levels (>70 dB LAeq), but the number exposed to moderately high levels (55-65 dB LAeq) continues to increase in industrialized countries (Stanners & Bordeau 1995). In developing countries, exposure to excessive sound pressure levels (>85 dB LAeq), not only from occupational noise but also from urban, environmental noise, is the major avoidable cause of permanent hearing impairment (Smith 1998). Such sound pressure levels can also be reached by leisure activities at concerts, discotheques, motor sports and shooting ranges; by music played back in headphones; and by impulse noises from toys and fireworks.

A substantial growth in air transport is also expected in the future. Over the next 10 years large international airports may have to accommodate a doubling in passenger movements. General

aviation noise at regional airports is also expected to increase (Large & House 1989). Although jet aircraft are expected to become less noisy due to regulation of noise emissions (ICAO 1993), the number of passengers is expected to increase. Increased air traffic movement between 1980 and 1990 is considered to be the main reason for the average 22% increase in the number of people exposed to noise above 67 dB LAeq at German airports (OECD 1993).

5.7.4. Unsustainable trends in noise pollution future policy planning

A number of trends are expected to increase environmental noise pollution, and are considered to be unsustainable in the long term. The OECD (1991) identified the following factors to be of increasing importance in the future:

a. The expanding use of increasingly powerful sources of noise.

b. The wider geographical dispersion of noise sources, together with greater individual mobility and spread of leisure activities.

c. The increasing invasion of noise, particularly into the early morning, evenings and weekends.

d. The increasing public expectations that are closely linked to increases in incomes and in education levels.

Apart from these, increased noise pollution is also linked to systemic changes in business practices (OECD-ECMT 1995). By accepting a just-in-time concept in transportation, products and components are stored in heavy-duty vehicles on roads, instead of in warehouses; and workers are recruited as temporary consultants just in time for the work, instead of as long-term employees.

In addition, the OECD (1991) report forecasts:

a. A strengthening of present noise abatement policies and their applications.

b. A further sharpening of emission standards.

c. A co-ordination of noise abatement measures and transport planning, to specifically reduce mobility.

d. A co-ordination of noise abatement measures with urban planning.

Planners need to know the likely effects of introducing a new noise source, or of increasing the level of an existing source, on the noise pollution in a community. Policy makers, when considering applications for new developmental projects, must take into account maximum levels, continuous equivalent sound pressure levels of both the background and the new noise source, the frequency of noise occurrence and the operating times of major noise sources.

5.7.5. Analysis of the impact of environmental noise

The concept of an environmental noise impact analysis (ENIA) is central to the philosophy of managing environmental noise. An ENIA should be required before implementing any project that would significantly increase the level of environmental noise in a community (typically, greater than a 5dB increase). The first step in performing an ENIA is to develop a baseline description of the existing noise environment. Next, the expected level of noise from a new source is added to the baseline exposure level to produce the new overall noise level. If the new total noise level is expected to cause an unacceptable impact on human health, trade-off analyses should then be performed to assess the cost, technical feasibility and community acceptance of noise mitigation measures. It is strongly recommended that countries develop standardized procedures for performing ENIAs (Finegold et al. 1998; SABS 1998).

Assessment of adverse health effects. In setting noise standards (for example on the basis of these guidelines), the adverse health effects from which the population is to be protected need to be defined. Health effects range from hearing impairment to sleep disturbance, speech interference to annoyance. The distinction between adverse and non-adverse effects sometimes poses considerable difficulties. Even the elaborate definition of an adverse health effect given in Chapter 3 incorporates significant subjectivity and uncertainty. More serious noise effects, such as hearing impairment or permanent threshold shift, are generally accepted as adverse. Consideration of health effects that are both temporary and reversible, or that involve functional changes with uncertain clinical significance, requires a judgement on whether these less-serious effects should be considered when deriving guideline values. Judgements as to the adversity of health effects may differ between countries, because of factors such as cultural backgrounds and different levels of health status.

Estimation of the population at risk. The population at risk is that part of the population in a given country or community that is exposed to enhanced levels of noise. Each population has sensitive groups or subpopulations that are at higher risk of developing health effects due to noise exposure. Sensitive groups include individuals impaired by concurrent diseases or other physiological limitations and those with specific characteristics that makes them more vulnerable to noise (e.g. premature babies; see the contribution of Zaïdi in Appendix 2). The sensitive groups in a population may vary across countries due to differences in medical care, nutritional status, lifestyle and demographic factors, prevailing genetic factors, and whether endemic or debilitating diseases are prevalent.

Calculation of exposure-response relationships. In developing standards, regulators should consider the degree of uncertainty in the exposure-response relationships provided in the noise guidelines. Differences in the population structure (age, health status), climate (temperature, humidity) and geography (altitude, environment) can influence the prevalence and severity of noise-related health effects. In consequence, modified exposure-response relationships may need to be applied when setting noise standards.

Assessment of risks and their acceptability. In the absence of distinct thresholds for the onset of health effects, regulators must determine what constitutes an acceptable health risk for the population and select an appropriate noise standard to protect public health. This is also true in

cases where thresholds are present, but where it would not be feasible to adopt noise guidelines as standards because of economical and/or technical constraints. The acceptability of the risks involved, and hence the standards selected, will depend on several factors. These include the expected incidence and severity of the potential effects, the size of the population at risk, the perception of related risks, and the degree of scientific uncertainty that the effects will occur at any given noise level. For example, if it is suspected that a health effect is severe and the size of the population at risk is large, a more cautious approach would be appropriate than if the effect were less troubling, or if the population were smaller.

Again, the acceptability of risk may vary among countries because of differences in social norms, and the degree of adversity and risk perception by the general population and stakeholders. Risk acceptability is also influenced by how the risks associated with noise compare with risks from other pollution sources or human activities.

5.7.6. Cost-benefit analysis

In the derivation of noise standards from noise guidelines two different approaches for decision making can be applied. Decisions can be based purely on health, cultural and environmental consequences, with little weight to economic efficiency. This approach has the objective of reducing the risk of adverse noise effects to a socially acceptable level. The second approach is based on a formal cost-effectiveness, or cost-benefit analysis (CBA). The objective is to identify control actions that achieve the greatest net economic benefit, or are the most economically efficient. The development of noise standards should account for both extremes, and involve stakeholders and assure social equity to all the parties involved. It should also provide sufficient information to guarantee that stakeholders understand the scientific and economic consequences.

To determine the costs of control action, the abatement measures used to reduce emissions must be known. This is usually the case for direct measures at the source and these measures can be monetarized. Costs of action should include all costs of investment, operation and maintenance. It may not be possible to monetarize indirect measures, such as alternative traffic plans or change in behaviour of individuals.

The steps in a cost-benefit analysis include:

a. The identification and cost analysis of control action (such as emission abatement strategies and tactics).

b. An assessment of noise and population exposure, with and without the control action.

c. The identification of benefit categories, such as improved health and reduced property loss.

d. A comparison of the health effects, with and without control action.

e. A comparison of the estimated costs of control action with the benefits that accrue from such action.

f. A sensitivity and uncertainty analysis.

Action taken to reduce one pollutant may increase or decrease the concentration of other pollutants. These additional effects should be considered, as well as pollutant interactions that may lead to double counting of costs or benefits, or to disregarding some costly but necessary action. Due to different levels of knowledge about the costs of control action and health effects, there is a tendency to overestimate the cost of control action and underestimate the benefits.

CBA is a highly interdisciplinary task. Appropriately applied, it is a legitimate and useful way of providing information for managers who must make decisions that impact health. CBA is also an appropriate tool for drawing the attention of politicians to the benefits of noise control. In any case, however, a CBA should be peer-reviewed and never be used as the sole and overriding determinant of decisions.

5.7.7. Review of standard setting

The setting of standards should involve stakeholders at all levels (industry, local authorities, non-governmental organizations and the general public), and should strive for social equity or fairness to all parties involved. It should also provide sufficient information to guarantee that the scientific and economic consequences of the proposed standards are clearly understood by the stakeholders. The earlier that stakeholders are involved, the more likely is their co-operation. Transparency in moving from noise guidelines to noise standards helps to increase public acceptance of necessary measures. Raising public awareness of noise-induced health effects (changing of risk perception) also leads to a better understanding of the issues involved (risk communication) and serves to obtain public support for necessary control action, such as reducing vehicle emissions. Noise standards should be regularly reviewed, and revised as new scientific evidence emerges.

5.7.8. Enforcement of noise standards: Low-noise implementation plans

The main objective of enforcing noise standards is to achieve compliance with the standards. The instrument used to achieve this goal is a Low-Noise Implementation Plan (LNIP). The outline of such a plan should be defined in the regulatory policies and should use the tactical instruments discussed above. A typical low-noise implementation plan includes:

a. A description of the area to be regulated.

b. An emissions inventory.

c. A monitored or simulated inventory of noise levels.

d. A comparison of the plan with emissions and noise standards or guidelines.

e. An inventory of the health effects.

f. A causal analysis of the health effects and their attribution to individual sources.

g. An analysis of control measures and their costs.

h. An analysis of transportation and land-use planning.

i. Enforcement procedures.

j. An analysis of the effectiveness of the noise management procedures.

k. An analysis of resource commitment.

l. Projections for the future.

As the LNIP also addresses the effectiveness of noise control technologies and policies, it is very much in line with the Noise Control Assessment Programme (NCAP) proposed recently (Finegold et al. 1999).

5.8. Conclusions on Noise Management

Successful noise management should be based on the fundamental principles of precaution, the polluter pays and prevention. The noise abatement strategy typically starts with the development of noise standards or guidelines, and the identification, mapping and monitoring of noise sources and exposed communities. A powerful tool in developing and applying the control strategy is to make use of modeling. These models need to be validated by monitoring data. Noise parameters relevant to the important sources of noise must be known. Indoor noise exposures present specific and complex problems, but the general principles for noise management hold. The main means for noise control in buildings include careful site investigations, adequate building designs and building codes, effective means for addressing occupant complaints and symptoms, and building diagnostic procedures.

Noise control should include measures to limit the noise at the source, to control the sound transmission path, to protect the receiver's site, to plan land use, and to raise public awareness. With careful planning, exposure to noise can be avoided or reduced. Control options should take into account the technical, financial, social, health and environmental factors of concern. Cost-benefit relationships, as well as the cost-effectiveness of the control measures, must be considered in the context of the social and financial situation of each country. A framework for a political, regulatory and administrative approach is required for the consistent and transparent promulgation of noise standards. Examples are given for some countries, which may guide others in their development of noise policies.

Noise management should:

a. Start monitoring human exposures to noise.

b. Have health control require mitigation of noise emissions. The mitigation procedures

should take into consideration specific environments such as schools, playgrounds, homes and hospitals; environments with multiple noise sources, or which may amplify the effects of noise; sensitive time periods, such as evenings, nights and holidays; and groups at high risk, such as children and the hearing impaired.

c. Consider noise consequences when making decisions on transport-system and land-use planning.

d. Introduce surveillance systems for noise-related adverse health effects.

e. Assess the effectiveness of noise policies in reducing noise exposure and related adverse health effects, and in improving supportive "soundscapes."

a. Adopt these Guidelines for Community Noise as long-term targets for improving human health.

g. Adopt precautionary actions for sustainable development of acoustical environments.

6. Conclusions And Recommendations

6.1. Implementation of the Guidelines

The potential health effects of community noise include hearing impairment; startle and defense reactions; aural pain; ear discomfort speech interference; sleep disturbance; cardiovascular effects; performance reduction; and annoyance responses. These health effects, in turn, can lead to social handicap; reduced productivity; decreased performance in learning; absenteeism in the workplace and school; increased drug use; and accidents. In addition to health effects of community noise, other impacts are important such as loss of property value. In these guidelines the international literature on the health effects of community noise was reviewed and used to derive guideline values for community noise. Besides the health effects of noise, the issues of noise assessment and noise management were also addressed. Other issues considered were priority setting in noise management; quality assurance plans; and the cost-efficiency of control actions. The aim of the guidelines is to protect populations from the adverse health impacts of noise.

The following recommendations were considered appropriate:

a. Governments should consider the protection of populations from community noise as an integral part of their policy for environmental protection.

b. Governments should consider implementing action plans with short-term, medium-term and long-term objectives for reducing noise levels.

c. Governments should adopt the health guidelines for community noise as targets to be achieved in the long-term.

h. Governments should include noise as an important issue when assessing public health matters and support more research related to the health effects of noise exposure.

f. Legislation should be enacted to reduce sound pressure levels, and existing legislation should be enforced.

g. Municipalities should develop low-noise implementation plans.

h. Cost-effectiveness and cost-benefit analyses should be considered as potential instruments when making management decisions.

i. Governments should support more policy-relevant research into noise pollution (see section 6.3).

6.2. Further WHO Work on Noise

The WHO Expert Task Force proposed several issues for future work in the field of community noise. These are:

a. The WHO should consider updating the guidelines on a regular basis.

b. The WHO should provide leadership and technical direction in defining future research priorities into noise.

c. The WHO should organize workshops on the application of the guidelines.

d. The WHO should provide leadership and co-ordinate international efforts to develop techniques for the design of supportive sound environments (e.g. 'soundscapes").

e. The WHO should provide leadership for programmes to assess the effectiveness of health-related noise policies and regulations.

f. The WHO should provide leadership and technical direction for the development of sound methodologies for EIAP and EHIAP.

g. The WHO should encourage further investigation into using noise exposure as an indicator of environmental deterioration, such as found in black spots in cities.

a. The WHO should provide leadership, technical support and advice to developing countries, to facilitate the development of noise policies and noise management.

6.3. Research Needs

In the publication entitled "Community Noise", examples of essential research and development needs were given (Berglund & Lindvall 1995). In part, the scientific community has already addressed these issues.

A major step forward in raising public awareness and that of decision makers is the recommendation of the present Expert Task Force to concentrate more **on variables which have monetary consequences. This means that research should consider the dose-response relationships between sound pressure levels and politically relevant variables, such as noise-induced social handicap, reduced productivity, decreased performance in learning, workplace and school absenteeism, increased drug use and accidents.**

There is also a need for continued efforts to understand community noise and its effects on the health of the world population. Below is a list of essential research needs in non-prioritized order. Research priorities may vary over time and by place and capabilities. The main goal in suggesting these research activities is to improve the scientific basis for policy-making and noise

management. This will protect and improve the public health with regard to the effects of community noise pollution.

Research related to measurement and monitoring systems for health effects

- Development of a global noise impact monitoring study. The study should be designed to obtain longitudinal data across countries on the health effects on communities of various types of environmental noise. A baseline survey could be undertaken in both developed and developing countries and monitoring surveys conducted every 3-5 years. Since a national map of noise exposure from all sources would be prohibitively expensive, periodic surveys of a representative sample of about 1000 people (using standard probability techniques) could be reliably generalized to the whole population of a country with an accuracy of plus-or-minus 3%. A small number of standard questions could be used across countries to obtain comparative data on the impact of all the main types of noise pollution.
- Development of continuous monitoring systems for direct health effects in critical locations.
- Development of standardized methods for low-cost assessment of local sound levels by measurement or model calculations.
- Development of instruments appropriate for local/regional surveys of people's perceptions of their noise/sound environments.
- Protocols for reliable measurements of high-frequency hearing (8000 Hz and above) and for evaluation of such measures as early biomarkers for hearing impairment/deficits.

Research related to combined noise sources and combined health effects

- Research into the combined health effects of traffic noise, with emphasis on the distribution of sound levels over time and over population sub-environments (time-activity pattern).
- Comprehensive studies on combined noise sources and their combinations of health effects in the 3 large areas of transport (road, rail and aircraft).
- Procedures for evaluating the various health effects of complex combined noise exposures over 24 hours on vulnerable groups and on the general population.
- Methods for assessing the total health effect from noise immission (and also other pollution) in sensitive areas (for example, airports, city centers and heavily-trafficked highways)

Research related to direct and/or long-term health effects (sensitive risk groups, sensitive areas and combined exposures)

- Identification of potential risk groups, including identification of sensitive individuals (such as people with particular health problems; people dealing with complex cognitive tasks; the blind; the hearing impaired; young children and the elderly), differences between sexes, discrimination of risk among age groups, and influence of transportation noise on pregnancy course and on fetal development.
- Studies of dose-response relationships for various effects, and for continuous transportation noise at relatively low levels of exposure and low number of noise events per unit time (including traffic flow composition).
- Studies on the perception of control of noise exposure, genetic traits, coping strategies and noise annoyance as modifiers of the effects of noise on the cardiovascular system, and as causes of variability in individual responses to noise.
- Prospective longitudinal studies of transportation noise that examine physiological measures of health, including standardized health status inventory, blood pressure, neuro-endocrine and immune function.
- Knowledge on the health effects of low-frequency components in noise and vibration.
-

Research related to indirect or after-effects of noise exposure

- Field studies on the effects of exposure to specific sounds such as aircraft noise and loud music, including effects such as noise-induced temporary and permanent threshold shifts, speech perception and misperception, tinnitus and information retrieval.
- Studies on the influence of noise-induced sleep disturbance on health, work performance, accident risk and social life.
- Assessment of dose-response relationships between sound levels and politically relevant variables such as noise-induced social handicap, reduced productivity, decreased performance in learning, workplace and school absenteeism, increased drug use and accidents.
- Determination of the causal connection between noise and mental health effects, annoyance and (spontaneous) complaints in areas such as around large airports, heavy-trafficked highways, high-speed rail tracks and heavy vehicles transit routes. The connections could be examined by longitudinal studies, for example.
- Studies on the impact of traffic noise on recovery from noise-related stress, or from nervous system hyperactivity due to work and other noise exposures.

Research on the efficiency of noise abatement policies which are health based

- Determination of the accuracy and effectiveness of modern sound insulation (active noise absorption), especially in residential buildings, in reducing the long-term effects of noise on annoyance/sleep disturbance/speech intelligibility. This can be accomplished by studying sites that provide data on remedial activities and changes in behavioral patterns among occupants.
- Evaluation of environmental (area layout, architecture) and traffic planning (e.g. rerouting) interventions on annoyance, speech interference and sleep disturbance.
- Comparative studies to determine whether children and the hearing impaired have equitable access to healthier lives when compared with normal adults in noise-exposed areas.
- Development of a methodology for the environmental health impact assessment of noise that is applicable in developing as well as developed countries.

Research into positive acoustical needs of the general population and vulnerable groups

- Development of techniques/protocols for the design of supportive acoustical environments for the general population and for vulnerable groups. The protocols should take into account time periods that are sensitive from physiological, psychological and socio-cultural perspectives.
- Studies to characterize good "restoration areas" which provide the possibility for rest without adverse noise load.
- Studies to assess the effectiveness of noise policies in maintaining and improving soundscapes and reducing human exposures.

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Appendix 2 : Examples Of Regional Noise Situations

REGION OF THE AMERICAS

Latin America (Guillermo Fuchs, Argentina).

As more and more cities in Latin America surpass the 20 million inhabitants mark, the noise pollution situation will continue to deteriorate. Most noise pollution in Latin American cities comes from traffic, industry, domestic situations and from the community. Traffic is the main source of outdoor noise in most big cities. The increase in automobile engine power and lack of adequate silencing results in LAeq street levels >70 dB, above acceptable limits. Vehicle noise has strong low-frequency peaks at ~13 Hz, and at driving speeds of 100 Km/h noise levels can exceed 100 dB. The low-frequency (LF) noise is aerodynamic in origin produced, for example, by driving with the car windows open. Little can be done to mitigate these low-frequency noises, except to drive with all the windows closed. Noise exposure due to leisure activities such as carting, motor racing and Walkman use is also growing at a fast rate. Walkman use in the street not only contributes to temporary threshold shifts (TTS) in hearing, but also endangers the user because they may not hear warning signals Construction sites, pavement repairs and advertisements also contribute to street noise, and noise levels of 85–100 dB are common.

The Centro de Investigaciones Acústicas y Luminotécnicas (CIAL) in Córdoba, Argentina has investigated noise pollution in both the field and in the laboratory. The most noticeable effect of excessive urban noise is hearing impairment, but other psychophysiological effects also result. For example, tinnitus resulting from sudden or continuous noise bursts, can produce a TTS of 20–30 dB, and prolonged exposures can result in permanent threshold shifts (PTS). By analyzing sound spectra down to a few Hertz, and at levels of up to 120 dB, discrete frequencies and bands of infrasound were found which damage hearing. With LF sounds at levels of 120 dB, TTS resulted after brief exposure, and PTS after only 30 min of exposure. The effects of noise on hearing can be especially detrimental to children in schools located downtown. Field studies in Córdoba city schools located near streets with high traffic density showed that speech intelligibility was dramatically degraded in classrooms that did not meet international acoustical standards. This is a particularly worrying problem for the younger students, who are in the process of language acquisition, and interferes with their learning process.

In general, community noise in Latin America remains above accepted limits. Particularly at night, sleep and rest are affected by transient noise signals from electronically amplified sounds, music and propaganda. Field research was carried out in four zones of Buenos Aires, to determine the effects of urban noise on the well-being, health and activities of the inhabitants. The effects of confounding variables were taken into consideration. It was concluded that night-time noise levels in downtown Buenos Aires were barely lower than daytime levels. The results showed that sleep, concentration, communication and well-being were affected in most people when noise levels exceeded those permitted by international laws. The reactions of the inhabitants to protect themselves from the effects of noise varied, and included changing rooms, closing windows and complaining to authorities.

Individual responses to noise also vary, and depend on factors such as social, educational and economic levels, individual sensibility, attitudes towards noise, satisfaction with home or neighborhood, and cognitive and affective parameters. For example, at CIAL, two pilot studies were carried out with a group of adolescents to determine the influence of environmental conditions on the perception of noise. When music was played at very high sound levels (with sound peaks of 119 dBA) in a discotheque, judged to be a pleasant environment, the subjects showed less TTS than when exposed to the same music in the laboratory, which was considered to be an unpleasant environment.

At the municipal level Argentinean Ordinances consider two types of noises: unnecessary and excessive. Unnecessary noises are forbidden. Excessive noises are classified according to neighboring activities and are limited by maximum levels allowed for daytime (7 am to 10 pm) and night-time (10 pm to 7 am). This regulation has been relatively successful, but control has to be continuous. Similar actions have been prescribed at the provincial level in many cities of Argentina and Latin America. Control efforts aimed at reducing noise levels from individual vehicles are showing reasonably good improvements. However, many efforts of municipal authorities to mitigate noise pollution have failed because of economic, political and other pressures. For example, although noise control for automobiles has shown some improvement, efforts have been counteracted by the growth in the number and power of automobiles.

CIAL has designed both static and dynamic tests that can be used to set annual noise control limits. For roads and freeways where permitted speeds are above 80 Km/h, CIAL has also designed barriers which protect buildings lining the freeways. Considerable improvements have been obtained using these barriers with noise reductions of over 20 dB at buildings fronts. The most common types of barrier are concrete slabs or wooden structures, made translucent or covered with vegetation. Planted vegetation does not act as an efficient noise shield for freeway noise, except in cases of thick forest strips. In several cities, CIAL also designed ring roads to avoid heavy traffic along sensitive areas such as hospitals, schools and laboratories.

Efforts have not been successful in reducing the noise pollution from popular sports such as carting, motorboating and motocross, where noise levels can exceed 100 dB. In part, this is because individuals do not believe these activities can result in hearing impairment or have other detrimental effects, in spite of the scientific evidence. Argentinean and other Latin American authorities also have not been successful in reducing the sound levels from music centres, such as discotheques, where sound levels can exceed 100 dB between 11 pm and 6 am. However, public protest is increasing and municipal authorities have been applying some control. For instance, in big cities, discotheque owners and others are beginning to seek advice on how to isolate their businesses from apartment buildings and residential areas. Some improvements have been observed, but accepted limits have not yet been generally attained.

United States of America (Larry Finegold)

Noise Exposure.

In the United States, there have only been a few major attempts to describe broad environmental noise exposures. Early estimates for the average daily exposure of various population groups were reported in the U.S. Environmental Protection Agency's *Levels Document* (US EPA 1974), but these were only partially verified by subsequent large-scale measurements. Another EPA publication the same year provided estimates of the national population distribution as a function of outdoor noise level, and established population density as the primary predictor of a community's noise exposure (Galloway et al. 1974). Methodological issues that need be considered when measuring community noise, including both temporal and geographic sampling techniques, have been addressed by Eldred (1975). This paper also provided early quantitative estimates of noise exposure at a variety of sites, from an isolated spot on the North rim of the Grand Canyon to a spot in downtown Harlem in New York City. Another nationwide survey focused on exposure to everyday urban noises, rather than the more traditional approach of measuring exposure to high-level transportation noise from aircraft, traffic and rail (Fidell 1978). This study included noise exposure and human response data from over 2 000 participants at 24 sites.

A comprehensive report, *Noise In America: The Extent of the Problem,* included estimates of occupational noise exposure in the US in standard industrial classification categories (Bolt, Beranek & Newman, Inc. 1981). A more recent paper reviewed the long-term trends of noise exposure in the US and its impact over a 30-year time span, starting in the early 1970's. The focus was primarily on motor vehicle and aircraft noise, and the prediction was for steadily decreasing population-weighted day-night sound exposure (Eldred 1988). However, it remains to be seen whether the technological improvements in noise emission, such as changing from Chapter 2 to Chapter 3 aircraft, will be offset in the long run by the larger carriers and increased operations levels that are forecast for all transportation modes. Although never implemented in its entirety, a comprehensive plan for measuring community environmental noise and associated human responses was proposed over 25 years ago in the US (Sutherland et al. 1973).

Environmental Noise Policy in the United States

One of the first major breakthroughs in developing an environmental noise policy in the United States occurred in 1969 with the adoption of the National Environmental Policy Act (NEPA). This Congressional Act mandated that the environmental effects of any major development project be assessed if federal funds were involved in the project. Through the Noise Control Act (NCA) of 1972, the U.S. Congress directed the US Environmental Protection Agency (EPA) to publish scientific information about the kind and extent of all identifiable effects of different qualities and quantities of noise. The US EPA was also requested to define acceptable noise levels under various conditions that would protect the public health and welfare with an adequate margin of safety. To accomplish this objective, the 1974 US EPA *Levels Document* formally introduced prescribed noise descriptors and prescribed levels of environmental noise exposure. Along with its companion document, *Guidelines for Preparing Environmental Impact Statements on Noise*, which was published by the U.S. National Research Council in 1977, the

Levels Document has been the mainstay of U.S. environmental noise policy for nearly a quarter of a century. These documents were supplemented by additional Public Laws, Presidential Executive Orders, and many-tiered noise exposure guidelines, regulations, and Standards. Important examples include *Guidelines for Considering Noise in Land Use Planning and Control*, published in 1980 by the US Federal Interagency Committee on Urban Noise; and *Guidelines for Noise Impact Analysis*, published in 1982 by the US EPA.

One of the distinctive features of the US EPA *Levels Document* is that it does not establish regulatory goals. This is because the noise exposure levels identified in this document were determined by a negotiated scientific consensus and were chosen without concern for their economic and technological feasibility; they also included an additional margin of safety. For these reasons, an A-weighted Day-Night Average Sound Level (DNL) of 55 dB was selected in the *Levels Document* as that required to totally protect against outdoor activity interference and annoyance. Land use planning guidelines developed since its publication allow for an outdoor DNL exposure in non-sensitive areas of up to 65 dB before sound insulation or other noise mitigation measures must be implemented. Thus, separation of short-, medium- and long-term goals allow noise-exposure goals to be established that are based on human effects research data, yet still allow for the financial and technological constraints within which all countries must work.

The US EPA's Office of Noise Abatement and Control (ONAC) provided a considerable amount of impetus to the development of environmental noise policies for about a decade in the US. During this time, several major US federal agencies, including the US EPA, the Department of Transportation, the Federal Aviation Administration, the Department of Housing and Urban Development, the National Aeronautics and Space Administration, the Department of Defense, and the Federal Interagency Committee on Noise have all published important documents addressing environmental noise and its effects on people. Lack of funding, however, has made the EPA ONAC largely ineffective in the past decade. A new bill, the *Quiet Communities Act* has recently been introduced in the U.S. Congress to re-enact and fund this office (House of Representatives Bill, H.R. 536). However, the passage of this bill is uncertain, because noise in the US, as in Europe, has not received the attention that other environmental issues have, such as air and water quality.

In the USA there is growing debate over whether to continue to rely on the use of DNL (and the A-Weighted Equivalent Continuous Sound Pressure Level upon which DNL is based) as the primary environmental noise exposure metric, or whether to supplement it with other noise descriptors. Because a growing number of researchers believe that "Sound Exposure" is more understandable to the public, the American National Standards Institute has prepared a new Standard, which allows the equivalent use of either DNL or Sound Exposure (ANSI 1996). The primary purpose of this new standard, however, is to provide a methodology for modeling the Combined or Total Noise Environment, by making numerical adjustments to the exposure levels from various noise sources before assessing their predicted impacts on people. A companion standard (ANSI 1998) links DNL and Sound Exposure with the current USA land use planning table. The latter is currently being updated by a team of people from various federal government agencies and when completed should improve the capabilities of environmental and community land-use planners. These documents will complement the newly revised ANSI standard on

acoustical terminology (ANSI 1994).

To summarize progress in noise control made in the USA in the nearly 25 years since the initial national environmental noise policy documents were written, the Acoustical Society of America held a special session in Washington, D.C. in 1995. The papers presented in this special session were then published as a collaborative effort between the Acoustical Society of America and the Institute of Noise Control Engineering (von Gierke & Johnson 1996). This document is available from the Acoustical Society of America, as are a wide range of standards related to various environmental noise and bioacoustics topics from the ANSI.

A document from the European Union is now also available, which includes guidelines for addressing noise in environmental assessments (EU 1996). Policy documents from organizations such as ISO, CEN, and ICAO have shown that international cooperation is quite possible in the environmental noise arena. The ISO document, entitled *Acoustics - Description and Measurement of Environmental Noise* (ISO 1996), and other international standards have already proven themselves to be invaluable in moving towards the development of a harmonized environmental noise policy. The best way to move forward in developing a harmonized environmental noise policy is to take a look at the various national policies that have already been adopted in many countries, including those both from the European member states and from the USA, and to decide what improvements need to be made to the existing policy documents. A solid understanding of the progress that has already been achieved around the world would obviously provide the foundation for the development of future noise policies.

Implementation Concepts and Tools

Development of appropriate policies, regulations, and standards, particularly in the noise measurement and impact assessment areas, is a necessary foundation for implementing effective noise abatement policies and noise control programs. A well-trained cadre of environmental planners will be needed in the future to perform land-use planning and environmental impact analysis. These professionals will require both a new generation of standardized noise propagation models to deal with the Total Noise Environment, as well as sophisticated computer-based impact analysis and land-use planning tools.

A more thorough description of the current noise environment in major cities, suburbs, and rural areas is needed to support the noise policy development process. A new generation of noise measurement and monitoring systems, along with standards related to their use, are already providing considerable improvement in our ability to accurately describe complex noise environments. Finally, both active and passive noise control technologies, and other noise mitigation techniques, are rapidly becoming available for addressing local noise problems. Combined with a strong public awareness and education program, land-use planning and noise abatement efforts certainly have the potential to provide us with an environment with acceptable levels of noise exposure.

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AFRICAN REGION

South Africa (Etienne Grond, South Africa)

Introduction

Cultural and developmental levels diverge greatly in South Africa, and the country can be divided into a first world sector, a developing sector and a third world sector. This contributes to huge variations in both the awareness of noise pollution and in population exposure to noise pollution. Noise-related health problems will in all probability show the same large variations.

Legal requirements

Noise control in South Africa has a history dating back about three decades. Noise control began with codes of practice issued by the South African Bureau of Standards (SABS) to address noise pollution in different sectors. Since then, Section 25 of the Environment Conservation Act (Act 73 of 1989) made provision for the Minister of Environmental Affairs and Tourism to regulate noise, vibration and shock at the national level. These regulations were published in 1990 and local authorities could apply to the Minister to make them applicable in their areas of jurisdiction. However, a number of the bigger local authorities did not apply for the regulations since they already had by-laws in place, which they felt were sufficient. By the middle of 1992 only 29 local authorities had applied the regulations and so the act was changed to make it obligatory for all authorities to apply the regulations. However, by the time the regulations were ready to be published, the new Constitution of South Africa came into effect and this listed noise control as an exclusive legislative competence of provincial and local authorities. This meant that the national government could not publish the regulations. However, provincial governments have agreed to publish the regulations in their respective areas. The regulations will apply to all local authorities as soon as they are published in the provinces, and will give local authorities both the power and the obligation to enforce the regulations.

The Department of Environmental Affairs and Tourism also published regulations during 1997 to make Environmental Impact Assessments mandatory for most new developments, as well as for changes in existing developments. This means that any impact that a development might have on its surrounding environment must be evaluated and, where necessary, the impact must be mitigated to acceptable levels. The noise control regulations also state that a local authority may declare a "controlled area," which is an area where the average noise level exceeds 65 dBA over a period of 24 h period. This means that educational and residential buildings, hospitals and churches may not be situated within such areas.

Occupational noise exposure is regulated by the Department of Manpower, under the Occupational Health and Safety Act (Act 85 of 1993). These regulations states that workers may not be exposed to noise levels of higher than 85 dBA and that those exposed to such levels must make use of equipment to protect their hearing. The problem, however, is that most workers tend not to make use of the provided equipment, either because the equipment is not comfortable, or because they are not aware of the risks high noise levels pose to their hearing. A further problem is that small industries often do not supply the workers with the necessary

equipment, or supply inferior equipment that is less costly.

Codes of practice

The codes of practice issued by the SABS were for the most part replaced by IEC (International Electrotechnical Commission) standards and adopted as SABS ISO codes of practice. They are still being used in South Africa and are regularly updated. A relevant list can be found in the references. The SABS has also published a number of recommended practices (ARP). These include the ARP 020: "Sound impact investigations for integrated environmental management" that is currently being upgraded to a code of practice. Such codes of practice can be referred to as requirements in legislation and will be known as SABS 0328: "Methods for environmental noise impact assessments." The codes of practice published in South Africa cover hearing protection; measurement of noise; occupational noise; environmental noise; airplane noise; and building acoustics, etc.

Courses

Local authorities responsible for applying regulations published by the Department of Environmental Affairs and Tourism must employ a noise control officer who has at least three years tertiary education in engineering, physical sciences or health sciences, and who is registered with a professional council. Alternatively, a consultant with similar training may be employed. Most of the universities in South Africa provide the relevant training, with at least part of the training in acoustics. Universities and technical colleges also provide a number of special acoustics courses. Over the last couple of years awareness of environmental conservation has expanded dramatically within the academic community, and most universities and colleges now have degree courses in environmental management. At the very least, these courses include a six-month module in acoustics, and usually also include training in basic mathematics; the physics of sound; sound measuring methodologies; and noise pollution.

Community awareness and exposure to noise pollution

This topic should be discussed with respect to three separate population sectors: the first-world sector (developed), the developing sector and the third-world sector (rural).

Developed sector

This sector of the population is more-or-less as developed as their European and American counterparts. They have been exposed to noise pollution for a considerable time and, for the most part, are aware of the health consequences of high noise levels. People in this group are also aware of the existence of legal measures by which noise pollution can be addressed. Not surprisingly, most of the complaints and legal action regarding noise pollution are received from this group. Information about noise-related health problems is very limited, but because this group is highly aware of the risks posed by high noise levels, future studies will probably show that people in this category have the fewest health problems. The majority of people in this group are less exposed to high noise levels at work, and they live in more affluent neighborhoods with large plots and separating walls. Their houses tend to be built with materials that are noise

reducing. They also live further away from major noise-producing activities, such as highways, airports and large industries.

Developing sector

This sector of the population has the greatest exposure to high noise levels, both at home and in the workplace. Overall, they are relatively poor and cannot afford to live in quiet areas, or afford large plots or solid building materials. A large component of this sector resides in squatter communities where building are made of any material available, from plastic to corrugated sheets and wood. The buildings are right next to each other and there is almost no noise attenuation between residencies.

People in this category usually live close to major access routes into the cities, because they make use of public transportation and taxis to get to their places of work. Often, too, they live close to their places of work, which are usually big industries with relatively high levels of noise pollution. These people usually work in high noise areas, and because of their lack of awareness of the effects of high noise levels, often do not make use of available hearing protection equipment. Because of a lack of funds, these people also cannot get out of high noise areas and go to recreational areas for relaxation and lower noise levels. Not much information is available on the adverse health problems in this sector. However, workers in this sector should undergo regular medical examinations and the results can be obtained from the industries involved.

Rural sector

As the name suggests, people in this sector live in rural surroundings and for the most part are not subjected to noise levels that could be detrimental to their health. However, they are almost totally unaware of the risks posed by high noise levels. Some of these people work on farms and work with machinery that emits relatively high noise levels, but because of their lack of awareness they do not make use of hearing protection equipment. One advantage they do have is that they return to homes in quiet surroundings and their hearing has a chance to recover. To date, no studies have been carried out to determine the state of their hearing and it would be impossible to state that they have no health problems related to high noise levels.

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EASTERN MEDITERRANEAN REGION (Shabih H. Zaidi)

Scope

In the Eastern Mediterranean region some countries have highly developed industries, while others have none. In other cases, the agricultural economy is inseparably mixed with high-technology industries, such as the oil industry, which can be seen in nearly the whole of the Arabian Peninsula. Other examples of where agriculture and industry are intertwined can be seen in Pakistan, Jordan and Egypt. The main focus of this paper is community noise, but because industry is so widely distributed, some discussion of industrial noise is inevitable. The scope of this paper is to document the available scientific data on community noise in the WHO Regional Office of the Eastern Mediterranean (EMRO) region, including preventive strategies, legislation, compensation and future trends.

Sources of Noise Pollution

Sources of noise pollution in the Eastern Mediterranean region include noise from transportation, social and religious activities, building and civil works, roadside workshops, mechanical floor shops and others. During civil works and building booms, noise levels in all countries of the Eastern Mediterranean region could easily reach 85dBA during the daytime over an 8 h work period. In Pakistan, unprotected construction work goes on at all times of the day and night and uses outdated machinery; and the noise is compounded by workers shouting. On a typical building site noise levels reach 90–100 dBA.

In Karachi, the main artery for daily commuters is a long road that terminates at the harbor. In the densest area of this road there are a hundred small and large mechanical workshops, garages, metal sheet workers, dent removers, painters, welders and repair shops, all of which create a variety of noises. In the middle of this area at the Tibet Centre the LAeq,8h is 90dBA (Zaidi 1989). A similar picture is seen elsewhere in cities like Lahore, Peshawar, etc. Fortunately, the same is not true for other newly built cities in the EMRO region, such as Dubai, or Tripoli, where strict rules separate industrial zones from residential areas.

A special noise problem is Karachi harbour. This port serves the whole of Pakistan as well as Afghanistan and several Asian states, such as Kyrgyzstan, Kazakhstan and Uzbekistan. The noise level at the main wharf of Karachi Port ranges between 90–110 dBA on any given day. Other special sources of noise are the Eastern Mediterranean airports, and indeed most of the airports in the Middle East. Most northbound air traffic originates in Pakistan, Dubai, Sharjah etc. and flights usually depart after midnight so as to arrive in Europe during the daytime. A study is currently underway in Karachi to identify the damage caused by these nocturnal flights to those living under the flight path (SH Zaidi, GH Shaikh & AN Zaidi, personal communication).

Sadly, violence has become part of Eastern culture and is a significant source of noise pollution. Wars generate a lot of noise, and although noise-induced hearing loss is a secondary issue compared with the killing, after the wars many people are hearing impaired. This has been seen following conflicts in Balochistan, Peshawar and Afghanistan, where perforated ear drums,

profound hearing loss and stress-related psychosomatic illnesses are common in the refugee camps. The noise levels during a recent mass demonstration in Karachi, which included the firing of automatic weapons, reached 120 dBA at a distance of 50 m from the scene.

The Effects of Noise on Health

There is good evidence that environmental noise causes a range of health effects, including hearing loss, annoyance, cardiovascular changes, sleep disturbance and psychological effects. Although the health effects of noise pollution have not been documented for the entire EMRO region, data are available for Pakistan and can be used to illustrate the general problem. In this report, noise exposure is mainly expressed as LAeq,24h values.

Noise-induced hearing loss (NIHL).

It is believed that exposure to environmental noise in the EMRO countries is directly related to the living habits, economic prosperity and outdoor habits of people. It has been estimated that no more than 5% of the people are exposed to environmental sound levels in excess of 65dBA over a 24-h period. Similarly, for indoor noise, it is believed that the average family is not exposed to sound levels in excess of 70 dBA over a 24-h period. However, it is difficult to generalize for all countries in the EMRO region, because of ancient living styles and different cultural practices, such as taking siestas between 13:00–16:00 and stopping work at 20:00.

Exposure to noise while travelling to schools, offices or workplaces may vary tremendously between cities in the region. In Karachi, for example, traffic flow is undisciplined, erratic and irrational, with LAeq,8h values of 80–85 dBA. In Riyadh, by contrast, traffic flow is orderly with LAeq levels of 70 dBA during a normal working day. In Karachi, noise levels show significant diurnal variation, reaching levels in excess of 140 dB during the peak rush hour at around 5.00 p.m. (Zaidi 1989). At the Tibet Centre, located at a busy downtown junction, noise levels were 60–70 dB at 9 am, but reached levels in excess of 140 dB between 5-7 p.m. A study conducted on a day that transportation workers went on strike established that road traffic is the most significant source of noise pollution in this city: in the absence of buses, rickshaws, trucks and other public vehicles the LAeq level declined from 90dB to 75dB (Zaidi 1990). Motor engines, horns, loud music on public buses and rickshaws generate at least 65% of the noise in Karachi (Zaidi 1997; Shams 1997). Rickshaws can produce noise levels of 100–110 dBA and do not have silencers. On festive occasions, such as national holidays or political rallies, motorbikes running at high speeds along the Clifton beach in Karachi easily make noise exceeding 120 dBA. (Zaidi 1996).

Another study conducted at 14 different sites in Karachi showed that, in 11 of the sites, the average noise level ranged between 79–80 dB (Bosan & Zaidi 1995). The maximum noise levels at all these sites exceeded 100 dB. Speech interference, measured by the Preferred Speech Interference Level and the Articulation Index, was significant (Shaikh & Rizvi 1990). The study results indicated that two people facing each other at a distance of 1.2 m would have to shout to be intelligible; and the Articulation Indexes demonstrated that communication was unsatisfactory. Of perhaps greater concern are the results of a survey of 587 males between the ages of 17 and 45 years old, who worked as shopkeepers, vehicle drivers, builders and office

assistants. Audiograms showed that 14.6% of the subjects had significant hearing impairment at 3 000–4 000 Hertz (Hasan et al., 2000).

Noise pollution from leisure activities can vary from country to country in the EMRO region. The Panthans in northern Pakistan, for example, like to shoot in the air on festive occasions, such as weddings, without using any noise protection devices. A minimum of 1 000 shots are fired on such occasions; and at a traditional tribal dance called the 'Khattak" the noise level recorded during a particularly enthralling performance in a sports arena was 120dBA. The hunting of wild boar is a common sport in the hinterlands of Sindh. With the rifle shots and the noise made by the beaters, noise levels can easily reach 110 –120 dBA. In some EMRO countries, the younger crowd has taken up the Western habit of listening to Pop music for many hours. Discos and floorshows are confined to a few countries, such as Egypt. Open-air concerts are usually held in stadiums. The noise level recorded at a particularly popular concert was 130 dBA at a distance of 20 m from the stage and 35 m from the amplifiers.

In a study of road traffic at 25 different sites in Peshawar, the third most populous city in Pakistan, 90 traffic constables were taken as cohorts to investigate the extent of NIHL. Of these, 50 did not have any previous history of noise exposure and were taken as controls. Detailed evaluation and audiological investigations established that constables exposed to a noise level of 90 dBA for 8 hours every day suffered from NIHL. Compared to the control subjects, the constables had significant hearing impairment at 3 000 Hz, measured by Pure Tone Audiometry (Akhter 1996).

A similar study of traffic constables in Karachi showed that 82.8% of the constables suffered from NIHL (Itrat & Zaidi 1999). The study also showed that 33.3% of rickshaw drivers, and 56.9% of shopkeepers who worked in noisy bazaars, had hearing impairment. If these findings can be extrapolated to the total populations, there are 1 566 traffic constables (out of a total of 1 890 constables), and 4 067 rickshaw drivers (out of a total of 12 202 drivers) who suffer from NIHL. As has been reported by other researchers, the study also found evidence of acclimatization in the subjects: following an initial, rapid decline, hearing loss stabilized after prolonged noise exposure.

Annoyance.

The citizens of Karachi commonly complain that noise causes irritability and stress. The main sources have been identified as traffic noise, industrial noise and noise generated by human activity. Unfortunately no data are available for the level of annoyance caused by noise exposure in the EMRO region. From limited research around the world, it can be estimated that 35–40% of employees in office buildings are seriously annoyed by noise at sound levels in excess of 55–60 dBA. In countries such as Pakistan, Iran, Jordan and Egypt that level is often seen in most offices. Annoyance is a non-tangible entity and cannot be quantified scientifically. It is a human reaction and perhaps its parameters could include irritability, apprehension, fear, anger, frustration, uneasiness, apathy, chaos and confusion. If such are the parameters, then on a scale of 0–10, with 10 being the greatest annoyance, many EMRO countries could easily score 6 or higher.

Effects of noise on sleep and the cardiovascular system.

In the Eastern Mediterranean region no specific data are available on the effects of noise on sleep or the cardiovascular system. However, factory workers, traffic constables, rickshaw drivers and shopkeepers frequently complain about fatigue, irritability and headaches; and one of the most common causes of poor performance in offices is sleep disturbance. The rising incidence of tinnitus in cities like Karachi is also related to noise exposure, and tinnitus itself can lead to sleep deprivation. Although the effects of noise on the cardiovascular system have been well documented for other countries (Berglund & Lindvall 1995), data are lacking for the EMRO region. However, the prevalence of cardiovascular diseases are on the rise in the EMRO countries, particularly hypertension. While most of the increase in these diseases is due to a rich diet and lack of exercise, the relationship between noise and cardiovascular changes is worth investigating.

The risk to unborn babies and newborns.

Although evidence from other countries indicates that noise may damage the hearing of a fetus, there are no data from the EMRO countries to confirm this. With newborn babies, however, noise from incubators is a major cause of hearing loss in the EMRO region, particularly as 20–27% of them are born underweight (Razi et al. 1995). Once exposed to noise in an incubator, the chances of hearing impairment rapidly rises compared with cohorts in developed countries. Several other factors have also been identified as causing deafness and hearing impairment in newborns in the Eastern Mediterranean region (Zaidi 1998; Zakzouk et al. 1994). They are:

a. Discharge from the ears.

b. Communicable infections.

c. Ototoxicity.

d. Noise.

e. Consanguinity.

f. Iodine deficiency.

Noise Control

Although noise control legislation exists in several EMRO countries, it is seldom enforced, particularly in Pakistan and some neighboring countries. Noise control begins with education, public awareness and the appropriate use of media in highlighting the effects of noise. In Calcutta, for instance, public orientation and mass media mobilization have produced tangible results, and this can easily be done in other countries. Three strategies have been devised for noise control, all of which are practicable in EMRO region countries. They are control at the source, control along the path and control at the receiving end.

There are many ways noise can be controlled at the source. For example, most of the equipment and machinery used in EMRO countries is imported from the West. Noise control could begin by importing quieter machinery, built with newer materials like ceramics or frictionless parts. And at the local level, the timely replacement of parts and proper maintenance of the machines should be carried out. Vehicles like the rickshaw should be banned, or at least be compelled to maintain their silencers, and all vehicles must be put to a road worthiness test periodically. This already occurs in some EMRO countries, but not all. Horns, hooters, music players and other noise making factors must also be controlled. The use of amplifiers and public address systems should also be banned, and social, leisure and religious activities should be restricted to specific places and times.

Along the sound path, barriers can be used to control noise. There are three kinds of barriers available, namely, space absorbers made out of porous material, resonant absorbers and panel absorbers. Architects, for example, use hollow blocks of porous material. The air gaps between building walls not only keep the buildings cool in hot weather, but also reduce the effects of noise. Ceilings and roofs are often treated with absorbent material. In large factories, architects use corrugated sheets and prefabricated material, which are helpful in reducing noise levels. In Pakistan, some people use clay pots in closely ranked positions on rooftops to reduce the effect of heat as well as noise. For civic works and buildings, special enclosures, barriers and vibration controlling devices should be used. Public halls, such as cinemas, mosques and meeting places should have their walls and floors carpeted, and covered with hangings, mats etc. An effective material is jute, which is grown in many countries, mainly Bangladesh, and it is quite economical. Some of the old highways and most of the busy expressways need natural noise barriers, such as earth banks, trees and plants.

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SOUTH-EAST ASIAN REGION. (Sudhakar B. Ogale)

Introduction

The ability to hear sound is a sensory function vital for human survival and communication. However, not all sounds are wanted. Unwanted sounds, for which the term "noise" is normally used, often originate from human activities such as road traffic, rail traffic, aircraft, discos, electric power generators, festivals, firecrackers and toys. In general, however, data on noise pollution in South east Asian countries are not available. For example, there are no comprehensive statistical data regarding the incidence and etiology of hearing impairment. Consequently, it is difficult to estimate the exact percentage of the population affected by community noise.

Excessive noise is the major contributor to many stress conditions. It reduces resistance to illness by decreasing the efficiency of the immune system, and is the direct cause of some gastrointestinal problems. Noise also increases the use of drugs, disturbs sleep and increases proneness to accidents. An increased incidence of mental illness and hospital admissions, increases in absenteeism from work and lethargy from sleep disturbance all result from noise pollution and cause considerable loss of industrial production.

Noise Exposure in India

India is rapidly becoming industrialized and more mechanized, which directly affects noise levels. However, no general population study regarding the magnitude of the noise problem in India has been performed.

Road Traffic Noise

Exposure. A study by the Indian Institute of Road Traffic (IRT) reported that Delhi was the noisiest city in India, followed by Calcutta and Bombay (IRT 1996; Santra & Chakrabarty 1996). The survey examined whether road-traffic noise affected people with respect to annoyance, sleep disturbance, interference with communication and hearing impairment. It showed that 35% of the population in four major cities have bilateral sensory neural hearing loss at noise emission levels above 82 dBA. This is of particular concern in light of a second study, showing that LAeq,24h levels at 24 kerbside locations in Calcutta were 80–92 dBA (Chakrabarty et al. 1997) The mean noise emission levels of four different vehicle categories are presented in Table A2.1.

Table A2.1: Mean noise emission levels of vehicles

Type of vehicle	Mean sound pressure level
2 wheelers (motor cycle)	82 dBA
3 wheelers (auto rickshaw)	87 dBA
Motor car (taxi, private cars)	85 dBA
Heavy vehicles (trucks)	92 dBA

Control Measures. Only recently has noise pollution been considered an offence in India, under the Environmental (Protection) Act 1986. Several measures are being taken to reduce traffic-noise exposure. These include:

a. Planting trees, shrubs and hedges along roadsides.

b. Mandatory, periodic vehicle inspections by road traffic control.

c. Reintroduction of silent zones, such as around schools, nursing homes and hospitals that face main roads.

d. Regulation of traffic discipline, and a ban on the use of pressure horns.

e. Enforcement of exhaust noise standards.

f. Mandating that silencers be effective in three-wheeled vehicles.

g. The use and construction of bypass roads for heavy vehicles.

h. Limiting night-time access of heavy vehicles to roads in residential neighbourhoods

i. Installation of sound-proof windows.

j. Proper planning of new towns and buildings.

Air Traffic Noise

Many airports were originally built at some distance from the towns they served. But due to growing populations and the lack of space, buildings are now commonly constructed alongside airports in India.

Exposure. A survey revealed that aircraft produced a high level of noise during take-off, with sound pressure levels of 97–109 dBA for the Airbus, and 109 dBA for Boeing aircraft (SB Ogale, unpublished observations). During landing, the aircraft produced a sound pressure level of 108 dBA. Although exposure to aircraft noise is considered to be less of a problem than exposure to traffic noise, the effects of air-traffic noise are similar to those of road traffic, and include palpitations and frequent awakenings at night.

Control measures. The use of ear muffs must be made obligatory at the airport. This can reduce noise exposure to a safe level. An air-traffic control act should also enforce the use and introduction of low-noise aircraft, and mandate fewer night-time flights.

Rail Traffic Noise

Very little attention has been paid to the problems of railway noise.

Exposure. In Bombay, where the majority of residential buildings are situated on either side of railway tracks, residents are more prone to suffer from acoustic trauma. More than 14% of the population in Bombay suffer from sleep disturbances during night, due to high-speed trains and their whistling. A study on surface railways (SB Ogale, unpublished observations) revealed that platform noise was 71–73 dBA in the morning and 78–83 dBA in the evening. The noise from loudspeakers mounted in the platform was 87–90 dBA. At a distance of 1 m from the engine, the whistle noise was 105–108 dBA for a train with an electric engine, up to 110 dBA for a train with diesel engine and 118 dBA for steam engine trains. Vacuum brakes produced noise levels as high as 95 dBA. This suggests that unprotected railway staff on platforms are at risk of permanent noise induced hearing loss.

Festival noise

Festival noise in India was first surveyed in Bombay in late 1970, during the Ganpati festival period. A similar study (Santra et al. 1996) was conducted soon after in Calcutta at the Durga Pooja festival during evening hours (18:00–22:00). The music from loudspeakers produces sound pressure levels of more than 112 dBA. During the festival period the residents experienced a noisy environment for 8–10 h at a stretch, with noise level of 85–95 dBA. This level is above the 80 dBA limit set by WHO for industrial workers exposed to noise for a maximum period of 8 hours.

Control measures. In a religious country, it is politically difficult to restrict religious music, even in the interests of public health. A ban on all music from loudspeakers after 22:00 would decrease the sound pressure levels to below the permissible legal limit. A preventive programme is advocated to measure noise levels with sound level metres.

Fire crackers and toy weapons noise

Exposure. A study conducted by Gupta & Vishvakarma (1989) at the time of Deepawali, an Indian festival of fireworks, determined the auditory status of 600 volunteers from various age groups, before and after exposure to firecrackers. The study also measured the acoustical output of representative samples of toy weapons and firecrackers, and the noise intensity level at critical spectator points. The average sound level at a distance of 3 m from the noise source was 150 dBA, exceeding the 130 dBA level at which adults are at risk for hearing damage. On average, 2.5% of the people surveyed during Deepawali had persistent sensory neural hearing loss of 30 dBA, with those in the 9–15 year old age group being most affected.

Control Measures. A judicious approach in the manufacture and use of toy weapons and firecrackers is encouraged, in addition to legal restraints. Fireworks should be more a display of light, rather than sound.

Generator Noise

Diesel generators are often used in India to produce electric power. Big generators produce sound pressure levels exceeding 96 dBA (SB Ogale, unpublished observations).

Conclusions

No comprehensive statistical data are available for community noise in India, however, the main sources of environmental noise are road traffic, air traffic, rail traffic, festivals, firecrackers and diesel generators. The adverse effects of noise are difficult to quantify, since tolerance to noise levels and to different types of noise varies considerably between people. Noise intensity also varies significantly from place to place. It should also be noted that noise data from different countries are often not obtained by the same method, and in general models have been used which are based on data from a limited number of locations. Noise control measures could be taken at several levels, including building design, legal measures, and educating the people on the health dangers of community noise. In India, what is needed now is noise control legislation and its strict enforcement, if a friendly, low-noise environment is to be maintained.

Noise Exposure in Indonesia

According to a report by the WHO, the noise exposure and control situation in Indonesia is as follows (Dickinson 1993).

Exposure. No nationwide data are available for Indonesia. However, during the last three decades there has been rapid growth in transportation, industry and tourism in Indonesia.

Control Measures. With the large majority of people having little income, protection of the physical environment has not been a first-order priority. The following recommendations have been made with respect to community noise (Dickinson 1993):

a. The cities of Indonesia have relatively large populations and each provincial government will need the staff and equipment to monitor and manage the environment.

b. Sound level meters with noise analysis computer programmes should be purchased.

c. Training courses and adequate equipment should be provided.

d. Noise management planning for airports should be promoted.

e. Reduction measures should be taken for road-traffic noise.

Noise Exposure in Bangladesh

Exposure. In Bangladesh no authentic statistical data on the effects of community noise on deafness or hearing impairment are available (Amin 1995).

Control Measures. Governments have meager resources, a vast population to contend with and high illiteracy rates; consequently, priorities are with fighting hunger, malnutrition, diseases and various man-made and natural calamities. The governments are unable to give the necessary attention towards the prevention, early detection and management of noise disabilities in the country. Close cooperation is needed between the national and international organizations, to exchange ideas, skills and knowledge (Amin 1995).

Noise Exposure in Thailand

Exposure. Noise from traffic, construction, and from factories and industry has become a big problem in the Bangkok area. The National Environmental Board of Thailand was set up two decades ago and has been active in studying the pollution problems in Thailand. Indeed, a committee on noise pollution control was set up to study the noise pollution in Bangkok area and its surroundings. Although regulations and recommendations were made for controlling various sources of noise, the problem was not solved due to a lack of public awareness, the difficulty of proving that noise had adverse effects on health and hearing, and the difficulty of getting access to control noise. A general survey revealed that 21.4% of the Bangkok population is suffering from sensory neural hearing loss (Prasanchuk 1997). Noise sources included street noise, traffic noise, industrial noise and leisure noise.

Control Measures. In 1996, regulations for noise pollution control set LAeq,24h levels at 70 dBA for residential areas, and less than 50 dBA to avoid annoyance. The National Committee on Noise Pollution Control has been asked to study the health effects of noise in the Bangkok area and its surroundings, and determine whether these regulations are realistic and feasible.

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WESTERN PACIFIC REGION.

In this section, information on noise pollution and control will be given for three countries in the Western Pacific Region, namely Australia, the People's Republic of China and Japan. From a noise pollution point of view China may be viewed as a developing country, whereas Japan and Australia, with their high level of industrialization, represent developed countries.

Australia (Andrew Hede & Michinori Kabuto)

Exposure. Australia has a population of 18 million with the majority living in cities that have experienced increasing noise pollution from a number of sources. The single most serious source of noise is road traffic, although in major cities such as Sydney, Melbourne and Perth, large communities are exposed to aircraft noise as well. Other important sources of noise pollution are railway noise and neighbourhood noise (including barking dogs, lawn mowers and garbage collection). A particular problem in Australia is that the climate encourages most residents to live with open windows, and few houses have effective noise insulation.

A study of road-traffic noise was conducted at 264 sites in 11 urban centres with populations in excess of 100 000 people (Brown et al. 1994). Noise was measured one metre from the façade of the most exposed windows and at window height. From the results, it was estimated that over 9% of the Australian population is exposed to LA10,18h levels of 68 dB or greater, and 19% of the population is exposed to noise levels of 63 dB or greater. In terms of LAeq values for daytimes, noise exposure in Australia is worse than in the Netherlands, but better than in Germany, France, Switzerland or Japan.

Control. In the mid-1990's, when a third runway was built at Sydney Airport, the government funded noise insulation of high-exposed dwellings. Increasingly, too, major cities are using noise barriers along freeways adjacent to residential communities. In most states barriers are mandatory for new freeways and for new residential developments along existing freeways and major motorways. There has been considerable testing of noise barriers by state agencies, to develop designs and materials that are cost effective.

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China (Chen Ming)

Introduction

Urban noise pollution has become a contemporary world problem. Urban noise influences people's living, learning and working. People exposed to noise feel disagreeable and cannot concentrate on work. Rest and sleep are also disturbed. People exposed to high-intensity noise

do not hear alarm signals and cannot communicate with each other. This can result in injury and, indeed, with the modernization of China, construction accidents related to noise are increasing. According to statistics for several cities in China, including Beijing, Shanghai, Tientsin and Fuzhou, the proportion of total accidents that were noise related was 29.7% in 1979, 34.6% in 1980, 44.8% in 1981 and 50% in 1990. It is therefore very important to control noise pollution in China.

Long-term exposure to urban environmental noise can lead to temporary hearing loss (assessed by temporary threshold shift), permanent hearing loss (assessed by permanent threshold shift) or deafness. Microscopy studies have shown that in people exposed to noise for long periods, hair cells, nerve fibers and ganglion cells were absent in the cochleae, especially in the basal turns. The primary lesion is in the 8–10 mm region of the cochlea, which is responsible for detecting sound at a frequency of 4 000 Hz. People chronically exposed to noise may first complain about tinnitus and, later on, about hearing loss. This is especially true for patients who have bilateral hearing loss at 4 000 Hz, but who have relatively good hearing other frequencies. Non-auditory symptoms of noise include effects on the nervous system, cardiovascular system and blood system. These symptoms were rarely observed in China in the past, but today more and more people complain about hearing damage and non-auditory physiological effects.

Urban environmental noise has thus become a common concern of all members of society. A key to resolving the complex noise issue lies in the effective control of urban noise sources. Control measures include reducing noise at its source, changing noise transmission pathways, building design, community planning and the use of personal hearing protection.

Urban environmental noise sources can be divided into industrial noise, traffic noise, building architecture noise and community district noise sources. Only the last three types are of concern here.

Traffic Noise

There are four sources of traffic noise: road traffic, railway transport, civil aviation and water transport; of these, road traffic is the main source of urban noise. The sound emission levels of heavy-duty trucks are 82–92 dBA and 90–100 dBA for electric horns; air horns are even worse, with sound emission levels of 105–110 dBA. Most urban noise from automobiles is in the 70–75 dB range, and it has been estimated that 27% of all complaints are about traffic noise. When a commercial jet takes off, speech communication is interrupted for up to 1 km on both sides of the runway, but people as far away as 4 km are disturbed in their sleep and rest. If a supersonic passenger plane flies at an altitude of 1 500 m, its sound pressure waves can be heard on the ground in a 30–50 km radius.

Building Noise

As a result of urban development in China, construction noise has become an increasingly serious problem. It is estimated that 80% of the houses in Fuzhou were built in the past 20 years. According to statistics, the noise from ramming in posts and supports is about 88 dB and the noise from bulldozers and excavators is about 91 dB, 10 m from the equipment. About 98% of

industrial noise is in the 80–105 dB range, and it is estimated that 20% of all noise complaints is about industrial noise.

Community Noise

The main sources of community noise include street noise, noise from electronic equipment (air conditioners, refrigerators, washing machines, televisions), music, clocks, gongs and drums. Trumpets, gongs, drums and firecrackers, in particular, seriously disturb normal life and lead to annoyance complaints.

In conclusion, urban noise pollution in China is serious and is getting worse. To control noise pollution, China has promulgated standard sound values for environmental noise. These are summarized in table A2.2.

Table A2.2: LAeq standard values in dB for environmental noise in urban areas.

Applied area	day	night
Special residential quarters[1]	45	35
Residential and cultural education area[2]	50	40
Type 1 mixed area[3]	55	45
Type 2 mixed area[4] or commercial area	60	50
Industrial area	65	55
Arterial roads[5]	70	55

1 Special residential quarters: quiet residential area
2 Residential and cultural education area: residential quarters, cultural, educational offices
3 Type 1 mixed area: mixture of commercial area and residential quarters
4 Type 2 mixed area: mixture of industrial area, commercial area, residential quarters and others
5 Roads with traffic volume of more than 100 cars per hour

The peak sound levels for frequent noises emitted during the night-time are not allowed to exceed standard values by more than 10 dBA. Single, sudden noises during the night-time are not allowed to exceed standard values by more than 15dBA.

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Japan (Michinori Kabuto)

Environmental Quality Standards

Noise standards for both general and roadside areas were set in Japan in 1967, through the "Basic Law for Environmental Pollution." This law was updated in September 1999. Each standard is classified according to the type of land use and the time of day. In ordinary residential areas, the night-time standard is 45 dB LAeq, but in areas that require even lower noise exposure, such as hospitals, this is lowered to 40 dB LAeq. In contrast, the daytime levels for commercial and industrial areas is as high as 60 dBA. Standards for roadside areas are 70 dB LAeq for daytime and 65 dB LAeq for nighttime. Between 1973–1997 noise standards for aircraft noise, super-express train noise and conventional railway train noise were also implemented. Standards for aircraft noise were set in terms of the weighted equivalent continuous perceived noise level (WECPNL). For residential areas, the WECPNL standard is 70 dBA, and is 75 dBA for areas where it is necessary to maintain a normal daily life.

For super-express trains, the Environmental Agency required noise levels to be below 75 dBA in densely populated residential areas, such as along the Tokaido and Sanyo Shinkansen lines, as well as in increasingly populated areas, such as along the Tohoku and Joetsu Shinkansen lines. The standards were to be met by 1990, but by 1991 this level had been achieved at only 76% of the measuring sites on average. Noise countermeasures included the installation of new types of sound-proof walls, and laying ballast mats along densely populated stretches of the four Shinkansen lines. Noise and vibration problems can also result from conventional trains, such as occurred with the opening of the Tsugaru Strait and Seto Ohashi railway lines in 1988. Various measures have since been taken to address the problems.

Complaints About Community Noise.

In Japan, complaints to local governments about environmental problems have been summarized annually and reported by Japan Environmental Agency. Thirty-seven percent of all complaints was due to factory (machinery) noise; 22% to construction noise; 3% to road traffic noise; 4% to air traffic noise; 0.8% to rail traffic noise; 9% to night-time business; 6% to other commercial activities; 2.5% to loudspeaker announcements; 9% to domestic noise; and 8% was due to miscellaneous complaints.

Sources of Noise Exposure and their Effects

Road-traffic noise. The number of automobiles in Japan has increased from 20 million in 1971 to 70 million in 1994, a 3.5-fold increase. One-third of this increase was due to heavy-duty vehicles. Since 1994, out of a total of 1 150 000 km of roads in Japan, only 29 930 km have been designed according to noise regulations. According to 1998 estimates by the Environmental Agency, 58% of all roads passed through residential areas. Daytime noise limits were exceeded in 92% of all cases, and night-time limits were exceeded in 87% of all cases. The study also estimated that 0.5 million houses within 10 m of the roads were exposed to excessive traffic noise. In a recent lawsuit, the Japanese Supreme Court ruled that people should be compensated when exposed to night-time noise levels exceeding 65 dB Laeq. This would apply to people living alongside 2 000 km of roads in Japan.

A recent epidemiological study examined insomnia in 3 600 women living in eight different roadside areas exposed to night-time traffic. Insomnia was defined as one or more of the following symptoms: difficulty in falling asleep; waking up during sleep; waking up too early; and feelings of sleeplessness one or more days a week over a period of at least a month. The data were adjusted for confounding variables, such as age, medical care, whether the subjects had young children to care for, and sleep apnea symptoms. The results showed that the odds ratio for insomnia was significantly correlated with the average night-time traffic volume for each of the eight areas and suggested that insomnia could be attributed solely to night-time road traffic.

From the most noisy areas in the above study 19 insomnia cases were selected for a further in-depth examination. The insomnia cases were matched in age and work with 19 control subjects. Indoor and outdoor sound levels during sleep were measured simultaneously at 0.6 s intervals. For residences facing roads with average night-time traffic volume of 6 000 vehicles per hour, the highest sound levels observed were 78–93 dBA. The odds ratios for insomnia in each of the quartiles for LAmax,1min; L50,1min; L10,1min and LAeq,1min generally showed a linear trend and ranged between 1 (lowest quartile) and 6–7 (highest quartile). It was concluded that insomnia was likely to result when night-time indoor LAeq, 1min sound levels exceeded 30 dBA.

Air-traffic noise At the larger Japanese airports (Osaka, Tokyo, Fukuoka), jet airplanes have rapidly increased in number and have caused serious complaints and lawsuits from those living nearby. Complaints about jet-fighter noise are also common from residents living in the vicinity of several U.S. airbases located in Japan. In the case of Kadena and Futemma airbases on Okinawa, a recent study by the Okinawa Prefecture Government suggested that hearing loss, child misbehaviour and low birth-weight babies were possible health effects of the noise associated with these bases (RSCANIH 1997). Using measurements taken in 1968 during the Vietnam War, it was estimated that the WECPNL was 99–108 dBA at the Kadena village fire station. Similar WECPNL estimates of 105 dBA were also obtained for Yara (Kadena-cho) and Sunabe (Chatan-cho) bases. These levels correspond to a LAeq,24h value of 83 dB, and are of serious concern in light of recommendations by the Japan Association of Industrial Health that occupational noise exposure levels should not exceed 85 dB for an 8-h work day if hearing loss is to be avoided.

Audiogrammes of subjects living in areas surrounding Kadena airport indicated that they had progressive hearing loss at higher frequencies. Eight subjects had hearing impairment in the 3–6 kHz range, which strongly suggested that the hearing loss was due to excessive noise exposure. Since the examiners confirmed the subjects had not been exposed to repeated intense noise at their residences or workplaces, the most likely cause of their hearing loss was the intense aircraft noise during take-offs, landings and tune-ups at Kadena airport.

The effects of noise were examined in children from nursery schools and kindergartens in towns surrounding Kadena airport. The children were scored with respect to seven variables: cold symptoms, emotional instability, discontentment-anxiety, headache-stomachache, passivity, eating problems and urination problems. Confounding factors, such as sex, age, birth order, the number of parents living together, the mother's age when the child was born, reaction to noise and the extent of noise exposure, were taken into account. The results showed that children exposed to noise had significantly more problems with respect to their behaviour, physical condition, character and reaction to noise, when compared to a control group of children that had not been exposed to airport noise. This was especially true of for children exposed to a WECPNL of 75 or more. Thus, small children acquire both physical and mental disorders from chronic exposure to aircraft noise.

Chronic exposure to aircraft noise also affects the birth-weight of children. The birth-weights of infants were analyzed using records from 1974 to 1993 in the Okinawa Prefecture. Confounding factors such as the mother's age, whether there were single or multiple embryos, the child's sex, and the legitimacy of the child were considered. The results showed that 9.1 % of all infants born in Kadena-cho, located closest to Kadena airport, had low birth-weights. This was significantly higher than the 7.6 % rate seen in other municipalities around Kadena and Futemma airfields, and much higher than the 7 % rate in cities, towns and villages on other parts of Okinawa Island.

Rail-traffic noise. Commuter trains and subway cars expose Tokyo office workers to much higher noise levels than do other daily activities (Kabuto & Suzuki 1976). Exposure to indoor noise may vary according to railway line or season (there are more open windows in good weather), but the levels range from 65–85 dBA. In general, these values exceeded the LAeq,24h level of 70 dBA for auditory protection (US EPA 1974).

Neighbourhood noise. Neighbourhood noise, including noise from late-night business operations, noise caused by loudspeaker announcements, and noise from everyday activities, have accounted for approximately 39% of all complaints about noise in recent years. At present, noise controls for late-night business operations have been enforced by ordinances in 39 cities and prefectures, and in 42 cities for loudspeaker announcements.

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Appendix 3 : Glossary

Acoustic	Pertaning to sound or to the sense of hearing (CMD 1997)
Acoustic dispersion	Change of speed of sound with frequency (ANSI 1994)
Acoustic trauma	Injury to hearing by noise, especially loud noise (CMD 1997)
Adverse effect	(of noise:) A change in morphology and physiology of an organism which results in impairment of functional capacity or impairment of capacity to compensate for additional stress or increase in susceptibility to the harmful effects of other environmental influences. This definition includes any temporary or long term lowering of physical, psychological or social functioning of humans or human organs (WHO 1994)
Annoyance	A feeling of displeasure associated with any agent or condition known or believed by an individual or a group to be adversely affecting them" (Lindvall and Radford 1973; Koelega 1987). Any sound that is perceived as irritating or a nuisance (ANSI 1995)
Anxiety	A feeling of apprehension, uncertainty, and fear without apparent stimulus, and associated with physiological changes (tachycardia, sweating, tremor, etc.) (DIMD 1985). A vaguer feeling of apprehension, worry, uneasiness, or dread, the source of which is often nonspecific or unknown to the individual (CMD 1997).
Audiometry	Testing of the hearing sense (CMD 1997). Measurement of hearing, including aspects other than hearing sensitivity (ANSI 1995)
Auditory	Pertaining to the sense of hearing (CMD 1997)
Auditory threshold	Minimum audible sound perceived (CMD 1997)
A-weighting	A frequency dependent correction that is applied to a measured or calculated sound of moderate intensity to mimick the varying sensitivity of the ear to sound for different frequencies

Ambient noise	All-encompassing sound at a given place, usually a composite of sounds from many sources near and far (ANSI 1994)
Articulation index	Numerical value indicating the proportion of an average speech signal that is understandable to an individual (ANSI 1995)
Bel	Unit of level when the base of the logarithm is ten, and the quantities concerned are proportional to power; unit symbol B (ANSI 1994)
Cardiovascular	Pertaining to the heart and blood vessels (DIMD 1985)
Cochlea	A winding cone-shaped tube forming a portion of the inner ear. It contains the receptor for hearing (CMD 1997)
Cognitive	Being aware with perception, reasoning, judgement, intuition, and memory (CMD 1997)
Community noise	Noise emitted from all noise sources except noise at the industrial workplace (WHO 1995a)
Cortisol	A glucocortical hormone of the outer layer of the adrenal gland (CMD 1997)
Critical health effect	Health effect with lowest effect level
C-weighting	A frequency dependent correction that is applied to a measured or calculated sound of high intensity to mimick the varying sensitivity of the ear to sound for different frequencies
dB	Decibel, one-tenth of a bel
dBA	A-weighted frequency spectrum in dB, see A-weighting
dBC	C-weighted frequency spectrum in dB, see C-weighting
dBlin	Unweighted frequency spectrum in dB
Decibel	Unit of level when the base of the logarithm is the tenth root of ten, and the quantities concerned are proportional to power; unit symbol dB (ANSI 1994)

Ear plug	Hearing protector that is inserted into the ear canal (ANSI 1994)
Ear muff	Hearing protector worn over the pinna (external part) of an ear (ANSI 1994)
Effective perceived noise level	Level of the time integral of the antilogarithm of one tenth of tone-corrected perceived noise level over the duration of an aircraft fly-over, the reference duration being 10 s (ANSI 1994)
Emission	(of sounds). Sounds generated from all types of sources
Epinephrine	A hormone secreted by the adrenal medulla (inner or central portion of an organ) in response to stimulation of the sympathetic nervous system (CMD 1997)
Equal energy principle	Hypothesis that states that the total effect of sound is proportional to the total amount of sound energy received by the ear, irrespective of the distribution of that energy in time
Equivalent sound pressure level	Ten times the logarithm to the base ten of the ratio of the time-mean-square instantaneous sound pressure, during a stated time interval T, to the square of the standard reference sound pressure (ANSI 1994)
Exposure-response curve	Graphical representation of exposure-response relationship
Exposure-response relationship	(With respect to noise:) Relationship between specified sound levels and health impacts
Frequency	For a function periodic in time, the reciprocal of the period (ANSI 1994)
Frequency-weighting	A frequency dependent correction that is applied to a measured or calculated sound (ANSI 1994)
Gastro-intestinal	Pertaining to the stomach and intestines (CMD 1997)
Hearing impairment, hearing loss	A decreased ability to perceive sounds as compared which what the individual or examiner would regard as normal (CMD 1997)
Hearing threshold	For a given listener and specified signal, the minimum (a) sound pressure level or (b) force level that is capable of

	evoking an auditory sensation in a specified function of trials (ANSI 1994)
Hertz	Unit of frequency, the number of times a phenomenon repeats itself in a unit of time; abbreviated to Hz
Hysteria	A mental disorder, usually temporary, presenting somatic (pertaining to the body) symptoms, stimulating almost any type of physical disease. Symptoms include emotional instability, various sensory disturbations, and a marked craving for sympathy (CMD 1997)
Immission	Sounds impacting on the human ear.
Impulsive sound	Sound consisting of one or more very brief and rapid increases in sound pressure
Incubator	An enclosed crib, in which the temperature and humidity may be regulated, for care of premature babies (CMD 1997)
Isolation, insulation	(With respect to sound:) Between two rooms in a specified frequency band, difference between the space-time average sound presssure levels in the two enclosed spaces when one or more sound sources operates in one of the rooms (ANSI 1994). (With respect to vibrations:) Reduction in the capacity of a system to respond to excitation, attained by use of resilient support (ANSI 1994).
Ischaemic Heart Disease	Heart disease due to a local and temporary deficiency of blood supply due to obstruction of the circulation to a part (CMD 1997)
Loudness level	Of a sound, the median sound pressure level in a specified number of trials of a free progressive wave having a frequency of 1000 Hz that is judged equally loud as the unknown sound when presented to listeners with normal hearing who are facing the source; unit phon (ANSI 1994)
Level	Logarithm of the ratio of a quantity to a reference quantity of the same kind; unit Bel (ANSI 1994)
Maximum sound level	Greatest fast (125 milliseconds) A-weighted sound level, within a stated time interval (ANSI 1994)

Mental Health	The absence of identifiable psychiatric disorder according to current norms (Freeman 1984). In noise research, mental health covers a variety of symptoms, ranging from anxiety, emotional stress, nervous complaints, nausea, headaches, instability, argumentativeness, sexual impotency, changes in general mood and anxiety, and social conflicts, to more general psychiatric categories like neurosis, phychosis and hysteria (Berglund and Lindvall 1995).
Morphological	Pertaining to the science of structure and form of organisms without regard to function (CMD 1997)
Nausea	An unpleasant sensation usually preceding vomiting (CMD 1997)
Neurosis	An emotional disorder due to unresolved conflicts, anxiety being its chief characteristic (DIMD 1985)
Noise	Undesired sound. By extension, noise is any unwarranted disturbance within a useful frequency band, such as undesired electric waves in a transmission channel or device (ANSI 1994).
Noise induced temporary threshold shift	Temporary hearing impairment occurring as a result of noise exposure, often phrased temporary threshold shift (adapted from ANSI 1994)
Noise induced permanent threshold shift	Permanent hearing impairment occurring as a result of noise exposure, often phrased permanent threshold shift (adapted from ANSI 1994)
Noise level	Level of undesired sound
Norepinephrine	A hormone produced by the adrenal medulla (inner or central portion of an organ), similar in chemical and pharmacological properties to epinephrine, but chiefly a vasoconstrictor with little effect on cardiac output (CMD 1997)
Oscillation	Variation, usually with time, of the magnitude of a quantity with respect to a specified reference when the magnitude is alternately greater and smaller than the reference (ANSI 1994)

Ototoxic	Having a detrimental effect on the organs of hearing (CMD 1997)
Paracusis	Any abnormality or disorder of the sense of hearing (CMD 1997)
Pascal	Unit of pressure, equal to one newton per square meter, abbreviated to Pa
Peak sound pressure	Greatest absolute instantaneous sound pressure within a specified time interval (ANSI 1994)
Peak sound pressure level	Level of peak sound pressure with stated frequency weighting, within a specified time interval (ANSI 1994)
Perceived noise level	Frequency-weighted sound pressure level obtained by a stated procedure that combines the sound pressure levels in the 24 one-third octave bands with midband frequencies from 50 Hz to 10 kHz (ANSI 1994)
Permanent threshold shift, permanent hearing loss	Permanent increase in the auditory threshold for an ear (adapted from ANSI 1995) (see also: noise induced permanent threshold shift)
Presbyacusia, presbycusis	The progressive loss of hearing ability due to the normal aging process (CMD 1997)
Psychiatric disorders	Mental disorders
Psychosis	Mental disturbance of a magnitude that there is a personality disintegration and loss of contact with reality (CMD 1997)
Psychotropic drug	A drug that affects psychic function, behaviour or experience (CMD 1997)
Reverberation time	Of an enclosure, for a stated frequency or frequency band, time that would be required for the level of time-mean-square sound pressure in the enclosure to decrease by 60 dB, after the source has been stopped (ANSI 1994)
Sensorineural	Of or pertaining to a sensory nerve; pertaining to or affecting a sensory mechanism and/or a sensory nerve (DIMD 1985)

Signal	Information to be conveyed over a communication system (ANSI 1994)
Signal-to-noise ratio	Ratio of a measure of a signal to the same measure of the noise (ANSI 1995) (see also: noise –in its extended meaning)
Silencer	Duct designed to reduce the level of sound; the sound-reducing mechanisms may be either absorptive or reactive, or a combination (ANSI 1994)
Sound absorption	Change in sound energy into some other form, usually heat, in passing through a medium or on striking a surface (ANSI 1994)
Sound energy	Total energy in a given part of a medium minus the energy that would exist at that same part with no sound waves present (ANSI 1994)
Sound exposure	Time integral of squared, instantaneous frequency-weighted sound pressure over a stated time interval or event (ANSI 1994)
Sound exposure level	Ten times the logarithm to the base ten of the ratio of a given time integral of squared, instantaneous A-weighted sound pressure, over a stated time interval or event, to the product of the squared reference sound pressure of 20 micropascals and reference duration of one second (ANSI 1994)
Sound intensity	Average rate of sound energy transmitted in a specified direction at a point through a unit area normal to this direction at the point considered (ANSI 1994)
Sound level meter	Device to be used to measure sound pressure level with a standardized frequency weighting and indicated exponential time weighting for measurements of sound level, or without time weighting for measurement of time-average sound pressure level or sound exposure level (ANSI 1994)
Sound pressure	Root-mean-square instantaneous sound pressure at a point, during a given time interval (ANSI 1994), where the *instantaneous* sound pressure is the total instantaneous pressure in that point minus the static pressure (ANSI 1994)

Sound pressure level	Ten times the logarithm to the base ten of the ratio of the time-mean-square pressure of a sound, in a stated frequency band, to the square of the reference sound pressure in gases of 20 μPa (ANSI 1994)
Sound reduction index	Single-number rating of airborne sound insulation of a partition (ANSI 1994)
Sound transmission class	Single-number rating of airborne sound insulation of a building partition (ANSI 1994)
Speech interference level	One-fourth of the the sum of the band sound pressure levels for octave-bands with nominal midband frequencies of 500, 100, 2000 and 4000 Hz (ANSI 1994)
Speech intelligibility	That property which allows units of speech to be identified (ANSI 1995)
Speech perception	Psychological process that relates a sensation caused by a spoken message to a listener's knowledge of speech and language (ANSI 1995)
Speech comprehension	(a) Highest level of speech perception. (b) Knowledge or understanding of a verbal statement (ANSI 1995)
Speech transmission index	Physical methgod for measuring the quality of speech-transmission channels accounting for nonlinear distortions as well as distortions of time (ANSI 1995)
Stereocilia	Nonmotile protoplasmic projections from free surfaces on the hair cells of the receptors of the inner ear (CMD 1997)
Stress	The sum of the biological reactions to any adverse stimulus, physical, mental or emotional, internal or external, that tends to disturb the organism's homeostasis (DIMD 1985)
Temporary threshold shift, temporary hearing loss	Temporary increase in the auditory threshold for an ear caused by exposure to high-intensity acoustic stimuli (adapted from ANSI 1995) (see also: noise induced temporary threshold shift).
Tinnitus	A subjective ringing or tinkling sound in the ear (CMD 1997). Otological condition in which sound is perceived by

	a person without an external auditory stimulation. The sound may be a whistling, ringing, buzzing, or cricket type sounds, but auditory hallucinations of voices are excluded (ANSI 1995).
Vibration	Oscillation of a parameter that defines the motion of a mechanical system (ANSI 1994)

For references see Appendix A.

Appendix 4 : Acronyms

AAP	American Academy of Pediatrics
AI	Articulation Index
AMIS	Air Management Information System (WHO, Healthy Cities)
ANEF	Australian Noise Exposure Forecast
ANSI	American National Standard Institute, Washington DC, USA
ASCII	American Standard Code for Information Interchange
ASHA	American Speech-Language-Hearing Association, Rockville, MD, USA
ASTM	American Society for Testing and Materials, West Conshohocken, PA, USA
CEN	Comité Européen de Normalisation, Brussels, Belgium (European Committee for Standardization)
CFR	Code of Federal Regulations (United States)
CIAL	Centro de Investigaciones Acústicas y Luminotécnicas, Córdoba, Argentina (Centre of acoustical and light-technical investigations)
CMD	Cyclopedic Medical Dictionary
CNRC	Conseil National de Recherches du Canada (National Research Council)
COPD	Chronic Obstructive Pulmonary Disease
CSD	Commission for Sustainable Development
CSIRO	Commonwealth Scientific and Industrial Research Organization
CVS	Cardiovascular System
DNL	Day-Night Average Sound Level (United States)
EC DG	European Commission Directorate General
ECE	Economic Commission for Europe
ECMT	European Conference of Ministers of Transport
EHIAP	Environmental Health Impact Assessment Plan
EIAP	Environmental Impact Assessment Plan
EMRO	WHO Regional Office of the Eastern Mediterranean
ENIA	Environmental Noise Impact Analysis
EPNL	Effective Perceived Noise Level measure
EU	European Union
FAA	Federal Aviation Administration (United States)
FFT	Fast Fourier Transform technique
GIS	Geographic Information System
Hz	Hertz, the unit of frequency
ICAO	International Civil Aviation Organization
ICBEN	International Commission on the Biological Effects of Noise
IEC	International Electrotechnical Commission
ILO	International Labour Office, Geneva, Switzerland
INCE	Institute of Noise Control Engineering of the United States of America
INRETS	Institut National de REcherche sur les Transports et leur Sécurité, Arcueil, France (National Research Institute for Transport and their Safety)
ISO	International Standards Organization
I-INCE	International Institute of Noise Control Engineering
L10	10 percentile of sound pressure level

L50	Median sound pressure level
L90	90-percentile of sound pressure level
LA	Latin America
LAeq,T	A-weighted equivalent sound pressure level for period T
LAmax	Maximum A-weighted sound pressure level in a stated interval
L_{dn}	Day and night continuous equivalent sound pressure level
Leq,T	Equivalent sound pressure level for period T
LEQ(FLG)	Descriptor used for aircraft noise (Germany)
LNIP	Low Noise Implementation Plan
Lp	Sound pressure level
MTF	Modulation Transfer Function
NASA	National Aeronautics and Space Administration (United States)
NC	Noise Criterion
NCA	Noise Control Act (United States)
NCB	Balanced Noise Criterion procedure system
NEF	Noise Exposure Forecast
NEPA	National Environmental Policy Act (United States)
NGO	Non Governmental Organization
NIHL	Noise Induced Hearing Loss
NIPTS	Noise Induced Permanent Threshold Shift
NITTS	Noise Induced Temporary Threshold Shift
NNI	Noise and Number Index
NR	Noise Rating
NRC	National Research Council (United States, Canada)
OECD	Organisation for Economic Co-operation and Development, Paris, France.
ONAC	Office of Noise Abatement and Control of the US EPA
OSHA	Occupational Safety and Health Administration
Pa	Pascal, the unit of pressure
PAHO	Pan American Health Organization
PHE	Department for Protection of the Human Environment, WHO, Geneva
PNL	Perceived Noise Level
PSIL	Preferred Speech Interference Level
PTS	Permanent Threshold Shift
RASTI	Rapid Speech Transmission Index
RC	Room Criterion
SABS	South African Bureau of Standards
SEL	Sound Exposure Level
STC	Sound Transmission Class
STI	Speech Transmission Index
TTS	Temporary Threshold Shift
UK	United Kingdom
UN	United Nations
UNCED	United Nations Conference on Environment and Development (Rio de Janeiro, June 1992)
UNDP	United Nations Development Programme
UNECE	United Nations Economic Commission for Europe

UNEP	United Nations Environment Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
US EPA	United States Environmental Protection Agency
USA	United States of America
WCED	World Commission on Environment and Development (Brundtland Commission)
WECPNL	Weighted Equivalent Continuous Perceived Noise Level
WHO	World Health Organization
WWF	World Wildlife Fund

Appendix 5 : Equations and other technical information

Basic acoustical measures

Sound Pressure Level

The time-varying sound pressure will completely define a sound in a given location. The sound pressure range is wide within which human listeners can receive (10^{-5} - 10^{2} N/m^2). Therefore, it is practical to measure sound pressure level on a logarithmic scale. Sound intensity level is defined as 10 times the logarithm (to the base 10) of the ratio of the sound intensity of a target sound to the sound intensity of another (reference) sound. Sound intensity is proportional to the squared sound pressure because the static mass density of the sound medium as well as the speed of sound in this medium are invariant. The sound pressure level (L_p) of a sound may be expressed as a function of sound pressure (p) and is, thus, possible to measure:

$$L_p = 10 \log_{10} (p/p_{ref})^2$$

For the purpose of measuring sound pressure level in a comparative way, the reference pressure, p_{ref}, has an internationally agreed value of $2 \cdot 10^{-5}$ N/m^2 (earlier 20 μPa). Sound pressure level is then expressed in decibel (dB) relative to this reference sound.

Sound Pressure Level of Combined Sounds

Whereas sound intensities or energies or pressures are additive, non-correlated time-varying sound pressure levels have first to be expressed as mean square pressure, then added, and then transferred to a sound pressure value again. For example, if two sound sources are combined, each of a sound pressure level of 80 dB, then the sound pressure level of the resulting combined sound will become 83 dB:

$$L_p = 10 \cdot \log_{10} (10^8 + 10^8) = 10 \cdot \log_{10} (2 \cdot 10^8) = 10 \cdot (\log_{10} 2 + \log_{10} 10^8) = 10 \cdot (0.3 + 8) = 83$$

It is only sounds with similar sound pressure levels that when combined will result in a significant increase in sound pressure level relative to the louder sound. In the example given above, a doubling of the sound energy from two sources will only result in a 3-dB increase in sound pressure level. For two sound sources that emit non-correlated time-varying sound pressures, this represents the maximum increase possible. The sound pressure level outcome, resulting from combining two sound pressure levels in dB, is displayed in Figure A.5.1.

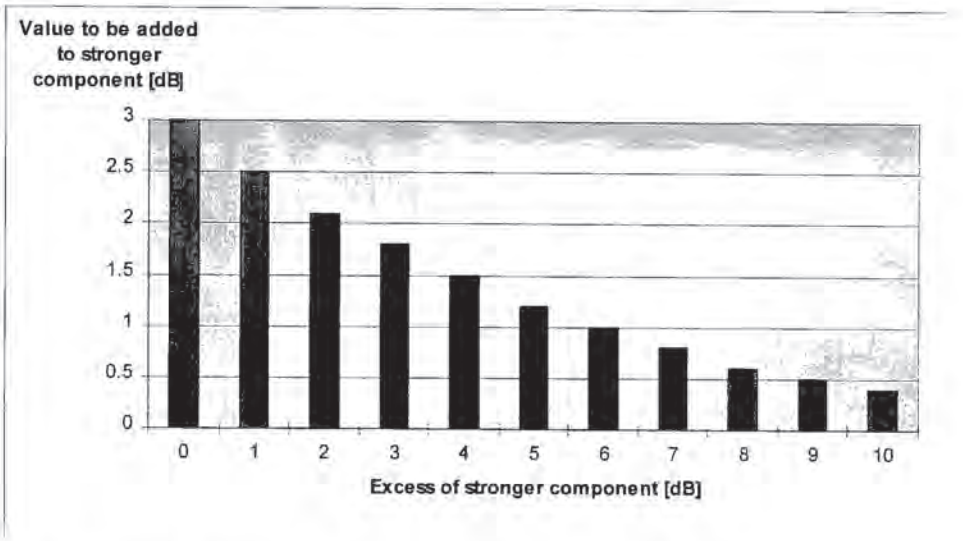


Figure A.5.1: Estimate of combined sound levels

Equivalent Continuous Sound Pressure Level

Average sound pressure level is determined for a time period of interest, T, which may be an interval in seconds, minutes, or hours. This gives a dB-value in Leq that stands for equivalent continuous sound pressure level or simply sound level. It is derived from the following mathematical expression in which A-weighting has been applied:

$$LAeq,T = 10 \log_{10}\{(1/T) \int_0^T 10^{Lp(t)/10} dt\} \text{ [dBA]}$$

Because the integral is a measure of the total sound energy during the period T, this process is often called "energy averaging". For similar reasons, the integral term representing the total sound energy may be interpreted as a measure of the total noise dose. Thus, Leq is the level of that steady sound which, over the same interval of time as the fluctuating sound of interest, has the same mean square sound pressure, usually applied as an A-frequency weighting. The interval of time must be stated.

Sound exposure level

Individual noise events can be described in terms of their sound exposure level (SEL). SEL is defined as the constant sound level over a period of 1 s that would have the same amount of energy as the complete noise event (Ford 1987). For a single noise event occurring over a time interval T, the relationship between SEL and LAeq,T is,

$$SEL = LAeq,T + 10 \log_{10} (T/T_0)$$

In this equation T_0 is 1 s.

Day and night continuous sound pressure level

There are different definition in different countries. One definition is (von Gierke 1975; Ford 1987):

L_{dn} = LAeq,16h + LAeq,8h – 10 dBA

Where LAeq,16h is the day equivalent sound pressure level and LAeq,8h is the night equivalent sound pressure level.

Sound Transmission into and within buildings

An approximate relationship between sound reduction index (R), the frequency (f), the mass per unit area of the panel (m) in kg/m^2, and the angle of incidence (θ) is given by

$$R(\theta) = 20 \log\{f m \, \mathrm{COS}(\theta)\} - 42.4, \text{ (dB)}$$

This relationship indicates that the sound reduction index will increase with the mass of a panel and with the frequency of the sound as well as varying with the angle of incidence of the sound. It is valid for limp materials but is a good approximation to the behaviour of many real building materials at lower frequencies.

The sound reduction index versus frequency characteristics are usually complicated by a coincidence dip which occurs around the frequency where the wavelength of the incident sound is the same as the wavelength of bending waves in the building façade material. The frequency at which the coincidence dip occurs is influenced by the stiffness of the panel material. Thicker, and hence stiffer materials, will have coincidence dips that are lower in frequency than less stiff materials. Figure A.5.2 plots measured sound reduction index values versus frequency for 4 mm thick glass and illustrates the coincidence dip for this glass at a frequency centered just above 3 kHz.

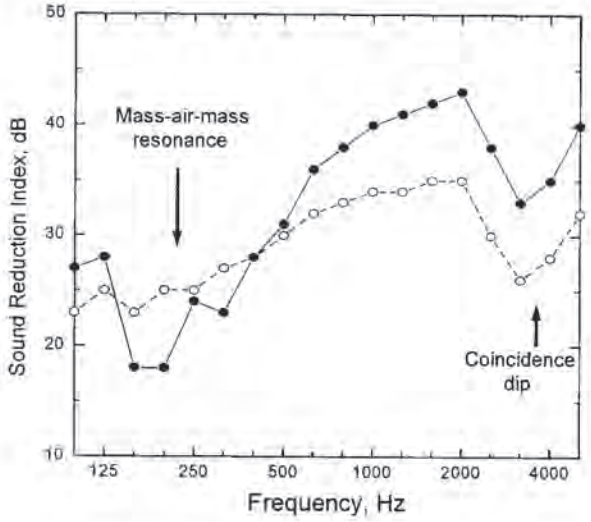


Figure A.5.2: Sound reduction index versus frequency for single and double layers of 4 mm glass (air separation 13 mm).

As also illustrated in Figure A.5.2 for two layers of 4 mm glass, the low frequency sound reduction can be severely limited by the mass-air-mass resonance. This resonance is due to the combination of the masses of the two layers and the stiffness of the enclosed air space. As the Figure A.5.2 example shows, this resonance can often dramatically reduce the low frequency sound reduction of common double window constructions.

The sound reduction of various building constructions can be calculated as the difference between the average sound levels in the two rooms ($L_1 - L_2$) plus a correction involving the area of the test panel (S) in m^2 and the total sound absorption (A) in m^2 in the receiving room,

$$R = L_1 - L_2 + 10 \log\{S/A\} \text{ [dB]}.$$

For outdoor-to-indoor sound propagation, the measured sound reduction index will also depend on the angle of incidence of the outdoor sound as well as the position of the outdoor measuring microphone relative to the building façade,

$$R = L_1 - L_2 + 10 \log\{4S\, COS(\theta)/A\} + k \text{ [dB]}.$$

When the outdoor incident sound level L_1 is measured with the outdoor microphone positioned against the external façade surface, measured incident sound pressures will be 6 dB higher due to pressure doubling. This occurs because the incident sound and reflected sound arrive at the microphone at the same time. If the external microphone is located 2 m from the façade, there will not be exact pressure doubling but an approximate doubling of the measured sound energy corresponding to a 3 dB increase in sound level. The table below indicates the appropriate values of k to be used in the above equation, depending on the location of the outdoor microphone, to account for sound reflected from the façade.

$k = 0$, dB	L_1 does not include reflected sound.
$k = -3$, dB	L_1 measured 2 m from façade and includes reflected energy.
$k = -6$, dB	L_1 measured at the façade surface and includes pressure doubling effect.

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