September 27, 2023

Los Angeles City Council c/o
Office of the City Clerk City
Hall, Room 395
Los Angeles, California 90012

Attention: PLUM Committee

Dear Honorable Members:

CEQA APPEAL SUMMARY, 3601 – 3615 Mission Road and 2010 – 2036 Lincoln Park Avenue; CF No. 23-0796

City Planning Case No.s: CPC-2022-6189-CU-DB-ZAA-SPR-HCA and ENV-2022-6190-CE

Project Background

On June 20, 2023 the City Planning Commission published its Letter of Determination approving a Class 32 Categorical Exemption (City Planning Case No. ENV-2022-6190-CE) for a project (City Planning Case No. CPC-2022-6189-CU-DB-ZAA-SPR-HCA) for a Conditional Use Permit, pursuant to Section 12.24 U.26 of the Los Angeles Municipal Code (LAMC), to allow a Density Bonus for housing development project in which the density increase is greater than the 35 percent permitted in LAMC Section 12.22 A.25; 2) approving Incentives and Waivers, pursuant to LAMC Section 12.22 A.25: a) an On-menu Incentive to permit a 22 percent increase in the allowable Floor Area Ratio (FAR) to allow a FAR of 3.67:1 in lieu of the 3.0:1 FAR permitted in the R3-1 Zone pursuant to LAMC Section 12.21.1 A.1; b) An On-Menu Incentive to permit the area of land required to be dedicated for street or alley purposes to be included as lot area for the purposes of calculating the maximum density permitted by the R3 Zone; c) an Off-Menu Incentive to permit decrease in residential automobile parking to allow the provision of 103 parking spaces, with 18 in tandem, in lieu of the 216 parking spaces required pursuant to LAMC Section 12.21 A.4; d) a Waiver of Development Standard to permit a 50 percent decrease in required east side yard setbacks to allow a five-foot side yard setback in lieu of the 10 feet required by the R3-1 Zone pursuant to LAMC Section 12.10 C.2; e) a Waiver of Development Standard to permit a 50 percent decrease in required west side yard setbacks to allow a five-foot side yard setback in lieu of the 10 feet required by the R3-1 Zone pursuant to LAMC Section 12.10 C.2; f) a Waiver of Development Standard to permit a 41-foot increase in building height to allow up to 86 feet in lieu of the maximum 45 feet allowed in the R3-1 Zone pursuant to LAMC Section 12.21.1; g) a Waiver of Development Standard to permit a 20 percent reduction in required open space to allow the provision of 15,480 square feet in lieu of the 19,350 square feet required pursuant to LAMC 12.21 G.2; h) a Waiver of Development Standard to permit 10 compact parking stalls and 93 standard stalls in lieu of the one standard parking stall per dwelling unit minimum required pursuant to LAMC Section 12.21 A.5(c); 3) approving a Zoning Administrator's Adjustment, pursuant to LAMC Section 12.28, to allow a fence of up to 12 feet in height, in lieu of 3.5 feet in height, and raised grade to encroach into the front yard setback for the R3-1 Zone; and 4) approving a Site Plan Review, pursuant to LAMC Section 16.05, for a development project which creates, or results in an increase of more than 50 dwelling units; for the construction, use and maintenance of a new seven-story residential development with 184 residential units, including 47 Very Low Income units, above two levels of automobile parking under the Density Bonus program; for the properties located at 3601 - 3615 Mission Road and 2010 - 2036 Lincoln Park Avenue, subject to Conditions of Approval.

On July 5, 2023, two appeals were filed for consideration by the Planning and Land Use Management (PLUM) Committee: One by the Supporters Alliance for Environmental Responsibility (SAFER) (Representative: Richard Drury), and another by the Lincoln Heights Preservation Coalition.

The appeal by SAFER challenges the City Planning Commission's entire determination except for the off-menu density bonus incentives. The appeal by the Lincoln Heights Preservation Coalition challenges the City Planning Commission's entire determination. It should be noted that while the Conditional Use, Zoning Administrator's Adjustment and Site Plan Review are appealable, the Density Bonus Off-Menu Incentives and Waivers are not appealable. Therefore, if this appeal is sustained, it could be built but redesigned, and only the additional units above the 35% Density Bonus threshold approved by the City Planning Commission under the Conditional Use would be removed. Hypothetically, a 35% Density Bonus would require an 11% of base density set a side of Very Low Income Units and would yield a project that allows the following: 64 (base density units) X 35% = 22.4 (23 rounded up) units. 23 + 64 = 87 units. Thus, sustaining the appeal would allow a project of 87 units.

Appeal Summary

The following statements have been compiled and summarized from the submitted appeals andresponded to below.

APPEAL POINT 1:

The project was wrongfully approved by the CPC due to the chair of PLUM not recusing themselves based on conflict of interest as they were found guilty of embezzlement and perjury. The conflict of interest lies in the developer working to cater USC as seen https:// therealdeal.com/la/2022/08/30/seven-story-apartment-planned-for-lincoln-heights/.

APPLICANT RESPONSE:

This is a procedural issue unrelated to environmental impacts considered under CEQA. Furthermore, this project was considered by the City Planning Commission, not the Planning and Land Use Management (PLUM) Committee of the Los Angeles City Council. Additionally, the embezzlement and perjury charges were assigned to Curren D. Price, Jr., the Councilmember overseeing the 9th Council District who has not been involved with PLUM Committee of the City Council or the City Planning Commission.

Moreover, the proposed mixed-income housing development at 3601 Mission Road is not affiliated with nor funded by any affiliates of the University of Southern California, therefore no conflict of interest exists with any member of the City Planning Commission which unanimously voted to approve the project.

APPEAL POINT 2:

Additionally, this project requires CEQA and an EIR due to evidence suggesting the adjacent property was remedied due to toxic soil. There is evidence of our community being environmentally disenfranchise (Ave 34 case #) - no project should have CEQA exemption.
Soil contamination occurred at 2037 Lincoln Park Boulevard from a transformer factory dating back to the 1920s. This property is directly across the street from 3601 Mission Road. While remediation occurred for THPs in 2001 for the Lincoln Park Boulevard site, none has occurred at the Mission Road site. According to an preliminary analysis there is a high probability for lead and PCB contamination beyond the remediation site. This project requires an EIR and possible soil remediation.

APPLICANT RESPONSE:

Regarding any CEQA environmental impact concerns, based on the screenshot of the 3801 Mission Road DTSC case, soil contamination has been remediated at sites around the subject site (3601 N Mission Road). Per review of DTSC EnviroStore and State Water Resources Control Board GeoTracker (both attached), there is no indication of an open inspection for 3601 Mission Road. The appeal says “According to an preliminary analysis there is a high probability for lead and PCB contamination beyond the remediation site,” but does not include any of the resources or studies considered to be industry standard for evaluating potential soil contamination.

APPEAL POINT 3:

The project’s traffic safety impacts, prevent reliance on a Class 32 exemption.

APPLICANT RESPONSE:

As documented in the CE and attached Transportation Assessment, the project is designed to fall below the transportation thresholds set in the CEQA Guidelines, and therefore meets the requirements for a Class 32 exemption. Additionally, the project design incorporates several features, including reduced on-site parking supply, unbundled parking, ample bike parking, and Transportation Demand Management (TDM) strategies to reduces the vehicle miles traveled (VMT) and average daily trips (ADT). Minimizing traffic impacts reduces the potential safety concerns associated with traffic on and around the site.

According to the City of Los Angeles Department of Transportation (LA DOT)-approved "Transportation Assessment for the Proposed Residential Project Located at 3601 North Mission Street," <sic> the project evaluated the number of project trips expected to be added to nearby freeway off-ramps serving the project site. It was determined that project traffic at any freeway off-ramp **will not exceed 25 peak hour trips**. Therefore, a freeway ramp analysis is not required. Additionally, in consistency with the State law (SB 743) and CEQA Guidelines (Section 15064.3 of the State's CEQA Guidelines) the City of Los Angeles uses VMT as criteria in determining transportation impacts under CEQA. The LADOT TAG provide instructions on preparing transportation assessments for land use proposals and defines the significant impact thresholds. The LADOT VMT Calculator tool measures project impact in terms of Household VMT per Capita, and Work VMT per Employee. LADOT identified distinct thresholds for significant VMT impacts for each of the seven APC areas in the city. For the Central APC area, in which the project is located, the threshold of 6.0 VMT Household VMT per Capita has been established for Household VMT (this project does not have a Work VMT).

The project proposes to incorporate the following TDM strategies as part of the project features:

- Reduced parking supply: Proposed 105 Vs. 192 per LAMC (a reduction of 87)
- Unbundled parking costs
- Bicycle Parking: Proposed 126 per LAMC

With the application of these TDM measures, the proposed project is projected to have a Household VMT impact of 5.6. Therefore, it is concluded that the implementation of the project would result in no significant VMT impact. A report prepared by KOA Corporation and approved by the Los Angeles Department of Transportation detailing the TDM strategies and less-than-significant traffic impacts of the project is attached.

APPEAL POINT 4:

The project's failure to include sufficient parking exacerbates traffic safety impacts.

APPLICANT RESPONSE:

The CE clearly delineates how the project meets the City of LA's parking requirements on page 8: Based on the regulations contained in LAMC 12.21 A.4., the project is required to provide 248 automobile parking spaces. LAMC 12.21 A.4. also allows residential projects that contain at least the minimum number of restricted affordable units to receive a density bonus under Section 12.22 A.25. to replace up to 30 percent of the required automobile parking with bicycle parking at a ratio of one standard or compact automobile parking space for every four bicycle parking spaces provided. The project plans to provide 129 bicycle parking spaces – 117 long term spaces and 12 short term spaces.

Therefore, the project is permitted to replace 32 required automobile parking spaces with bicycle parking spaces resulting in an automobile parking requirement of 216 spaces.
Through an Off-menu Incentive requested as part of its Denisty Bonus entitlement, the project is providing 103 parking spaces to be dedicated to the project's residential uses (as well as an additional 43 parking spaces to be dedicated to the medical facility next door, which is to remain). The project's 103 residential automobile parking spaces will be offered to residents using an "unbundled parking model." Unbundled parking separates housing and parking costs. Unbundling allows residents to choose the number of parking spaces they use and pay for accordingly. Additionally, if residents decide to forego, give up, or reduce their personal vehicle ownership, they can also save money by giving up their parking space. In recent studies surveying a range of areas, Littman (2006) found that unbundling parking produces impacts similar to parking pricing, reducing automobile ownership by 5-15%. In a 2018 study UCLA-based researcher Miriam Pinski found that bundling parking is negatively correlated with transit use, and households with unbundled parking are signifcantly more likely to be frequent transit users. The study also found that, "even after controlling for factors such as vehicle ownership and built environment characteristics, households with bundled parking drive 27 percent more than households without bundled parking (Pinski, 2018)." A summary of the study by researcher Miriam Pinski is attached.

APPEAL POINT 5:

The project lacks compliance with the Northeast LA Plan: https://planning.lacity.org/plans-policies/community-plan-area/north-los-angeles: "Policy 1-3.2: Consider factors, such as neighborhood character and aesthetics, identity; compatibility of land uses; impacts on livability, services, public facilities, and traffic levels, when changes in residential densities are proposed."

APPLICANT RESPONSE:

The project is consistent with general plan and zoning guidelines for the site set forth by the City of LA, which meets the requirements for CEQA. City zoning and general guidelines consider the character and future needs of communities in Los Angeles. Additionally, as discussed in appeal point (3), the project falls below the threshold for significant transportation impacts and would incorporate several transportation design features to encourage tenants to utilize alternative modes of transportation.

Furthermore, the project complies with the following goals, objectives, and policies contained in the Northeast LA Community Plan, as delineated in the project's Letter of Determination issued by the Los Angeles City Planning Commission on June 20, 2023:

- Goal 1: A safe, secure, and attractive residential environment for all economic, age and ethnic segments of the community.
- Objective 1-2: To allocate land for new housing to accommodate a growth of population that is consistent with and promotes the health, safety, welfare, convenience, and pleasant environment of those who live and work in the community based on adequate infrastructure and government services, especially schools.
- Policy 1-2.2: Locate higher residential densities near commercial and institutional centers, light rail transit stations, and major bus routes to encourage pedestrian activity and use of public transportation, providing that infrastructure, public service facilities, utilities, and topography will fully accommodate this development.
- Objective 1-3: To preserve and enhance the residential character and scale of existing single-and muti-family neighborhoods.
- Policy 1-3.1: Protect the quality and scale of the residential environment through attention to the appearance of new construction including site planning and compatible building design.

- Policy 1-3.2: Consider factors, such as neighborhood character and aesthetics, identity; compatibility of land uses; impacts on livability, services, public facilities, and traffic levels, when changes in residential densities are proposed.

APPEAL POINT 6:

Reliance on categorical exemption is improper due to the project's adverse impacts on historical resources such as: Lincoln Park, Plaza de la Raza, Wall las Memorias, (Exhibit D)

APPLICANT RESPONSE:

Per the CE, the project site was not identified on Historic Places LA, the Los Angeles Historic Resources Inventory, or in the City's Zone Information and Map Access System (ZIMAS) as a Los Angeles Historical Cultural Monument, Los Angeles Historic Preservation Overlay Zone, National Register of Historic Places, Potential Historic Multi-Family Resident, Existing or Potential Residential Historic District or National Historic Landmark. Based on Historic Places LA, the ZIMAS database and site plans, the project would not cause a substantial adverse change in the significance of a historical resource.

APPEAL POINT 7:

The community and the Certified Neighborhood Council opposed this project, letter dated September 1 20222, and this letter was not included in the Letter of Recommendation or Letter of Determination Exhibit E)

APPLICANT RESPONSE:

This is a procedural issue unrelated to environmental impacts considered under CEQA. All letters expressing support or opposition to the project can be found with the supplemental documents to the agenda from the May 25 City Planning Commission, available here: https://planning.lacity.org/dcpapi/meetings/document/addtldoc/65385

APPEAL POINT 8:

This project is massively out of scale compared to anything built in the suburbs of the first pueblo of Los Angeles - and will disrupt the integrity of a historical community.

APPLICANT RESPONSE:

The project is consistent with general plan and zoning guidelines for the site set forth by the City of LA, which meets the requirements for CEQA. City zoning and general guidelines consider the character and future needs of communities in Los Angeles.

APPEAL POINT 9:

The high density of this project fails to provide evidence of sufficient water source for 184 units, over 50% density bonus (Exhibit F)

APPLICANT RESPONSE:

Pages 21 to 23 of the CE memo provide detailed analysis of the project sites ability to serve 184 units with required utilities and public services and meet the requirements under CEQA. As delineated in the CE memo, LADWP can currently deliver 160 billion US gallons (606 million cubic meters) of

water. The project would be served by existing sewer line infrastructure including vertical laterals which connect to existing sewer main lines located 26 feet away from the project site on Lincoln Park Avenue (Pipe ID 49515022), maintained by the City Department of Public Works.

Furthermore, the project's Letter of Determination issued by the Los Angeles City Planning Commission on Jun 20, 2023 requires the project to consult with the Department of Water and Power prior to the issuance of any permits in connection with project plans. Specifically, Development Condition B. 25. reads "Satisfactory arrangements shall be made with the Los Angeles Department of Water and Power (LADWP) for compliance with LADWP's Rules Governing Water and Electric Service." Through this consultation, the Department of Water and Power will assure that, prior to the issuance of building permits, the project is able to access or makes the necessary upgrades to access sufficient water and power supply. Therefore, the project will provide sufficient water for its proposed residential uses.

APPEAL POINT 10:

The project will remove 5 protected sycamore trees, that are alive and healthy. Please refer to document (Exhibit C)

The project will remove 5 healthy and protected western sycamore trees or Platanus racemosa (LATPO), developer claims trees were planted recently. In a brief survey within 1320 foot buffer used to denote the access and walk ability of a project, there are 36 western sycamores including the onsite count. Evidence of a mature grove is in the grouping of trees across the street at Lincoln Park. The onsite sycamores appear to be similar in age. In an EIR of Hazard Park development from (2005) reveals the area was marshland extending past Ramona Gardens and possibly as far as the site. The edges of a marshland are the optimal habitat for Western Sycamores. This habitat represents the last of an ancient marshland beneath our feet and pavement. This property is the actual site of the famous Lincoln Heights Alligator Farm, which emphasizes the watershed condition and habitat for the sycamore.

The developer proposes the destruction of 50,000 sq ft of existing green space, which is part of a larger habitat for migrating birds. Developer wants to reduce green space to 3700 sq ft. severely curtail the migratory bird habitat and population. This development should be stopped to preserve the habitat concerns.

APPLICANT RESPONSE:

The project would be constructed on an existing paved surface parking lot, and would not require the removal of any area considered green space or open space within City of LA's general plan or zoning guidelines. Additionally, a protected tree report was prepared by UPLA Studio, which determined that there are no trees on site that are protected by the Los Angeles Tree Protection Ordinance that would be impacted by construction. UPLA Studio is a Landscape Architecture firm (Architect License Number 6086) whose Tree Expert, Stephanie Reed, is a Certified Arborist through the International Society of Arboriculture (Certification Number WE-11453A). Their report is included as an attachment to the CE.

The definition of Protected Tree in Section 17.02 of the Los Angeles Municipal Code reads "The definition shall not include any tree or shrub grown or held for sale by a licensed nursery, or trees planted or grown as part of a tree planting program." According to the Protected Tree Report dated September 13, 2022, the Tree Expert observed five (5) Western Sycamore (Platanus racemosa) trees during a field visit on June 30, 2022. However, based on research conducted by the property owner and Tree Expert, the 5 Sycamore trees are grown from nursery stock and, therefore, are not protected by the Los Angeles Tree Protection Ordinance. Previous development plans and historic photos of the

site show evidence that the Sycamore trees are not naturally occurring. A copy of the Protected Tree Report, including photographic evidence that the Western Sycamores were planted as part of a nursery program, is attached.

What's more, the Urban Forestry Division of the Bureau of Street Services of the City of Los Angeles has confirmed that, based on the evidence provided within the Protected Tree Report prepared by UPLA Studio, the Western Sycamore trees existing on the site do not qualify as protected trees based on the definition above. The confirmation email stating that no approval is needed by the Urban Forestry Division or the Board of Public Works for removal of the trees is attached.

Additionally, the project is proposing the addition of four Western Sycamore trees as part of the project landscape design.

Finally, the site does not have reported occurrences of special-status species in the California Natural Diversity Database (CNDDB) maintained by the California Department of Fish and Wildlife (CDFW). The project site does not include riparian areas or other sensitive plant communities. According to the United States Fish and Wildlife Service Information for Planning and Consultation Tool, the project site does not contain critical habitats for any endangered, rare, or threatened species.

APPEAL POINT 11:

This Project will disrupt the eco system that habits this plot of land, with 42 trees including protected sycamores, (Exhibit B and C)

APPLICANT RESPONSE:

The project would be constructed on a disturbed site that currently consists of a paved surface parking lot. As discussed in appeal point (10), a protected tree report was prepared by UPLA Studio, which determined that the five trees that would be removed on site are not protected by the Los Angeles Tree Protection Ordinance. This report is included as an attachment to the CE.
Additionally, the landscape plan for the project proposes retention of all eleven (11) of the existing parkway trees, as well as the addition of 24 Olive trees (Olea europea), 7 Catalina Cherry trees (Prunus ilicfolia), 13 Japanese maple trees (Arctostaphylos), and 4 Western sycamore trees (Platanus racemosa) resulting in a total of 59 trees where, currently, 54 trees exist. A copy of the landscape plan and Tree Inventory are attached.

APPEAL POINT 12:

The CPC hearing allotted 60 seconds per public comment, violating Brown Act Law

APPLICANT RESPONSE:

This is a procedural issue unrelated to potential significant environmental impacts under CEQA.

APPEAL POINT 13:

The surrounding residents, including tenants of Amistad Apartments, will be affected by the toxic plume that will come from excavating toxic soil that has not been mediated. (Exhibit A)

APPLICANT RESPONSE:

As discussed under appeal point (2), no evidence points to any open cleanup sites or investigations into the 3601 Mission Road site for contaminated soils. Furthermore, the project will be subject to several Regulatory Compliance Measures listed below (RC-AQ-1 through RC-AQ-6) which regulate air quality-related impacts for projects citywide. As a result of this mandatory compliance, the proposed Project will not result in any significant air quality impacts. Therefore, tenants of the Amistad Apartments would not be subject to hazardous fumes during excavation and grading.

- Regulatory Compliance Measure RC-AQ-1 (Demolition, Grading and Construction Activities): Compliance with provisions of the SCAQMD District Rule 403. The project shall comply with all applicable standards of the Southern California Air Quality Management District, including the following provisions of District Rule 403:
    - All unpaved demolition and construction areas shall be wetted at least twice daily during excavation and construction, and temporary dust covers shall be used to reduce dust emissions and meet SCAQMD District Rule 403. Wetting could reduce fugitive dust by as much as 50 percent.
    - The construction area shall be kept sufficiently dampened to control dust caused by grading and hauling, and at all times provide reasonable control of dust caused by wind. All clearing, earth moving, or excavation activities shall be discontinued during periods of high winds (i.e., greater than 15 mph), so as to prevent excessive amounts of dust.
    - All dirt/soil loads shall be secured by trimming, watering or other appropriate means to prevent spillage and dust.
    - All dirt/soil materials transported off-site shall be either sufficiently watered or securely covered to prevent excessive amount of dust.
    - General contractors shall maintain and operate construction equipment so as to minimize exhaust emissions.
    - Trucks having no current hauling activity shall not idle but be turned off.

- Regulatory Compliance Measure RC-AQ-2: In accordance with Sections 2485 in Title 13 of the California Code of Regulations, the idling of all diesel-fueled commercial vehicles (weighing over 10,000 pounds) during construction shall be limited to five minutes at any location.

- Regulatory Compliance Measure RC-AQ-3: In accordance with Section 93115 in Title 17 of the California Code of Regulations, operation of any stationary, diesel-fueled, compression-ignition engines shall meet specified fuel and fuel additive requirements and emission standards.

- Regulatory Compliance Measure RC-AQ-4: The Project shall comply with South Coast Air Quality Management District Rule 1113 limiting the volatile organic compound content of architectural coatings.

- Regulatory Compliance Measure RC-AQ-5: The Project shall install odor-reducing equipment in accordance with South Coast Air Quality Management District Rule 1138.

- Regulatory Compliance Measure RC-AQ-6: New on-site facility nitrogen oxide emissions shall be minimized through the use of emission control measures (e.g., use of best available control technology for new combustion sources such as boilers and water heaters) as required by South Coast Air Quality Management District Regulation XIII, New Source Review.

APPEAL POINT 14:

The surrounding residents, including the tenant's of Amistad apartments will be affected by the parking impact due to the developer failing to provide parking for 184 units

APPLICANT RESPONSE:

As discussed under appeal point (4), the project will provide 103 automobile parking spaces dedicated to its residential uses. This is consistent with its Off-menu Density Bonus Incentive requesting a reduction in the number of required parking spaces.

Furthermore, an impact to parking supply within an urbanized area with access to multiple transportation options does not constitute an unusual circumstance under CEQA and, therefore, would not constitute sufficient overwhelming evidence to preclude the use of a Categorical Exemption under . The Census Tract (Tract 1991.20) in which the project is located is designated as a "Very Low VMT Area" under AB 2334 (Wicks). A "very low vehicle travel area" is defined in 65915(o)(4) to mean an urbanized area, as designated by the United States Census Bureau, where the existing residential development generates vehicle miles traveled per capita that is below 85 percent of either regional vehicle miles traveled per capita or city vehicle miles traveled per capita. Attached is a Parcel Profile report accesses from ZIMAS, the City of Los Angeles' Zone Information and Map Access System, that shows the area around the project site's designation as a Very Low VMT Area.

Additionally, the project site is located in an area designated by the Southern California Association of Governments as High Quality Transit Areas (HQTA). An HQTA is defined as a site within one half-mile of a well-serviced transit stop or a transit corridor with 15-minute or less service frequency during peak commute hours. Attached is a map obtained from SCAG's ArcGIS data map showing the project site's designation as an HQTA. The project site is identified by a red star on the map.

Finally, the project proposes an "unbundled parking" model for distributing its automobile parking supply. "Unbundled parking" is the practice of selling or leasing parking spaces separate from the lease of the residential property. A study conducted by Miriam Pinski (attached), then a Graduate Researcher at the University of California - Los Angeles, found that bundled parking is negatively correlated to transit use and that households with unbundled parking are signifcantly more likely to be frequent transit users which helps meet state and local goals intended to reduce single-occupant vehicle use in areas with enhanced transit access.

APPEAL POINT 15:

The Amistad Apartments are 100% affordable housing, a remarkable example of development that caters to, and is developed for the community, wherein 67% are renters live below Federal poverty line.

APPLICANT RESPONSE:

The project would provide a 73% set aside of base units as affordable units for Very Low Income households, which would increase the number of affordable units available to the surrounding community without displacing any current residents. The Density Bonus program is designed to address the housing needs of residents at various income levels by incentivising market rate and affordable housing developments. The proposal to provide 47 of 184 units to Very Low Income Households represents the highest percent of an affordable set-aside of any privately-funded mixed-income housing project in the Northeast Community Plan Area.

APPEAL POINT 16:

Historically, the median income for Lincoln Heights has been under 30k annually as seen in 2008 https://maps.latimes.com/neighborhoods/neighborhood/lincoln-heights/ index.html. The median income now is 75k https://www.point2homes.com/US/ Neighborhood/CA/Los-Angeles/Lincoln-Heights-Demographics.html: clear evidence that the working class community is being displaced from our homes. This project will contribute to further displacement as it will continue to change the character, demographics, real estate values and therefore erasure of our marginalized, working class, immigrant communities and will contribute to the homelessness crisis.

APPLICANT RESPONSE:

As discussed under appeal point (15), 73% of base units are set aside for Very Low Income households. Since the project would replace an existing parking lot, no residents would be displaced by the project.

A review of six separate studies examining the effect of market-rate housing development on neighboring apartment rental prices found that "the authors make a persuasive case that market-rate development causes rents in nearby buildings to fall rather than rise." The research review conducted by Shane Phillips Michael Manville, and Michael Lens is attached.

Furthermore, mixed-income housing development is a vitally important part of a regional approach to addressing the current, well-documented housing crisis faced by the City of Los Angeles and the Southern California region. Developing an existing parking lot into a mixed-income apartment community with 47 units set aside for Very Low Income households is a rare opportunity to create new housing units that cater to existing residents while protecting naturally occurring affordable housing from encroachment by new residents in a neighborhood of increasing demand and economic investment.

Mixed-income housing development, like the proposed project, offers a multitude of virtues that contribute to the well-being of communities and individuals. This approach to urban planning and housing design has gained recognition for its ability to foster inclusivity, promote economic diversity, and create healthier, more vibrant neighborhoods. Some of the key virtues of mixed-income housing development include:

- Socioeconomic and Racial Diversity: One of the most significant virtues of mixed-income housing is its ability to foster neighborhoods of people from diverse socioeconomic backgrounds and racial identities. This helps assure that everyone in Los Angeles has access to the resources necessary to thrive, regardless of their financial status.
- Reduced Stigma: Mixed-income developments help reduce the stigma often associated with very low-income housing while giving economically marginalized residents equal access to high quality housing and amenities. The proposed development includes units affordable to Very Low Income households distributed amongst market rate units at comparable sizes and with identical private and common amenities. When affordable units are integrated seamlessly with market-rate ones, residents do not feel singled out or stigmatized, promoting a more inclusive and accepting environment.
- Economic Mobility: Mixed-income communities offer low-income residents the opportunity to live in neighborhoods with improved amenities, schools, and resources. This can have a positive impact on the long-term economic mobility of individuals and families, as access to higher-quality services can improve their long-term outcomes.
- Improved Educational Outcomes: Living in a neighborhood with better schools can have a direct impact on the educational outcomes of children. Mixed-income housing ensures that

children from very low-income families have access to higher-quality educational institutions, which can help break the cycle of poverty.

- Economic Resilience: Mixed-income neighborhoods tend to be more economically resilient. When a community's income base is diverse, it is less susceptible to economic downturns, as various income levels can provide stability during challenging times.
- Enhanced Neighborhood Aesthetics: Mixed-income developments often incorporate better design and aesthetics, and include mechanisms to induce economically sustainable maintenance, improving the overall look and feel of a neighborhood. This can lead to increased property values and investment in the community.
- Promotion of Inclusivity and Equality: Mixed-income housing reflects a commitment to inclusive and equitable planning and development. It signifies a belief in the value of equitable opportunities and access to resources for all residents, regardless of their income.
- Sustainability and Efficiency: Mixed-income developments can promote sustainable living practices and reduce urban sprawl. By concentrating housing, services, and amenities in one area, they can reduce the need for long commutes and promote more sustainable transportation options.

In conclusion, mixed-income housing developments like the proposed project - especially because it does not displace existing residential units - is the best way to protect economically vulnerable communities from displacement; it creates communities that are more equitable, diverse, and resilient. Developments like the proposed offer a path to break the cycle of poverty, improve social cohesion, and create vibrant, inclusive neighborhoods where people from all walks of life can thrive together.

APPEAL POINT 17:

The City of Los Angeles is currently facing over 30 thousand cases of eviction; the City of Los Angeles is currently under a State of Emergency as set by Mayor Karen Bass, due to the unprecedented homeless crises. We are seeing a mass eviction crisis where nearly all tenants facing eviction are low income working class individuals. Luxury units and development do not cater to those tenants facing eviction and will not help mitigate the houseless crisis and therefore this 65% luxury development does not meet the criteria set forth by Mayor Karen Bass to help solve the homeless crisis. Approximately 11% of the homeless population (LAHSA) was created by the housing inequities of displacement. A 5% rent increase translates to 2000 more people falling into homelessness (Zillow).

APPLICANT RESPONSE:

As discussed under appeal points (15) and (16), the project would provide a 73% set aside of base units for affordable units for Very Low Income households, which would increase the number of affordable units available to the surrounding community without displacing any current residents. Furthermore, based on the most recent Regional Housing Needs Assessment, the City of Los Angeles needs 456,643 new housing units by the year 2029 to meet its housing needs. Of the 456,643 new housing units needed, 115,978 are needed at the Very Low Income level, 68,743 are needed at the Low Income level, 74,091 are needed at the Moderate Income level, and 196,831 are needed at the Above Moderate Income level. By providing 47 units to Very Low Income households and 137 units to households paying market-rate rents, the proposed project will help alleviate housing pressures across multiple income levels which, in turn, alleviates pressures on the lowest-income households by preserving naturally occurring affordable housing resources.

APPEAL POINT 18:

Air quality and health risk impacts: The appellant claims that the Categorical Exemption prepared for the project failed to prepare a quantified health risk assessment ("HRA") and failed to mention or evaluate the Project's construction-related or operational toxic air contaminant ("TAC") emissions.

APPLICANT RESPONSE:

The Appellant Letter claims the City was required to prepare a Health Risk Assessment (HRA) for the Project due to alleged diesel emissions (DPM). This claim fails for several reasons. First, the Appellant Letter again ignores the extensive analysis of the Project's construction and operational DPM emissions (a subset of PM2.5 emissions, which are analyzed in the CalEEMOD analysis) in the CE, which determines that human health impacts from potential emissions of DPM are less than significant based on substantial evidence. Therefore, it is false that the CE fails to mention or evaluate construction-related or operational TAC emissions.

Next, the claim that the project requires the preparation of an HRA is false. Per the OEHHA's delegation of authority to local air quality management districts in Section 1.3 of the Air Toxics Hot Spots Program Guidance Manual from 2015 (referred to by the appelant as "Risk Assessment Guidelines Guidance Manual For Preparation Of Health Risk Assessments"), the Department of City Planning relies on methodologies established by the regional expert air quality agency, the South Coast Air Quality Management District (SCAQMD) for preparation of CEQA air quality analyses (OEHHA, 2015). SCAQMD published the CEQA Air Quality Handbook in November 1993 to assist lead agencies, as well as consultants, project proponents, and other interested parties, in evaluating potential air quality impacts of projects proposed in the region. The SCAQMD CEQA Handbook does not recommend analysis of toxic air contaminants (TACs) from short-term construction activities.

SCAQMD recommends that health risk assessments (HRAs) be conducted for substantial individual sources of DPM (e.g. truck stops and warehouse distribution facilities, ship hoteling at ports, and train idling) and has provided guidance for analyzing mobile source diesel emissions. Based on this guidance, the Project would not include these types of land uses and is not considered to be a substantial source of DPM warranting a refined HRA (SCAQMD, 2002).

The Appellant Letter also misrepresents the Office of Environmental Health Hazards Assessment (OEHHA) requirements under AB 2588, the Air Toxic Hot Spots Program. AB 2588 only applies to "facilities" as defined in Health and Safety Code Section 44322(a), which the state has determined applies to industrial facilities requiring operational air permits that use, manufacture, formulate, or release certain listed hazardous substances. Covered facilities do not include residential or mixed-use residential developments, which are not regulated under the Toxic Hot Spots Program.

The OEHHA Guidelines assess cancer risks over 30-year exposures. They do not mandate analysis for "short-term" projects even under the Toxic Hot Spots Program, and thus the OEHHA Guidelines do not apply here, where Project DPM emissions affecting the area surrounding the Project Site would occur during a few months of construction activities as part of the Project. Rather, the information regarding "short term" cancer exposures is provided to assist local air districts when they make permitting decisions for projects requiring AQMD permits related to shorter-term exposures, noting also that "there is considerable uncertainty in trying to evaluate the cancer risk from projects that will only last a small fraction of a lifetime."

SCAQMD only requires quantitative HRAs to be prepared for substantial mobile sources of DPM emissions, including truck stops and warehouse distribution facilities, ship hotelling at ports, and train idling, as stated above. SCAQMD's AB 2588 Supplemental Guidelines for Preparing Risk Assessments for the Air Toxics Hot Spots Information and Assessment Act only applies to permitted industrial facilities and does not address so called "short term" projects. SCAQMD Rule 1402, which implements

the Toxic Hot Spots Program in the region, only applies to facilities with one or more AQMD permits to operate, which the Project is not required to obtain, and also does not require analysis of short-term TAC or DPM emissions. Thus, the comment's assertion that a quantitative HRA is required for the Project is incorrect, as no agency has recognized infill mixed-use residential development as a significant source of toxic air emissions requiring quantitative HRAs. As Project construction activities would vary throughout the site and would be short-term during only one brief portion of onsite construction activities, stationary source rules would not be appropriate for assessing impacts associated with DPM and an HRA is not required.

APPEAL POINT 19:

Indoor Air Quality: The appellant references a determination on the project made by Certified Industrial Hygienist, Francis Offermann, stating that the project will expose residents to significant impacts related to indoor air quality, particularly from "emissions of the cancer-causing chemical formaldehyde." The appellant adds that many composite wood products used in building materials and furnishings commonly found in urban development contain formaldehyde-based glues which off-gas formaldehyde over time – a carcinogen. The appellant states that future residents will be exposed to a cancer risk from formaldehyde of approximately 120 per million, assuming all materials are complaint with the California Air Resources Board (CARB) formaldehyde airborne toxics control measure, which exceeds the South Coast Air Quality Management District (SCAQMD) CEQA significant threshold for airborne cancer risk of 10 per million.

APPLICANT RESPONSE:

Previously, SAFER raised this appeal point citing the same formaldehyde study in their unsuccessful appeal of the Class 32 Categorical Exemption prepared for the 975 Manhattan Project earlier in 2023 (CAJA Environmental Services LLC, 2023). The following responses were prepared to respond to the 975 Manhattan Project appeal, and also apply to this project:

The arguments in the Appeal relating only to alleged air quality impacts from formaldehyde gas are substantively meritless for the following reasons:

- The Appeal ignores the substantial evidence in record supporting the conclusion that the Project would result in less than significant operational air quality impacts. The CE analyzes the Project's potential to cause significant operational air quality impacts from area, energy and mobile sources, concluding such impacts would be less than significant based on modeling of potential Project impacts using the state's CalEEMod computer model. As ruled in the 2004 California Court Case *Defend the Bay v. City of Irvine*, an opponent challenging a City's factual determinations in support of a statutory exemption "must lay out the evidence favorable to the other side and show why it is lacking. Failure to do so is fatal." Here, the Appeal makes no attempt to discuss the substantial evidence in support of the CE, much less lay that evidence out and show why its lacking. For this reason alone, the Appeal fails to meet its burden to show any error in the CEQA analysis performed for the Project supporting the adoption of the CE.

- The analysis of alleged formaldehyde impacts from the Project relies on speculation and a generic, non-project specific analysis regarding alleged furniture and materials that would be utilized by the Project. In particular, the Appeal speculates without evidence that the Project would utilize unspecified "composite wood products" indoors. The Appeal's arguments with respect to alleged formaldehyde impacts are invalid for this reason, alone, because speculation is not substantial evidence under CEQA.

- Moreover, the Appeal's purported indoor air quality analysis here is not a CEQA analysis, but instead relies on an invented "threshold" not adopted by the City or South Coast Air Quality Management

District (SCAQMD) to assess alleged impacts on indoor air quality. However, the operational air quality technical analysis performed for the Project in the CE is fully compliant with CEQA in its focus on regional and localized impacts from emissions of criteria pollutants and other relevant air quality concerns. In light of CEQA's general focus on projects' potential impacts on the human environment in general and not future project users (see the 2015 California Court Case *California Building Industry Association v. Bay Area Air Quality Management District*) the State's CEQA Guidelines focus CEQA-compliant air quality impacts analyses on the impacts a project would have on outdoor air quality, directing air quality analyses to address whether a project would conflict with or obstruct implementation of the applicable air quality plan, contribute to an existing regional or local air quality violation, or result in a cumulatively considerable increase in a criteria pollutant for which the region is in non-attainment, among other similar relevant factors. Indoor air quality is not regulated by the applicable air quality plan, the SCAQMD's 2016 Air Quality Management Plan (AQMP), and indoor air quality analysis is not required by CEQA Guidelines, Appendix G.

- Indoor air quality in California is not regulated by the state through CEQA, but through the state's implementation of the California Green Building Standards Code (CALGreen Code). The CALGreen Code is applicable to new commercial and industrial buildings and is designed to promote "environmentally responsible, cost-effective, healthier places to live and work." "CALGreen includes both required measures and voluntary measures, a number of which help assure healthful indoor air quality, such as those addressing chemical emissions from composite wood products, carpets, resilient flooring materials, paints, adhesives, sealants, and insulation, and also ventilation." More specifically, Section 4.5, Environmental Quality, of the CALGreen Code provides mandatory residential measures to reduce the quantity of air contaminants that are odorous, irritating and/or harmful to the comfort and wellbeing of a building's installers, occupants and neighbors. It includes VOC limits for paints, coatings, adhesives, adhesive bonding primers, sealants, sealant primers, and caulk. Section 4.504.3, Carpet Systems, of the CALGreen Code establishes product requirements to meet one of the following:

    - Carpet and Rug Institute's Green Label Plus Program;
    - California Department of Public Health, "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers," Version 1.1;
    - NSF/ANSI 140 at the Gold Level;
    - Scientific Certifications Systems Indoor Advantage Gold.

  Furthermore, Section 4.504.5, Composite Wood Products, of the CALGreen Code establishes limits for formaldehyde as specified in ARBS's Air Toxics Control Measure for Composite Wood (e.g., particle board). These measures have been established through the CALGreen Code and are designed to reduce the quantity of air contaminants to safe and acceptable levels.

- Another measure the state has taken to address the issue of formaldehyde in particular is CARB's ATCM (Airborne Toxic Control Measure to Reduce Formaldehyde Emissions from Composite Wood Products). The purpose of this measure is to "reduce formaldehyde emissions from composite wood products, and finished goods that contain composite wood products, that are sold, offered for sale, supplied, used, or manufactured for sale in California. The composite wood products covered by this regulation are hardwood plywood, particleboard, and medium density fiberboard." The measure applies to manufacturers, distributors, importers, fabricators (that use such materials to make other goods), retailers, and third party certifiers who manufacture, offer for sale or supply these goods in California. The control measure assures that all building materials and furnishings manufactured, distributed, imported and used in new construction in California meet concentrations determined by the state to assure healthful indoor air quality. According to CARB, from a public health standpoint, the Composite Wood Products Regulation's emission standards are set at levels intended to protect

public health. The CWP Regulation, adopted in 2007, established two phases of emissions standards: an initial Phase 1, and later, a more stringent Phase 2 that requires all finished goods, such as flooring, destined for sale or use in California to be made using complying composite wood products. As of January 2014, only Phase 2 products are legal for sale in California. Thus, all new wood products installed in the Project would comply with the more stringent Phase 2 requirements. Accordingly, the state of California has addressed the issue of indoor air quality related to formaldehyde through regulation – the issue is not addressed by the state through CEQA.

APPEAL POINT 20:

The appellant claims that the City has failed to present sufficient evidence showing that the Project will not have significant noise impacts, precluding reliance on the Class 32 Exemption. The appellant claims that the Exemption's noise analysis does not include references to support the assumed reductions in noise levels that can be achieved by using barriers and mufflers during construction.

APPLICANT RESPONSE:

The project will be subject to Regulatory Compliance Measure RC-NO-1 (Demolition, Grading, and Construction Activities), which states that the project shall comply with the City of Los Angeles Noise Ordinance and any subsequent ordinances, which prohibit the emission or creation of noise beyond certain levels at adjacent uses unless technically infeasible. Attached to this letter are specification sheets representative of the types of mufflers and barriers necessary to comply with the regulatory compliance measure listed above.

APPEAL POINT 21:

Density bonuses, incentives, waivers of development standards not supported by the California Government Code or Los Angeles Municipal Code.

APPLICANT RESPONSE:

California Government Code §§65915 – 65918 allows a developer to increase density on a property above the maximum set under a jurisdiction's General Plan land use plan. In exchange for the increased density, a certain number of the new affordable dwelling units must be reserved at below market rate rents. Qualifying applicants can also receive reductions in required development standards.

In the City of Los Angeles, Density Bonus increases, incentives, and waivers of development standards are regulated by Los Angeles Municipal Code (LAMC) 12.22. A.25. Per LAMC 12.22 A.25(g)(3), the CPC decision on Off-Menu Incentives and Waivers of Development Standards are final. Therefore, the decision to approve those Incentives and Waivers are not subject to appeal.

The City is required to grant concessions and incentives to qualifying projects unless the City makes a finding supported by substantial evidence that: (1) the concession or incentive does not result in identifiable and actual cost reductions, or (ii) the concession or incentive would have a specific, adverse impact upon public health and safety or the physical environment or any real property that is listed in the California Register of Historical Resources and for which there is no feasible method to satisfactorily mitigate or avoid the specific, adverse impact without rendering the development unaffordable to low-income and moderate-income households.

As stated above, the CPC decision related to the Off-Menu Density Bonus Incentives and Waiver of Development Standards are not appealable. The CPC's decision letter contains the necessary findings to support the issuance of the On-Menu density bonus incentives. Applicable law provides that the City

shall grant concessions and incentives unless the City makes a finding supported by substantial evidence that: (i) the concession or incentive does not result in identifiable and actual cost reductions, or (ii) the concession or incentive would have a specific, adverse impact, as defined in paragraph (2) of subdivision (d) of Section 65589.5, upon public health and safety or the physical environment or on any real property that is listed in the California Register of Historical Resources and for which there is no feasible method to satisfactorily mitigate or avoid the specific, adverse impact without rendering the development unaffordable to low-income and moderate-income households. The Appellants have failed to provide any substantial evidence that would support either of these findings.

The CPC decision letter found that there was no evidence in the record that the requested concessions and incentives do not result in affordable housing cost reductions. The CPC found that the increased floor area and lot area would allow the Applicant to construct additional market rate dwelling units to offset the cost of the Project's affordable dwelling units. The cost to construct affordable dwelling units is the same as the cost to construct market rate units. The return on the cost for affordable dwelling units, however, is not the same. Accordingly, the incentives sought are needed to offset the cost of the affordable units.

The CPC decision letter also found there was no evidence in the record that the Project would have a specific, adverse impact, on public health and safety or the physical environment or any real property list in the California Register of Historic Resources. Construction of the Project to replace a surface parking lot will not impact public health. Appellants have not submitted any substantial evidence to the contrary to rebut these findings.

APPEAL POINT 22:

An exception to CE applies due to unusual circumstances: building is taller than other buildings in area, in a liquefaction zone, and will have outdoor balconies that can generate additional air and noise pollution.

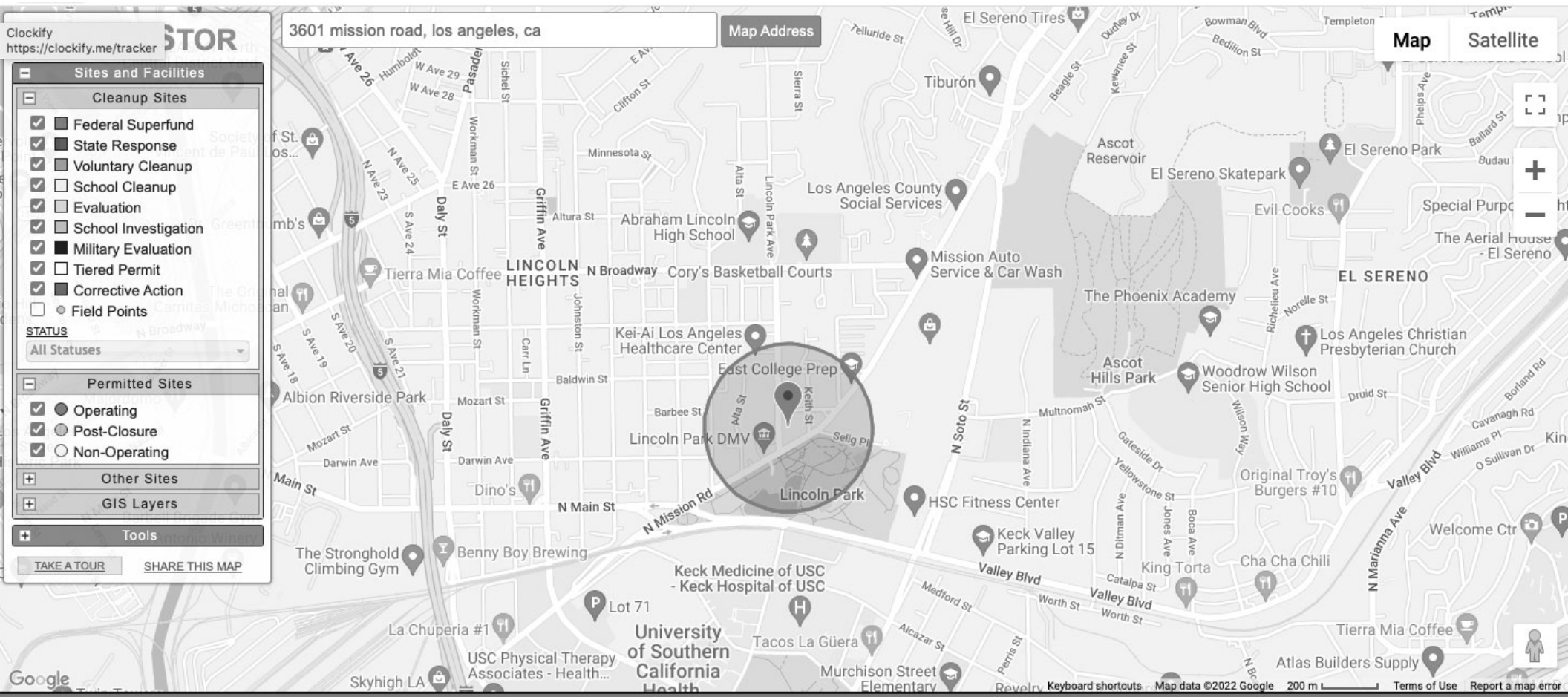
APPLICANT RESPONSE:

The project has a Geotechnical Investigation Report written by Geocon West, Inc. on June 23, 2022 and approved by the City of Los Angeles Department of Building and Safety as documents in a Geology and Soils Report Approval Letter issued on July 28, 2022. Appellants do not provide substantial evidence to support that project geotechnical reports are inadequate or that the conclusions are flawed. Both the Geotechnical Investigation Report written by Geocon West, Inc. and the Geology and Soils Report Approval Letter issued by the City's Department of Building and Safety are attached.

The City of Los Angeles regulates noise through its noise ordinance contained in LAMC 111.03 which states that, in residential zones like the one characterizing the project site, daytime noise levels (7:00 a.m. to 10:00 p.m.) and nighttime noise levels (10:00 p.m. to 7:00 am) shall not impact the ambient noise levels of the surrounding properties by an increase of more than five (5) dB(A). LAMC 111.04 further states "the operation or maintenance of any device, instrument, vehicle, or machinery in violation of any provision of this chapter, which operation or maintenance causes discomfort or annoyance to reasonable persons or which endangers the comfort, repose, health, or peace of residents in the area, shall be deemed and is declared to be a public nuisance and may be subject to abatement summarily by a restraining order or injunction issued by a court order of competent jurisdiction."

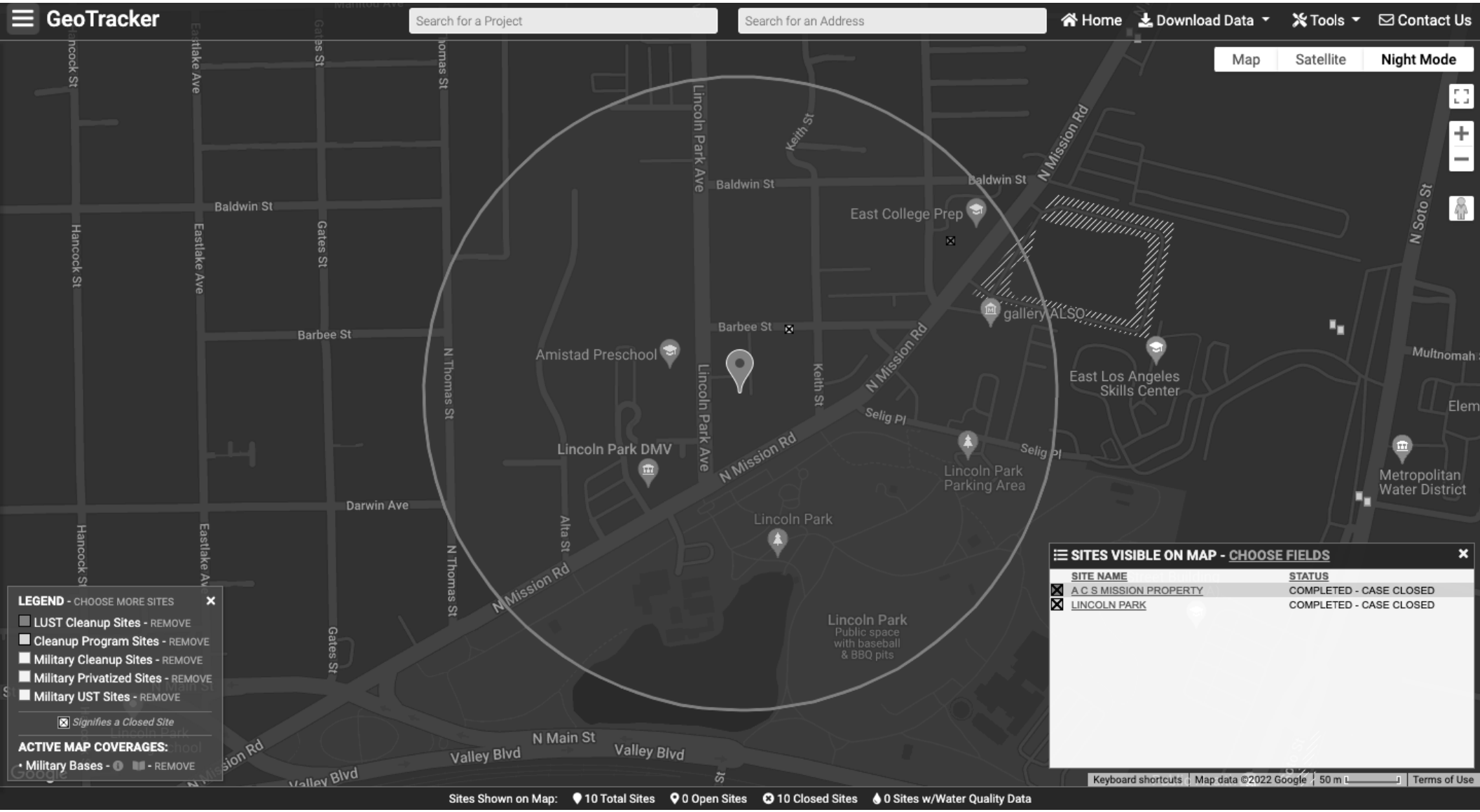
Operational noise from residential outdoor balconies would be typical of residential development and subject to City of Los Angeles Noise Ordinance.

Appellants have failed to provide substantial evidence that any unusual circumstances apply.



SITES FOUND IN SEARCH RADIUS — 0 SITES LISTED — EXPORT THIS LIST TO EXCEL

PROJECT NAME	STATUS	PROJECT TYPE	ADDRESS	CITY


GeoTracker
Search for a Project
Search for an Address
Home
Download Data
Tools
Contact Us
Map
Satellite
Night Mode
Baldwin St
Barbee St
Darwin Ave
Hancock St
Eastlake Ave
Gates St
N Thomas St
Lincoln Park Ave
Keith St
Alta St
N Mission Rd
Selig Pl
N Soto St
N Main St
Valley Blvd
East College Prep
gallery ALSO
Amistad Preschool
East Los Angeles Skills Center
Lincoln Park DMV
Lincoln Park Parking Area
Metropolitan Water District
Lincoln Park
Public space with baseball & BBQ pits
LEGEND - CHOOSE MORE SITES
LUST Cleanup Sites - REMOVE
Cleanup Program Sites - REMOVE
Military Cleanup Sites - REMOVE
Military Privatized Sites - REMOVE
Military UST Sites - REMOVE
Signifies a Closed Site
ACTIVE MAP COVERAGES:
Military Bases - REMOVE
SITES VISIBLE ON MAP - CHOOSE FIELDS
SITE NAME
STATUS
A C S MISSION PROPERTY
COMPLETED - CASE CLOSED
LINCOLN PARK
COMPLETED - CASE CLOSED
Keyboard shortcuts
Map data ©2022 Google
50 m
Terms of Use
Sites Shown on Map:
10 Total Sites
0 Open Sites
10 Closed Sites
0 Sites w/Water Quality Data

FORM GEN. 160A (Rev. 1/82)

CITY OF LOS ANGELES

INTER-DEPARTMENTAL CORRESPONDENCE

3601 N Mission St
DOT Case No. CEN22-53930

Date: September 7, 2022

To: Susan Jimenez, Administrative Clerk
Department of City Planning

From: Wes Pringle, Transportation Engineer
Department of Transportation

Subject: **TRANSPORTATION ASSESSMENT FOR THE PROPOSED RESIDENTIAL PROJECT LOCATED AT 3601 NORTH MISSION STREET**

The Los Angeles Department of Transportation (LADOT) has reviewed the transportation assessment prepared by KOA Corporation dated August 23, 2022, for the proposed mixed-use project at 3601 North Mission Street. In compliance with Senate Bill (SB) 743 and the California Environmental Quality Act (CEQA), vehicle miles traveled (VMT) analysis is required to identify the project's ability to promote the reduction of greenhouse gas emissions, the access to diverse land uses, and the development of multi-modal networks. The significance of a project's impact in this regard is measured against the VMT thresholds established in LADOT's Transportation Assessment Guidelines (TAG), as described below.

DISCUSSION AND FINDINGS

A. Project Description
This affordable housing project proposes to construct a seven-story development with 185 residential units with a total of 105 vehicular parking spaces and 126 bicycle parking spaces. Currently, the project site is a parking lot that is currently used by adjacent businesses. Two driveways along Lincoln Park Avenue will accommodate all vehicular accesses. The project's site plan is illustrated in **Attachment A**. The project is expected to be completed by 2025.

B. Freeway Safety Analysis
Per the Interim Guidance for Freeway Safety Analysis memorandum issued by LADOT on May 1, 2020 to address Caltrans safety concerns on freeways, the study addresses the project's effects on vehicle queuing on freeway off-ramps. Such an evaluation measures the project's potential to lengthen a forecasted off-ramp queue and create speed differentials between vehicles exiting the freeway off-ramps and vehicles operating on the freeway mainline.

The evaluation identified the number of project trips expected to be added to nearby freeway off-ramps serving the project site. It was determined that project traffic at any freeway off-ramp will not exceed 25 peak hour trips. Therefore, a **freeway ramp analysis is not required**.

C. CEQA Screening Threshold
Prior to accounting for trip reductions resulting from the application of Transportation Demand Management (TDM) Strategies, a trip generation analysis was conducted to determine if the

project would exceed the net 250 daily vehicle trips screening threshold. Using 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, 11th Edition, as well as applying trip generation adjustments when applicable, based on sociodemographic data and the built environment factors of the project's surroundings, it was determined that the project **does exceed** the net 250 daily vehicle trips threshold. Therefore, VMT analysis is required. A copy of the VMT Calculator summary report is provided in **Attachment B.**

Additionally, the analysis included further discussion of the transportation impact thresholds:

T-1 Conflicting with plans, programs, ordinances, or policies
T-2.1 Causing substantial vehicle miles traveled
T-3 Substantially increasing hazards due to a geometric design feature or incompatible use.

The assessment determined that the project would **not** have a significant transportation impact under Thresholds T-1 and T-3. A project's impacts per Threshold T-2.1 is determined by using the VMT calculator. A copy of the VMT Calculator summary report is provided in **Attachment B.**

D. Transportation Impacts

On July 30, 2019, pursuant to SB 743 and the recent changes to Section 15064.3 of the State's CEQA Guidelines, the City of Los Angeles adopted VMT as criteria in determining transportation impacts under CEQA. The LADOT TAG provide instructions on preparing transportation assessments for land use proposals and defines the significant impact thresholds. The LADOT

VMT Calculator tool measures project impact in terms of Household VMT per Capita, and Work VMT per Employee. LADOT identified distinct thresholds for significant VMT impacts for each of the seven APC areas in the city. For the Central APC area, in which the project is located, the following threshold has been established for Household VMT (this project does not have a Work VMT):

- Household VMT per Capita: 6.0

The project proposes to incorporate the following TDM (Transportation Demand Management) strategies as part of the project features:

- Reduced parking supply: Proposed 105 Vs. 192 per LAMC (a reduction of 87)
- Bicycle Parking: Proposed 126 per LAMC

With the application of these TDM measures, the proposed project is projected to have a Household **VMT impact of 5.6**. Therefore, it is concluded that the implementation of the project would result in no significant VMT impact. A copy of the VMT Calculator summary report is provided in **Attachment B**.

E. Access and Circulation

During the preparation of the new CEQA guidelines, the State's Office of Planning and Research

stressed that lead agencies can continue to apply traditional operational analysis requirements to inform land-use decisions provided that such analyses were outside of the CEQA process. The authority for requiring non-CEQA transportation analysis and requiring improvements to address potential circulation deficiencies, lies in the City of Los Angeles' Site Plan Review authority as established in Section 16.05 of the Los Angeles Municipal Code (LAMC). Therefore, LADOT continues to require and review a project's site access, circulation, and operational plan to determine if any access enhancements, transit amenities, intersection improvements, traffic signal upgrades, neighborhood traffic calming, or other improvements are needed. In accordance with this authority, the project has completed a circulation analysis using a "level of service" screening methodology that indicates that the trips generated by the proposed development will not likely result in adverse circulation conditions at several locations. LADOT has reviewed this analysis and determined that it adequately discloses operational concerns. A copy of the circulation analysis table that summarizes these potential deficiencies is provided as **Attachment C** to this report.

PROJECT REQUIREMENTS

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. Parking Requirements
   The project will provide a total of 105 vehicular parking spaces and 126 bicycle parking spaces. The applicant should check with the Departments of Building and Safety and City Planning on the number of parking spaces required for this project.

2. Highway Dedication and Street Widening Requirements
   Per the Mobility Element of the General Plan, **Lincoln Park Avenue** is designated as a collector street, which would require a 20-foot half-width roadway within a 33-foot half-width right-of-way. **Mission Road** is designated Boulevard II, which would require a 40-foot half-width roadway within a 55-foot half-width right-of-way. **Barbee Street** is designated as a Local Street, which would require an 18-foot half-width roadway within a 30-foot half-width right-of-way. The applicant should check with the Bureau of Engineering's Land Development Group to determine if there are any other applicable highway dedication, street widening and/or sidewalk requirements for this project.

3. Project Access and Circulation
   The conceptual site plan for the project (see **Attachment A**) is acceptable to LADOT. The review of this study **does not** constitute approval of the dimensions for any new proposed driveway. Review and approval of the driveway should be coordinated with LADOT's Citywide Planning Coordination Section (201 North Figueroa Street, 5th Floor, Room 550, at 213-482-7024). In order to minimize and prevent last-minute building design changes, the applicant should contact LADOT for driveway width and internal circulation requirements prior to the commencement of building or parking layout design. The applicant should check with City Planning regarding the project's driveway placement and design.

4. Worksite Traffic Control Requirements
   LADOT recommends that a construction work site traffic control plan be submitted to LADOT's

Citywide Temporary Traffic Control Section or Permit Plan Review Section for review and approval prior to the start of any construction work. Refer to http://ladot.lacity.org/businesses/temporary-traffic-control-plans to determine which section to coordinate review of the work site 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 all construction related truck traffic be restricted to off-peak hours to the extent feasible.

5. TDM Ordinance Requirements

The TDM Ordinance (LAMC 12.26 J) is currently being updated. The updated ordinance, which is currently progressing through the City's approval process, will:

- Expand the reach and application of TDM strategies to more land uses and neighborhoods,
- Rely on a broader range of strategies that can be updated to keep pace with technology, and
- Provide flexibility for developments and communities to choose strategies that work best for their neighborhood context.

Although not yet adopted, LADOT recommends that the applicant be subject to the terms of the proposed TDM Ordinance update expected in the future. The updated ordinance is expected to be completed prior to the anticipated construction of this project, if approved.

6. 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 Russell Hasan at (213) 972-7024.

Attachments

J:\Letters\2022\CEN22-53930_3601 M Mission St.docx

c: Emma Howard, Council District 14
Hokchi Chiu, Central District, BOE
Kaylinn Pell, Central District, DOT
Taimour Tanavoli, Case Management Office, DOT
Hilary Mau, KOA Corp.

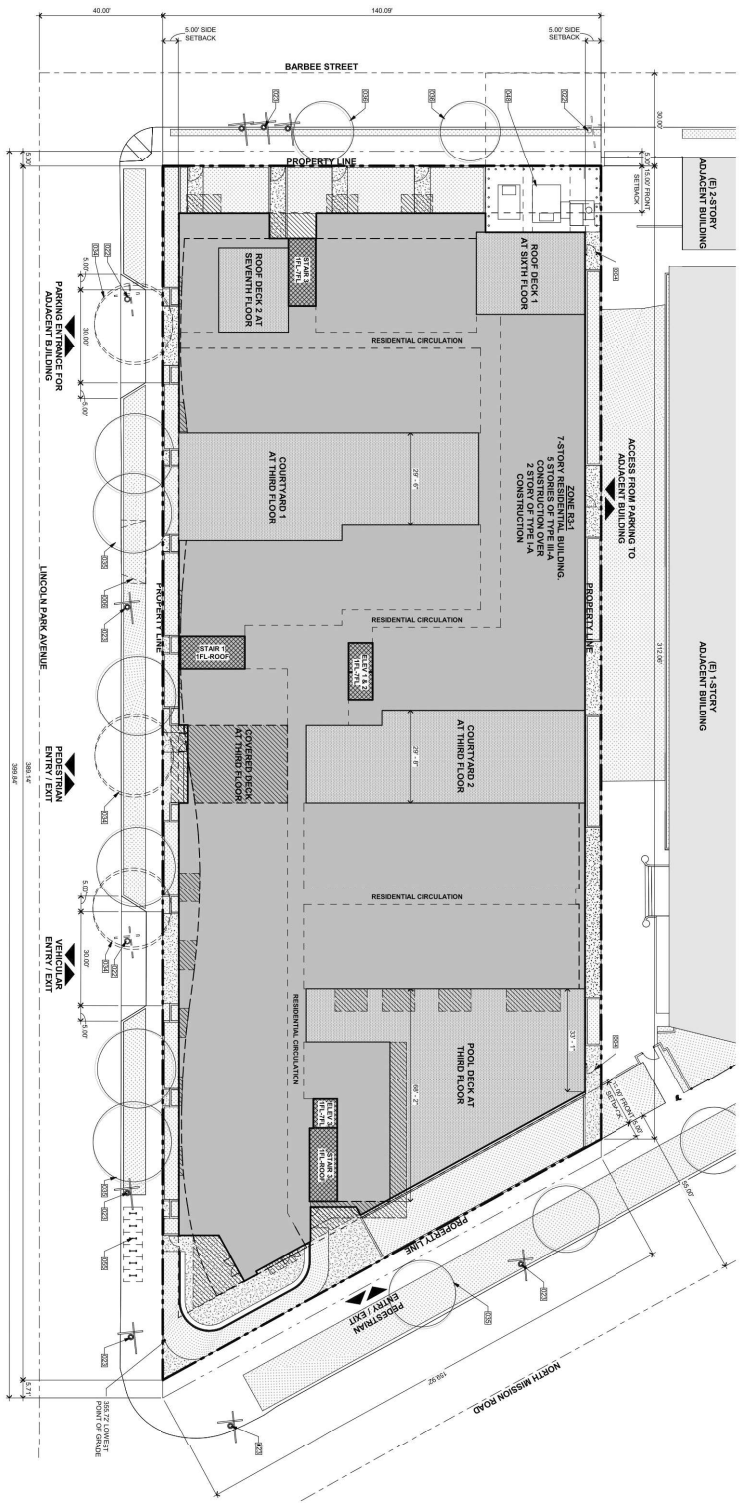


FIGURE 2

7/21/2022

FN: FN: JC28102_MISSION RD (3601 N) RESIDENTIAL\SITE-PLAN

CONCEPTUAL PROJECT SITE PLAN

KOA
300 Corporate Pointe, Suite 470
Culver City, California 90230
PH (310) 473 6508 F (310) 444 9771
www.koacorp.com

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: 3601 Mission Road Residential Project

Scenario: With Project

Address: 3601 E MISSION ROAD, 90031

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

☐ 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
Housing | Affordable Housing - Family	44	DU
Housing | Multi-Family	138	DU
Housing | Affordable Housing - Family	47	DU

☐ Click here to add a single custom land use type (will be included in the above list)

Project Screening Summary

Existing Land Use	Proposed Project
0 Daily Vehicle Trips	897 Daily Vehicle Trips
0 Daily VMT	6,445 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	897 Net Daily Trips
The net increase in daily VMT ≤ 0	6,445 Net Daily VMT
The proposed project consists of only retail land uses ≤ 50,000 square feet total.	0.000 ksf

The proposed project is required to perform VMT analysis.

Measuring the Miles

CITY OF LOS ANGELES VMT CALCULATOR Version 1.3

Project Information

Project: 3601 Mission Road Residential Project

Scenario: With Project

Address: 3601 E MISSION ROAD, 90031

Proposed Project Land Use Type	Value	Unit
Housing | Multi-Family	138	DU
Housing | Affordable Housing - Family	47	DU

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

192 city code parking provision for the project site

105 actual parking provision for the project site

Unbundle Parking

☐ Proposed Prj ☑ Mitigation

85 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

6.00 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

G Neighborhood Enhancement

Analysis Results

Proposed Project	With Mitigation
775 Daily Vehicle Trips	**733** Daily Vehicle Trips
5,569 Daily VMT	**5,276** Daily VMT
6.3 Household VMT per Capita	**5.6** Household VMT per Capita
N/A Work VMT per Employee	**N/A** Work VMT per Employee

Significant VMT Impact?

Proposed Project	With Mitigation
Household: No Threshold = 7.2 15% Below APC	**Household: No** Threshold = 7.2 15% Below APC
Work: N/A Threshold = 12.7 15% Below APC	**Work: N/A** Threshold = 12.7 15% Below APC

Measuring the Miles

7/21/2022

CITY OF LOS ANGELES VMT CALCULATOR

Report 1: Project & Analysis Overview

Date: July 21, 2022
Project Name: 3601 Mission Road Residential Project
Project Scenario: With Project
Project Address: 3601 E MISSION ROAD, 90031

Version 1.3

Project Information			
Land Use Type		**Value**	**Units**
Housing	*Single Family*	*0*	*DU*
	Multi Family	138	DU
	Townhouse	*0*	*DU*
	Hotel	*0*	*Rooms*
	Motel	*0*	*Rooms*
Affordable Housing	Family	47	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	*0*	*Students*
	Middle School	*0*	*Students*
	Elementary	*0*	*Students*
	Private School (K-12)	*0*	*Students*
Other		*0*	*Trips*

CITY OF LOS ANGELES VMT CALCULATOR

Report 1: Project & Analysis Overview

Date: July 21, 2022
Project Name: 3601 Mission Road Residential Project
Project Scenario: With Project
Project Address: 3601 E MISSION ROAD, 90031

Version 1.3

Analysis Results			
Total Employees: 0 Total Population: 459			
Proposed Project		***With Mitigation***	
775	**Daily Vehicle Trips**	**733**	**Daily Vehicle Trips**
5,569	**Daily VMT**	**5,276**	**Daily VMT**
6.3	**Household VMT per Capita**	**5.6**	**Household VMT per Capita**
N/A	**Work VMT per Employee**	**N/A**	**Work VMT per Employee**

Significant VMT Impact?			
APC: East Los Angeles			
Impact Threshold: 15% Below APC Average Household = 7.2 Work = 12.7			
Proposed Project		***With Mitigation***	
VMT Threshold	**Impact**	**VMT Threshold**	**Impact**
Household > 7.2 Work > 12.7	No N/A	Household > 7.2 Work > 12.7	No N/A

TDM Strategy Inputs

Strategy Type		Description	Proposed Project	Mitigations
Parking	Reduce parking supply	City code parking provision (spaces)	192	192
		Actual parking provision (spaces)	105	105
	Unbundle parking	Monthly cost for parking ($)	*$0*	$85
	Parking cash-out	*Employees eligible (%)*	*0%*	*0%*
	Price workplace parking	*Daily parking charge ($)*	*$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*
		Degree of implementation (low, medium, high)	*0*	*0*
	Employer sponsored vanpool or shuttle	*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)	Yes	Yes
	Include secure bike parking and showers	Includes indoor bike parking/lockers, showers, & repair station (Yes/No)	Yes	Yes
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*

TDM Adjustments by Trip Purpose & Strategy

Place type: Compact Infill

		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	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	TDM Strategy Appendix, Parking sections 1 - 5
	Unbundle parking	*0%*	10%	*0%*	*0%*	*0%*	10%	*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%*	

TDM Adjustments by Trip Purpose & Strategy, Cont.

Place type: Compact Infill

		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	0.6%	0.6%	0.6%	0.6%	0.6%	0.6%	0.6%	0.6%	0.6%	0.6%	0.6%	0.6%	
	Include secure bike parking and showers	0.6%	0.6%	0.6%	0.6%	0.6%	0.6%	0.6%	0.6%	0.6%	0.6%	0.6%	0.6%	
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 sections 1 - 2
	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	*14%*	*22%*	*14%*	*14%*	*14%*	*22%*	*14%*	*14%*	*14%*	*14%*	*14%*	*14%*
MAX. TDM EFFECT	*14%*	*22%*	*14%*	*14%*	*14%*	*22%*	*14%*	*14%*	*14%*	*14%*	*14%*	*14%*

= 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: July 21, 2022
Project Name: 3601 Mission Road Residential Project
Project Scenario: With Project
Project Address: 3601 E MISSION ROAD, 90031

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	163	-23.3%	125	9.4	1,532	1,175
Home Based Other Production	453	-23.2%	348	6.2	2,809	2,158
Non-Home Based Other Production	211	-1.9%	207	8.0	1,688	1,656
Home-Based Work Attraction	0	0.0%	0	13.0	0	0
Home-Based Other Attraction	216	-22.2%	168	6.1	1,318	1,025
Non-Home Based Other Attraction	51	-3.9%	49	8.8	449	431

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	-13.6%	108	1,015	-22.4%	97	912
Home Based Other Production	-13.6%	301	1,865	-22.4%	270	1,675
Non-Home Based Other Production	-13.6%	179	1,431	-13.6%	179	1,431
Home-Based Work Attraction	-13.6%	0	0	-13.6%	0	0
Home-Based Other Attraction	-13.6%	145	886	-13.6%	145	886
Non-Home Based Other Attraction	-13.6%	42	372	-13.6%	42	372

MXD VMT Methodology Per Capita & Per Employee

Total Population: 459
Total Employees: 0
APC: East Los Angeles

	Proposed Project	*Project with Mitigation Measures*
Total Home Based Production VMT	**2,880**	**2,587**
Total Home Based Work Attraction VMT	**0**	**0**
Total Home Based VMT Per Capita	**6.3**	**5.6**
Total Work Based VMT Per Employee	**N/A**	**N/A**

Table 9: Future (2025) Traffic Conditions
Intersection Delay Summary

No.	Intersection	Peak Hour	Future (2025) Conditions: Without Project Delay[1]	Without Project LOS[2]	With Project Delay[1]	With Project LOS[2]	Change[3]
1	Lincoln Park Avenue &	AM	74.9	E	91.5	F	16.6
	Mission Road	PM	11.4	B	12.6	B	1.2
2	Selig Place &	AM	18.7	B	18.9	B	0.2
	Mission Road	PM	6.8	A	6.1	A	-0.7

Note:
[1] Delay in seconds; [2] LOS = Level of Service; [3] Change in delay reported in seconds.

Bundled Parking and Travel Behavior

Miriam Pinski

UNIVERSITY OF CALIFORNIA

Research Topic

Driving has a host of known negative consequences, including traffic congestion and pollution, that planners and policymakers often aim to mitigate by encouraging people to use alternative modes of transportation or through disincentives such as gas taxes and tolls. The housing practice of "bundled parking" does the opposite, actively encouraging driving by including the cost of a parking space in the rent or sales price of a unit and presenting it as "free."

Bundled parking obscures the true cost of vehicle ownership and use and makes driving much easier by reducing the time and energy associated with finding a place to park. A previous UCLA study confirmed that bundled parking has a positive relationship with owning a car. Does it also make people more likely to drive or less likely to use other modes of transportation?

Study

The 2013 American Housing Survey, a nationwide survey of housing units which includes both unit characteristics and household travel behavior, provided the primary data used for this study. The researcher used gas expenditure as a proxy to measure how much people use their vehicles, and conducted numerous regressions to see whether bundled parking affects resident driving.

Regression analyses tested for two relationships:

- Is bundled parking associated with how often a household drives?
- Does bundled parking affect whether a household uses alternative modes of transit (and with what frequency)?

Main Findings

- After controlling for differences in socioeconomic and built environment characteristics, bundled parking is associated with a 27-percent increase in vehicle miles traveled.
- Annually, households with bundled parking drive approximately 3,800 more miles, spend nearly $580 more on gasoline, and emit 1.4 more metric tons of carbon dioxide than households with unbundled parking.

KEY TAKEAWAYS

- Bundled parking is negatively correlated with transit use, and households with unbundled parking are significantly more likely to be frequent transit users.
- Even after controlling for factors such as vehicle ownership and built environment characteristics, households with bundled parking drive 27 percent more than households without bundled parking.
- Zoning and building code regulations that require developers to provide bundled residential parking encourage driving and discourage transit ridership.

Impact on VMT

	Average Monthly Gas Expenditure	VMT Estimate	GHG Estimate
Without Bundled Parking	$185.7***	1,245	472,046 grams CO_2
With Bundled Parking	$233.8***	1,567	594,271 grams CO_2
Difference (Bundled - Unbundled)	**$48.1**	**322 miles**	**122,225 grams CO_2**

VMT estimate based on 2013 average fuel economy (24 mpg) and average cost of gas ($3.50 per gallon). CO2 emission calculation based on EPA estimate of 8,887 grams CO2 per 1 gallon of gasoline.

Figure 1. Impact on vehicle-miles traveled

Main Findings (continued)

- Bundled parking is negatively correlated to transit use. Households with unbundled parking are significantly more likely to be frequent transit users.

Conclusion/Recommendations

- When parking is included in the cost of housing, households are disincentivized from using transit.

- Obscuring the cost of parking by including it in the cost of housing encourages people to drive significantly more. By unbundling parking, the cost of vehicle ownership would be made explicit, and many households may be more likely to forgo that expense and use other modes.

- Policymakers concerned with climate change, as well as falling transit ridership, must consider the consequences that parking requirements have on travel behavior.

For More Information

Manville, M. (2017). Bundled parking and vehicle ownership: Evidence from the American Housing Survey. *Journal of Transport and Land Use, 10*(1). https://doi.org/10.5198/jtlu.2016.730

Pinski, M. (2018). *Does bundled parking influence travel behavior?* (Masters capstone, UCLA) Retrieved from https://drive.google.com/file/d/1UVflxuxzp4URobIEFMOT2DbhP6WQytOx/view

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UCLA Institute of Transportation Studies

Protected Tree Report

1. Tree Expert: Stephanie Reed, Landscape Architect 6086, ISA Certified Arborist WE-11453A, 4572 Via Marina #105, Marina del Rey, CA 90292. phone:(424)385-8721. email: stephanie@upla.studio
2. PTR Prepared by: Stephanie Reed
3. Prepared for: KSA Design Studio, 6150 Washington Blvd, Culver City, CA 90232. phone: 310-574-4460. email: a.stinson@ksa-la.com
4. Site Address and description: 3601 Mission Road, Los Angeles, CA 90031. APN: 5211-009-015. The site is currently a paved commercial parking lot.
5. Date Prepared: 09-13-2022
6. Date of Field Survey: 06-30-2022
7. PTR Purpose: KSA Design Studio contacted the arborist with requirements for the city of Los Angeles for a protected tree report (PTR) for land development purposes. This report is being prepared in accordance with the City of Los Angeles Protected Tree Ordinance No. **186873.**
8. Table of Contents [Listed Below]
9. Project Description and Background: Developer plans to remove all existing structures, grade and develop a multi-story, multi-unit residential structure.
10. Square footage of Entire Property: 50,656 SF. Square footage of proposed structure: 152,000 SF

Table of contents:

11. Field Observations:

FIELD OBSERVATION MATRIX – ~~Protected Trees~~ Non Protected Trees

Address: 3601 N Mission Rd
Date: June 2022
APN: 5211-009-015
Time: 12:00 PM
Weather: Overcast

Section	Tree Number	18	39	40	41	42
Form	Quercus agrifolia					
	Umbellularia californica					
	Juglans californica					
	Platanus racemosa	x	x	x	x	x
	Sambucus mexicana					
	Heteromeles arbutifolia					
Size	Trunk Dia. @ 4.5' above base (in)	18	18	15	15	15
	Height (ft)	32	40	40	40	48
	Spread (ft)	18	40	25	25	20
Physical Condition	Tree Declining		x			
	Drought Stressed					
	Broken Hanging Limb(s)		x			
	Weak Main Crotch(s)		x			
	Sparse Foliage			x		
	Fire Damage					
	Cavity(s) in tree					
	Trunk Damage or Exudation	x	x	x	x	
	Hollow Trunk or Cavity					
	Mainstem Dieback		x			
	Insect Damaged	x	x	x	x	x
	Diseased	x	x	x	x	x
	Leaning	x	x			
	Soil Buildup at Base					
	Regrown Stump					
	Surface Roots	x	x			
	Safety Hazard					
Treatment	Safety Prune (Crown Reduction)					
	Raise Canopy					
	Remove Deadwood	x		x	x	x
	Insect Treatment					
Rating	Health	B	D	B	B	B
	Aesthetics & Conformity	C	C	C	C	C
	Balance	C	D	C	C	C
Rating Code	Remarks	I, R	I, R, NT	I, T	I, T	I, T

Rating Code:
A = EXCELLENT
B = GOOD
C = FAIR
D = POOR
E = NEARLY DEAD
F = DEAD
R = Remove for Constrct
I = Impacted
T = Transplantable
NT = Not Transplantable
BMC = Below Main Crotch

12. Findings:
The definition of Protected Tree in Section 17.02 of the Los Angeles Municipal Code reads as follows:

Protected Tree or Shrub (Amended by Ord. No. 186,873, Eff. 2/4/21.) – Any of the following Southern California indigenous tree species, which measure four inches or more in cumulative diameter, four and one-half feet above the ground level at the base of the tree, or any of the following Southern California indigenous shrub species, which measure four inches or more in cumulative diameter, four and one-half feet above the ground level at the base of the shrub:

Protected Trees:

(a) Oak tree including Valley Oak (Quercus lobata) and California Live Oak (Quercus agrifolia), or any other tree of the oak genus indigenous to Southern California but excluding the Scrub Oak (Quercus berberidifolia).

(b) Southern California Black Walnut (Juglans californica).

(c) Western Sycamore (Platanus racemosa).

(d) California Bay (Umellularia californica).

Protected Shrubs:

(a) Mexican Elderberry (Sambucus mexicana).

(b) Toyon (Heteromeles arbutifoiia).

The definition shall not include any tree or shrub grown or held for sale by a licensed nursery, or trees planted or grown as part of a tree planting program.

There are 5 Sycamore trees grown from nursery stock on sites that are not protected by the Los Angeles Tree Protection Ordinance and will be impacted by construction.

There are several trees on abutting property that are not protected by the Los Angeles Tree Protection Ordinance and will be impacted by construction.

There are several street trees in the right-of way that are not protected by the Los Angeles Tree Protection Ordinance and will be impacted by construction.

Previous development plans and historic photos of the site show evidence that the Sycamore trees are not naturally occurring. See item 24. Other information for Demolition plan, landscape plan, and historic site photos.

13. Recommendations:
There are no trees on site that are protected by the Los Angeles Tree Protection Ordinance and will be impacted by construction.

14. Trees tagged and numbered:
No trees have been tagged, however all have been assigned numbers and identified in this report.

15. Mitigation:
There are no protected trees on site, and no mitigation is required.

16. Protected Tree Construction Impact Guidelines:
There are no trees on site that are protected by the Los Angeles Tree Protection Ordinance and will be impacted by construction.

17.Matrix summarizing observations (protected trees)

Total number of protected trees on map:	0
Total Number of Declining or dead protected trees:	0
Total number of protected trees to be impacted by construction within dripline:	0
Total number of protected trees not dead, not removed or impacted:	0

18.Proposed protected tree removals

Tree Number	Species	Height	DBH	Spread	Condition	Suggested Treatment	Rating	Other
none								

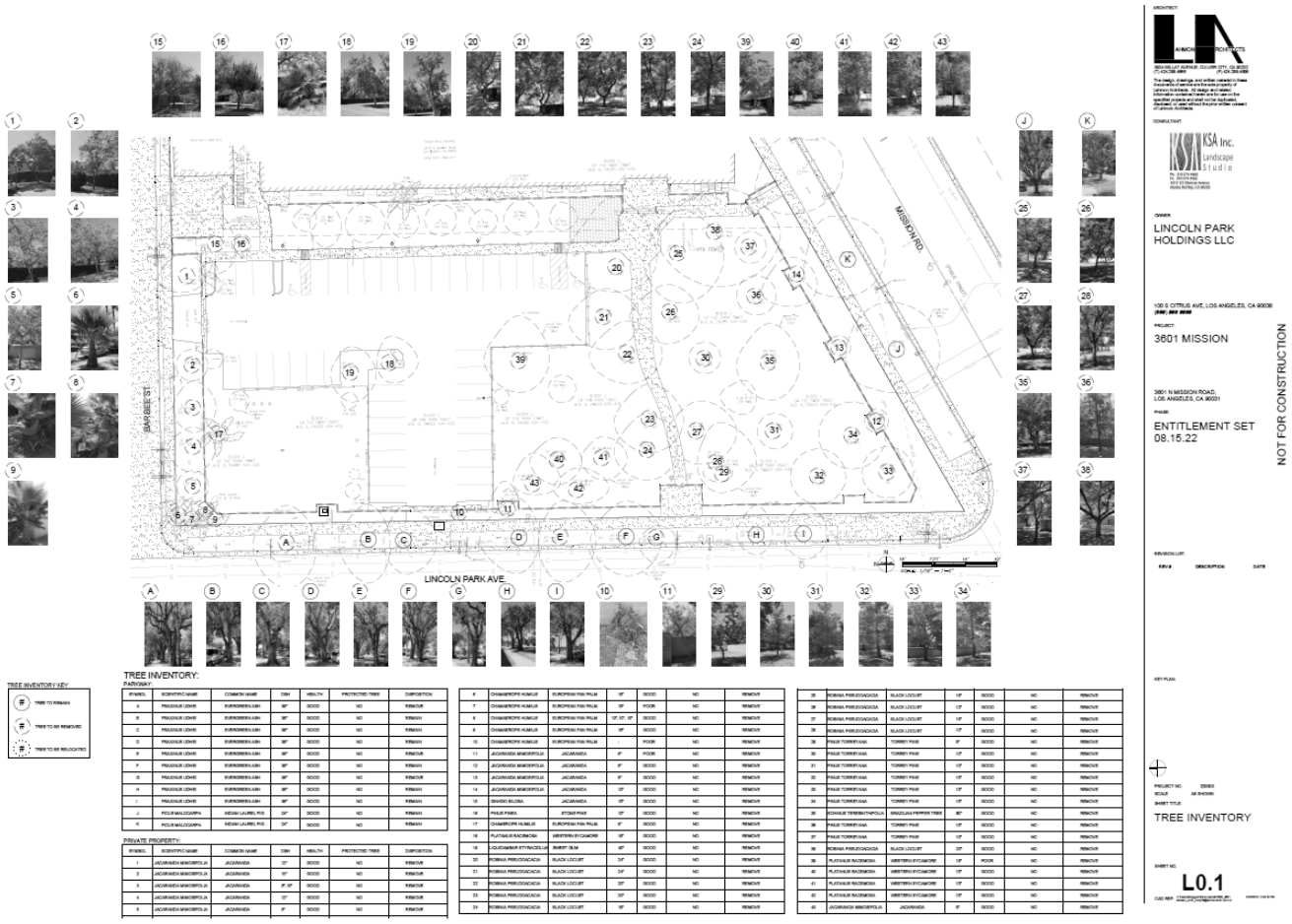
19. Proposed protected trees remaining

Tree Number	Species	Height	DBH	Spread	Condition	Suggested Treatment	Rating	Other
none								

20. Color Photos of Protected Trees.
There are no trees on site that are protected by the Los Angeles Tree Protection Ordinance and will be impacted by construction.

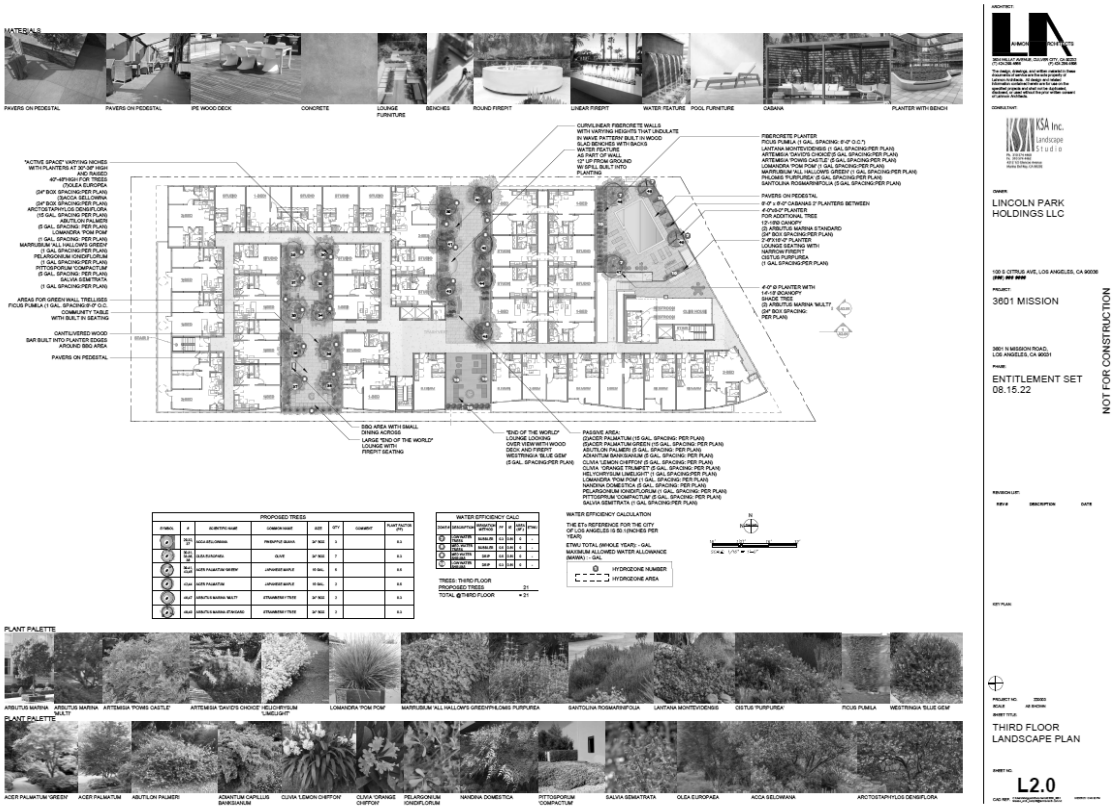
21. Topo map with trees plotted

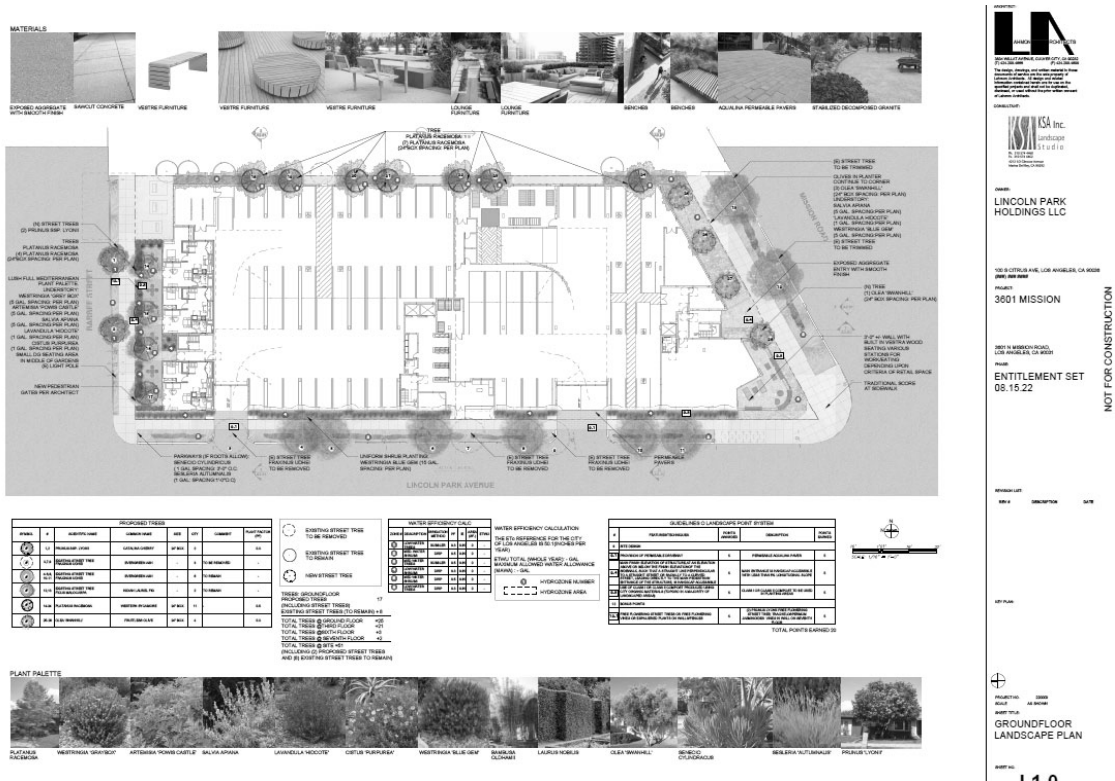
There are no trees on site that are protected by the Los Angeles Tree Protection Ordinance and will be impacted by construction.



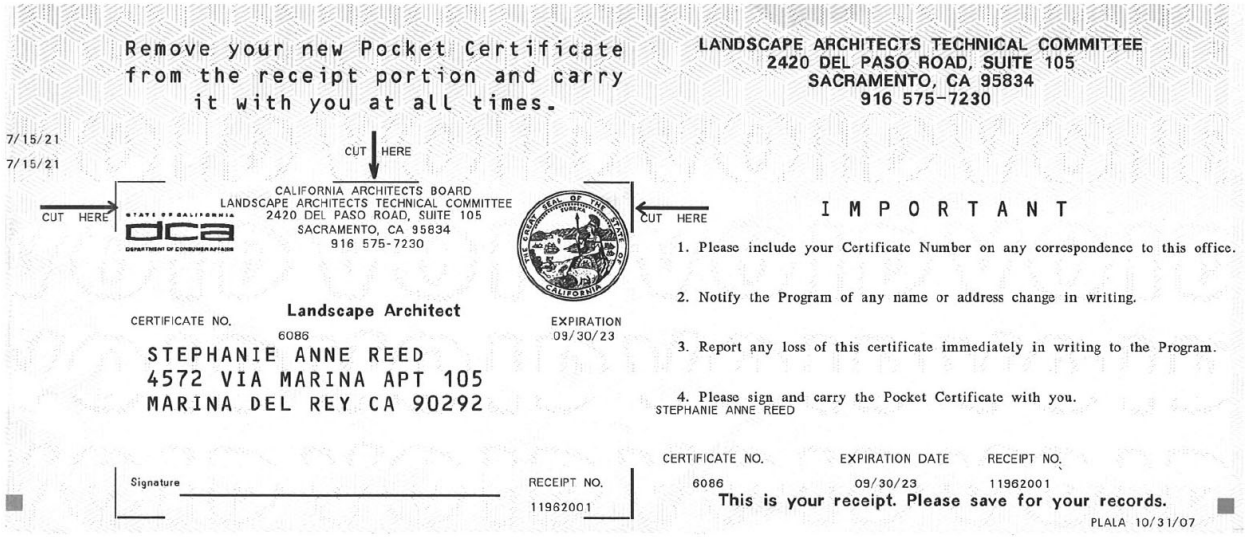
22. Landscape Plan

There are no replacement trees or other mitigation required.





23. Current Licenses and certificates



Remove your new Pocket Certificate from the receipt portion and carry it with you.

CUT HERE

7/15/21
7/15/21

CALIFORNIA ARCHITECTS BOARD
LANDSCAPE ARCHITECTS TECHNICAL COMMITTEE
2420 DEL PASO ROAD, SUITE 105
SACRAMENTO, CA 95834
916 575-7230

CERTIFICATE NO. 6086

Landscape Architect

EXPIRATION 09/30/23

STEPHANIE ANNE REED
4572 VIA MARINA APT 105
MARINA DEL REY CA 90292

Signature

RECEIPT NO. 11962001

LANDSCAPE ARCHITECTS TECHNICAL COMMITTEE
2420 DEL PASO ROAD, SUITE 105
SACRAMENTO, CA 95834
916 575-7230

I M P O R T A N T

1. Please include your Certificate Number on any correspondence to this office.
2. Notify the Program of any name or address change in writing.
3. Report any loss of this certificate immediately in writing to the Program.
4. Please sign and carry the Pocket Certificate with you.

STEPHANIE ANNE REED

CERTIFICATE NO.	EXPIRATION DATE	RECEIPT NO.
6086	09/30/23	11962001

This is your receipt. Please save for your records.

PLALA 10/31/07

The International Society of Arboriculture

Hereby Announces That

Stephanie Reed

Has Earned the Credential

ISA Certified Arborist ®

By successfully meeting ISA Certified Arborist certification requirements through demonstrated attainment of relevant competencies as supported by the ISA Credentialing Council

Caitlyn Pollihan
CEO & Executive Director

30 January 2016	30 June 2025	WE-11453A
Issue Date	Expiration Date	Certification Number

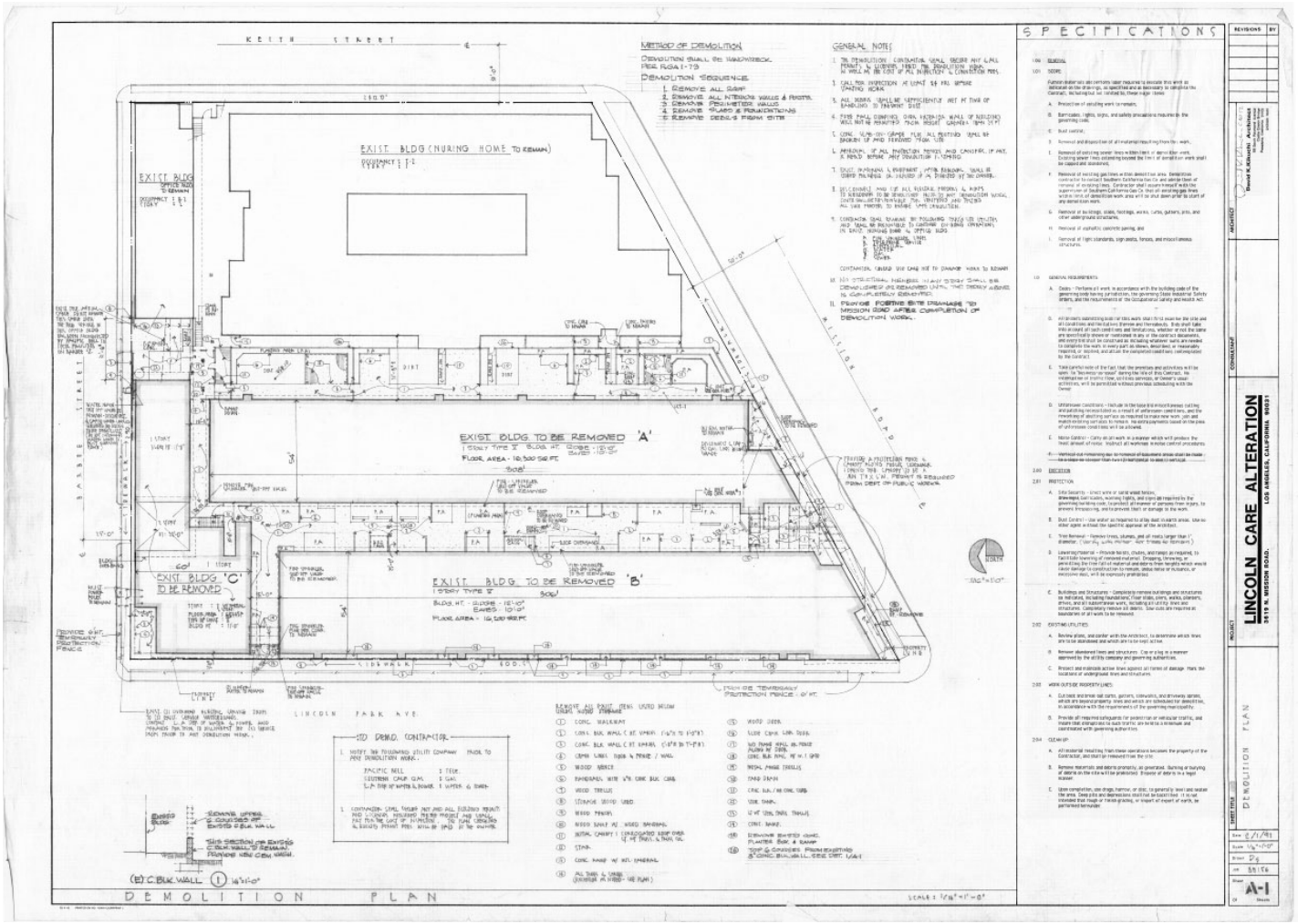
ANAB
ANSI National Accreditation Board
ACCREDITED
ISO/IEC 17024
PERSONNEL CERTIFICATION BODY
#0847
ISA Certified Arborist

24. Other information

The geotechnical report, submitted separately, shows that the site was previously developed on compacted backfill. The structural engineer has required that the building footprint will need to be over-excavated by 5 feet in addition to the 3 feet for the foundation.

Please review the following documents as evidence that the Sycamore trees are not naturally occurring:

A. Demolition plan from 1989 showing that there were buildings at the exact location of the Sycamores. In other words, the trees could not have existed there before that time.



B. Site photos taken by the previous owner in July 1999, before they renovated the site, clearly showing that the yard area in question did not have the sycamores at that time.

Photo 7. View Southwest Across Western Half of Project Site.

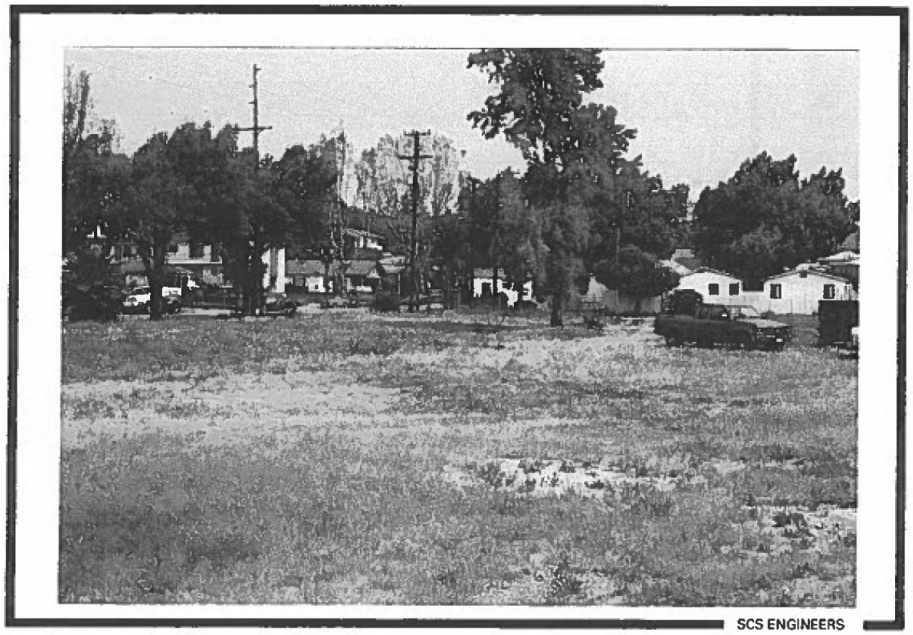
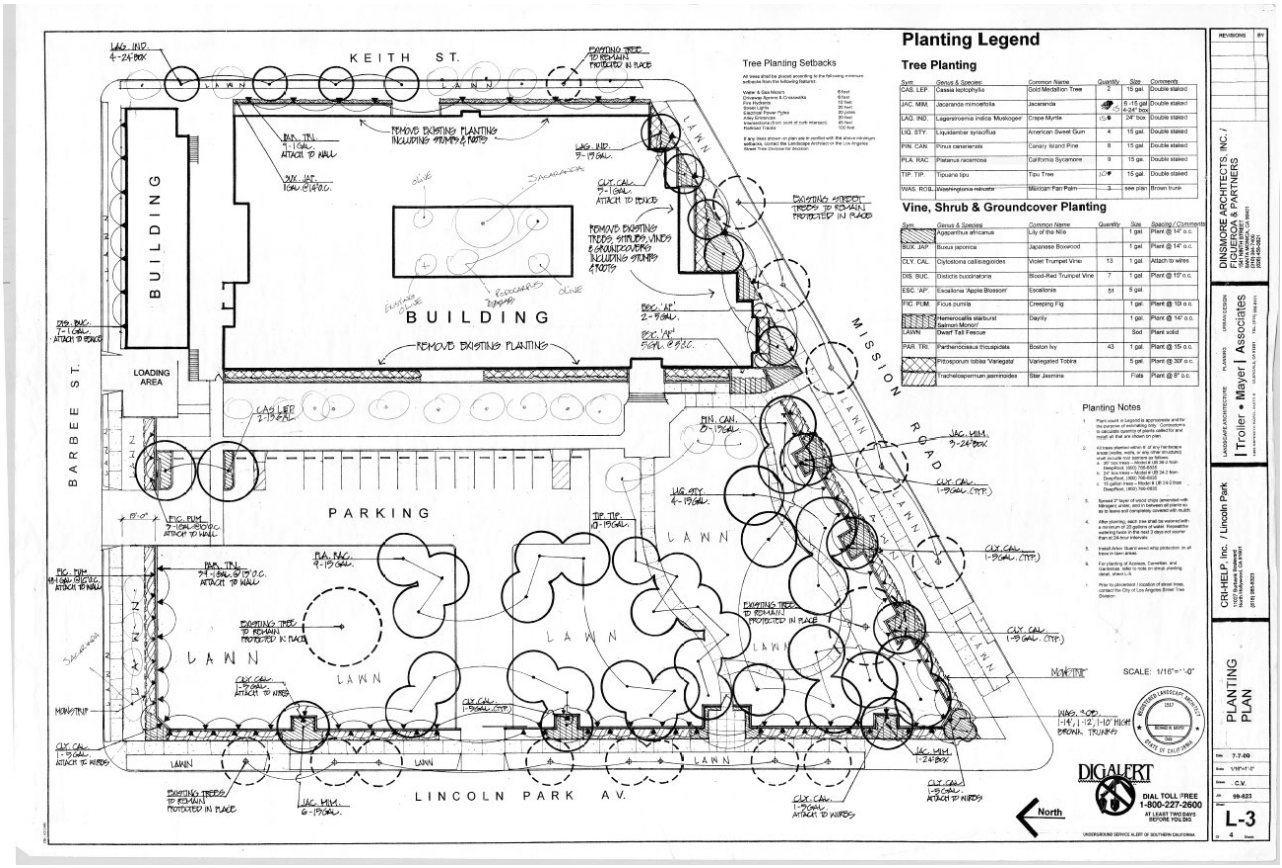


Photo 8. View Northwest Across Western Half of Project Site.

C. Previous Owner's Landscaping plans from July 7, 2000 - this was a part of the renovation drawings set when Cri-Help converted the entire site for their use - which clearly indicate that they planted 9, 15 Gallons CA Sycamores in the exact location the existing Sycamores are located.The highlighted areas pertain to the Sycamores. As we know, only 5 tree currently exist there, but we can't really tell if the other 4 were previously removed or didn't grow by themselves.



25. Arborist’s opinion whether naturally occurring
It is the arborist’s opinion that the Sycamore trees have been planted by nursery stock and as such are not protected by the Los Angeles Tree Protection Ordinance.

26. Pictures of Protective fencing
There are no trees on site that are protected by the Los Angeles Tree Protection Ordinance and will be impacted by construction.

27. Reason for Removal:
There are no trees on site that are protected by the Los Angeles Tree Protection Ordinance and will be impacted by construction.

Gmail

Shay Yadin <sy@brennercapital.com>

3601 Mission Rd - Updated Protected Tree Report

5 messages

Jesi Harris <harrislanduse@gmail.com> Tue, Sep 13, 2022 at 6:02 PM
To: Albert Vera <albert.e.vera@lacity.org>, bryan.ramirez@lacity.org, Urban Foresty Division <bss.urbanforestry@lacity.org>, miguel.ornelas@lacity.org, richard.a.sanchez@lacity.org
Cc: Shay Yadin <sy@brennercapital.com>, Stephanie Reed <stephanie@upla.studio>, Brian Silveira <silveira.brian@gmail.com>, Mark Lahmon <mlahmon@lahmonarch.com>, Jenny Cabal <jcabal@lahmonarch.com>, Keith Boggero <kboggero@lahmonarch.com>, Jake Patton <j.patton@ksa-la.com>

Hi, UFD Team,
The property owner was able to locate clear evidence that the Western Sycamore trees were planted by the previous owner of the site in the year 2000 and, as such, are not considered protected trees. That evidence is reflected in the updated Protected Tree Report, which is attached to this email, and includes:

1. The demolition plan from 1989 showing that there were buildings at the exact location of the Sycamores. In other words, the trees could not have existed there before that time.
2. Site photos taken by Cri-Help in July 1999, **before** they renovated the site, clearly showing that the yard area in question did not have the sycamores at that time.
3. Cri-Help's Landscaping plans from July 7, 2000. This was a part of the renovation drawings set when Cri-Help converted the entire site for their use - which clearly indicate that they planted nine, 15-gallon CA Sycamores in the exact location the existing Sycamores are located.

Please let me know once you've reviewed these items and can confirm that the Western Sycamore trees that currently occur on the project site are not considered protected trees.

Best,
Jesi
--
Jesi Harris
Planning Project Manager, Brian Silveira & Associates
704.277.7332

PTR-Mission-UPDATED09.13.22.pdf
10085K

Albert Vera <albert.e.vera@lacity.org> Wed, Sep 14, 2022 at 6:46 AM
To: Jesi Harris <harrislanduse@gmail.com>
Cc: bryan.ramirez@lacity.org, Urban Foresty Division <bss.urbanforestry@lacity.org>, miguel.ornelas@lacity.org, richard.a.sanchez@lacity.org, Shay Yadin <sy@brennercapital.com>, Stephanie Reed <stephanie@upla.studio>, Brian Silveira <silveira.brian@gmail.com>, Mark Lahmon <mlahmon@lahmonarch.com>, Jenny Cabal <jcabal@lahmonarch.com>, Keith Boggero <kboggero@lahmonarch.com>, Jake Patton <j.patton@ksa-la.com>

Good morning Jesi,
Thank you for the information. I will review the report and get back to you shortly.

Please contact me if you have any questions or concerns regarding this subject.

Albert Vera, **Regular Day off Monday's**
Tree Surgeon Supervisor 2
Urban Forestry Division
1149 S Broadway 4th Floor, Los Angeles, CA 90015
O: (213) 847-3117 , MS 550

Check out our new website: **https://streetsla.lacity.org/**

Need a request?
Call Service Request (800) 996-2489 or contact bss.boss@lacity.org
Or Dial *3-1-1 or* download the MyLA311 mobile app

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Albert Vera <albert.e.vera@lacity.org> Fri, Sep 16, 2022 at 11:27 AM
To: Jesi Harris <harrislanduse@gmail.com>
Cc: bryan.ramirez@lacity.org, Urban Foresty Division <bss.urbanforestry@lacity.org>, miguel.ornelas@lacity.org, richard.a.sanchez@lacity.org, Shay Yadin <sy@brennercapital.com>, Stephanie Reed <stephanie@upla.studio>, Brian Silveira <silveira.brian@gmail.com>, Mark Lahmon <mlahmon@lahmonarch.com>, Jenny Cabal <jcabal@lahmonarch.com>, Keith Boggero <kboggero@lahmonarch.com>, Jake Patton <j.patton@ksa-la.com>

Good morning Jesi,
I have reviewed and discussed the information with management and it has been determined that the trees do not qualify as protected and therefore no approval is needed by UFD or the Board of Public w\Works. The comments on the system are as follows: Upon inspection and after reviewing the information and discussing the trees with the arborist, the inspector agrees that trees qualify as not protected. Ordinance 186873 Sec 46.01 states that This definition shall not include any tree or shrub grown or held for sale by a licensed nursery, or trees or shrubs planted or grown as a part of a planting program.

The removal request will be closed out.

Please contact me if you have any questions or concerns regarding this subject.

Albert Vera, **Regular Day off Monday's**
Tree Surgeon Supervisor 2
Urban Forestry Division
1149 S Broadway 4th Floor, Los Angeles, CA 90015
O: (213) 847-3117 , MS 550

NEW

The Urban Forestry Division has a new online Customer Service Request (CSR) application which is designed to receive all inquiries and requests related to

clearances for Dept. of City Planning and LADBS building permits. You will be able to request for our office review for your clearances by logging into your Angeleno Account at angeleno.lacity.org. Select Bureau of Engineering Customer Service Portal. Select Customer Service Request. Select Online Service Available and select New Request. Be sure to select Streets LA as the agency and Urban Forestry Division as the office/location.

Note:

The normal response time for CSR requests is one to three days, with a maximum of about a week during unusual periods. Requests are taken in the order received and are closely monitored to ensure that all requests will be responded to in a timely manner. You will be notified by email when there is a response and can log in at any time to check the status. In order to serve you better, requests and questions will no longer be accepted via the bss.urbanforestry@lacity.org email.

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[Quoted text hidden]

[Quoted text hidden]

Jesi Harris <harrislanduse@gmail.com> Fri, Sep 16, 2022 at 12:13 PM
To: Albert Vera <albert.e.vera@lacity.org>
Cc: Brian Silveira <silveira.brian@gmail.com>, Jake Patton <j.patton@ksa-la.com>, Jenny Cabal <jcabal@lahmonarch.com>, Keith Boggero <kboggero@lahmonarch.com>, Mark Lahmon <mlahmon@lahmonarch.com>, Shay Yadin <sy@brennercapital.com>, Stephanie Reed <stephanie@upla.studio>, Urban Foresty Division <bss.urbanforestry@lacity.org>, bryan.ramirez@lacity.org, miguel.ornelas@lacity.org, richard.a.sanchez@lacity.org

Thank you for confirming, Albert.

Jesi
[Quoted text hidden]

Jake Patton <j.patton@ksa-la.com> Mon, Sep 19, 2022 at 3:07 PM
To: Shay Yadin <sy@brennercapital.com>
Cc: Mark Lahmon <mlahmon@lahmonarch.com>

Great job team.

Best,

JAKE PATTON | PRINCIPAL
KSA | LANDSCAPE DESIGN STUDIO
6150 Washington Boulevard, Arts District, Culver City, CA 90232

T: 310-574-4460 **x 232**
D: 310-876-1032

j.patton@ksa-la.com
www.ksa-la.com

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> >
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> >
> > Best,
> >
> > Jesi
> >
> > --
> >
> > Jesi Harris
> >
> > Planning Project Manager, Brian Silveira & Associates
> >
> > 704.277.7332

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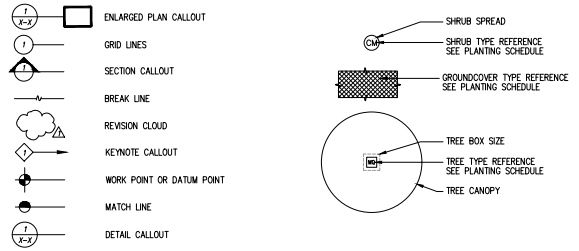
MISSION APARTMENTS

3601 N MISSION ROAD
LOS ANGELES, CA 90031

LANDSCAPE 90% CD SET



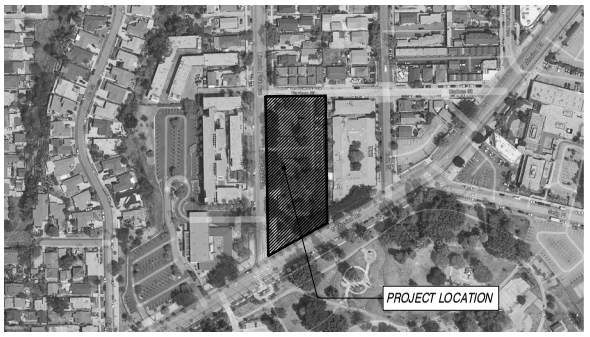
A DRAWING SYMBOLS

AGG.	AGGREGATE	EL.	ELEVATION	MAT.	MATERIAL	R.O.	ROUGH OPENING
ALT.	ALTERNATE	ELEC.	ELECTRICAL	MAX.	MAXIMUM	S.C.	SAW CUT
A.B.	ANCHOR BOLT	ENCL.	ENCLOSURE	MECH.	MECHANICAL	SHT.	SHEET
&	AND	ENG.	ENGINEER	MEMB.	MEMBRANE	SIM.	SIMILAR
∠	ANGLE	EQ.	EQUAL	MTL.	METAL	SPEC.	SPECIFICATION
APP.	APPROXIMATE	EQUIP.	EQUIPMENT	MIN.	MINIMUM	SQ.	SQUARE
A.D.	AREA DRAIN	EXPAN.	EXPANSION	MISC.	MISCELLANEOUS	S.F.	SQUARE FEET
ASPH.	ASPHALT	E.J.	EXPANSION JOINT	MTD.	MOUNTED	S/S	SHAW & SONS PAVING CO.
@	AT	EXT.	EXTERIOR	N/A	N/A	STAND.	STANDARD
BM.	BEAM	F.O.C.	FACE OF CONCRETE	(N)	NEW	STA.	STATION
BLK.	BLOCK	FT.	FEET	NOM.	NOMINAL	ST.	STEEL
BOT.	BOTTOM	F.F.	FINISH FLOOR	N.I.C.	NOT IN CONTRACT	STRUCT.	STRUCTURAL
B.O.W.	BOTTOM OF WALL	F.S.	FINISH SURFACE	N.T.S.	NOT TO SCALE	SYM.	SYMMETRICAL
BLDNG.	BUILDING	FTG.	FOOTING	NO.	NUMBER	THK.	THICK
C.B.	CATCH BASIN	GALV.	GALVANIZED	O.C.	ON CENTER	T.O.CONC.	TOP OF CONCRETE
CENT.	CENTER	GA.	GAUGE	O.D.	OUTSIDE DIAMETER	T.O.C.	TOP OF CURB
℄	CENTERLINE	GR.	GRADE	OV.DR.	OVERFLOW DRAIN	T.O.P.	TOP OF PAVEMENT
CER. TILE	CERAMIC TILE	GRND.	GROUND	OPEN.	OPENING	T.W.	TOP OF WALL
CLR.	CLEAR	HRDWRE.	HARDWARE	OPP.	OPPOSITE	T.S.W.	TOP OF SEAT WALL
COL.	COLUMN	HT.	HEIGHT	PR.	PAIR	TRD.	TREAD
CONC.	CONCRETE	H.P.	HIGH POINT	PNTD.	PAINTED	TYP.	TYPICAL
CONST.	CONSTRUCTION	HOR.	HORIZONTAL	PL.	PLATE	UNFIN.	UNFINISHED
CONT.	CONTINUOUS	H.B.	HOSE BIBB	PLYWD.	PLYWOOD	U.O.N./U.N.O.	UNLESS OTHERWISE NOTED
C.J.	CONTROL JOINT	IN.	INCH	PT.	POINT	V.I.F.	VERIFY IN FIELD
D.F.	DRINKING FOUNTAIN	I.D.	INSIDE DIAMETER	P.I.P.	POURED IN PLACE	VERT.	VERTICAL
DET.	DETAIL	INT.	INTERIOR	QNTY.	QUANTITY	VERT. GRN.	VERTICAL GRAIN
DIA.	DIAMETER	INV.	INVERT	Q.T.	QUARRY TILE	W.I.	WROUGHT IRON
DIM.	DIMENSION	JNT.	JOINT	R.	RADIUS	W/	WITH
DN.	DOWN	L.P.	LOW POINT	REF.	REFERENCE	WD.	WOOD
DRWG.	DRAWING	LT.	LIGHT	REINF.	REINFORCED	WTRPRF.	WATERPROOF
E.	EAST	MH.	MANHOLE	REQ.	REQUIRED	WT.	WEIGHT
(E)	EXISTING	MANL	MANUFACTURER	r	RISER	YD.	YARD
EA.	EACH	M.O.	MASONRY OPENING	RM.	ROOM	VOS	VERIFY ON SITE

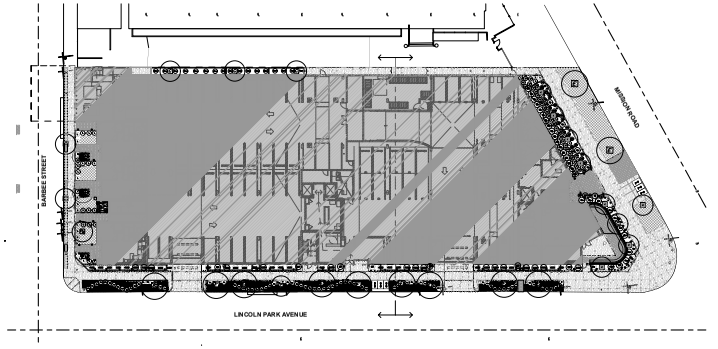
B LIST OF ABBREVIATIONS

ITEM	SHEET	DESCRIPTION
1	L 0.0	COVER SHEET
2	L 0.1	GENERAL NOTES
3	LP 1.10	GROUNDFLOOR LANDSCAPE PLAN
4	LP 1.20	THIRD FLOOR LANDSCAPE PLAN
5	LP 1.30	ROOFTOP (6TH &7TH FLOOR) LANDSCAPE PLAN
6	LP 2.0	PLANT IMAGES
7	LP 3.0	PLANTING DETAILS
8	LI 1.10	GROUNDFLOOR IRRIGATION PLAN
9	LI 1.20	THIRD FLOOR IRRIGATION PLAN
10	LI 1.30	ROOFTOP (6TH&7TH FLOOR) IRRIGATION PLAN
11	LI 2.0	IRRIGATION SCHEDULE AND NOTES
12	LI 3.0	IRRIGATION DETAILS

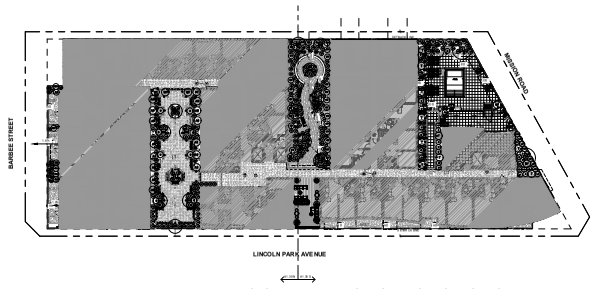
C SHEET INDEX



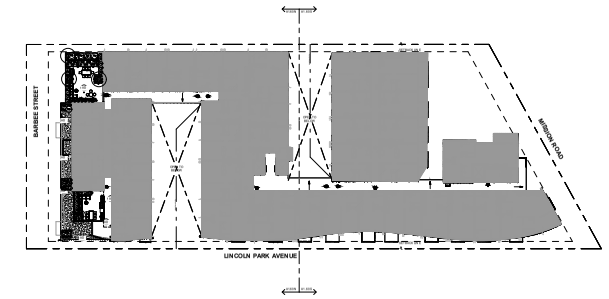
D VICINITY MAP



GROUND FLOOR PLAN



3RD FLOOR COURTYARD PLAN



6TH AND 7TH ROOFTOP FLOOR PLAN

E SITE PLAN

ARCHITECT:

LAHMON ARCHITECTS
3834 WILLAT AVENUE, CULVER CITY, CA 90232
(T) 424.239.4666 (F) 424.239.4698

CONSULTANT:

KSA Inc. Landscape Studio
Ph. 310 574 4460
Fx. 310 574 4462
6150 Washington Boulevard
Culver City, CA 90232

OWNER:

LINCOLN PARK HOLDINGS LLC

100 S CITRUS AVE, LOS ANGELES, CA 90036
(323) 879 9907

PROJECT:

3601 MISSION

3601 N MISSION ROAD,
LOS ANGELES, CA 90031

PHASE:

90% CD SET
07.06.23

NOT FOR CONSTRUCTION

REVISION LIST:

KEY PLAN:

PROJECT NO. 220003
SCALE AS SHOWN

SHEET TITLE:

COVER SHEET

SHEET NO.

L0.0

IRRIGATION NOTES:

1. INSTALL ALL EQUIPMENT AS DESCRIBED IN THE CONTRACT DOCUMENTS IS RESPONSIBLE FOR, INCLUDING BUT NOT LIMITED TO PLANS, DETAILS, NOTES, AND SPECIFICATIONS. GENERAL CONTRACTOR IS RESPONSIBLE FOR REVIEW OF IRRIGATION CONTRACT DOCUMENTS.

2. CONTRACTOR IS RESPONSIBLE FOR COMPLYING WITH APPLICABLE CODES AND REQUIREMENTS FOR BOTH EQUIPMENT AND INSTALLATION.

3. CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS REQUIRED TO PERFORM THE WORK INDICATED HEREIN BEFORE BEGINNING WORK.

4. WRITTEN SPECIFICATIONS AND NOTES SUPERSEDE DRAWINGS. IF CONDITIONS IN FIELD ARE IN CONFLICT WITH DRAWINGS, NOTIFY OWNER OR L.A. PRIOR TO PROCEEDING.

5. CONTRACTOR IS RESPONSIBLE FOR PROVIDING 100% HEAD-TO-HEAD IRRIGATION COVERAGE OF ALL PLANTING AREAS.

6. VALVE SUN AND SHADE AREAS SEPARATELY. REPORT DISCREPANCIES IN WRITING TO OWNER'S AUTHORIZED AGENT PRIOR TO INSTALLATION.

7. FLUSH ALL LINES AND ADJUST ALL HEADS FOR MAXIMUM PERFORMANCE, ACCORDING TO CONTRACT DOCUMENTS & EQUIPMENT MANUFACTURER'S INSTRUCTION, AND PREVENT OVER SPRAY ONTO WALKS AND STREETS.

8. ALL VALVES SHALL BE LOCATED IN SHRUB PLANTING AREAS. VALVE BOXES SHALL BE INSTALLED PARALLEL OR PERPENDICULAR TO BUILDING WALLS, AND PATHWAYS. VERIFY LOCATION OF ALL REMOTE VALVE BOXES WITH OWNER OR L.A. BEFORE INSTALLATION.

9. IN EVENT THAT TREE ROOT BALL LOCATION CONFLICTS WITH IRRIGATION EQUIPMENT, EQUIPMENT SHALL BE REMOVED AND REINSTALLED AT NO COST TO OWNER.

10. IRRIGATION LINES INSTALLED IN PLANTER LESS THAN 24" IN WIDTH SHALL BE RUN DOWN ONE SIDE OF THE PLANTER OR THE OTHER, NOT THE MIDDLE.

11. CONTRACTOR TO ENSURE THAT EVERY REMOTE CONTROL VALVE AND HOSE BIBB INDICATED SHALL BE SERVED BY PRESSURE SUPPLY MAINLINE. THE INDICATED MAINLINE IN THE PLAN SHALL SERVE AS A GUIDE AS TO HOW THE LINE SHOULD RUN DIRECTIONALLY.

12. PIPES SHALL BE LOCATED IN PLANTING AREAS, EXCEPT WHEN AUTHORIZED BY OWNER'S AGENT PRIOR TO INSTALLATION.

13. CONTRACTOR IS RESPONSIBLE FOR CONNECTION OF NEW SYSTEM TO EXISTING WATER SYSTEM AND UNINTERRUPTED IRRIGATION TO EXISTING PLANTING DURING CONSTRUCTION.

14. CONTRACTOR IS TO VERIFY AVAILABLE MAINLINE PRESSURE. IN THE EVENT THAT PRESSURE IS INADEQUATE, REPORT TO OWNER OR L.A PRIOR TO COMMENCING ANY CONSTRUCTION.

15. CONTRACTOR IS RESPONSIBLE FOR ELECTRICAL HOOKUP OF CONTROLLERS.

16. ALL MAINLINE UNDER PAVING TO BE INSTALLED IN PVC SCHEDULE 40 SLEEVES, TWO (2) TIMES LARGER THAN PIPE SIZE. SLEEVES TO BE RUN PRIOR TO PLACEMENT OF PAVING. NO HYDRAULIC JACKING UNDER PAVED AREAS. WHERE SLEEVING IS NOT POSSIBLE, PVC SCHEDULE 80 PIPING MAY BE INSTALLED, UPON AUTHORIZATION BY OWNER'S AGENT AND PRIOR TO COMMENCING ANY CONSTRUCTION.

17. ALL CONTROL WIRE UNDER PAVING TO BE INSTALLED IN PVC SCHEDULE 40 SLEEVES, SIZE AS REQUIRED. MAINLINE – 2" AND LARGER SHALL BE PVC CLASS 315, LESS THAN 2" SHALL BE PVC SCHEDULE 40. ALL FITTINGS SHALL BE SCHEDULE 80. PRIME AND SOLVENT WELD ALL TURNS WITH FITTINGS.

18. ALL IRRIGATION HEADS TO BE POP-UP TYPE UNLESS OTHERWISE APPROVED BY THE OWNER OR L.A. ALL RISERS TO BE ON SWING JOINTS.

19. IF SPECIFIED VALVE SIZE IS UNAVAILABLE, PROVIDE NEXT LARGER AVAILABLE SIZE.

20. CONTRACTOR SHALL CONFIRM FULL HEAD TO HEAD COVERAGE UPON COMPLETION OF IRRIGATION SYSTEM, AND PRIOR TO PLANTING, AND SHALL REPORT IN WRITING THAT SUCH A TEST HAS BEEN MADE, USING SPECIFIED EQUIPMENT. WRITTEN CONFIRMATION SHALL INCLUDE REMEDIES OR RECOMMENDATIONS SHOULD HEAD TO HEAD TEST SHOW DRY AREAS. SUBMIT REPORT TO OWNER'S AUTHORIZED AGENT.

21. NO POPUP HEADS OVER 4" SHALL BE USED IN CAR OVERHANG PLANTING AREAS.

GRADING AND DRAINAGE NOTES:

1. DRAINAGE OF ALL SLABS AND PLAY SURFACES BY CIVIL ENGINEER.

2. CONTRACTOR SHALL UNIFORMLY GRADE AREAS TO ACCOMMODATE FINISHED GRADE ELEVATIONS NOTED ON PLAN. SMOOTH FINISHED SURFACE WITHIN SPECIFIED TOLERANCES, COMPACT WITH UNIFORM LEVELS OR SLOPES BETWEEN POINTS WHERE ELEVATIONS ARE INDICATED, OR BETWEEN SUCH POINTS AND EXISTING GRADES.

3. CONTRACTOR SHALL GRADE AREAS ADJACENT TO BUILDING TO DRAIN AWAY FROM STRUCTURES AND TO PREVENT PONDING. DIRECT DRAINAGE AND LANDSCAPE IRRIGATION TOWARDS DRAINAGE DEVICES AND AWAY FROM BUILDING.

4. CONTRACTOR SHALL GRADE UNPAVED AREAS WITH ALLOWANCE FOR TOPSOIL SO COMPACTED FINISHED GRADE IS 1" LOWER THAN ADJACENT PAVING UNLESS SHOWN OTHERWISE ON DRAWINGS.

5. UNDER WALKS, STEPS, AND PAVEMENTS USE SUB-BASE MATERIAL EXHIBITING NON-EXPANSIVE QUALITIES. COMPACT ALL SUB-BASE TO 95% UNDER PIPING (DRAINAGE) AND CONDUIT, USE MINIMUM SAND EQUIVALENT OF 30; SHAPE TO FIT BOTTOM 90 DEGREES OF CYLINDER.

6. ALL GRATES SHALL BE METAL (STAINLESS STEEL OR BRASS)

7. ALL DRAINAGE PIPING UNDER PAVEMENT SHALL BE SCHEDULE 40 PVC.

8. CONTRACTOR SHALL GRADE AREAS ADJACENT TO BUILDING TO DRAIN AWAY FROM STRUCTURES AND TO PREVENT LOWER PONDING. DIRECT DRAINAGE AND LANDSCAPE IRRIGATION TOWARDS DRAINAGE DEVICES AND AWAY FROM BUILDING.

9. UNDER WALKS, STEPS, AND PAVEMENTS USE SUB-BASE MATERIAL EXHIBITING NON-EXPANSIVE QUALITIES. COMPACT ALL SUB-BASE TO 95% UNDER PIPING (DRAINAGE) AND CONDUIT, USE MINIMUM SAND EQUIVALENT OF 30; SHAPE TO FIT BOTTOM 90 DEGREES OF CYLINDER.

TREE PRESERVATION NOTES:

1. THE PRESERVATION OF STREET TREES AND EXISTING TREES WITHIN THE LIMIT OF WORK IS CRITICAL TO THE SUCCESS OF THE PROJECT.
THE CONTRACTOR SHALL:

A. NOT STORE EQUIPMENT, FUEL, MATERIALS, PARK CARS, LOCATE TEMPORARY FACILITIES OR TRASH CONTAINERS, STOCKPILE EXCAVATION, WASH-OUT CONCRETE TRUCKS, ALLOW SPILLAGE OR DUMPING OF DELETERIOUS SUBSTANCES OR ALLOW LABORERS TO CONGREGATE WITHIN DRIP LINES OF EXISTING TREES.

B. LIMIT EQUIPMENT OR VEHICULAR ACCESS WITHIN DRIP LINES OF TREES TO FOOT TRAFFIC, CARTS OR BOBCATS TO AVOID SOIL COMPACTION.

C. EXCAVATE WITHIN TREE DRIP LINES BY HAND. ROOTS 1" AND LARGER SHALL NOT BE CUT OR SEVERED WITHOUT PRIOR APPROVAL OF THE OWNER'S REPRESENTATIVE. SHOULD PRESERVED ROOTS INTERFERE WITH WORK PROGRESS THE CONTRACTOR SHALL SEEK DIRECTION PRIOR TO PROCEEDING.

D. NO EXCAVATION FOR ANY TRENCHES FOR ANY UTILITY ALLOWED UNDER DRIPLINES OF EXISTING TREES.

2. WHERE POSSIBLE, TRENCHES FOR ALL PIPES, CONDUIT AND WIRING SHALL BE PLACED OUTSIDE TREE DRIP-LINES. WHERE NOT POSSIBLE, OR SHOWN OTHERWISE ON PLANS, CONTRACTOR SHALL HAND EXCAVATE AND BACKFILL TRENCHES.

3. WHEN HAND EXCAVATING TRENCHES WITHIN TREE DRIP LINES THE CONTRACTOR SHALL MAINTAIN, IN-PLACE, ALL TREE ROOTS AND TUNNEL UNDERNEATH THEM TO THE REQUIRED DEPTH OF THE TRENCH. EXPOSED TREE ROOTS BRIDGING TRENCHES SHALL BE WRAPPED IN BURLAP IF EXPOSED FOR MORE THAN 24HRS. BURLAP SHALL BE KEPT MOIST PIPES, CONDUIT AND/OR WIRING SHALL BE RUN BENEATH OR BETWEEN ROOTS. SHOULD ROOT ELEVATION INTERFERE WITH REQUIRED LOCATIONS OR ELEVATIONS CONTRACTOR SHALL SUBMIT A WRITTEN RFI FOR DIRECTION. BACKFILL AND COMPACT TRENCHES WITH SPECIFIED BEDDING MATERIAL HAND TAMPING TO ACHIEVE REQUIRED COMPACTION WITHOUT DISTURBING ROOTS.

TREE PRESERVATION NOTES CONTINUED:

4. EXCESS SOILS FROM TRENCHING SHALL NOT BE STOCKPILED WITHIN TREE DRIP LINES AND SHALL BE LEGALLY DISPOSED OF OFF-SITE. IF UNAVOIDABLE, AND AS APPROVED, EXCESS PLYWOOD BOARD-ROADING MAY NOT STAY IN PLACE FOR MORE THAN SEVEN (7) DAYS.

5. THE CONTRACTOR SHALL INSTALL AND MAINTAIN TREE PROTECTION FENCING AND TRUNK PROTECTION PLANKING THROUGHOUT THE COURSE OF CONSTRUCTION. PLANKING AND TREE PROTECTION FENCING SHALL BE REMOVED AFTER SUBSTANTIAL COMPLETION.

6. TO FACILITATE THE PROGRESS OF WORK THE CONTRACTOR MAY TEMPORARILY RELOCATE TREE PROTECTION FENCING AS APPROVED BY THE OWNER'S REP.

7. ANY ROOT INADVERTENTLY SEVERED BY CONSTRUCTION ACTIVITY SHALL BE PRUNED FLUSH WITH SOIL. BACKFILL EXPOSED ROOTS WITH SPECIFIED TOPSOIL AS SOON AS POSSIBLE. IF ROOT NEEDS TO BE UNCOVERED FOR MORE THAN TWENTY FOUR (24) HOURS, COVER WITH HARDWOOD MULCH.

8. LIMIT CUT AND/OR FILLS WITHIN TREE DRIP-LINES TO NO MORE THAN 1" ABOVE OR BELOW EXISTING GRADE. IF PLANS INDICATE OTHERWISE SUBMIT WRITTEN RFI FOR DIRECTION. NO SOIL OR MULCH IS PERMITTED ON THE ROOT FLARE OF ANY TREE.

9. EXISTING TREES TO BE PRESERVED SHALL BE WATERED ONCE A WEEK DURING PERIODS OF HOT, DRY WEATHER OR AS DIRECTED. TREE CANOPIES SHALL BE SPRAYED WITH WATER MONTHLY TO AVOID DUST ACCUMULATION ON LEAVES.

SOIL PREPARATION AND IMPORTED PLANTING SOIL REQUIREMENTS (ON-GRADE APPLICATIONS):

1. ALL SOIL AMENDMENTS, FERTILIZER, BACKFILL, AND MULCH TO BE CERTIFIED ORGANIC.

2. CONTRACTOR TO REMOVE ALL DEBRIS, CLEAR, GRUB & RAKE ALL PLANTING AREAS PRIOR TO PLANTING.

3. CONTRACTOR TO ARRANGE FOR A SOIL TEST IN A MIN. OF 2 LOCATIONS BY AN AUTHORIZED SOILS LAB PRIOR TO ANY NEW LANDSCAPE PLANTING TO IDENTIFY SOIL CHARACTERISTICS AND RECOMMEND FERTILIZERS, AMENDMENTS AND INSTALLATION PROCEDURES. SOIL SAMPLES RESULTS WILL BE SUBMITTED TO THE L.A. FOR REVIEW. CONTRACTOR SHALL HAND CULTIVATE AREAS WITH EXISTING PLANT MATERIAL.

4. ALL SOIL SHOULD BE IMPORTED B.D. WHITE OR EQUAL.

5. ACID-LOVING PLANTS (PLANTING PITS): 50% SITE SOIL/50% "AZALEA-CAMELLIA MIX" – TO BE APPROVED BY L.A./ 1 LB. SEQUESTRINE FE 330 IRON CHELATE/"GRO-POWER" PLANTING TABLETS (SEE BELOW FOR QUANTITY)

6. IMPORTED PLANTING SOIL FOR ALL PITS FOR ALL TREES AND SHRUBS: SOIL TEST RESULTS TO BE APPLIED IF DIFFERENT FROM GENERAL IMPORTED PLANTING SOIL SPECIFICATIONS.

7. THOROUGHLY PRE-MIX IMPORTED PLANTING SOIL PER CUBIC YARD AS FOLLOWS:

6 PARTS BY VOLUME OF CLEAN IMPORTED TOPSOIL
4 PARTS BY VOLUME OF NITROGEN-STABILIZED ORGANIC AMENDMENT.
ORGANIC FERTILIZER. FERTILIZER TABLETS TO BE 7-GRAM 12-8-8 AT THE FOLLOWING RATES:

4" POT – 1 TABLET
1 GAL. CAN – 3 TABLETS
5 GAL. CAN – 8 TABLETS
15 GAL. CAN– 13 TABLETS
24" BOX – 15 TABLETS
36" BOX – 20 TABLETS
48" BOX – 23 TABLETS

8. CREATE TEMPORARY WATERING BASIN AROUND EACH PLANTING PIT. APPLY FERTILIZER TABLETS, AGRIFORM OR EQUAL PER MANUFACTURER'S WRITTEN SPECIFICATIONS.

9. CONTRACTOR SHALL APPLY TOPSOIL FROM TO ALL AREAS THAT WILL RECEIVE PLANTING.

SOIL PREPARATION AND IMPORTED PLANTING SOIL REQUIREMENTS (ON-STRUCTURE APPLICATION):

(ON-GRADE APPLICATIONS):

1. ALL SOIL AMENDMENTS, FERTILIZER, BACKFILL, AND MULCH TO BE CERTIFIED "ORGANIC".

2. LEACHING AND COMPACTION CONTRACTOR SHALL INSTALL PLANTER MIX IN 12" LIFTS. WATER SETTLE AND HAND COMPACT BETWEEN EACH LIFT. SUCH COMPACTIONS SHALL OCCUR OVER A 3 DAY PERIOD, ONE WEEK MINIMUM PRIOR TO INSTALLATION OF PLANTING, IN ORDER TO MAXIMIZE SETTLEMENT.

3. CONTRACTOR SHALL INSTALL ADDITIONAL SOIL AS REQUIRED TO BRING TOP OF FINISH GRADE TO 2" BELOW TOP OF WALL OR HARDSCAPE UNLESS NOTED OTHERWISE.

4. PLANTING MIX FOR PLANTERS ON STRUCTURE (SHRUBS & TREES)

40% SAND (#16 SAND SIZE)
40% PEAT MOSS
20% PERLITE
1# SINGLE SUPERPHOSPHATE (0:20:0)
½# UREA FORMALDEHYDE (38:0:0)
½# POTASSIUM SULFATE (0:05:50)
⅓# GYPSUM

5. FERTILIZER (COMMERCIAL): 10-10-10 SHALL BE APPLIED AT THE RATE OF 40 POUNDS PER 1,000 SQFT. AND SCARIFIED INTO TOP TWO INCHES OF FINISH GRADE. FERTILIZER SHALL BE APPLIED AFTER LEACHING OPERATION. FOR ON GRADE AND FOR ON STRUCTURE PLANTING.

6. ALL ON STRUCTURE LANDSCAPING SOIL TO BE A MIXTURE OF LIGHTWEIGHT AND STANDARD WEIGHT SOIL WITH A RESULTANT DRY WEIGHT NOT EXCEED 80 POUNDS PER CUBIC FOOT.

7. ALL DRAINAGE AND TREE SUPPORT GRAVEL TO BE ¾" DIAMETER WASHED GRAVEL.

8. ALL PLANTER WALLS AND CONCRETE SURFACES TO BE WATERPROOFED. WATERPROOFING IS NOT PART OF LANDSCAPE ARCHITECTURAL SCOPE OR DOCUMENTS, CONTRACTOR TO CONFIRM WITH ARCHITECT.

9. PROVIDE DRAINAGE MEMBRANE OR GRAVEL WITH GEOTEXTILE SOIL SEPARATOR ABOVE OR BELOW GRAVEL AT BASE OF ALL BUILT UP PLANTERS, MINIMUM 2" DEEP, TYPICAL. REFER TO ARCHITECTURAL DRAWINGS FOR TYPE.

10. INSTALL TREE SUPPORT GRAVEL UNDER TREE ROOT BALLS, AT BASE OF PLANTERS WITH TREES 24" BOX AND OVER, TO RAISE TREE TO PROPER FINAL GRADE. CALCULATIONS FOR GRAVEL DEPTH SHALL BE MADE ON SITE AFTER TREES ARE ON SITE. SOIL DEPTH SHALL BE INDIVIDUALLY MEASURED FOR EACH TREE IN TREE BOX AFTER EXCESS SOIL IS REMOVED FROM ROOT FLARE.

11. CONTRACTOR IS RESPONSIBLE FOR CONFIRMING FINAL FINISH GRADES AND FOR INSTALLING PLANT MATERIAL AT CORRECT FINISH GRADE, REGARDLESS OF SEQUENCE OR INSTALLATION.

PLANTING NOTES:

1. CONTRACTOR SHALL INSTALL PLANT MATERIAL IN ACCORDANCE WITH THESE CONTRACT DOCUMENTS INCLUDING BUT, NOT LIMITED TO PLANS, DETAILS, DRAWINGS, NOTES AND SPECIFICATIONS.

2. CONTRACTOR IS RESPONSIBLE FOR COMPLYING WITH APPLICABLE CODES AND REQUIREMENTS FOR BOTH EQUIPMENT AND INSTALLATION.

3. CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS REQUIRED TO PERFORM THE WORK INDICATED HEREIN BEFORE BEGINNING WORK.

4. WRITTEN SPECIFICATIONS AND NOTES SUPERSEDE DRAWINGS. IF CONDITIONS IN FIELD ARE IN CONFLICT WITH DRAWINGS, NOTIFY OWNER OR L.A. PRIOR TO PROCEEDING.

5. CONTRACTOR SHALL PROVIDE ONE PHOTOGRAPH OF EACH TREE VARIETY AND SIZE, CALLED OUT ON DRAWINGS, AND SEND TO OWNER'S AUTHORIZED REPRESENTATIVE OR L.A. FOR APPROVAL PRIOR TO PURCHASE, DELIVERY TO SITE OR INSTALLATION. CONTRACTOR IS RESPONSIBLE FOR TIMELY DELIVERY OF SUCH PHOTOS, ALLOWING ADEQUATE TIME FOR OWNER'S REJECTION OF MATERIAL AND RESUBMITTAL WITHOUT COMPROMISE TO OVERALL LANDSCAPE INSTALLATION SCHEDULE.

6. AT LANDSCAPE ARCHITECT'S DISCRETION, LANDSCAPE ARCHITECT MAY TAG ALL SITE TREES.

7. TREES SHALL BE PRELIMINARILY TAGGED BY CONTRACTOR. CONTRACTOR SHALL OBSERVE EACH TREE IN ORDER TO ASCERTAIN THAT TREES ARE HEALTHY, FREE OF PESTS, DISEASES, ROOT GIRDLING, SCARS, AND THAT TREES HAVE GOOD BRANCH ATTACHMENT. LANDSCAPE ARCHITECT MAY REJECT ANY TREES BROUGHT TO THE SITE WHICH ARE NOT IN GOOD FORM AND HEALTH.

8. TREES AND SHRUBS SHALL COME FROM REPUTABLE TREE FARMS AND NURSERIES. NURSERIES SHALL BE MEMBERS OF THE CALIFORNIA ASSOCIATION OF NURSERIES AND GARDEN CENTERS (CANGC), AND SHALL HAVE CONDUCTED BUSINESS AS A TREE FARM IN CURRENT LOCATION AND UNDER CURRENT OWNERSHIP FOR MINIMUM OF TEN YEARS. CONTRACTOR REQUIRED TO SUBMIT PROOF THAT NURSERY MEETS THE ABOVE QUALIFICATIONS.

PLANTING NOTES CONTINUED:

9. LANDSCAPE ARCHITECT RESERVES THE RIGHT TO REJECT ALL PLANT MATERIAL DEEMED TO BE UNSUITABLE FOR PROJECT FOR ANY REASON ONCE IT IS ONSITE.

10. ROOT BALL CONDITION OF PLANTS FURNISHED BY THE CONTRACTOR WILL BE DETERMINED BY REMOVAL OF EARTH FROM THE ROOTS OF NOT LESS THAN 2 PLANTS NOR MORE THAN 2 PERCENT OF THE TOTAL NUMBER OF PLANTS OF EACH SPECIES, EXCEPT WHEN CONTAINER-GROWN PLANTS ARE FROM SEVERAL SOURCES, THE ROOTS OF NOT LESS THAN 2 PLANTS OF EACH SPECIES OR VARIETY FROM EACH SOURCE WILL BE INSPECTED BY THE LANDSCAPE ARCHITECT. IN CASE THE SAMPLE PLANTS INSPECTED ARE FOUND TO BE DEFECTIVE, INCLUDING BUT NOT LIMITED TO , ROOT BOUND OR UNDERDEVELOPED ROOT BALL, THE LANDSCAPE ARCHITECT RESERVES THE RIGHT TO REJECT THE ENTIRE LOT OR LOTS OF PLANTS REPRESENTED BY THE DEFECTIVE SAMPLES. PLANTS RENDERED UNSUITABLE FOR PLANTING BECAUSE OF THIS INSPECTION WILL BE CONSIDERED AS SAMPLES AND WILL NOT BE PAID FOR.

10. ALL PLANTS SHALL ARRIVE ON SITE WITH NURSERY TAGS. THOSE WITHOUT NURSERY TAGS ARE SUBJECT TO REJECTION.

11. FINAL LOCATIONS OF TREES AND SHRUBS SHALL BE APPROVED BY THE OWNER OR L.A. PRIOR TO PLANTING. COMPLETED PLANTING AND IRRIGATION SHALL BE INSPECTED BY THE OWNER'S AUTHORIZED AGENT OR OBSERVED BY LANDSCAPE ARCHITECT PRIOR TO FINAL ACCEPTANCE.

12. CONTRACTOR SHALL GUARANTEE ALL NEW PLANTS AS FOLLOWS:

TREES (24" BOX AND LARGER) – 1 YEAR
SHRUBS VINES, AND VINES (1 GAL. AND LARGER) – 1 YEAR
SUCCULENTS AND GROUND COVER – 6 MONTHS
ANNUAL COLOR – 2 MONTH

13. PLANT MATERIAL WHICH IN THE JUDGMENT OF THE OWNER OR L.A. IS NOT HEALTHY AND VIGOROUS AT THE END OF THE MAINTENANCE PERIOD AND/OR GUARANTEE PERIOD SHALL BE REPLACED BY CONTRACTOR AT NO COST TO OWNER.

14. CONTRACTOR SHALL PROVIDE A MAINTENANCE PERIOD OF NOT LESS THAN 90 DAYS COMMENCING AT THE DATE OF FINAL ACCEPTANCE. SUCH MAINTENANCE SHALL INCLUDE ALL CARE PERTAINING TO ALL WORK INSTALLED AS PART OF THESE CONTRACT DOCUMENTS. CONTRACTOR SHALL SUBMIT A WRITTEN LOG OF DATES, STAFF, AND ACTIONS PERFORMED DURING SUCH MAINTENANCE PERIOD.

15. QUALITY AND SIZE OF ALL PLANTS SHALL CONFORM TO THE CALIFORNIA STANDARD GRADING CODE OF NURSERY STOCK AND SHALL BE NUMBER ONE GRADE. THERE SHALL BE NO INSECTS, EGGS, OR LARVAE.

16. CONTRACTOR SHALL SUBMIT SUPPLIER RECEIPTS TO OWNER'S AUTHORIZED AGENT FOR ALL MATERIALS USED ONSITE WITH BILLING.

17. CONTRACTOR SHALL CONFIRM WITH GROWERS THAT PLANTS PURCHASED FOR THIS PROJECT ARE PROPERLY ACCLIMATIZED TO PROJECTS CONDITIONS AND SEASONS OF PLANTING.

18. CONTRACTOR SHALL STORE PLANT MATERIAL IN SHADE AND PROTECT FROM SUN. MAINTAIN PLANTS IN MOIST CONDITION PRIOR TO PLANTING.

19. CONTRACTOR SHALL PLANT ALL PLANTS SO THAT AFTER FULL SETTLING, THE CROWN OF THE PLANT IS EVEN WITH OR ½" ABOVE THE FINISH GRADE. AFTER PLANTING, SMOOTH SOIL AROUND PLANT, COMPACT BY FOOT AND WATER WITH A FINE SPRAY.

20. CONTRACTOR SHALL WATER THOROUGHLY, IMMEDIATELY AFTER PLANTING. WATER SETTLE AND HAND TAMP ALL BACKFILLED AREAS THOROUGHLY.

21. CONTRACTOR SHALL WATER SETTLE AND HAND COMPACT ALL SOIL IN BUILT-UP PLANTERS. SUCH COMPACTION SHALL OCCUR OVER A 3-DAY PERIOD, ONE WEEK MINIMUM PRIOR TO PLANTING, IN ORDER TO MAXIMIZE SETTLEMENT. CONTRACTOR SHALL INSTALL ADDITIONAL SOIL AS REQUIRED TO BRING TOP OF FINISH GRADE TO 2" BELOW TOP OF WALL, OR TO TOP OF WATERPROOFING MEMBRANE WHERE WATERPROOFING MEMBRANE IS HIGHER THAN 3" BELOW TOP OF WALL.

22. ALL DRAINAGE AND TREE SUPPORT GRAVEL TO BE ¾" DIAMETER WASHED GRAVEL.

23. CONTRACTOR SHALL TOP DRESS ALL PLANTING AREAS WITH 2" NITROWOOD MULCH UNLESS OTHERWISE NOTED.

24. CONTRACTOR SHALL REMOVE ALL NURSERY STAKES AND TAGS FROM ALL PLANT MATERIALS AFTER PLANTING.

25. CONTRACTOR SHALL DOUBLE STAKE OR GUY ALL TREES 15 GALLONS AND LARGER IMMEDIATELY AFTER PLANTING PER DRAWINGS. DO NOT PENETRATE WATER PROOFING MEMBRANE. DO NOT PENETRATE ROOT BALL.

26. CONTRACTOR SHALL TAKE SUFFICIENT MEASURES TO KEEP LAWN AREAS FROM UNHEALTHY YELLOWING, OR OTHERWISE DAMAGE BY PEDESTRIANS AND WORKMEN. CONTRACTOR SHALL REPLACE TURF DAMAGED, REGARDLESS OF CAUSE.

27. CONTRACTOR SHALL ATTACH VINES TO HARD SURFACES WITH 1"x3/16" BRASS SCREW-EYES AND GREEN WIRE TIES. PROVIDE SAMPLE OF WIRE TIE TO OWNER OR L.A. PRIOR TO TYING.

28. MULCH SHALL NOT BE PLACED CLOSER THAN 2" AWAY FROM CROWN OF ANY GROUND COVER, SHRUB OR TREE.

29. TURF SHALL BE INSTALLED LEVEL, FREE OR DIVOTS, HOLES, DIPS, OR RISES. TURF SHALL BE INSTALLED TO DRAIN AS SPECIFIED ON CONTRACT DOCUMENTS. TURF WHICH DOES NOT MEET THESE STANDARDS SHALL BE REGRADED AND REPLANTED IN TOTALITY.

DEMOLITION NOTES:

THE EXISTING BASE BUILDING, INCLUDING: PERIMETER EXTERIOR WALLS (SHELL), AND ALL CORE ELEMENTS SHALL NOT BE A PART OF ANY IMPROVEMENTS AND / OR ALTERATIONS AND / OR DEMOLITION WORK EXCEPT WHERE NOTED.

1. THE CONTRACTOR SHALL VERIFY ALL CONDITIONS SHOWN ON THE DRAWINGS. THE CONTRACTOR SHALL NOTIFY THE ARCHITECT IN WRITING OF ANY ERRORS AND/ OR DISCREPANCIES PRIOR TO THE COMMENCEMENT OF ANY WORK. THE CONTRACTOR WILL BE RESPONSIBLE FOR THE CORRECTION OF ANY ERRORS AND / OR DISCREPANCIES IN THE EVENT OF FAILURE TO NOTIFY THE ARCHITECT AS STATED.
2. THE CONTRACTOR SHALL NOTIFY THE ARCHITECT OF ANY ERRORS, DISCREPANCIES, AND / OR ANY WORK AFFECTING THE STRUCTURAL INTEGRITY OF THE BUILDING OR TENANT SPACE BEFORE PROCEEDING WITH ANY WORK.
3. IF ANY ALTERATION AND / OR DEMOLITION WORK IS PERFORMED IN EXCESS OF WHAT IS REQUIRED, THE CONTRACTOR SHALL, AT THEIR OWN EXPENSE, RESTORE THE AFFECTED AREA AND / OR AREAS TO A STATE EQUAL TO THAT PRIOR TO SUCH WORK, AT NO COST TO THE OWNER.
4. PROTECT EXISTING THAT IS NOT IDENTIFIED FOR DEMOLITION. ANY DAMAGE TO EXTERIOR WALLS, STEPS, ETC. – CAUSED BY DEMOLITION SHALL BE REPAIRED AND / OR REPLACED AT THE CONTRACTOR'S EXPENSE.
5. CONTRACTOR TO PATCH AND FINISH ADJACENT WALLS AND OTHER SURFACES AS REQUIRED AFTER DEMOLITION. ALL STRIPPED SURFACES TO BE PROPERLY SUITED TO RECEIVE NEW FINISHES AS SCHEDULED.
6. ALL SERVICES AND UTILITIES SCHEDULED FOR REMOVAL ARE TO BE SAFELY CAPPED IN ACCORDANCE WITH APPLICABLE CODES AND NORMAL SAFETY STANDARDS.
7. PROTECT EXISTING PLANTS THAT ARE NOT IDENTIFIED FOR REMOVAL. DAMAGE TO TREES, BUSHES, SHRUBS, GRASS, ETC., CAUSED BY DEMOLITION, SHALL BE REPLACED AND RESTORED TO ORIGINAL CONDITION AT THE CONTRACTOR'S EXPENSE.
8. THE CONTRACTOR SHALL REMOVE ALL DEBRIS RESULTING FROM THE DEMOLITION AND CONSTRUCTION ON A DAILY BASIS. BROOM CLEAN AT THE END OF EACH DAY TO CONTROL DIRT AND DUST.
9. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY DEMOLITION / WASTE DISPOSAL PERMITS REQUIRED FOR ALL MATERIALS AND EQUIPMENT BEING DEMOLISHED AND / OR REMOVED FROM THE JOB SITE.
10. THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE LOCAL, STATE, AND FEDERAL CODES AND REGULATIONS PERTAINING TO THE SAFETY OF PERSONS AND THE PROTECTION OF THE ENVIRONMENT.
11. THE ARCHITECT HAS NO KNOWLEDGE OF AND SHALL NOT BE HELD LIABLE FOR ANY HAZARDOUS MATERIALS AT THE JOBSITE. IF HAZARDOUS MATERIALS ARE DISCOVERED DURING ANY PHASE OF WORK AND / OR CONSTRUCTION, THE CONTRACTOR SHALL ISOLATE THE AFFECTED AREA AND CONTACT THE OWNER FOR FURTHER INSTRUCTIONS BEFORE PROCEEDING.
12. CONTRACTOR TO VERIFY LOCATION OF EXISTING UTILITIES (ELECTRICAL, WATER, SEWER, TELEPHONE, CABLE, ETC.) PRIOR TO CONSTRUCTION.

GENERAL NOTES

1. THIS CONSTRUCTION CONTRACT IS FOR THE CONSTRUCTION OF A COMPLETE AND FULLY FUNCTIONING INSTALLATION. THESE DOCUMENTS DESCRIBE THE DESIGN INTENT AND SPECIFIC REQUIREMENTS OF THE INSTALLATION. THESE DOCUMENTS DO NOT INTEND TO SHOW EVERY ITEM REQUIRED TO CONSTRUCT THE WORK. ITEMS INCLUDING BUT NOT LIMITED TO FASTENERS, CONNECTORS, FILLERS, CLOSURE ELEMENTS, WIRING, AND POWER ARE NOT ALWAYS SHOWN BUT ARE CONSIDERED INCLUDED IN THE SCOPE OF WORK. IT IS THE RESPONSIBLITY OF THE CONTRACTOR TO PROVIDE A FULLY FUNCTIONING INSTALLATION THAT MEETS THE DESIGN INTENT.

2. WRITTEN SPECIFICATIONS AND NOTES SUPERSEDE DRAWINGS. IF CONDITIONS IN FIELD ARE IN CONFLICT WITH DRAWINGS, NOTIFY OWNER OR L.A. PRIOR TO PROCEEDING.

3. DO NOT SCALE FROM THESE DRAWINGS. ANY DIMENSIONAL DISCREPANCIES SHALL BE REPORTED TO LANDSCAPE ARCHITECT BEFORE WORK CONTINUES. BEFORE COMMENCING ACTIVITIES, THE CONTRACTOR SHALL; TAKE FIELD MEASUREMENTS AND VERIFY FIELD CONDITIONS; CAREFULLY COMPARE THIS AND OTHER INFORMATION KNOWN TO THE CONTRACTOR WITH THE CONTRACT DOCUMENTS; AND PROMPTLY REPORT ERRORS, INCONSISTENCIES OR OMISSIONS DISCOVERED TO THE L.A.

4. CONTRACTOR TO CONFIRM ALL STRUCTURAL SLABS, WALLS, REINFORCING, AND FOOTINGS WITH LICENSED STRUCTURAL ENGINEER PRIOR TO CONSTRUCTION. PROVIDE OWNER WITH A SET OF DRAWINGS SIGNED BY STRUCTURAL ENGINEER. REINFORCING SHOWN ON THESE DRAWINGS IS FOR PRICING ONLY.

5. WATERPROOFING CONSULTANT TO REVIEW ALL DETAILS AND DRAWINGS AND PROVIDE ALL NECESSARY WATERPROOFING DETAILING AND ELEMENTS TO PREVENT WATER INFILTRATION. WATERPROOFING IS NOT PART OF LANDSCAPE ARCHITECTURAL SCOPE OF DOCUMENTS.

6. CONTRACTOR SHALL INSTALL ALL MATERIALS IN ACCORDANCE WITH MANUFACTURER'S WRITTEN RECOMMENDATIONS DETAILS, NOTES AND/OR SPECIFICATIONS.

7. CONTRACTOR SHALL REVIEW EXISTING SITE CONDITIONS PRIOR TO BID SUBMITTAL AND COMMENCEMENT OF WORK. ANY DISCREPANCIES BETWEEN CONTRACT DOCUMENTS AND SITE CONDITIONS SHOULD BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE OWNER AND LANDSCAPE ARCHITECT (L.A.). CONTRACTOR SHALL ASSUME RESPONSIBILITY FOR ALL NECESSARY REVISIONS IF HE FAILS TO GIVE NOTICE.

8. CONTRACTOR SHALL CONFIRM ALL DIMENSIONS IN THE FIELD PRIOR TO CONSTRUCTION. DISCREPANCIES BETWEEN CONTRACT DOCUMENTS AND SITE CONDITIONS WILL BE BROUGHT TO THE ATTENTION OF THE OWNER OR L.A. FOR RESOLUTION.

9. CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING AND STAKING ALL SEWER, UTILITY AND WATER MAIN LINES PRIOR TO CONSTRUCTION. CONTRACTOR SHALL ASSUME SOLE RESPONSIBILITY FOR ANY COST INCURRED DUE TO DAMAGE AND REPLACEMENT OF SAID UTILITIES.

10. SPOT ELEVATIONS AND GRADES SHOWN ON THE DRAWINGS ARE BASED ON SURVEY INFORMATION AND ARE FOR REFERENCE ONLY. CONTRACTOR SHALL VERIFY EXISTING GRADES IN THE FIELD AND REPORT DISCREPANCIES TO THE OWNER OR L.A. PRIOR TO ANY GRADING AND/OR CONSTRUCTION.

11. WRITTEN NOTES SUPERSEDE DRAWINGS. IF CONDITIONS IN THE FIELD ARE IN CONFLICT WITH THE DRAWINGS, NOTIFY OWNER OR L.A. PRIOR TO PROCEEDING.

12. ALL WORK SHALL BE IN CONFORMANCE WITH APPLICABLE CODES, REGULATIONS AND ORDINANCES OF GOVERNING AGENCIES.

13. CONTRACTOR SHALL TAKE ALL APPROPRIATE ACTIONS TO ENSURE THE HEALTH, SAFETY, AND WELFARE OF THE PUBLIC AT ALL TIMES DURING THE CONSTRUCTION PROCESS.

14. NO TRENCHES OR EXCAVATIONS 5 FEET OR MORE IN DEPTH INTO WHICH A PERSON IS REQUIRED TO DESCEND ARE PERMITTED UNLESS THE NECESSARY PERMIT IS OBTAINED FROM THE STATE OF CALIFORNIA DIVISION OF INDUSTRIAL SAFETY PRIOR TO THE ISSUANCE OF A BUILDING OR GRADING PERMIT. CONFIRM WITH SOILS ENGINEER.

15. CONTRACTOR SHALL CONFIRM STATUS OF ALL EXISTING PLANT MATERIAL WITH OWNER OR L.A. PRIOR TO DEMOLITION. ALL DEMOLITION DEBRIS ARE TO BE DISPOSED OF IN A TIMELY MANNER TO A LEGAL DUMPING FACILITY.

16. CONTRACTOR SHALL PROTECT ALL EXISTING STREET TREES DURING CONSTRUCTION.

17. CONTRACTOR SHALL COORDINATE SECURE STORAGE AND STAGING FACILITIES WITH THE OWNER PRIOR TO DEMOLITION AND/OR CONSTRUCTION.

18. NO SUBSTITUTIONS TO ANY SPECIFIED ITEM ON THE DRAWINGS WILL BE MADE BY THE CONTRACTOR WITHOUT WRITTEN APPROVAL FROM THE OWNER OR LANDSCAPE ARCHITECT. CONTRACTOR MUST DEMONSTRATE SUBSTITUTIONS ARE IN FULL COMPLIANCE WITH ALL ASPECTS OF SPECIFIED ITEM. CONTRACTOR MUST SUBMIT IN WRITING DEMONSTRATING THAT SUBSTITUTION IS IN FULL COMPLIANCE WITH ALL ASPECTS OF SPECIFIED ITEM. CONTRACTOR TO PROVIDE:

a. STATEMENT INDICATING WHY SPECIFIED PRODUCT OR FABRICATION OR INSTALLATION CANNOT BE PROVIDED, IF APPLICABLE.

b. COORDINATION INFORMATION, INCLUDING A LIST OF CHANGES OR MODIFICATIONS NEEDED TO OTHER PARTS OF THE WORK AND TO CONSTRUCTION PERFORMED BY OWNER AND SEPARATE CONTRACTORS THAT WILL BE NECESSARY TO ACCOMMODATE PROPOSED SUBSTITUTION.

c. DETAILED COMPARISON OF SIGNIFICANT QUALITIES OF PROPOSED SUBSTITUTION WITH THOSE OF THE WORK SPECIFIED. INCLUDE ANNOTATED COPY OF APPLICABLE SPECIFICATION SECTION. SIGNIFICANT QUALITIES MAY INCLUDE ATTRIBUTES SUCH AS PERFORMANCE, WEIGHT, SIZE, DURABILITY, VISUAL EFFECT, SUSTAINABLE DESIGN CHARACTERISTICS, WARRANTIES, AND SPECIFIC

d. NO SUBSTITUTIONS FOR CONVENIENCE OR A RESULT OF UNTIMELY PROCURMENT ARE ALLOWED.

19. CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING GRADES AND ASSURING PROPER DRAINAGE AWAY FROM BUILDINGS AND WALKWAYS.

20. CONTRACTOR SHALL PROVIDE AND BE RESPONSIBLE FOR PROTECTION OF ALL WORK PERFORMED UNTIL COMPLETION AND FINAL ACCEPTANCE BY THE OWNER. ALL WORK AND/OR MATERIALS WHICH ARE DETERMINED BY THE OWNER OR L.A. TO BE DEFECTIVE OR DEFICIENT IN QUALITY OR WORKMANSHIP SHALL BE REMEDIED OR REMOVED AND REPLACED BY THE CONTRACTOR IN A TIMELY MANNER WITHOUT EXPENSE TO THE OWNER.

21. NOTIFICATION OF ANTICIPATED OBSERVATION OR REVIEW BY THE L.A. WILL BE MADE A MINIMUM OF 4 WORKING DAYS IN ADVANCE. THE L.A. IS NOT RESPONSIBLE FOR PROJECT DELAYS IN THE EVENT PROPER NOTIFICATION IS NOT MADE.

22. OWNER IS RESPONSIBLE FOR OBTAINING FINAL CERTIFICATES OF COMPLETION, CERTIFICATES OF OCCUPANCIES, OR SIMILAR AGENCY REQUIREMENTS.

23. CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS.

24. IF ANY OF THE FOLLOWING CIRCUMSTANCES THAT WILL NECESSITATE REVISION IN INSTRUMENTS OF SERVICE AND SHALL AFFECT THE LANDSCAPE ARCHITECT'S SERVICES FOR THE PROJECT, THE LANDSCAPE ARCHITECT SHALL BE ENTITLED TO AN APPROPRIATE ADJUSTMENT IN SCHEDULE AND COMPENSATION:

ACCEESSIBLITY NOTES:

1. CONTRACTOR TO BUILD TO COMPLY WITH THE REQUIREMENTS OF THE AMERICAN DISABILITY ACT ACCESSIBILITY GUIDELINES(ADAAG) AND/OR THE CALIFORNIA ACCESS COMPLIANCE ACT WHICHEVER IS MORE STRINGENT.

2. WHEN CHANGES IN LEVEL NOT EXCEEDING 1/2" OCCUR, THEY SHALL BE BEVELED WITH A SLOPE NO GREATER THAN 1:2 EXCEPT THAT LEVEL CHANGES NOT EXCEEDING 1/4" MAY BE VERTICAL.

3. WALKS AND SIDEWALKS SHALL HAVE A CONTINUOUS COMMON SURFACE NOT INTERRUPTED BY STEPS OR BY ABRUPT CHANGES IN LEVEL EXCEEDING 1/2".

ARCHITECT:

LAHMON ARCHITECTS
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CONSULTANT:

KSA Inc. Landscape Studio
Ph. 310 574 4460
Fx. 310 574 4462
6150 Washington Boulevard
Culver City, CA 90232

OWNER:

LINCOLN PARK HOLDINGS LLC

100 S CITRUS AVE, LOS ANGELES, CA 90036
(323) 879 9907

PROJECT:

3601 MISSION

3601 N MISSION ROAD,
LOS ANGELES, CA 90031

PHASE:

90% CD SET
07.06.23

NOT FOR CONSTRUCTION

REVISION LIST:

KEY PLAN:

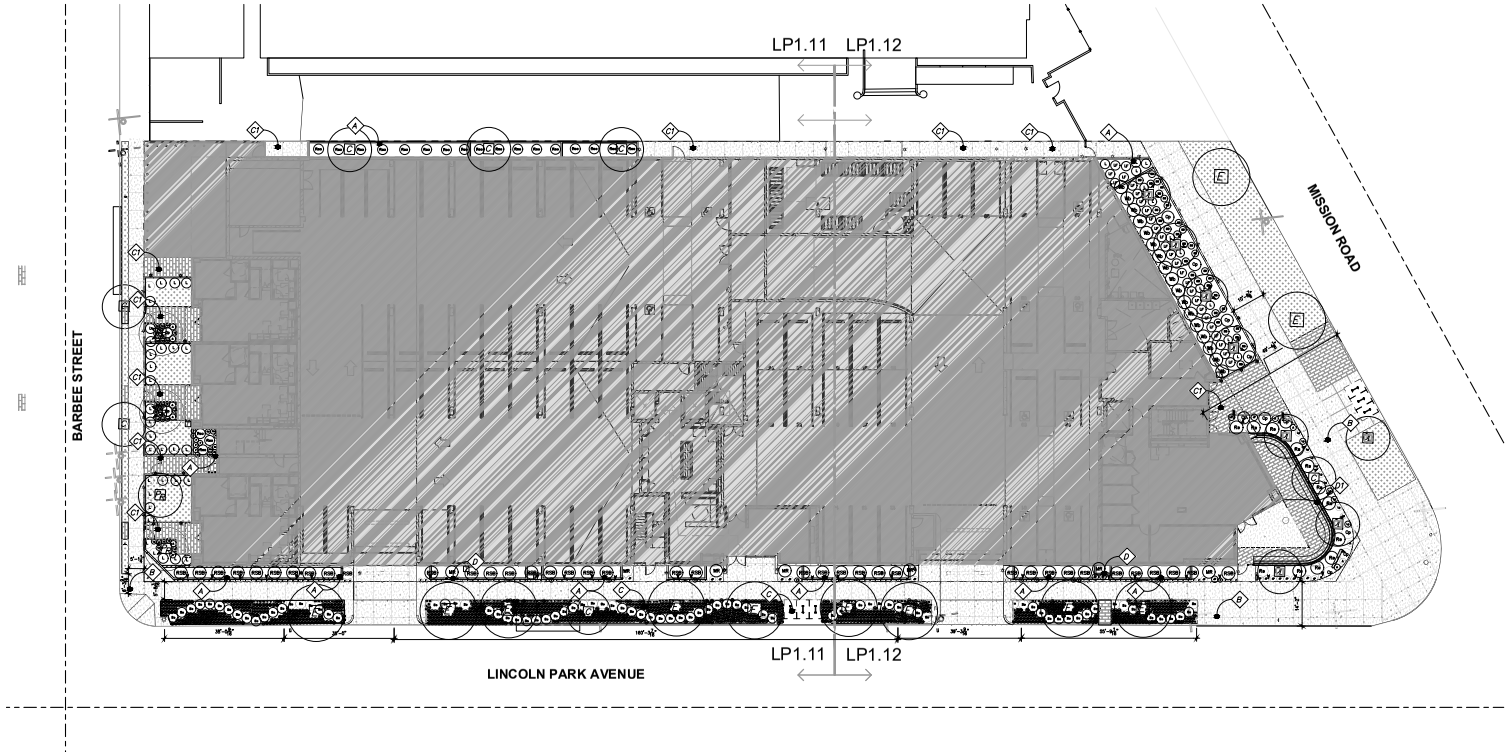
PROJECT NO. 220003
SCALE AS SHOWN

SHEET TITLE:

GENERAL NOTES

SHEET NO.

L0.1



2 PLANTING PLAN

SC: 1/16" = 1'-0"

PLANTING SCHEDULE – TREES

SYMBOL	QTY.	SIZE	BOTANICAL NAME	COMMON NAME	SPACING
E	11	36" BOX	EXISTING TREE		PER PLAN
OL	16	24" BOX	OLEA EUROPA 'SAWN HILL' STD	FRUITLESS OLIVE	PER PLAN
PR	4	36" BOX	WESTERN SYCAMORE	PLATANUS RACEMOSA	PER PLAN
C	7	36" BOX	CATALINA CHERRY	PRUNUS ILICIFOLIA SSP.LYONII	PER PLAN

PLANTING SCHEDULE – GROUNDCOVER

SYMBOL	DENSITY	SIZE	BOTANICAL NAME	COMMON NAME
	18"O.C.	1 GAL	SUGGSTION: PHYLA NODIFLORA FROG FLOWER ALT: CAREX PRAEGRACILIS	TEXAS FROGFRUIT CALIFORNIA FIELD SEDGE

PLANTING SCHEDULE – SHRUBS

SYMBOL	QTY.	SIZE	BOTANICAL NAME	COMMON NAME	SPACING
Rec	25	36" BOX	Rhamnus californica 'Eve Case'	Coffeeberry	6'-0" O.C.
Se	8	5 GAL	Sesleria autumnalis	Autumn Moor Grass	PER PLAN
We	18	15 GAL	Westringia fru. 'Blue Gem'	Blue Gem Westringia	PER PLAN
Cp	12	5 GAL	Cistus purpureus	Purple Rock Rose	PER PLAN
A	12	5 GAL	Artemisia 'David's Choice''	Wormwood	PER PLAN
Sc	153	5 GAL	Senecio cylindricus	Upright Green Chalkstick	PER PLAN
SB	19	5 GAL	Salvia Bee Bliss	Creeping Sage	PER PLAN
Lg	40	1G	Lavendula 'Goodwin Creek"	English Lav 'Goodwin Creek'	PER PLAN
JP	25	1 GAL	Juncus Patens 'Elks Blue'	ISLAND PITCHERSAGE	PER PLAN
Pg	2441	4" plug	Carex praegacilis	CALIFORNIA FIELD SEDGE	8" O.C.
L	33	15 GAL	Laurus Nobilus	BAY LAUREL	PER PLAN
F	150	1 GAL	Festuca 'Siskiyou Blue'	SISKIYOU BLUE FESCUE	PER PLAN
LF	26	5 GAL	Lavendula XXX	Lavender	PER PLAN
Ra	12	5 GAL	Ribes speciosum	Gooseberry	6'-0" O.C.
SS	12	5 GAL	Salvia spathacea	Hummingbirg Sage	3'-0" O.C.
RCM	12	15 GAL	Rhamnus Californica 'Mound San Bruno'	Coffeeberry	6'-0" O.C.
MR	7	15 GAL	Muhlenbergia Rigens	Deergrass	PER PLAN

HARDSCAPE SCHEDULE

KEYNOTE	QTY.	ITEM	SIZE (WxLxH)	REMARKS
A		PERMAVOID BIOFILTRATION PLANTING AREA (ON-GRADE) SEE SECTIONS FOR SOIL DEPTH AND PLANTING PLANS FOR PLANT SPECIES		36"MIN.-48" MAX. EFFECTIVE SOIL DEPTH SEE PLANTER DETAIL
B		SIDEWALK MAT: P.I.P. CONCRETE. FINISH: NATURAL GREY TOP-CAST MICRO ETCH 05	67"x67"x4"	SCORE AND EXPANSION JOINTS PER PLAN
C		BIKE RACK MFTR: SUNSHINE U-LOK CORPORATION MODEL: SIMPLE-LOK COLOR: STANDARD BLACK		
C1		CONCRETE PAVERS(PERMEABLE PAVERS) MFTR: STEPSTONE INC.MODEL: NARROW MODULAR PAVERS COLOR: FRENCH GRAY 1404/PORCELAIN 1813.	24"x24"x4"	HARDSCAPE PER ARCHITECT
D		BENCH		POURED IN PLACE BY THE GC
D1		CAST-IN-PLACE BENCH	17½"x72"x19"	POURED IN PLACE BY THE GC

THE TOTAL HARDSCAPE AREA IS: 7315.4sq.ft

THE TOTAL PLANTING AREA IS: 5930 sq.ft

1 PLANTING SCHEDULE

ARCHITECT:
LAHMON ARCHITECTS
3684 WILLAT AVENUE, CULVER CITY, CA 90232
(T) 424.299.4666 (F) 424.299.4698

CONSULTANT:
KSA Inc. Landscape Studio
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6150 Washington Boulevard
Culver City, CA 90232

OWNER:

LINCOLN PARK HOLDINGS LLC

100 S CITRUS AVE, LOS ANGELES, CA 90036
(323) 879 9907

PROJECT:

3601 MISSION

3601 N MISSION ROAD,
LOS ANGELES, CA 90031

PHASE:

90% CD SET
07.06.23

NOT FOR CONSTRUCTION

REVISION LIST:

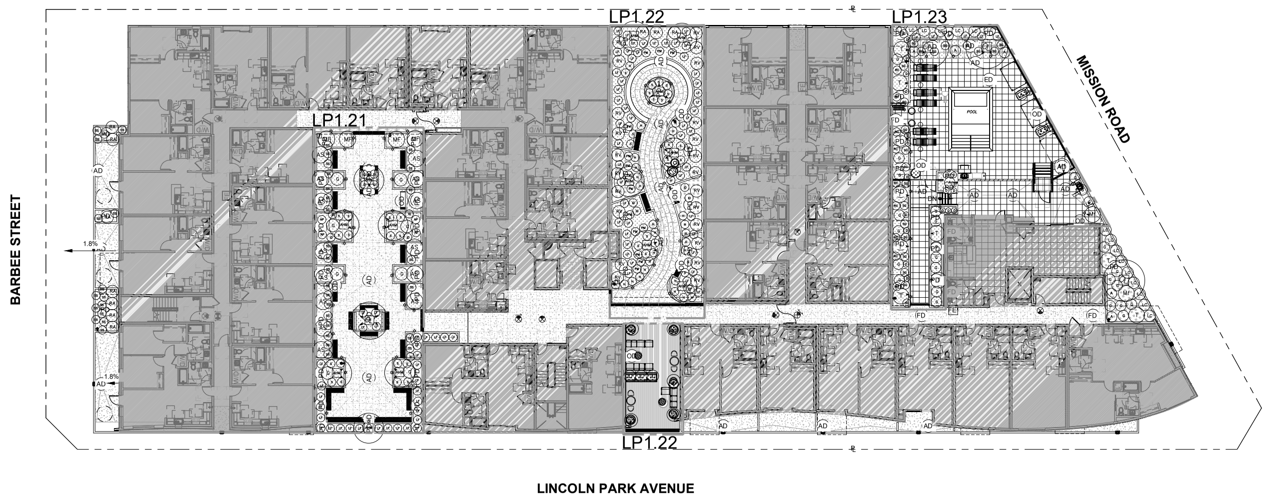
KEY PLAN:

PROJECT NO. 220003
SCALE AS SHOWN
SHEET TITLE:

GROUNDFLOOR LANDSCAPE PLAN

SHEET NO.:

LP1.10



2 PLANTING PLAN

SC: 1/16" = 1'-0"

PLANTING SCHEDULE – SHRUBS

SYMBOL	QTY.	SIZE	BOTANICAL NAME	COMMON NAME	SPACING
LC	16	5 GAL	Leymus Condensatus	Lyme Grass	PER PLAN
G	33	15 GAL	Galvezia speciosa	Island Snapdragon	PER PLAN
RC	9	15 GAL	Rosa Californica	California Wild Rose	PER PLAN
T	10	5 GAL	Trichostema lanatum	Woolly Bluecurls	PER PLAN
SG	24	5 GAL	Salvia Gracias	Gracias Sage	PER PLAN
MT	3	5 GAL	Malacothanus fasciculatum	DWARF KARO	PER PLAN
D	18	5 GAL	Dudlyea pulverulenta	Chalk dudleya	PER PLAN
A	8	8" O.C.	Artemisia 'Canyon Grey'	Canyon Gray Sagebrush	PER PLAN
RV	23	5 GAL	Ribes viburnifolium	Catalina Currant	PER PLAN
RA	10	5 GAL	Rhamnus alaternus	Italian Buckthorn	PER PLAN
S	35	5 GAL	Satureja douglasio	Yerba Buena	PER PLAN
LF	90	15 GAL	Lepechina fragrans	Pitcher Sage	PER PLAN
PM	14	5 GAL	Polystichum munitum	Sword Fern	
ID	14	5 GAL	Iris Douglasii	Doulgas Iris	
H	32	5 GAL	Heuchera maxima	Island Autumn Root	PER PLAN
AS	14	5 GAL	Arcto 'Sunset'	Manzanita Sunset	PER PLAN

PLANTING SCHEDULE – TREES

SYMBOL	QTY.	SIZE	BOTANICAL NAME	COMMON NAME	SPACING
AHM	13	36" BOX	ARCTOSTAPHYLOS	JAPANESE MAPLE	PER PLAN
OL	4	36" BOX	OLEA EUROPA 'SAWN HILL' STD	FRUITLESS OLIVE	PER PLAN

LEVEL 3th PLANTER WEIGHT

SYMBOL	KEYNOTE	MATERIAL	L X W X H	QTY	PLANTER WEIGHT	PLANT WEIGHT	WET SOIL WEIGHT	TOTAL WEIGHT/PLANTER	TOTAL WEIGHT@FLOOR
	8b	FIBERGLASS PLANTER MFTR: TOURNESOL SERIES:WCR-3000 SIZE: 30" X 30" X 36" FINISH: TBD	30" X 30" X 36"	5	275 LBS	(24" BOX) :725LBS (5GAL):5x 25LBS=125LBS TOTAL WEIGHT:850 LBS	(4X4X3)-(8CF+(5".77CF)) =48CF-(11.85CF) =36.15CFX100LBS =3,615 LBS	4,575 LBS	4,575 LBS
	8d	FIBERGLASS PLANTER MFTR: TOURNESOL SERIES:WCR-1203036 SIZE: 120" X 30" X 24" FINISH: TBD	120" X 30" X 24"	1	1150 LBS	(5GAL):4x 25LBS=100LBS TOTAL WEIGHT:100 LBS	(6X2X2.5)-(4".77CF)) =30CF-(3.08CF) =26.92CFX100LBS =2,692 LBS	2,962 LBS	2,962 LBS

NURSERY PLANT WEIGHT

NURSERY CONTAINER	VOLUME	WEIGHT
4" POT	0.015CF	5 LBS
1 GALL	0.15 CF	5 LBS
5 GALL	0.77 CF	25 LBS
15 GALL	2.3 CF	90 LBS
24" BOX TREES	8 CF	725 LBS

*DEPENDING ON THE SELECTED ENGINEERED SOIL, THE WEIGHT SOIL WEIGHT IS AN APPROXIMATION. SOIL+WATER WEIGHT =+/-69.5-100LBS/CF

THE TOTAL HARDSCAPE AREA IS: 4949.5sq.ft

THE TOTAL PLANTING AREA IS: 3418 sq.ft

1 PLANTING SCHEDULE

ARCHITECT:
LAHMON ARCHITECTS
3834 WILLAT AVENUE, CULVER CITY, CA 90232
(T) 424.299.4666 (F) 424.299.4698

CONSULTANT:
KSA Inc. Landscape Studio
Ph. 310 574 4460
Fx. 310 574 4462
6150 Washington Boulevard
Culver City, CA 90232

OWNER:
LINCOLN PARK HOLDINGS LLC
100 S CITRUS AVE, LOS ANGELES, CA 90036
(323) 879 9907

PROJECT:
MISSION APARTMENTS
2000 N LINCOLN PARK AVENUE, LOS ANGELES, CA 90031

PHASE:
90% CD SET
07.06.23

NOT FOR CONSTRUCTION

REVISION LIST:

KEY PLAN:

PROJECT NO. 220003
SCALE AS SHOWN
SHEET TITLE:
THIRD FLOOR LANDSCAPE PLAN

SHEET NO.
LP1.20

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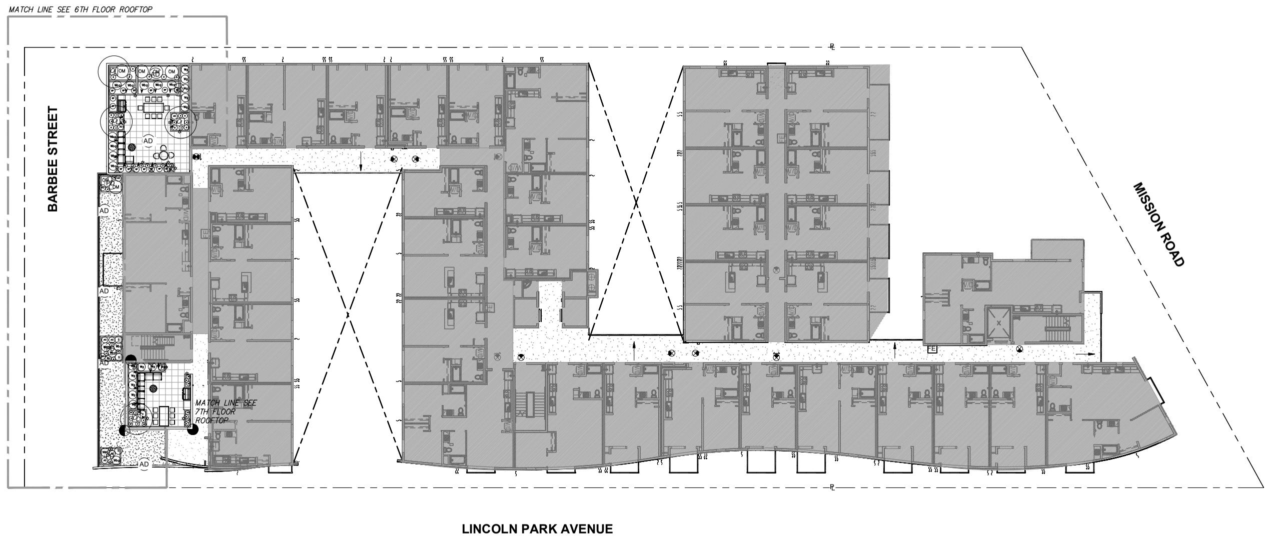

PLANTING PLAN

SC: 1/16" = 1'-0"

PLANTING SCHEDULE – TREES					
SYMBOL	QTY.	SIZE	BOTANICAL NAME	COMMON NAME	SPACING
OL	4	36" BOX	OLEA EUROPA "SAWN HILL" STD	FRUITLESS OLIVE	PER PLAN

PLANTING SCHEDULE – SHRUBS					
SYMBOL	QTY.	SIZE	BOTANICAL NAME	COMMON NAME	SPACING
Wg	13	10 GAL	Westringia "Grey Box"	DWARF COASTAL ROSEMARY	PER PLAN
AC	13	5 GAL	Artemisia californica "David's Choice"	Coastal Sagewort	PER PLAN
Wbg	14	10 GAL	Westringia "Blue Gem"	COAST ROSEMARY	PER PLAN
OM	6	15 GAL	Olea montra	Dwarf Olive	PER PLAN
S	15	5 GAL	Saturja douglasii	Yerba Buena	PER PLAN
SP	18	5 GAL	Salvia Pachipylla	Blue Sage	PER PLAN
D	30	1 GAL	Dudlyea pulverulenta	Chalk Dudlyea	PER PLAN

PLANTER SCHEDULE

LEVEL 6PLANTER WEIGHT									
SYMBOL	KEYNOTE	MATERIAL	L X W X H	QTY	PLANTER WEIGHT	PLANT WEIGHT	WET SOIL WEIGHT	TOTAL WEIGHT/PLANTER	TOTAL WEIGHT@FLOOR
	8a	FIBERGLASS PLANTER MFTR: TOURNESOL SERIES: WR-7200F SIZE: 72" X 72" X 42" FINISH: TBD	72" X 72" X 42"	-	110 LBS	(24" BOX): 725LBS (5GAL):5x 25LBS = 125LBS TOTAL WEIGHT: 850 LBS	(4X4X3)-(8CF+(5*.77CF)) =48CF-(11.85CF) =36.15CFX100LBS =3,615 LBS	4,575 LBS	4,575 LBS
	8b	FIBERGLASS PLANTER MFTR: TOURNESOL SERIES: WR-723618 SIZE: 72" x 30" x 18" FINISH: TBD	72" x 30" x 18"	-	170 LBS	(5GAL):4x 25LBS = 100LBS TOTAL WEIGHT: 100 LBS	(6X2X2.5)-(4*.77CF)) =30CF-(3.08CF) =26.92CFX100LBS =2,692 LBS	2,962 LBS	2,962 LBS
	8C	FIBERGLASS PLANTER MFTR: TOURNESOL SERIES: WR-4800 SIZE: 48" X 36" X 24" FINISH: TBD	48" X 36" X 24"	-	110 LBS	(24" BOX): 725LBS (5GAL):5x 25LBS = 125LBS TOTAL WEIGHT: 850 LBS	(4X4X3)-(8CF+(5*.77CF)) =48CF-(11.85CF) =36.15CFX100LBS =3,615 LBS	4,575 LBS	4,575 LBS
	8d	FIBERGLASS PLANTER MFTR: TOURNESOL SERIES: WCR-723624 SIZE: 72" x 36" x 24" FINISH: TBD	72" x 36" x 24"	-	170 LBS	(5GAL):4x 25LBS = 100LBS TOTAL WEIGHT: 100 LBS	(6X2X2.5)-(4*.77CF)) =30CF-(3.08CF) =26.92CFX100LBS =2,692 LBS	2,962 LBS	2,962 LBS
	8e	FIBERGLASS PLANTER MFTR: TOURNESOL SERIES: WCR-1203624 SIZE: 120" x 36" x 24" FINISH: TBD	120" x 36" x 24"	-		(24" BOX): 725LBS (5GAL):5x 25LBS = 125LBS TOTAL WEIGHT: 850 LBS	(4X4X3)-(8CF+(5*.77CF)) =48CF-(11.85CF) =36.15CFX100LBS =3,615 LBS		

*DEPENDING ON THE SELECTED ENGINEERED SOIL, THE WEIGHT SOIL WEIGHT IS AN APPROXIMATION. SOIL + WATER WEIGHT = +/-69.5-100LBS/CF

THE TOTAL HARDSCAPE AREA IS: 716.5sq.ft

THE TOTAL PLANTING AREA IS: 713sq.ft

NURSERY PLANT WEIGHT

NURSERY CONTAINER	VOLUME	WEIGHT
4" POT	0.015CF	5 LBS
1 GALL	0.15 CF	5 LBS
5 GALL	0.77 CF	25 LBS
15 GALL	2.3 CF	90 LBS
24" BOX TREES	8 CF	725 LBS

1 PLANTING SCHEDULE

ARCHITECT:

LAHMON ARCHITECTS
3834 WILLAT AVENUE, CULVER CITY, CA 90232
(T) 424.299.4666 (F) 424.299.4698

CONSULTANT:

KSA Inc. Landscape Studio
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6150 Washington Boulevard
Culver City, CA 90232

OWNER:

LINCOLN PARK HOLDINGS LLC

100 S CITRUS AVE, LOS ANGELES, CA 90036
(323) 879 9907

PROJECT:

MISSION APARTMENTS

2000 N LINCOLN PARK AVENUE,
LOS ANGELES, CA 90031

PHASE:

90% CD SET
07.06.23

NOT FOR CONSTRUCTION

REVISION LIST:

KEY PLAN:

PROJECT NO. 220003
SCALE AS SHOWN
SHEET TITLE:

ROOFTOP
(6TH & 7TH FLOOR)
LANDSCAPE PLAN

SHEET NO.

LP1.30

CAD REF:

PLANT PALETTE


ARTEMISIA 'DAVID'S CHOICE'


Arcto 'Sunset'


Carex praegacilis


Dudlyea pulverulenta


Festuca 'Siskiyou Blue'


Galvezia speciosa


Heuchera maxima


Iris Douglasii

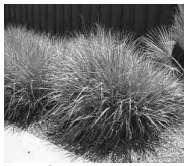

SALVIA SEMIATRATA


Juncus Patens 'Elks Blue'


Laurus Nobilus


Lavendula 'Goodwin Creek'


Lepechina fragrans


Leymus Condensatus


Muhlenbergia Rigens


Olea montra


PLATANUS RACEMOSA


WESTRINGIA 'GRAYBOX'


SALVIA APIANA


LAVANDULA 'HIDCOTE'


CISTUS 'PURPUREA'


WESTRINGIA 'BLUE GEM'


BAMBUSA OLDHAMII


LAURUS NOBILIS


OLEA 'SWANHILL'


ACER PALMATUM 'BUTTERFLY'


FICUS PUMILA


Polystichum munitum


Rhamnus alaternus


Rhamnus californica 'Eve Case'


Rhamnus Californica 'Mound San Bruno'


Ribes speciosum


LANTANA MONTEVIDENSIS


WESTRINGIA 'BLUE GEM'


SENECIO CYLINDRACUS


SESLERIA 'AUTUMNALIS'


Prunus ilicifolia


Rosa Californica


Salvia Gracias


Malacothanus fasciculatum

OLEA EUROPAEA

ARCTOSTAPHYLOS DENSIFLORA

CAREX DIVULSA

HEUCHERA MAXIMA

Salvia Pachipylla

Salvia spathacea

Saturja douglasii

ARCHITECT:

LAHMON ARCHITECTS

3834 WILLAT AVENUE, CULVER CITY, CA 90232
(T) 424.299.4666 (F) 424.299.4668

CONSULTANT:

KSA Inc. Landscape Studio

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6150 Washington Boulevard
Culver City, CA 90232

OWNER:

LINCOLN PARK HOLDINGS LLC

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(323) 879 9907

PROJECT:

MISSION APARTMENTS

2000 N LINCOLN PARK AVENUE,
LOS ANGELES, CA 90031

PHASE:

90% CD SET

07.06.23

NOT FOR CONSTRUCTION

REVISION LIST:

KEY PLAN:

PROJECT NO. 220003
SCALE AS SHOWN
SHEET TITLE:

PLANT IMAGES

SHEET NO.

LP2.0

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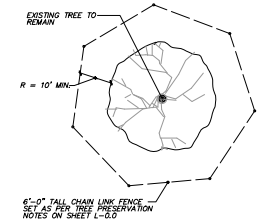
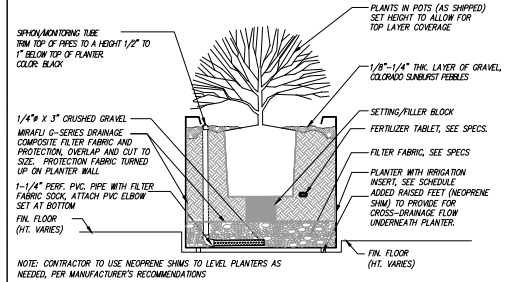


NOTES:
SEE TREE PRESERVATION AND PROTECTION ZONE GUIDELINES ON SHEET L-0.0

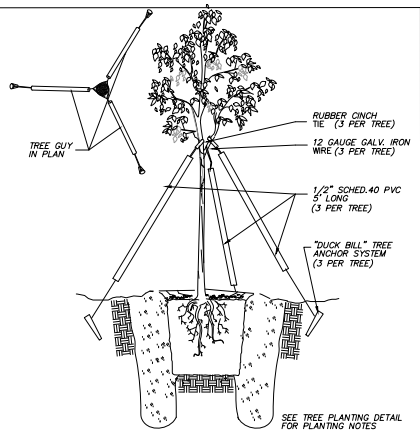
FENCING IS TO BE INSTALLED PRIOR TO THE BEGINNING OF CONSTRUCTION AND TO REMAIN IN PLACE UNTIL CONSTRUCTION HAS BEEN COMPLETED. CONFIRM EXACT FENCE LOCATION WITH OWNER FOR EACH TREE TO BE PROTECTED IN PLACE. NO STORAGE OR PLACEMENT OF MATERIALS ARE TO OCCUR WITHIN THIS FENCE. CONTRACTOR TO CONFIRM THAT EXISTING IRRIGATION TO ALL PROTECTED PLANTS REMAINS IN FULL OPERATION DURING CONSTRUCTION. NO TREES SHALL BE INJURED DURING CONSTRUCTION.

11 TREE PROTECTION

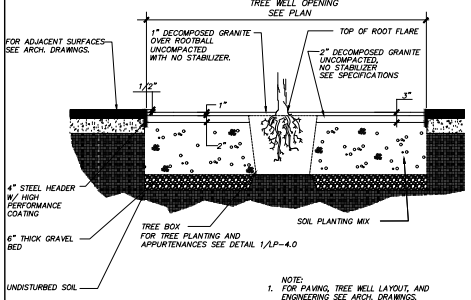


NOTE: CONTRACTOR TO USE NEOPRENE SHIMS TO LEVEL PLANTERS AS NEEDED, PER MANUFACTURER'S RECOMMENDATIONS

8 PLANTER

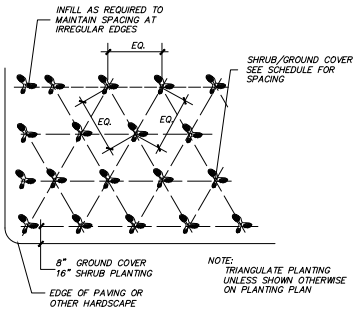


5 TREE GUYING



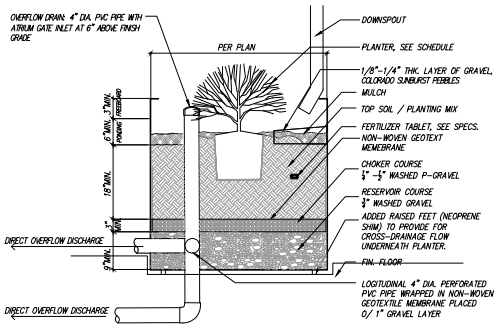
NOTE:
1. FOR PAVING, TREE WELL LAYOUT, AND ENGINEERING SEE ARCH. DRAWINGS.
2. SEE DETAIL 1/LP--4.0 FOR PLANTING NOTES NOT SHOWN

2 TREE WELL OPENING

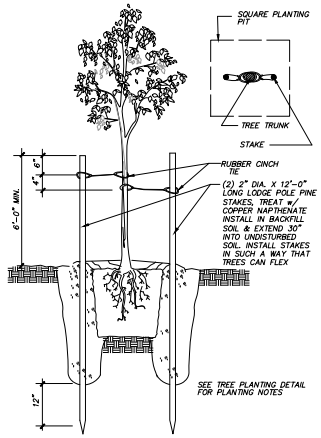


NOTE:
TRIANGULATE PLANTING UNLESS SHOWN OTHERWISE ON PLANTING PLAN

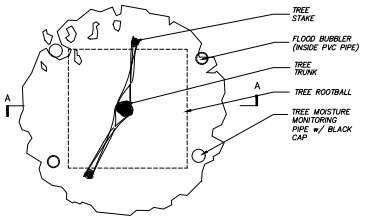
10 SHRUB PLANTING PATTERN

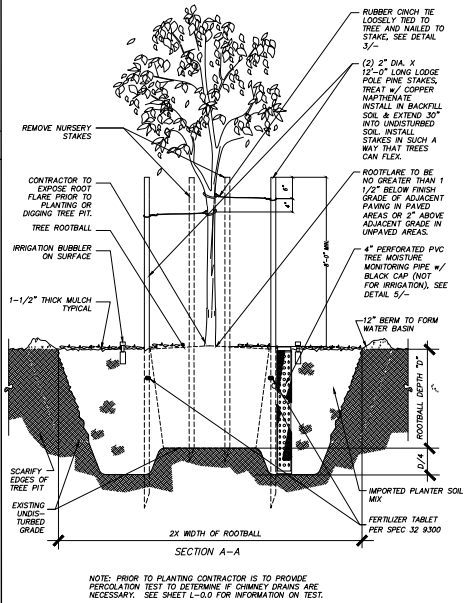


7 PERMAVOID PLANTER



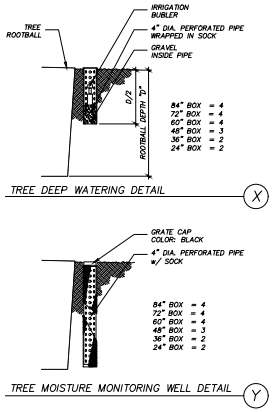
4 TREE STAKING



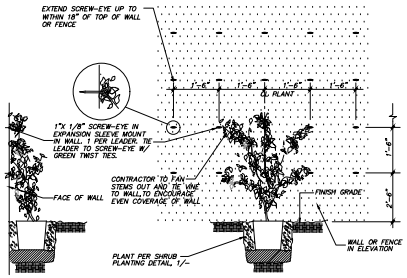


NOTE: PRIOR TO PLANTING CONTRACTOR IS TO PROVIDE PERCOLATION TEST TO DETERMINE IF CHIMNEY DRAINS ARE NECESSARY. SEE SHEET L--0.0 FOR INFORMATION ON TEST.

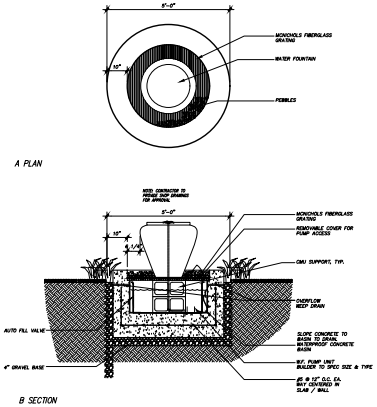
1 TREE PLANTING IN GRADE



9 MOISTURE MONITORING PIPE



6 VINE TRAINING



3 WATER FEATURE

ARCHITECT:
LAHMON ARCHITECTS
3834 WILLAT AVENUE, CULVER CITY, CA 90232
(T) 424.299.4666 (F) 424.299.4698

CONSULTANT:
KSA Inc. Landscape Studio
Ph. 310 574 4460
Fx. 310 574 4462
6150 Washington Boulevard
Culver City, CA 90232

OWNER:
LINCOLN PARK HOLDINGS LLC
100 S CITRUS AVE, LOS ANGELES, CA 90036
(323) 879 9907

PROJECT:
MISSION APARTMENTS
2000 N LINCOLN PARK AVENUE, LOS ANGELES, CA 90031

PHASE:
90% CD SET
07.06.23

REVISION LIST:

KEY PLAN:

PROJECT NO. 220003
SCALE AS SHOWN

SHEET TITLE:
PLANTING DETAILS

SHEET NO.
LP3.0

CAD REF: Autodesk Docs://22003 - 3601 Mission/22003_3601 Mission_Arch.rvt 1/20/2023 8:10:02 AM

NOT FOR CONSTRUCTION

NOT FOR CONSTRUCTION

ARCHITECT:
LAHMON ARCHITECTS
3834 WILLAT AVENUE, CULVER CITY, CA 90232
(T) 424.299.4666 (F) 424.299.4698

CONSULTANT:
KSA Inc. Landscape Studio
Ph. 310 574 4460
Fx. 310 574 4462
4212 1/2 Glencoe Avenue
Marina Del Rey, CA 90292

OWNER:
LINCOLN PARK HOLDINGS LLC

100 S CITRUS AVE, LOS ANGELES, CA 90036
(###) ### ####

PROJECT:
3601 MISSION

3601 N MISSION ROAD,
LOS ANGELES, CA 90031

PHASE:
ENTITLEMENT SET
08.15.22

REVISION LIST:

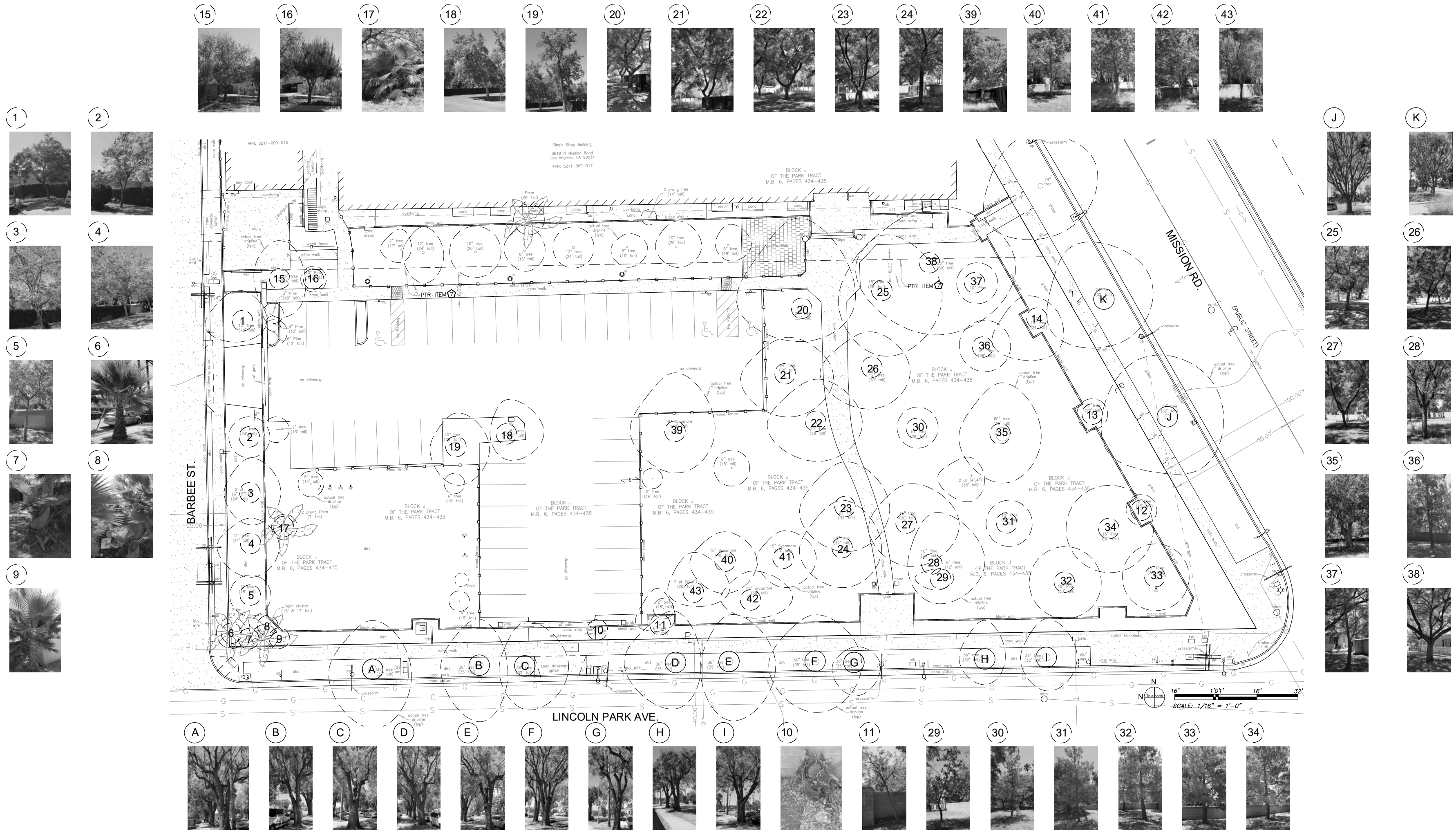
REV #	DESCRIPTION	DATE

KEY PLAN:

PROJECT NO. 220003
SCALE AS SHOWN
SHEET TITLE:
TREE INVENTORY

SHEET NO.
L0.1

CAD REF: C:\Users\bogganic\Documents\22003_3601 Mission_Arch_comp03@lahmonarch.com.rvt 6/22/2022 12:45:52 PM



TREE INVENTORY KEY

- # TREE TO REMAIN
- # TREE TO BE REMOVED
- # TREE TO BE RELOCATED

TREE INVENTORY:

PARKWAY:

SYMBOL	SCIENTIFIC NAME	COMMON NAME	DBH	HEALTH	PROTECTED TREE	DISPOSITION
A	FRAXINUS UDHEI	EVERGREEN ASH	36"	GOOD	NO	REMAIN
B	FRAXINUS UDHEI	EVERGREEN ASH	36"	GOOD	NO	REMAIN
C	FRAXINUS UDHEI	EVERGREEN ASH	36"	GOOD	NO	REMAIN
D	FRAXINUS UDHEI	EVERGREEN ASH	36"	GOOD	NO	REMAIN
E	FRAXINUS UDHEI	EVERGREEN ASH	36"	GOOD	NO	REMAIN
F	FRAXINUS UDHEI	EVERGREEN ASH	36"	GOOD	NO	REMAIN
G	FRAXINUS UDHEI	EVERGREEN ASH	36"	GOOD	NO	REMAIN
H	FRAXINUS UDHEI	EVERGREEN ASH	36"	GOOD	NO	REMAIN
I	FRAXINUS UDHEI	EVERGREEN ASH	36"	GOOD	NO	REMAIN
J	FICUS MALOCARPA	INDIAN LAUREL FIG	24"	GOOD	NO	REMAIN
K	FICUS MALOCARPA	INDIAN LAUREL FIG	24"	GOOD	NO	REMAIN

PRIVATE PROPERTY:

SYMBOL	SCIENTIFIC NAME	COMMON NAME	DBH	HEALTH	PROTECTED TREE	DISPOSITION
1	JACARANDA MIMOSIFOLIA	JACARANDA	12"	GOOD	NO	REMOVE
2	JACARANDA MIMOSIFOLIA	JACARANDA	10"	GOOD	NO	REMOVE
3	JACARANDA MIMOSIFOLIA	JACARANDA	6",15"	GOOD	NO	REMOVE
4	JACARANDA MIMOSIFOLIA	JACARANDA	12"	GOOD	NO	REMOVE
5	JACARANDA MIMOSIFOLIA	JACARANDA	8"	GOOD	NO	REMOVE
6	CHAMAEROPS HUMILIS	EUROPEAN FAN PALM	18"	GOOD	NO	REMOVE
7	CHAMAEROPS HUMILIS	EUROPEAN FAN PALM	18"	POOR	NO	REMOVE
8	CHAMAEROPS HUMILIS	EUROPEAN FAN PALM	13",10", 15"	GOOD	NO	REMOVE
9	CHAMAEROPS HUMILIS	EUROPEAN FAN PALM	16"	GOOD	NO	REMOVE
10	CHAMAEROPS HUMILIS	EUROPEAN FAN PALM	-	POOR	NO	REMOVE
11	JACARANDA MIMOSIFOLIA	JACARANDA	6"	POOR	NO	REMOVE
12	JACARANDA MIMOSIFOLIA	JACARANDA	6"	GOOD	NO	REMOVE
13	JACARANDA MIMOSIFOLIA	JACARANDA	6"	GOOD	NO	REMOVE
14	JACARANDA MIMOSIFOLIA	JACARANDA	10"	GOOD	NO	REMOVE
15	GINKGO BILOBA	JACARANDA	15"	GOOD	NO	REMOVE
16	PINUS PINEA	STONE PINE	10"	GOOD	NO	REMOVE
17	CHAMEROPS HUMILIS	EUROPEAN FAN PALM	8"	GOOD	NO	REMOVE
18	PLATANUS RACEMOSA	WESTERN SYCAMORE	18"	GOOD	NO	REMOVE
19	LIQUIDAMBAR STYRACIDLUA	SWEET GUM	40"	GOOD	NO	REMOVE
20	ROBINIA PSEUDOACACIA	BLACK LOCUST	24"	GOOD	NO	REMOVE
21	ROBINIA PSEUDOACACIA	BLACK LOCUST	24"	GOOD	NO	REMOVE
22	ROBINIA PSEUDOACACIA	BLACK LOCUST	20"	GOOD	NO	REMOVE
23	ROBINIA PSEUDOACACIA	BLACK LOCUST	20"	GOOD	NO	REMOVE
24	ROBINIA PSEUDOACACIA	BLACK LOCUST	18"	GOOD	NO	REMOVE
25	ROBINIA PSEUDOACACIA	BLACK LOCUST	18"	GOOD	NO	REMOVE
26	ROBINIA PSEUDOACACIA	BLACK LOCUST	12"	GOOD	NO	REMOVE
27	ROBINIA PSEUDOACACIA	BLACK LOCUST	15"	GOOD	NO	REMOVE
28	ROBINIA PSEUDOACACIA	BLACK LOCUST	10"	GOOD	NO	REMOVE
29	PINUS TORREYANA	TORREY PINE	8"	GOOD	NO	REMOVE
30	PINUS TORREYANA	TORREY PINE	10"	GOOD	NO	REMOVE
31	PINUS TORREYANA	TORREY PINE	10"	GOOD	NO	REMOVE
32	PINUS TORREYANA	TORREY PINE	15"	GOOD	NO	REMOVE
33	PINUS TORREYANA	TORREY PINE	15"	GOOD	NO	REMOVE
34	PINUS TORREYANA	TORREY PINE	15"	GOOD	NO	REMOVE
35	SCHINUS TEREBINTHIFOLIA	BRAZILIAN PEPPER TREE	60"	GOOD	NO	REMOVE
36	PINUS TORREYANA	TORREY PINE	15"	GOOD	NO	REMOVE
37	PINUS TORREYANA	TORREY PINE	10"	GOOD	NO	REMOVE
38	ROBINIA PSEUDOACACIA	BLACK LOCUST	20"	GOOD	NO	REMOVE
39	PLATANUS RACEMOSA	WESTERN SYCAMORE	18"	POOR	NO	REMOVE
40	PLATANUS RACEMOSA	WESTERN SYCAMORE	15"	GOOD	NO	REMOVE
41	PLATANUS RACEMOSA	WESTERN SYCAMORE	15"	GOOD	NO	REMOVE
42	PLATANUS RACEMOSA	WESTERN SYCAMORE	15"	GOOD	NO	REMOVE
43	JACARANDA MIMOSIFOLIA	JACARANDA	8"	GOOD	NO	REMOVE

City of Los Angeles
Department of City Planning

9/10/2023
PARCEL PROFILE REPORT

PROPERTY ADDRESSES

2010 N LINCOLN PARK AVE

3601 N MISSION ROAD

ZIP CODES

90031

RECENT ACTIVITY

None

CASE NUMBERS

CPC-2022-6189-CU-DB-ZAA-SPR-HCA

CPC-1989-177

CPC-1986-826-GPC

ORD-172316

ORD-166216-SA3978

ORD-129279

ZA-1995-460-ZV

ZA-1989-751-PAD

BZA-1995-5737-ZV

ENV-2022-6190-EAF

ENV-2013-3392-CE

PKG-3011-A

AFF-11994

Address/Legal Information	
PIN Number	136-5A225 189
Lot/Parcel Area (Calculated)	5,551.5 (sq ft)
Thomas Brothers Grid	PAGE 635 - GRID B1
Assessor Parcel No. (APN)	5211009015
Tract	PARK TRACT
Map Reference	M R 6-434/435
Block	J
Lot	FR 6
Arb (Lot Cut Reference)	None
Map Sheet	136-5A225
Jurisdictional Information	
Community Plan Area	Northeast Los Angeles
Area Planning Commission	East Los Angeles
Neighborhood Council	Lincoln Heights
Council District	CD 14 - Kevin de León
Census Tract #	1991.20
LADBS District Office	Los Angeles Metro
Permitting and Zoning Compliance Information	
Administrative Review	None
Planning and Zoning Information	
Special Notes	None
Zoning	R3-1
Zoning Information (ZI)	ZI-2129 State Enterprise Zone: East Los Angeles
	ZI-2512 Housing Element Inventory of Sites
General Plan Land Use	Medium Residential
General Plan Note(s)	Yes
Hillside Area (Zoning Code)	No
Specific Plan Area	None
Subarea	None
Special Land Use / Zoning	None
Historic Preservation Review	No
Historic Preservation Overlay Zone	None
Other Historic Designations	None
Other Historic Survey Information	None
Mills Act Contract	None
CDO: Community Design Overlay	None
CPIO: Community Plan Imp. Overlay	None
Subarea	None
CUGU: Clean Up-Green Up	None
HCR: Hillside Construction Regulation	No
NSO: Neighborhood Stabilization Overlay	No
POD: Pedestrian Oriented Districts	None
RBP: Restaurant Beverage Program Eligible Area	None
RFA: Residential Floor Area District	None
RIO: River Implementation Overlay	No
SN: Sign District	No

AB 2334: Very Low VMT	Yes
AB 2097: Reduced Parking Areas	No
Streetscape	No
Adaptive Reuse Incentive Area	None
Affordable Housing Linkage Fee	
Residential Market Area	Medium
Non-Residential Market Area	Medium
Transit Oriented Communities (TOC)	Not Eligible
ED 1 Eligibility	Eligible Site
RPA: Redevelopment Project Area	None
Central City Parking	No
Downtown Parking	No
Building Line	None
500 Ft School Zone	No
500 Ft Park Zone	Active: Lincoln Park
Assessor Information	
Assessor Parcel No. (APN)	5211009015
APN Area (Co. Public Works)*	1.163 (ac)
Use Code	2700 - Commercial - Parking Lot (Commercial Use Property) - Lots - Patron or Employee - One Story
Assessed Land Val.	$3,290,593
Assessed Improvement Val.	$0
Last Owner Change	10/27/2021
Last Sale Amount	$13,650,136
Tax Rate Area	4
Deed Ref No. (City Clerk)	9-384
	848704
	811503
	6-280
	354587
	354568
	354567
	288882
	1857921
	1660450
	1548354
	1264864
	1068839
Building 1	
Year Built	2001
Building Class	CX
Number of Units	0
Number of Bedrooms	0
Number of Bathrooms	0
Building Square Footage	30,000.0 (sq ft)
Building 2	No data for building 2
Building 3	No data for building 3
Building 4	No data for building 4
Building 5	No data for building 5
Rent Stabilization Ordinance (RSO)	No [APN: 5211009015]
Additional Information	
Airport Hazard	None
Coastal Zone	None
Santa Monica Mountains Zone	No
Farmland	Area Not Mapped

Urban Agriculture Incentive Zone	YES
Very High Fire Hazard Severity Zone	No
Fire District No. 1	No
Flood Zone	Outside Flood Zone
Watercourse	No
Hazardous Waste / Border Zone Properties	No
Methane Hazard Site	None
High Wind Velocity Areas	No
Special Grading Area (BOE Basic Grid Map A-13372)	Yes
Wells	None
Seismic Hazards	
Active Fault Near-Source Zone	
Nearest Fault (Distance in km)	Within Fault Zone
Nearest Fault (Name)	Upper Elysian Park
Region	Los Angeles Blind Thrusts
Fault Type	B
Slip Rate (mm/year)	1.30000000
Slip Geometry	Reverse
Slip Type	Poorly Constrained
Down Dip Width (km)	13.00000000
Rupture Top	3.00000000
Rupture Bottom	13.00000000
Dip Angle (degrees)	50.00000000
Maximum Magnitude	6.40000000
Alquist-Priolo Fault Zone	No
Landslide	No
Liquefaction	Yes
Preliminary Fault Rupture Study Area	No
Tsunami Inundation Zone	No
Economic Development Areas	
Business Improvement District	None
Hubzone	Qualified
Jobs and Economic Development Incentive Zone (JEDI)	None
Opportunity Zone	No
Promise Zone	None
State Enterprise Zone	EAST LOS ANGELES STATE ENTERPRISE ZONE
Housing	
Direct all Inquiries to	Los Angeles Housing Department
Telephone	(866) 557-7368
Website	https://housing.lacity.org
Rent Stabilization Ordinance (RSO)	No [APN: 5211009015]
Ellis Act Property	No
AB 1482: Tenant Protection Act	No
Housing Crisis Act Replacement Review	Yes
Housing Element Sites	
HE Replacement Required	Yes
SB 166 Units	0.01 Units, Lower
Housing Use within Prior 5 Years	No
Public Safety	
Police Information	
Bureau	Central
Division / Station	Hollenbeck
Reporting District	424

Fire Information

Bureau	Central
Battallion	2
District / Fire Station	1
Red Flag Restricted Parking	No

CASE SUMMARIES

Note: Information for case summaries is retrieved from the Planning Department's Plan Case Tracking System (PCTS) database.

Case Number:	CPC-2022-6189-CU-DB-ZAA-SPR-HCA
Required Action(s):	CU-CONDITIONAL USE DB-DENSITY BONUS ZAA-AREA,HEIGHT,YARD,AND BLDG LINE ADJMNTS GT 20% (SLIGHT MODIFICATIONS) SPR-SITE PLAN REVIEW HCA-HOUSING CRISIS ACT
Project Descriptions(s):	PURSUANT TO LAMC 12.24 U.26 AND 16.05, A CONDITIONAL USE PERMIT AND SITE PLAN REVIEW TO INCREASE A DENSITY BONUS OVER 35% (PERMITTED BY LAMC 12.22 A.25) TO CONSTRUCT 184 UNITS (INC. 47 VERY LOW INCOME) WITH: ON-MENU OF INCENTIVES (12.22 A 25) TO PERMIT A 20 PERCENT REDUCTION IN REQUIRED OPEN SPACE TO ALLOW THE PROVISION OF 15,820 SF IN LIEU OF THE18,525 SF REQUIRED TO PURSUANT TO LAMC 12.21 G. 2.; PERMIT THE AREA OF LAND REQUIRED TO BE DEDICATED FOR STREET OR ALLEY PURPOSES TO BE INCLUDED AS LOT AREA FOR THE PURPOSES OF CALCULATING THE MAXIMUM DENSITY PERMITTED BY THE R3 ZONE. OFF-MENU INCENTIVES: PERMIT DECREASE IN RESIDENTIAL AUTOMOBILE PARKING TO ALLOW THE PROVISION OF 103 PARKING SPACES, WITH 18 IN TANDEM, IN LIEU OF THE 215 PARKING SPACES REQUIRED PURSUANT TO LAMC 12.21 A. 4. WAIVERS OF DEVELOPMENT STANDARDS: PERMIT A 50% DECREASE IN REQUIRED EAST SIDE YARD SETBACKS TO ALLOW A 5-FOOT SIDE YARD SETBACK IN LIEU OF THE 10 FEET REQUIRED BY THE R3-1 ZONE PURSUANT TO LAMC 12.10 C 2. PERMIT A 50% DECREASE IN REQUIRED WEST SIDE YARD SETBACKS TO ALLOW A 5-FOOT SIDE YARD SETBACK IN LIEU OF THE 10 FEET REQUIRED BY THE R3-1 ZONE PURSUANT TO LAMC 12.10 C 2. PERMIT A 41-FOOT INCREASE IN BUILDING HEIGHT TO ALLOW UP TO 86 FEET IN LIEU OF THE MAXIMUM 45 FEET ALLOWED IN THE R3-1 ZONE PURSUANT TO LAMC 12.21.1. PERMIT A 22 PERCENT INCREASE IN THE ALLOWABLE FLOOR AREA RATIO TO ALLOW A FLOOR AREA RATIO OF 3.67:1 IN LIEU OF THE 3.0:1 FAR PERMITTED IN THE R3-1 ZONE PURSUANT TO LAMC 12.21.1 A 1. PERMIT 3 COMPACT PARKING STALLS AND 100 STANDARD STALLS IN LIEU OF THE 1 STANDARD PARKING STALL PER DWELLING UNIT MINIMUM REQUIRED PURSUANT TO LAMC 12.21 A 5 C. PURSUANT TO LAMC 12.28, A ZONING ADMINISTRATORS ADJUSTMENT FOR RELIEF FROM 12.10 C.1 FOR A YARD ADJUSTMENT FOR A 12’ HIGH FENCE WITHIN THE 15’ FRONT YARD SETBACK IN THE R3-1 ZONE.
Case Number:	CPC-1989-177
Required Action(s):	Data Not Available
Project Descriptions(s):	CONTINUATION OF CPC-89-0177. SEE GENERAL COMMENTS FOR CONTINUATION.
Case Number:	CPC-1986-826-GPC
Required Action(s):	GPC-GENERAL PLAN/ZONING CONSISTENCY (AB283)
Project Descriptions(s):	GENERAL PLAN/ZONING CONSISTENCY - ZONE CHANGES - HEIGHT DISTRICT CHANGES AND PLAN AMENDMENTS - VARIOUS LOCATIONS
Case Number:	ZA-1995-460-ZV
Required Action(s):	ZV-ZONE VARIANCE
Project Descriptions(s):	USE VARIANCE FOR AN EXISTING BUILDING FOR ADULT CARE FACILITY FOR AGES 18-59 IN THE R3-1 ZONE.
Case Number:	ZA-1989-751-PAD
Required Action(s):	PAD-PLAN APPROVAL ONLY FOR A DEEMED-TO-BE-APPROVED CU
Project Descriptions(s):	PLAN APPROVAL FOR THE REMOVAL OF TWO EXISTING BUILDINGS AND ADD PARKING SPACES FOR REMAINING STRUCTURES IN THE R3-1 ZONE.
Case Number:	BZA-1995-5737-ZV
Required Action(s):	ZV-ZONE VARIANCE
Project Descriptions(s):	USE VARIANCE FOR AN EXISTING BUILDING FOR ADULT CARE FACILITY FOR AGES 18-59 IN THE R3-1 ZONE.
Case Number:	ENV-2022-6190-EAF
Required Action(s):	EAF-ENVIRONMENTAL ASSESSMENT

Project Descriptions(s):	PURSUANT TO LAMC 12.24 U.26 AND 16.05, A CONDITIONAL USE PERMIT AND SITE PLAN REVIEW TO INCREASE A DENSITY BONUS OVER 35% (PERMITTED BY LAMC 12.22 A.25) TO CONSTRUCT 184 UNITS (INC. 47 VERY LOW INCOME) WITH: ON-MENU OF INCENTIVES (12.22 A 25) TO PERMIT A 20 PERCENT REDUCTION IN REQUIRED OPEN SPACE TO ALLOW THE PROVISION OF 15,820 SF IN LIEU OF THE18,525 SF REQUIRED TO PURSUANT TO LAMC 12.21 G. 2.; PERMIT THE AREA OF LAND REQUIRED TO BE DEDICATED FOR STREET OR ALLEY PURPOSES TO BE INCLUDED AS LOT AREA FOR THE PURPOSES OF CALCULATING THE MAXIMUM DENSITY PERMITTED BY THE R3 ZONE. OFF-MENU INCENTIVES: PERMIT DECREASE IN RESIDENTIAL AUTOMOBILE PARKING TO ALLOW THE PROVISION OF 103 PARKING SPACES, WITH 18 IN TANDEM, IN LIEU OF THE 215 PARKING SPACES REQUIRED PURSUANT TO LAMC 12.21 A. 4. WAIVERS OF DEVELOPMENT STANDARDS: PERMIT A 50% DECREASE IN REQUIRED EAST SIDE YARD SETBACKS TO ALLOW A 5-FOOT SIDE YARD SETBACK IN LIEU OF THE 10 FEET REQUIRED BY THE R3-1 ZONE PURSUANT TO LAMC 12.10 C 2. PERMIT A 50% DECREASE IN REQUIRED WEST SIDE YARD SETBACKS TO ALLOW A 5-FOOT SIDE YARD SETBACK IN LIEU OF THE 10 FEET REQUIRED BY THE R3-1 ZONE PURSUANT TO LAMC 12.10 C 2. PERMIT A 41-FOOT INCREASE IN BUILDING HEIGHT TO ALLOW UP TO 86 FEET IN LIEU OF THE MAXIMUM 45 FEET ALLOWED IN THE R3-1 ZONE PURSUANT TO LAMC 12.21.1. PERMIT A 22 PERCENT INCREASE IN THE ALLOWABLE FLOOR AREA RATIO TO ALLOW A FLOOR AREA RATIO OF 3.67:1 IN LIEU OF THE 3.0:1 FAR PERMITTED IN THE R3-1 ZONE PURSUANT TO LAMC 12.21.1 A 1. PERMIT 3 COMPACT PARKING STALLS AND 100 STANDARD STALLS IN LIEU OF THE 1 STANDARD PARKING STALL PER DWELLING UNIT MINIMUM REQUIRED PURSUANT TO LAMC 12.21 A 5 C. PURSUANT TO LAMC 12.28, A ZONING ADMINISTRATORS ADJUSTMENT FOR RELIEF FROM 12.10 C.1 FOR A YARD ADJUSTMENT FOR A 12’ HIGH FENCE WITHIN THE 15’ FRONT YARD SETBACK IN THE R3-1 ZONE.
Case Number:	ENV-2013-3392-CE
Required Action(s):	CE-CATEGORICAL EXEMPTION
Project Descriptions(s):	THE PROPOSED ORDINANCE MODIFIES SECTION 22.119 OF THE LOS ANGELES ADMINISTRATIVE CODE TO ALLOW ORIGINAL ART MURALS ON LOTS DEVELOPED WITH ONLY ONE SINGLE-FAMILY RESIDENTIAL STRUCTURE AND THAT ARE LOCATED WITHIN COUNCIL DISTRICTS 1, 9, AND 14.
Case Number:	PKG-3011-A
Required Action(s):	A-PRIVATE STREET MODIFICATIONS (1ST REQUEST)
Project Descriptions(s):	Data Not Available

DATA NOT AVAILABLE

ORD-172316

ORD-166216-SA3978

ORD-129279

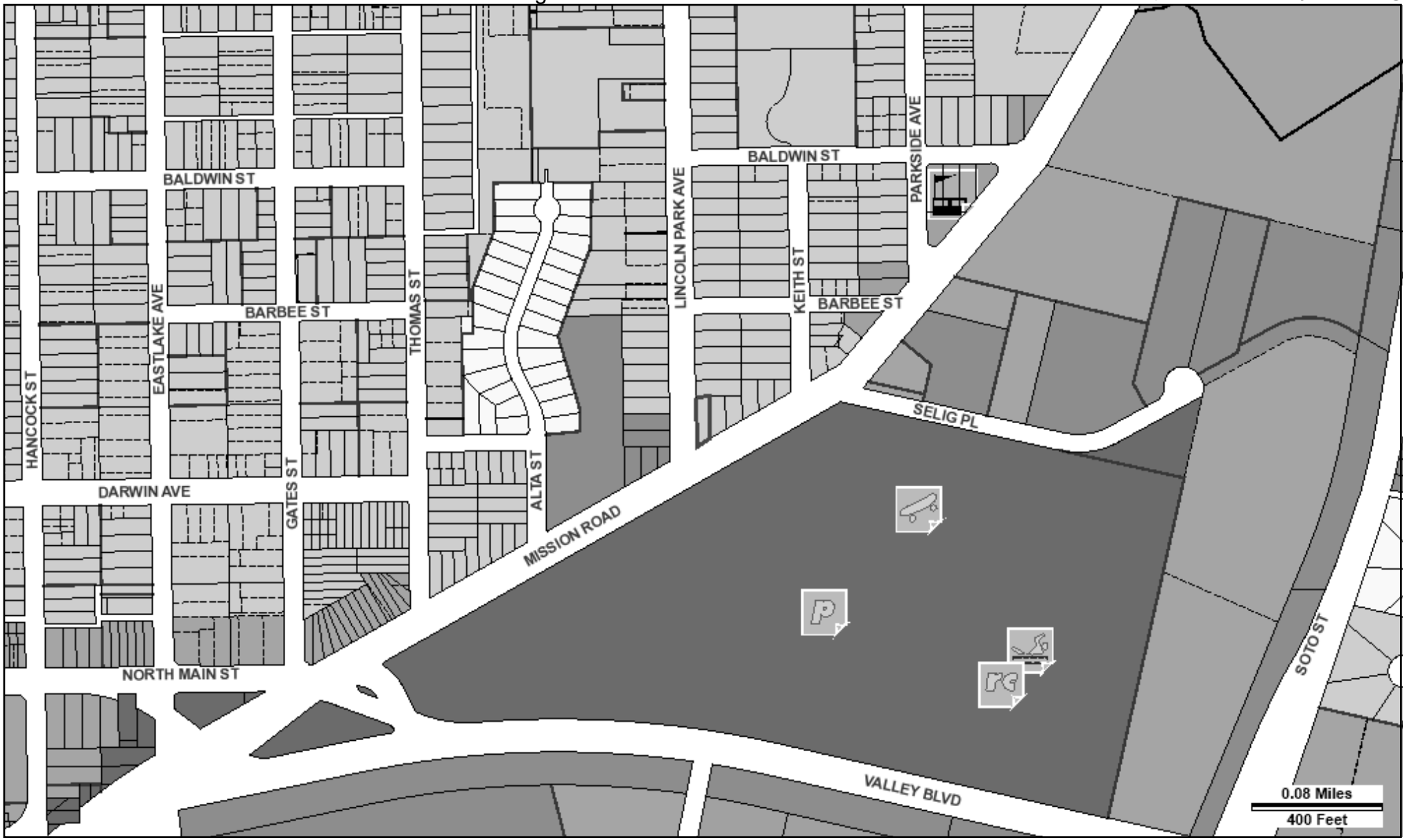
AFF-11994

ZIMAS PUBLIC

Generalized Zoning

09/10/2023

City of Los Angeles
Department of City Planning



Address: 3601 N MISSION ROAD
APN: 5211009015
PIN #: 136-5A225 189

Tract: PARK TRACT
Block: J
Lot: FR 6
Arb: None

Zoning: R3-1
General Plan: Medium Residential

N
W
E
S

LEGEND

GENERALIZED ZONING

- OS, GW
- A, RA
- RE, RS, R1, RU, RZ, RW1
- R2, RD, RMP, RW2, R3, RAS, R4, R5, PVSP
- CR, C1, C1.5, C2, C4, C5, CW, WC, ADP, LASED, CEC, USC, PPSP, MU, NMU
- CM, MR, CCS, UV, UI, UC, M1, M2, LAX, M3, SL, HJ, HR, NI
- P, PB
- PF

GENERAL PLAN LAND USE

LAND USE

RESIDENTIAL

- Minimum Residential
- Very Low / Very Low I Residential
- Very Low II Residential
- Low / Low I Residential
- Low II Residential
- Low Medium / Low Medium I Residential
- Low Medium II Residential
- Medium Residential
- High Medium Residential
- High Density Residential
- Very High Medium Residential

COMMERCIAL

- Limited Commercial
- Limited Commercial - Mixed Medium Residential
- Highway Oriented Commercial
- Highway Oriented and Limited Commercial
- Highway Oriented Commercial - Mixed Medium Residential
- Neighborhood Office Commercial
- Community Commercial
- Community Commercial -Mixed High Residential
- Regional Center Commercial

INDUSTRIAL

- Commercial Manufacturing
- Limited Manufacturing
- Light Manufacturing
- Heavy Manufacturing
- Hybrid Industrial

PARKING

- Parking Buffer

PORT OF LOS ANGELES

- General / Bulk Cargo - Non Hazardous (Industrial / Commercial)
- General / Bulk Cargo - Hazard
- Commercial Fishing
- Recreation and Commercial
- Intermodal Container Transfer Facility Site

LOS ANGELES INTERNATIONAL AIRPORT

- Airport Landside / Airport Landside Support
- Airport Airside
- LAX Airport Northside

OPEN SPACE / PUBLIC FACILITIES

- Open Space
- Public / Open Space
- Public / Quasi-Public Open Space
- Other Public Open Space
- Public Facilities

FRAMEWORK

COMMERCIAL

- Neighborhood Commercial
- General Commercial
- Community Commercial
- Regional Mixed Commercial

INDUSTRIAL

- Limited Industrial
- Light Industrial

CIRCULATION

STREET

- Arterial Mountain Road
- Collector Scenic Street
- Collector Street
- Collector Street (Hillside)
- Collector Street (Modified)
- Collector Street (Proposed)
- Country Road
- Divided Major Highway II
- Divided Secondary Scenic Highway
- Local Scenic Road
- Local Street
- Major Highway (Modified)
- Major Highway I
- Major Highway II
- Major Highway II (Modified)
- Major Scenic Highway
- Major Scenic Highway (Modified)
- Major Scenic Highway II
- Mountain Collector Street
- Park Road
- Parkway
- Principal Major Highway
- Private Street
- Scenic Divided Major Highway II
- Scenic Park
- Scenic Parkway
- Secondary Highway
- Secondary Highway (Modified)
- Secondary Scenic Highway
- Special Collector Street
- Super Major Highway

FREEWAYS

- Freeway
- Interchange
- On-Ramp / Off- Ramp
- Railroad
- Scenic Freeway Highway

MISC. LINES

- Airport Boundary
- Bus Line
- Coastal Zone Boundary
- Coastline Boundary
- Collector Scenic Street (Proposed)
- Commercial Areas
- Commercial Center
- Community Redevelopment Project Area
- Country Road
- DWP Power Lines
- Desirable Open Space
- Detached Single Family House
- Endangered Ridgeline
- Equestrian and/or Hiking Trail
- Hiking Trail
- Historical Preservation
- Horsekeeping Area
- Local Street
- MSA Desirable Open Space
- Major Scenic Controls
- Multi-Purpose Trail
- Natural Resource Reserve
- Park Road
- Park Road (Proposed)
- Quasi-Public
- Rapid Transit Line
- Residential Planned Development
- Scenic Highway (Obsolete)
- Secondary Scenic Controls
- Secondary Scenic Highway (Proposed)
- Site Boundary
- Southern California Edison Power
- Special Study Area
- Specific Plan Area
- Stagecoach Line
- Wildlife Corridor

POINTS OF INTEREST

- Alternative Youth Hostel (Proposed)
- Animal Shelter
- Area Library
- Area Library (Proposed)
- Bridge
- Campground
- Campground (Proposed)
- Cemetery
- HW Church
- City Hall
- Community Center
- Community Library
- Community Library (Proposed Expansion)
- Community Library (Proposed)
- Community Park
- Community Park (Proposed Expansion)
- Community Park (Proposed)
- Community Transit Center
- Convalescent Hospital
- Correctional Facility
- Cultural / Historic Site (Proposed)
- Cultural / Historical Site
- Cultural Arts Center
- DMV DMV Office
- DWP DWP
- DWP Pumping Station
- Equestrian Center
- HQ Fire Department Headquarters
- Fire Station
- Fire Station (Proposed Expansion)
- Fire Station (Proposed)
- Fire Supply & Maintenance
- Fire Training Site
- Fireboat Station
- Health Center / Medical Facility
- Helistop
- Historic Monument
- Historical / Cultural Monument
- Horsekeeping Area
- Horsekeeping Area (Proposed)
- Horticultural Center
- Hospital
- Hospital (Proposed)
- HW House of Worship
- e Important Ecological Area
- e Important Ecological Area (Proposed)
- Interpretive Center (Proposed)
- JC Junior College
- M MTA / Metrolink Station
- M MTA Station
- MTA Stop
- MWD MWD Headquarters
- Maintenance Yard
- Municipal Office Building
- P Municipal Parking lot
- Neighborhood Park
- Neighborhood Park (Proposed Expansion)
- Neighborhood Park (Proposed)
- Oil Collection Center
- P Parking Enforcement
- HQ Police Headquarters
- Police Station
- Police Station (Proposed Expansion)
- Police Station (Proposed)
- Police Training site
- PO Post Office
- Power Distribution Station
- Power Distribution Station (Proposed)
- Power Receiving Station
- Power Receiving Station (Proposed)
- C Private College
- E Private Elementary School
- Private Golf Course
- Private Golf Course (Proposed)
- JH Private Junior High School
- PS Private Pre-School
- Private Recreation & Cultural Facility
- SH Private Senior High School
- SF Private Special School
- E Public Elementary (Proposed Expansion)
- E Public Elementary School
- E Public Elementary School (Proposed)
- Public Golf Course
- Public Golf Course (Proposed)
- Public Housing
- Public Housing (Proposed Expansion)
- JH Public Junior High School
- JH Public Junior High School (Proposed)
- MS Public Middle School
- SH Public Senior High School
- SH Public Senior High School (Proposed)
- Pumping Station
- Pumping Station (Proposed)
- Refuse Collection Center
- Regional Library
- Regional Library (Proposed Expansion)
- Regional Library (Proposed)
- Regional Park
- Regional Park (Proposed)
- RPD Residential Plan Development
- Scenic View Site
- Scenic View Site (Proposed)
- ADM School District Headquarters
- SC School Unspecified Loc/Type (Proposed)
- Skill Center
- SS Social Services
- Special Feature
- Special Recreation (a)
- SF Special School Facility
- SF Special School Facility (Proposed)
- Steam Plant
- sm Surface Mining
- Trail & Assembly Area
- Trail & Assembly Area (Proposed)
- UTL Utility Yard
- Water Tank Reservoir
- Wildlife Migration Corridor
- Wildlife Preserve Gate

SCHOOLS/PARKS WITH 500 FT. BUFFER

- Existing School/Park Site
- Planned School/Park Site
- Inside 500 Ft. Buffer

- Aquatic Facilities
- Beaches
- Child Care Centers
- Dog Parks
- Golf Course
- Historic Sites
- Horticulture/Gardens
- Skate Parks
- Other Facilities
- Park / Recreation Centers
- Parks
- Performing / Visual Arts Centers
- Recreation Centers
- Senior Citizen Centers
- Opportunity School
- Charter School
- Elementary School
- Span School
- Special Education School
- High School
- Middle School
- Early Education Center

COASTAL ZONE

- Coastal Commission Permit Area
- Dual Permit Jurisdiction Area
- Single Permit Jurisdiction Area
- Not in Coastal Zone

TRANSIT ORIENTED COMMUNITIES (TOC)

- Tier 1
- Tier 2
- Tier 3
- Tier 4

Note: TOC Tier designation and map layers are for reference purposes only. Eligible projects shall demonstrate compliance with Tier eligibility standards prior to the issuance of any permits or approvals. As transit service changes, eligible TOC Incentive Areas will be updated.

WAIVER OF DEDICATION OR IMPROVEMENT

- Public Work Approval (PWA)
- Waiver of Dedication or Improvement (WDI)

OTHER SYMBOLS

- Lot Line
- Tract Line
- Lot Cut
- Easement
- Zone Boundary
- Building Line
- Lot Split
- Community Driveway
- Building Outlines 2020
- Building Outlines 2017
- Airport Hazard Zone
- Census Tract
- Coastal Zone
- Council District
- LADBS District Office
- Downtown Parking
- Fault Zone
- Fire District No. 1
- Tract Map
- Parcel Map
- Flood Zone
- Hazardous Waste
- High Wind Zone
- Hillside Grading
- Historic Preservation Overlay Zone
- Specific Plan Area
- Very High Fire Hazard Severity Zone
- Wells - Acitive
- Wells - Inactive

High Quality Transit Areas (HQTA) 2045 – SCAG Region

SCAGGIS LA
Southern California Association of Governments

Summary

The High Quality Transit Areas (HQTAs) is within one half-mile of a well-serviced transit stop or a transit corridor with 15-minute or less service frequency during peak commute hours.

View Full Details

Download

Details

Dataset
Feature Layer

February 18, 2021
Info Updated

February 18, 2021
Data Updated

February 28, 2017
Published Date

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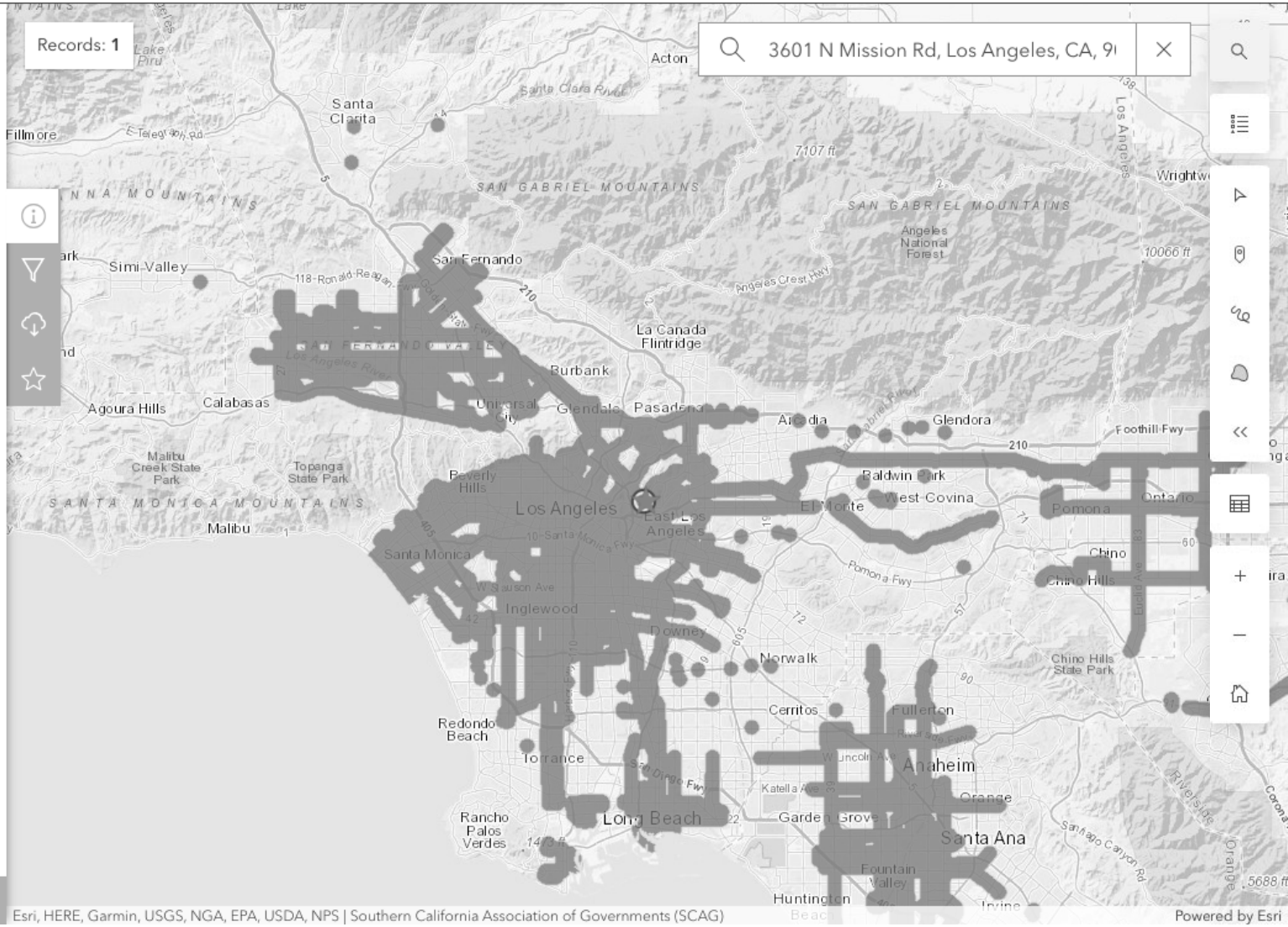

Title
Research Roundup: The Effect of Market-Rate Development on Neighborhood Rents

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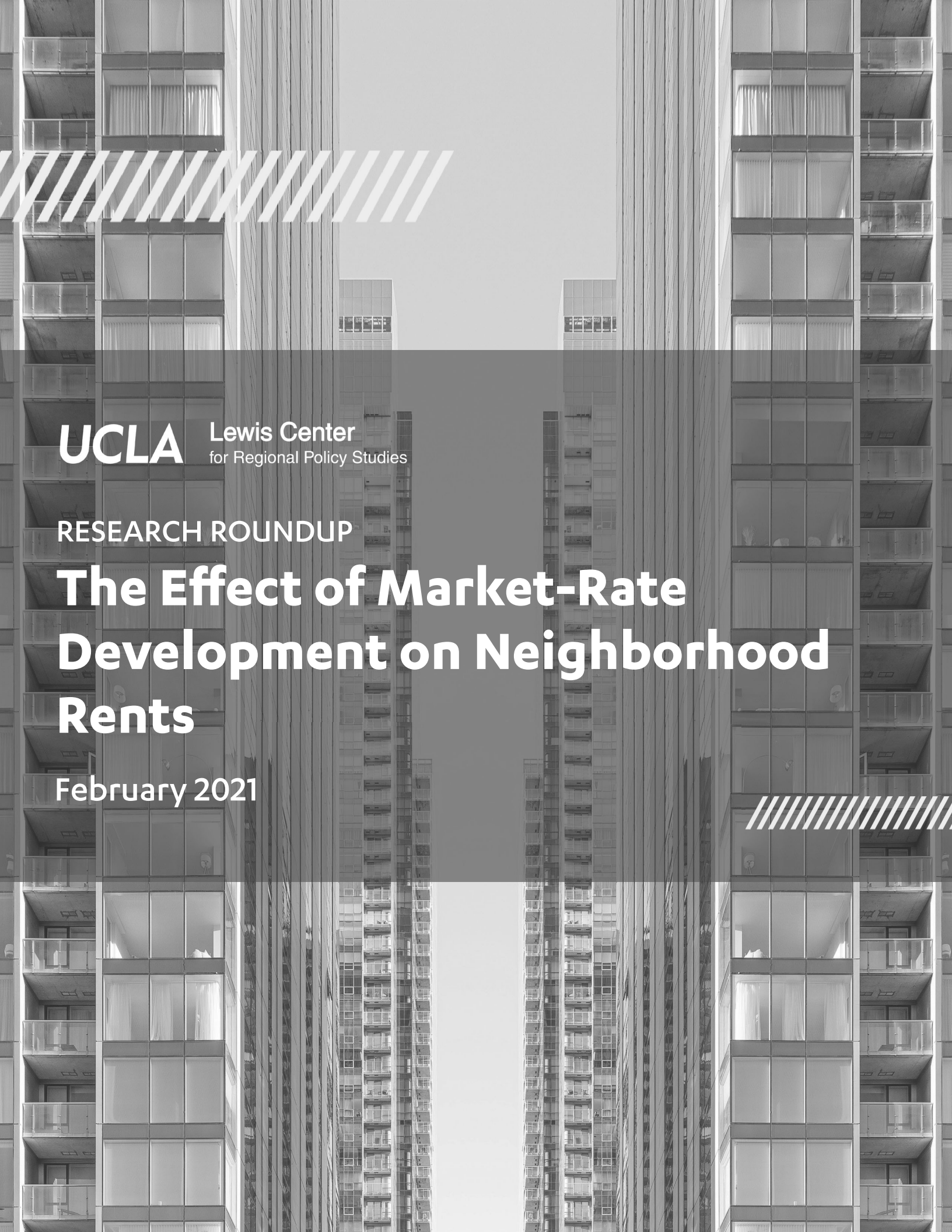

UCLA Lewis Center for Regional Policy Studies

RESEARCH ROUNDUP

The Effect of Market-Rate Development on Neighborhood Rents

February 2021

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Photo Credit

Pierre Châtel-Innocenti/Unsplash

Key Takeaways

» Researchers have long known that building new market-rate housing helps stabilize housing prices at the metro area level, but until recently it hasn't been possible to empirically determine the impact of market-rate development on buildings in their immediate vicinity. The question of neighborhood-level impacts of market-rate development has been hotly debated but under-studied.

» Taking advantage of improved data sources and methods, researchers in the past two years have released six working papers on the impact of new market-rate development on neighborhood rents. Five find that market-rate housing makes nearby housing more affordable across the income distribution of rental units, and one finds mixed results.

» These findings point to local benefits from market-rate development, but they should not be interpreted as an endorsement of market-rate development regardless of the project or neighborhood context. Housing production should still be prioritized in higher-resource communities where the risk of displacement and other potential harms is lower, and complementary policies such as tenant protections and direct public investments remain essential. Nonetheless, the neighborhood-level benefits of market-rate development are promising and indicate an important role for both market and non-market solutions to the housing crisis.

The Effect of Market-Rate Development on Neighborhood Rents

There's a growing debate among housing advocates over the neighborhood-level impacts of market-rate housing development.

On one side are those who think new market-rate units — unsubsidized homes whose price often places them beyond the reach of lower- and middle-income households — make nearby housing more affordable by increasing availability and relieving pressure on the existing housing stock. This is known as the "supply effect." An opposing view, however, is that new housing only attracts more wealthy households, brings new amenities to the neighborhood (including the housing itself), and sends a signal to existing landlords that they should raise their rents. This "amenity effect" or "demand effect" thus makes housing less affordable.

It's very likely that both supply and amenity effects are at play in many communities; the question isn't which effect is real, but which is stronger. Does the supply effect lower rents or home prices by more than the amenity effect raises them, or is it the reverse? Put more simply: When a new building goes up, what happens to rents in the older buildings nearby?

To be clear, this debate is not about whether new housing can reduce housing prices overall. At this point, that idea isn't really in doubt. There's good reason to believe that in regions with high housing demand, building more housing can help keep the prices of existing housing down. In their Supply Skepticism paper from 2018, Vicki Been, Ingrid Gould Ellen, and Katherine O'Regan offer an excellent introduction to the broader question of how market-rate development affects affordability. Citing numerous individual studies and reviews of dozens more, they conclude that "the preponderance of the evidence shows that restricting supply increases housing prices and that adding supply would help to make housing more affordable."

Since that article came out two years ago, at least six working papers have been released that examine the connections between market-rate housing production and affordability at the neighborhood level. Four of the papers conclude that market-rate development makes nearby housing more, not less, affordable. The fifth paper looks at rents across entire cities rather than at the neighborhood level, but finds that new development causes rents to fall for units across the income distribution. Findings in the sixth paper are mixed, and offer some reason to think new development makes nearby housing more expensive. Although the papers await peer review,

and readers should bear that in mind, the importance and near-unanimity of their findings makes discussing them worthwhile.

Why this flurry of new research now? Questions about the highly localized impacts of new development have traditionally been hard to answer for two reasons. The first and bigger problem was a lack of building-level data. Large, publicly available datasets that include rents, such as the U.S. Census Bureau's American Community Survey and American Housing Survey, provide information about anonymized individual households (e.g., the rent paid by a Black family) or about geographic areas (e.g., the median rent of a census tract in San Francisco). Estimating the effect of new development, however, requires time-series data about individual buildings near one another. Census datasets do not offer this level of granularity.

The second obstacle to research of this sort was the problem of statistically disentangling the two-way relationship between supply and prices. Answering the question of how new housing affects nearby prices requires controlling for the fact that prices nearby can affect supply: Developers are more likely to build in places where rents are rising. Failure to control for this, and naively comparing places where buildings rise to places where they don't, will misleadingly lead to conclusions that new buildings lead to higher rents.

The working papers we discuss below are made possible by newly available datasets that offer building-level rents over time, and sometimes offer a glimpse at who lives in those buildings as well. Researchers have been able to combine these datasets with various approaches to statistical analysis that help control for reverse causality.

Below, we offer a review of each working paper, and discuss their implications.

Research Findings

"SUPPLY SHOCK VERSUS DEMAND SHOCK: THE LOCAL EFFECTS OF NEW HOUSING IN LOW-INCOME AREAS"
BRIAN ASQUITH, EVAN MAST, DAVIN REED (2019)

This first paper analyzes the impact of large market-rate rental developments (50 units or more) on nearby rents in low-income census tracts. The data span 11 cities and tens of thousands of units. The authors find that rents for existing rental units within 250 meters of the new development fall by 5% to 7% compared to rents in buildings farther away, between 250 and 600 meters. As they clearly state in the introduction, "If there is an endogenous amenity effect, it appears to be overwhelmed by the standard supply effect."

While the authors are unable to rule out the possibility that rent trends affect the likelihood of development, using data at a very small geography helps with that problem, because developers do not have much choice within these small areas. Further, if their models were still biased in this manner, the bias would reflect the fact that rising rents make development more likely, making it less likely that we would observe these negative effects on rents. This paper's focus on multiple cities and low-income areas provides strong evidence that potential rent-raising amenity effects from new construction are likely smaller than the rent-reducing supply effects.

"THE EFFECT OF NEW MARKET-RATE HOUSING CONSTRUCTION ON THE LOW-INCOME HOUSING MARKET"
EVAN MAST (2019)

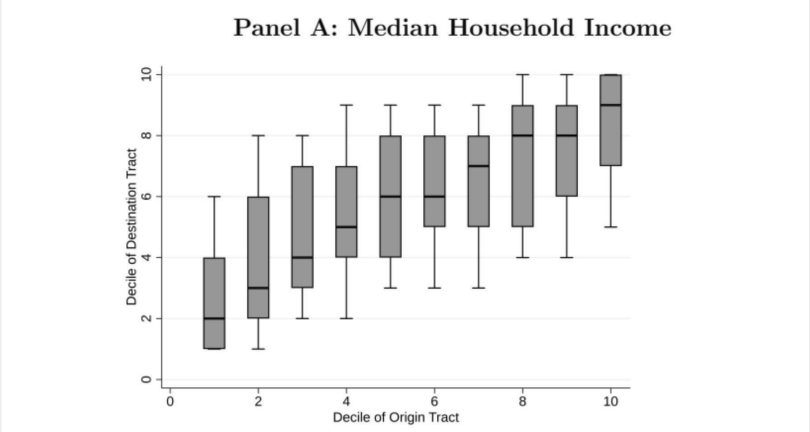
In this paper, Mast identifies nearly 700 market-rate multifamily developments in central cities, and then tracks 52,000 of their current residents to their previous address. He then identifies the current residents of those buildings, and traces them back to where they used to live. He repeats this cycle for six rounds and establishes a "migration chain": a series of household moves that can be attributed to the new development. A new market-rate project is completed and residents leave their previous address to move in, opening up their old home for someone else to move into; someone else moves into that unit, opening up their previous address for new occupants; and so on.

These migration chains reveal an indirect yet important effect of market-rate development on the lower- and middle-income housing market: It frees up space in cheaper housing. The people moving into a new unit probably have above average incomes for their metro area, and whoever moves into their previous home probably does as well. On average, each move in the migration chain is a move "up" to a higher-income census tract, so the first move in the migration chain might be from the 7th income decile to the 8th, and the second move from the 6th to the 7th. As a result, after several rounds of moves a unit in a lower-income neighborhood is often made

available. Mast estimates that building 100 new market-rate units leads to 45 to 70 and 17 to 39 people moving out of below-median- and bottom-quintile-income tracts, respectively, creating slack in the lower-end housing market. Almost all of this effect takes place within five years.

A possible objection to this finding is that migration chains can only open up cheaper housing for existing residents if the new residents come from the same metro area. If all or most arrive from elsewhere, as some development skeptics worry they will, then the affordability benefits will accrue in those other cities, not where the new housing is built. There are both empirical and theoretical reasons to think this concern is overblown. Empirically, most moves are within regions, not across them. In fact, in 11 cities Mast finds that 67% of residents come from the same metro area. Most likely the remaining 33% would have moved to the new city in any case: These were people who could afford to rent in a new market-rate unit, which suggests that if the new building didn't exist they could easily find some other, existing unit in their price range. Indeed, in the absence of new housing they would have taken up residence in an older, more affordable home instead. For this not to be the case, new residents would have to move to new regions for no reason other than that new housing was built. It would be the new buildings — not jobs or family considerations — pulling people into high-demand cities. That strains credulity. Many places that don't build attract residents, and many cities that do build do not. Affluent people have moved to the Bay Area even though its housing stock has not grown, and star-crossed efforts at redeveloping the Rust Belt have shown that simply erecting buildings cannot bring in affluent migrants.

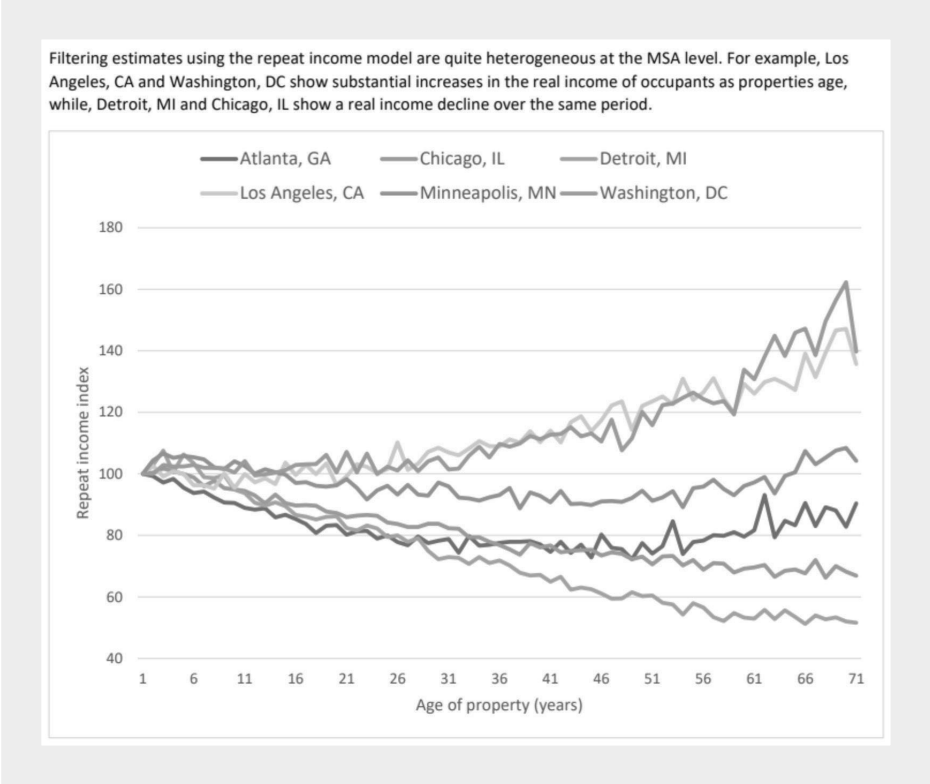
Figure 1.
"Migration between Census Tracts in Chicago Metropolitan Area" (From Mast (2019), pg. 31)



When people move from a home in a lower- or middle-income neighborhood, they tend to move to a census tract with a higher median income than the one they left. The median move from Chicago census tracts in the 1st decile of household incomes was up slightly, to the 2nd decile; the median move from the 3rd decile was to the 4th, and so on.

Mast's research illustrates the active mechanism behind "filtering," the process by which homes become more affordable as they age. That mechanism is new building. Without new homes coming onto the market, migration chains cannot be initiated and filtering cannot readily occur. This helps explain the findings of Liu, McManus, and Yannopolous (2020), in which older homes "filter up" — aka gentrify — to higher-income households in markets with limited housing production.

Figure 2.
"Filtering index by MSA" (From Liu, McManus, and Yannopolous (2020), pg. 21)



In metro areas like Minneapolis and Detroit, with low or moderate demand, or places with robust housing production like Atlanta, housing becomes more affordable as it ages. In areas with limited housing production and high demand, like Los Angeles and Washington, D.C., housing gets more expensive as it ages.

"DOES BUILDING NEW HOUSING CAUSE DISPLACEMENT?: THE SUPPLY AND DEMAND EFFECTS OF CONSTRUCTION IN SAN FRANCISCO" KATE PENNINGTON (2021)

Pennington looks at market-rate housing production in San Francisco, finding that it lowers rents by 2% within 100 meters of a development site. Within this radius she also finds that the risk of

displacement to a neighborhood with a lower income falls by 17.1%, and eviction notices[1] decline by 31% in rent-stabilized housing but do not change for non-rent-stabilized homes. This latter finding is important: The gap between rents in a rent-stabilized unit and market-rate unit grow faster when rents are rising fast, and that gap gives landlords more incentive to evict rent-stabilized tenants. If new market-rate units slow or halt neighborhood rent growth, landlords have less reason to seek new tenants because rents in market-rate and rent-stabilized units are more similar.

Pennington also finds evidence of a demand effect, with a 16% increase in residential renovations and 22% increase in business turnover within 100 meters of new market-rate developments. Affordable developments appear to have no effect on local rents or displacement rates — though, of course, a home affordable to a low-income household provides its own benefit.

Again the conclusion is clear: The supply effect is stronger than the demand effect "at any distance" — market-rate housing improves affordability at both the metro area and neighborhood level.

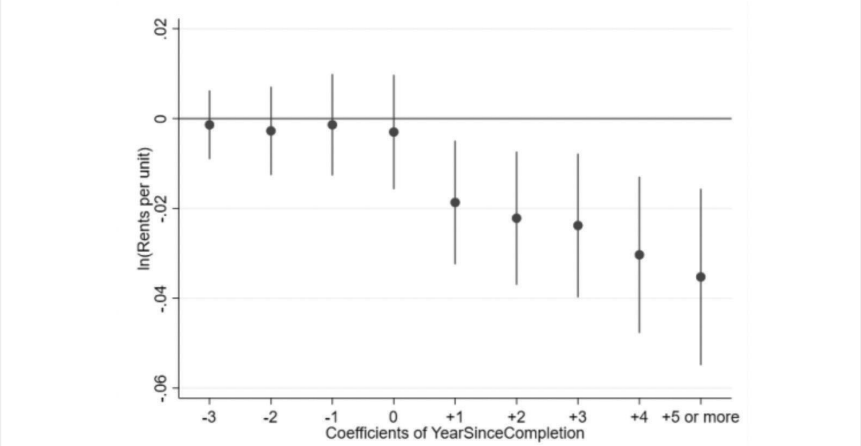
"DO NEW HOUSING UNITS IN YOUR BACKYARD RAISE YOUR RENTS?" XIAODI LI (2019)

As with Pennington in San Francisco, Li's analysis of New York City finds a market-rate development demand effect accompanied by an even larger supply effect. The analysis is limited to high-rise buildings of seven stories or more, the costliest building type and therefore most likely to be classified as "luxury" units, with rents 60% higher than the average rents in their census tracts. If any development type is likely to have a larger demand effect than supply effect, it should be high-rises.

The demand effect is measured by restaurant openings, with new high-rises increasing openings by 9%. Despite these (and presumably other) new amenities, however, rents fell by 1.6% within 500 feet of new high-rises one year after their completion and persistently thereafter. Rents declined for upper-, mid-, and low-rent buildings within 500 feet, but the results were not statistically significant for low-rent buildings.

[1] Eviction notices are not a perfect proxy for evictions because not all eviction notices lead to evictions, and not all evictions are preceded by a notice. Tenants may resolve the complaints that led to the eviction notice being filed, or they may be displaced by informal means including "cash for keys" agreements or landlord harassment; however, earlier studies noted by Pennington indicate that eviction notices and moves to lower income neighborhoods capture the majority of cases of involuntary displacement.

Figure 3.
"Rents before and after the completion year" (From Li (2019), pg. 15)



When a new market-rate development is built, rents in nearby apartments decline significantly and persistently starting in the year after it was completed, compared to rents in existing buildings further away.

"THE IMPACT OF NEW HOUSING SUPPLY ON THE DISTRIBUTION OF RENTS" ANDREAS MENSE (2020)

This paper takes us to Germany, where Mense studies rents at the city rather than neighborhood level. We include his research because it also examines impacts by rental submarket based on rents per square meter. Mense finds that after new market-rate developments are completed, rents fall for units across the distribution of units, from low- to high-rent, with somewhat larger reductions for higher-end units. At the city level, he finds that for every 100 units currently available on the rental market, adding one new market-rate unit reduces rents by 0.4% to 0.7%. Expanding the overall housing stock by 0.1% is found to reduce average private market rents by 3% per square meter. The effect is visible immediately, with rents falling in the month of completion but not the months before.

"BUILD BABY BUILD?: HOUSING SUBMARKETS AND THE EFFECTS OF NEW CONSTRUCTION ON EXISTING RENTS" ANTHONY DAMIANO AND CHRIS FRENIER (2020)

Damiano and Frenier find mixed results in Minneapolis. For existing apartments within 300 meters of new market-rate development, they find that new market-rate development lowers rents (by 3.2%) in more expensive buildings nearby, but that it raises rents (by 6.6%) in less expensive nearby buildings, compared to similar apartments 300 to 800 meters from the development. This result, which received substantial media coverage when the paper was first released, suggests that the

fears of supply skeptics are not unfounded: Market-rate development benefits the affluent while worsening affordability for the poor.

How does this paper arrive at a conclusion different from the papers above? Even similar research articles often differ in many ways, ranging from how they define terms to how they choose treatment and comparison groups, and the papers here are no exception. To keep things brief, we'll focus on two big differences between this paper and the others, one that suggests the paper may be correct and one suggesting that further investigation may be warranted.

The first explanation is that many of the other papers didn't look for the problem Damiano and Frenier found. When Damiano and Frenier examined the impact of new development on rents overall, their findings resemble those of the other papers. Only when they break nearby existing units down by market segment do they find the troubling rise in the rents of lower-priced stock. (Note, however, that Mense, in his slightly different paper, did look at submarkets of housing, and found that new development made rents fall for cheaper stock, and Asquith, Mast, and Reed focused their analysis on new development in low-income neighborhoods, suggesting that many of the buildings they studied were in a lower submarket.)

A second difference lies in the data the authors use, and how they choose to use it. Damiano and Frenier do not adjust the rents in their study for inflation, which is an unusual decision, and one that makes the rent increases they report look much larger than they actually were. The table below, which is reproduced from their paper, shows the summary statistics for their data set. Between 2000 and 2018, by their calculations, mean rents in their sample increased by 47.9%, 39.4%, and 30.3% in the lower-, middle-, and upper-tier submarkets, respectively, and increased 38% overall.

Figure 4.
"CoStar Characteristics by Market Tier" (From Damiano and Frenier (2020), pg. 17)

Market Tier	N Buildings	N Bld-Br Combo.	Mean Rent		Pct. Change 2000-2018
			2000	2018	
Lower	88	116	578.6	851.5	47.9
			(122.7)	(252.5)	(35.5)
Middle	207	316	714	993.2	39.4
			(154.2)	(227.2)	(16)
Upper	113	183	961.9	1,239.8	30.3
			(343.3)	(400.7)	(15.2)
Total	408	615	762.2	1,039.9	38.3
			(263.5)	(325.2)	(21.7)

Note: Standard deviations in parentheses. Rent reported in nominal dollars

Average rents in Minneapolis by market tier in 2000 and 2018. Year 2000 rents are not adjusted for inflation.

Again, however, these values are not adjusted for inflation. If we do adjust them for inflation, as shown in the table below, we see that real rents in the lower-tier submarket grew by only 0.2% (essentially, they didn't change). In the middle submarket they fell by 5.3%, and in the upper submarket they fell by double-digits (12.2%). Rents declined 7% overall.

Table 1.
Income-adjusted rents (authors' calculation)

CoStar Real Rents by Market Tier

Tier	Mean Rent		Change
	2000	2018	
Lower	$849.6	$851.5	0.2%
Middle	$1,048.4	$993.2	-5.3%
Upper	$1,412.6	$1,239.8	-12.2%
Total	**$1,118.9**	**$1,039**	**-7.1%**

Note: All Dollars 2018

Those numbers are a bit puzzling. Minneapolis is not gripped by a housing crisis in the same manner as Boston or San Francisco, but it is also not a place where real rents have been falling. Data from the 2000 census and 2018 American Community Survey show that, in real terms, median gross rents in Minneapolis rose 25% over this period, while mean gross rents rose 30%. The census also shows that inflation-adjusted contract rents increased 23% in the lowest quartile of the rental housing market and 33% in the highest quartile. The incongruence between these overall rent trajectories — average rents are falling in the sample even though they were rising in the city — raises the possibility that the buildings the paper focuses on are not representative of conditions in Minneapolis more broadly. (The papers discussed above all include sections showing that the rents in their samples align with rents in their cities more broadly).

Nevertheless, the fact that this paper's findings diverge from the others we cover makes it of particular interest. Housing scholars should pay attention to this ongoing work.

Related Research

"UPZONING CHICAGO: IMPACTS OF A ZONING REFORM ON PROPERTY VALUES AND HOUSING CONSTRUCTION"
YONAH FREEMARK (2019)

Freemark's paper is often cited as evidence that efforts to increase housing production may not lower rents (e.g., here and here), and sometimes cited as evidence that new development worsens affordability (here, starting at 11:30). Freemark's paper is important, but it's actually about neither of those things. Calling it a paper about rents is misleading and incomplete, and calling it a paper that equates density with less affordability is flatly untrue.

Here's what Freemark did. In 2013 and 2015, the city of Chicago upzoned transit-adjacent properties to allow for modestly higher densities or reduced parking. Freemark examined this zoning change to see if it had an impact on development or property values. He found that upzoned parcels had higher property values — a 12.2% to 13.2% increase in condo sale prices for affected properties, for example — but were not any more likely to have seen increased housing production.

That's an interesting finding, but isn't one that has much bearing on whether development reduces rents, since a) Freemark found no increase in development and b) he didn't study rents. We can talk about b) first. Freemark only examined sale prices, and sale prices are not rents. Sale prices capture both current and expected value in a way that rents do not. Sale prices are like Tesla stock, which is speculative, and based at least in part on expectations about Tesla's future potential. Rents are like the price of a Tesla vehicle — based on how useful they are to customers right now. Sale prices still matter, but tell us little about rents. And because most lower-income households rent, not own, we are more concerned with impacts on rents.

The more important issue, though, is a): Freemark studies the impact of zoning changes intended to induce redevelopment. The question at hand, and the one the other authors we cover above study, is the impact of development if it occurs. Freemark's paper demonstrates how upzoning may worsen affordability if it doesn't lead to new development, but it doesn't tell us anything about the impacts of development itself.

Responding to misrepresentations of his work, Freemark has made similar comments: "Since I did not find any increase in construction resulting from the upzoning, I was not measuring the impact of higher density. So it is inaccurate to argue that I identify increased density as a cause of reduced affordability."

If there is reason to doubt that upzoning will lead to increased housing production, then

Freemark's findings are instructive. But Chicago, which Freemark studied, is a city that has long struggled with population loss. In coastal cities with higher housing demand — measured as low vacancy rates, high rents, or growing regional GDP (or all three) — upzoning without development is a less probable outcome. Indeed, if upzoning in expensive coastal metropolitan areas was unlikely to result in development, it would be hard to see why opponents of growth in these places

find zoning changes so threatening.

Discussion

The supply effects described in these papers are not large, but the authors make a persuasive case that market-rate development causes rents in nearby buildings to fall rather than rise. Their findings conform with long-standing planning and economic theory about the relationship between housing supply and affordability, and the common sense notion that the problem of too few homes cannot be solved without building more homes. Theory, evidence, and common sense are all in agreement, so we should approach claims to the contrary with a healthy dose of skepticism.

These findings do not give license for market-rate development irrespective of local impacts, which vary from place to place and project to project. Local, project-specific impacts are in fact impossible to predict. They do, however, support the argument that market-rate housing should be assumed to complement rather than undermine other affordability and economic empowerment strategies. If market-rate housing lowers nearby rents, it can help stabilize property values so that affordable housing construction and acquisition is less costly. It can lower the per-household cost of housing voucher subsidies so that we can help more people afford their rent, and limit the rising prices that are forcing residents out of their homes and onto the streets. It can be harnessed to cross-subsidize affordable units through policies like density bonuses and inclusionary zoning, and generate property taxes to support other essential public services.

The evidence above does not suggest that all development, in all cases, is unproblematic. It is possible for new housing to do more harm than good. A project could result in a net reduction of housing units, for example, or it could displace low-income households in exchange for only a modest increase in the housing supply.

Even if no homes are demolished, development could still create problems. If cities concentrate new housing in communities of color, that housing could accelerate demographic change, and this change could in turn be unsettling or alienating for longtime residents. Such change can also be physically threatening when, for example, newer affluent white residents call the police to impose their own social norms on their neighbors. Demographic change in low-income neighborhoods can cause pain, problems, and conflict, and cities should not be naive about that fact.

Development can be further problematic if it comes in spite of community resistance to it. While local residents should not have veto power over all development, affluent communities have had tremendous success blocking housing in most U.S. jurisdictions, so to elide similar concerns in less affluent, less white neighborhoods would replicate decades of racist planning mistakes. Planners need to make strong efforts to collaborate with concerned residents on planning for change,

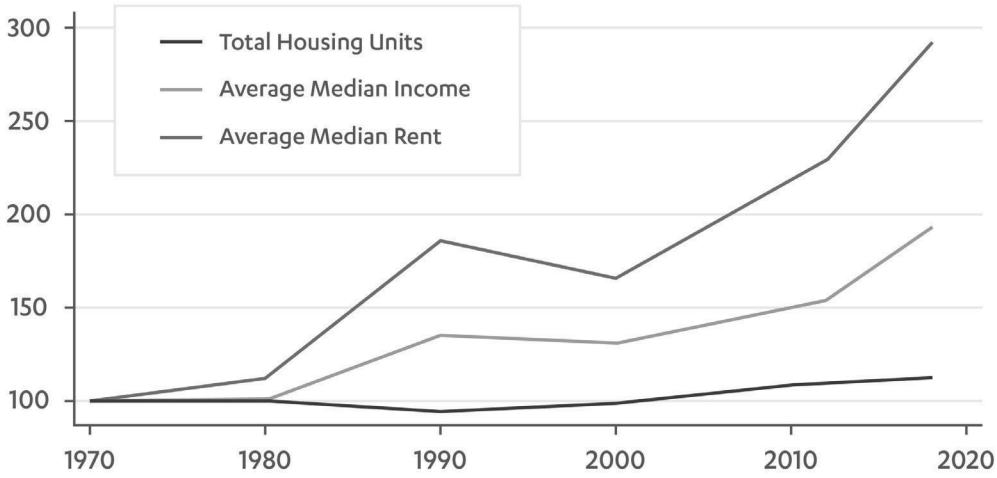
which may be inevitable.
Such efforts should start from the premise that preventing development in such communities is not the same as preventing change in them. Blocking development might slow the pace of change, but if demand is there change will still come, as properties turn over, existing units are renovated, and new businesses catering to more affluent people open in older buildings. When gentrification occurs in this manner, without new development, it will likely bring with it higher prices and more displacement than would have been the case if new development had been allowed. The lack of new units to absorb demand will lead to more price pressure on existing units, and more burdens on existing tenants.

As an example, consider the Los Angeles neighborhood of Echo Park, which is often held up as a poster child for gentrification and the painful dislocations that accompany it. Echo Park has unquestionably changed rapidly in a short time. It has become whiter and richer, and the character of its businesses has shifted as well, toward establishments catering to a more affluent clientele.

One way Echo Park has not dramatically changed, however, is in its total number of housing units. The graph below follows Echo Park's trajectory in rent, incomes, and housing units from 1970 to 2018 (it is a trend graph, so all 1970 values are set to 100). Rents and incomes first started rising in Echo Park in the 1980s, when L.A. was in a boom. During that time, however, the number of housing units in Echo Park actually fell, albeit modestly. L.A. had a deep recession in the early 1990s, and neighborhood rents and incomes dipped between 1990 and 2000. After 2000, however, both came roaring back, ushering in the most recent wave of neighborhood change.

In all this time, however, through booms and busts, the number of housing units in Echo Park barely moved. Construction occurred, especially in recent years, but mostly it involved people renovating existing homes, or tearing down an older smaller house to build a bigger new one. In 2018, the number of housing units in Echo Park was only about 10% higher than it had been in 1970. But while supply was constant, demand was not — the City of Los Angeles, during that time, added over 1 million people, and the county economy (measured by inflation-adjusted total personal income) more than doubled in size. More people, with more money, chased a basically fixed amount of housing. Not coincidentally, Echo Park's rents have almost tripled, and its median

income has almost doubled. Preventing development did not prevent change.
Figure 5.



Trends in Housing Units, Rent, and Household Income in Echo Park
Notes: Constructed from normalized census tract data using Neighborhood Change Database. Rents and household incomes are the average of the medians reported for each census tract in Echo Park. This is a trend graph where 1970=100. Real rents in absolute terms were $463 in 1970 and just under $1400 in 2018.

The point is not that neighborhoods should have no concerns about change. Protecting low-income tenants in low-income communities, however, probably involves policies that are not directly related to the total quantity of housing. Rental subsidies and low-income development subsidies, rent controls or stabilizing measures, and neighborhood preference policies can all play an important role in helping manage and mitigate change.

Perhaps most important is that this whole discussion — of what happens when new development arrives in a neighborhood where many lower-income people live — could be largely avoided if we built new housing mostly in higher-income, higher-resourced communities. Development in more affluent places, where fewer residents are precariously housed, could allow more people access to opportunities and alleviate demand pressures elsewhere in a region. But such development rarely happens now, because zoning prevents it.

With all that said, the findings reported here are promising. If market-rate housing did not temper the affordability crisis — or worse, if it exacerbated it — we would have little hope for a resolution. Public budgets for housing are too small, the cost of housing is too high, and the number of

cost-burdened households too great, to provide everyone with subsidized homes. Many people, moreover, don't need the assistance. Even in cities that invest heavily in subsidized housing construction, like Vienna and Copenhagen, less than half of homes are social or public housing and market-rate development is commonplace. Efforts to increase public investment in housing are important and justified, but more public investment need not and should not mean less private investment. The private market does have a role to play in keeping housing affordable.

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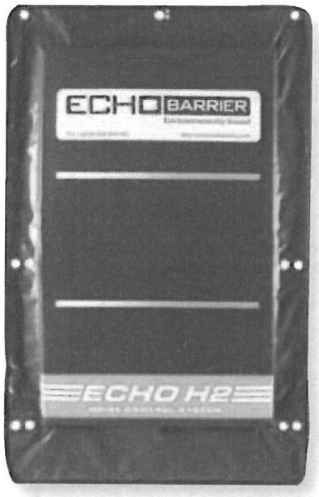

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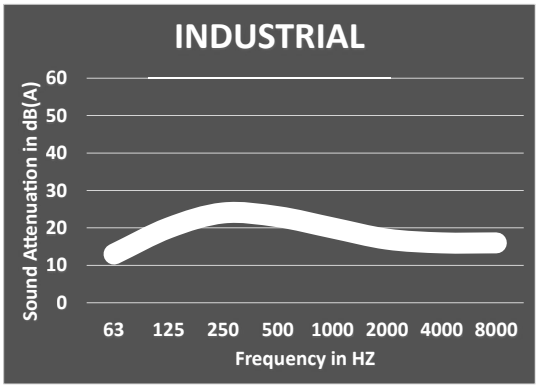
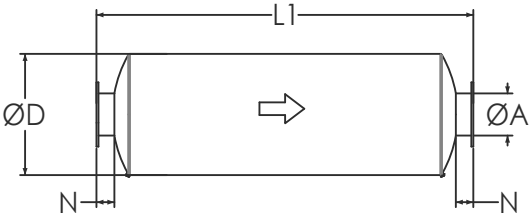
Industrial Grade Silencers

Model NTIN-C (Cylindrical), 15-20 dBA

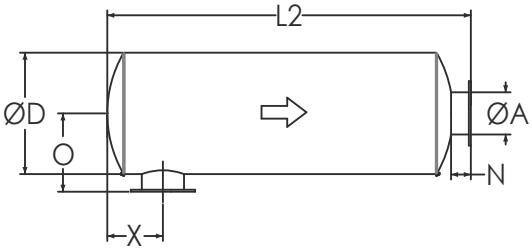
TYPICAL ATTENUATION CURVE



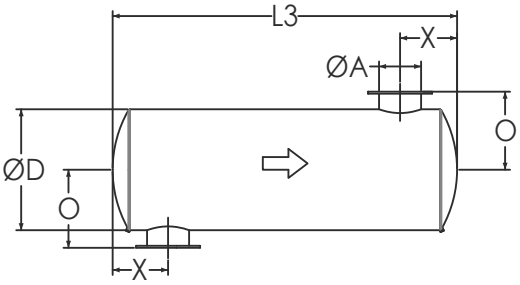
TYPICAL CONFIGURATIONS



END IN END OUT (EI-EO)



SIDE IN END OUT (SI-EO)



SIDE IN SIDE OUT (SI-SO)

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The silencers are Reactive Silencers and are typically used for reciprocating or positive displacement engines where noise level regulations are low.

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- Thimbles
- Raincaps
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PRODUCT DIMENSIONS (in)

Model*	A	D	L1	L2	L3	X**	X	N	O
	Outlet	Dia	EI-EO	SI-EO	SI-SO	Min	Max	Nipple	O
NTIN-C1	1	4	20	18	16	3	7	2	4
NTIN-C1.5	1.5	6	22	20	18	3	8	2	5
NTIN-C2	2	6	22	19	16	3	8	3	6
NTIN-C2.5	2.5	6	24	21	18	4	9	3	6
NTIN-C3	3	8	26	23	20	5	10	3	7
NTIN-C3.5	3.5	9	28	25	22	5	11	3	8
NTIN-C4	4	10	32	29	26	5	12	3	8
NTIN-C5	5	12	36	33	30	6	14	3	9
NTIN-C6	6	14	40	36	32	7	16	4	11
NTIN-C8	8	16	50	46	42	8	21	4	12
NTIN-C10	10	20	52	48	44	11	21	4	14
NTIN-C12	12	24	62	58	54	12	26	4	16
NTIN-C14	14	30	74	69	64	15	31	5	20
NTIN-C16	16	36	82	77	72	18	35	5	23
NTIN-C18	18	40	94	89	84	18	42	5	25
NTIN-C20	20	40	110	105	100	19	52	5	25
NTIN-C22	22	48	118	113	108	22	56	5	29
NTIN-C24	24	48	130	125	120	24	62	5	29

* Other models and custom designs are available upon request. Dimensions subject to change without notice. All silencers are equipped with drain ports on inlet side. The silencer is all welded construction and coated with high heat black paint for maximum durability.

** Standard inlet/outlet position.

GEOTECHNICAL INVESTIGATION

PROPOSED MULTI-FAMILY RESISDENTIAL DEVELOPMENT 2010-2036 NORTH LINCOLN PARK AVENUE & 3601-3615 NORTH MISSION ROAD LOS ANGELES, CALIFORNIA

TRACT: PARK TRACT, BLOCK: J, LOTS: FR 1-8

GEOCON
WEST, INC.

GEOTECHNICAL
ENVIRONMENTAL
MATERIALS

PREPARED FOR

LINCOLN PARK HOLDINGS, LLC
LOS ANGELES, CALIFORNIA

PROJECT NO. W1562-06-01

JUNE 23, 2022

GEOCON
WEST, INC.
GEOTECHNICAL ■ ENVIRONMENTAL ■ MATERIALS

Project No. W1562-06-01
June 23, 2022

Shay Yadin
Lincoln Park Holdings LLC
100 South Citrus Avenue
Los Angeles, CA 90036

Subject: GEOTECHNICAL INVESTIGATION
PROPOSED MULTI-FAMILY RESIDENTIAL DEVELOPMENT
2010-2036 NORTH LINCOLN PARK AVENUE &
3601-3615 NORTH MISSION ROAD
LOS ANGELES, CALIFORNIA
TRACT: PARK TRACT, BLOCK: J, LOTS: FR 1-8

Dear Mr. Yadin:

In accordance with your authorization of our proposal dated April 19, 2022, we have performed a geotechnical investigation for the proposed multi-family residential development located at 3601-3615 North Mission Road and 2010-2036 North Lincoln Park 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.

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PROFESSIONAL GEOLOGIST
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PE 79694

Susan F. Kirkgard
CEG 1754

(EMAIL) Addressee

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GEOTECHNICAL INVESTIGATION

1. PURPOSE AND SCOPE

This report presents the results of a geotechnical investigation for the proposed multi-family residential development located at 2010-2036 North Lincoln Park Avenue and 3601-3615 North Mission Road 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 May 6, 2022 by excavating two 8-inch diameter borings to depths of approximately 61 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 Figure 2). A detailed discussion of the field investigation, including the 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 2010-2036 North Lincoln Park Avenue and 3601-3615 North Mission Road in the City of Los Angeles, California. The site is currently occupied by an asphalt paved parking lot and vacant landscaped areas. The site is bounded by an at-grade single-story structure and an at-grade two-story structure to the east, by North Lincoln Park Avenue to the west, by Barbee Street to the north, and by North Mission Road to the south. The site is gently sloping to the south-southwest with approximately 3 to 4 feet of relief between the northern and southern property boundaries. Surface water drainage at the site appears to be by sheet flow along the existing ground contours to the city streets.

Based on the information provided by the Client, it is our understanding proposed development will consist of five-stories of multi-family residential units over two parking levels (see Site Plan, Figure 2). It has not been determined if the proposed structure will be constructed at-grade or over one level of subterranean parking. Due to the preliminary nature of the project, formal plans depicting the proposed development are not available for inclusion in this report. It is assumed that the proposed subterranean parking level will extend approximately 12 feet below the existing ground surface, including foundation depths (see Figure 2).

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 structure will be up to 700 kips, and wall loads will be up to 7.5 kips per linear foot.

Once the design phase and foundation loading 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. GEOLOGIC SETTING

The site is located along the northeastern verge of the Los Angeles Basin, along the southern flank of the Repetto Hills. The Los Angeles Basin is a coastal plain bounded by the Santa Monica Mountains on the north, the Elysian Hills and Repetto Hills on the northeast, the Puente Hills and Whittier Fault on the east, the Palos Verdes Peninsula and Pacific Ocean on the west and south, and the Santa Ana Mountains and San Joaquin Hills on the southeast. The basin is underlain by a deep structural depression which has been filled by both marine and continental sedimentary deposits underlain by a basement complex of igneous and metamorphic composition. Regionally, the site is located within the northern portion of the Peninsular Ranges geomorphic province. This geomorphic province is characterized by northwest-trending physiographic and geologic features such as the nearby Newport-Inglewood and Whittier fault zones.

4. SOIL AND GEOLOGIC CONDITIONS

Based on our field investigation and published geologic maps of the area, the site is underlain by artificial fill and Holocene age alluvium consisting of clay, silt, and sand (California Geological Survey, 2012). Detailed stratigraphic profiles of the materials encountered at the site are provided on the boring logs in Appendix A.

4.1 Artificial Fill

Artificial fill was encountered in our field explorations to a maximum depth of 4½ feet below existing ground surface. The artificial fill generally consists of dark brown clayey silt. The artificial fill is characterized as dry to moist and firm. 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.

4.2 Alluvium

Holocene age alluvium was encountered beneath the fill. The alluvium consists primarily of brown to grayish brown, light gray to gray olive gray interbedded clay, silt, and sand. The alluvial deposits are generally fine-grained cohesive soils, with lenses of granular materials at depths below 16 feet. The alluvium is characterized as slightly moist to wet and soft to hard or medium dense to very dense.

5. GROUNDWATER

Review of the Seismic Hazard Zone Report for the Los Angeles Quadrangle (California Division of Mines and Geology [CDMG], 1998) indicates the historically highest groundwater level in the area is approximately 20 feet beneath 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 in our field explorations at depths of 15 and 27 feet below the existing ground surface. Based on the reported historic high groundwater levels in the site vicinity (CDMG, 1998), the depth to groundwater encountered in our borings, and the depth of proposed construction, static groundwater is generally not anticipated to be encountered during construction with the exception of deep drilled excavations for shoring piles or an elevator piston. However, it is not uncommon for groundwater levels to vary seasonally or for groundwater seepage conditions to develop where none previously existed, especially in 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 Surface Drainage section of this report (see Section 7.27).

6. GEOLOGIC HAZARDS

6.1 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, 2018). 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, 2017; 2022b) nor a city-designated Preliminary Fault Rupture Study Area (City of Los Angeles, 2022) 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 surface trace of a Holocene-active fault to the site is the Raymond Fault located approximately 3.5 miles to the north (CGS, 2017). Other nearby active faults are the Hollywood Fault, the East Montebello Fault, the Newport-Inglewood Fault Zone, the Santa Monica Fault, and the Whittier Fault located approximately 4.4 miles northwest, 6.4 miles east, 10.3 miles west-southwest, 11 miles east, and 12.5 miles southeast of the site, respectively (Ziony and Jones, 1989; USGS, 2006). The active San Andreas Fault Zone is located approximately 32 miles northeast of the site.

Several buried thrust faults, commonly referred to as blind thrusts; underlie the Los Angeles Basin 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 Los Angeles 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.

6.2 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	55	E
Long Beach	March 10, 1933	6.4	34	SSE
Tehachapi	July 21, 1952	7.5	79	NW
San Fernando	February 9, 1971	6.6	26	NW
Whittier Narrows	October 1, 1987	5.9	7	E
Sierra Madre	June 28, 1991	5.8	18	NE
Landers	June 28, 1992	7.3	101	E
Big Bear	June 28, 1992	6.4	79	E
Northridge	January 17, 1994	6.7	22	WNW
Hector Mine	October 16, 1999	7.1	116	ENE
Ridgecrest	July 5, 2019	7.1	122	NNE

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.

6.3 Seismic Design Criteria

The following table summarizes site-specific design criteria obtained from the 2019 California Building Code (CBC; Based on the 2018 International Building Code [IBC] and ASCE 7-16), Chapter 16 Structural Design, Section 1613 Earthquake Loads. The data was calculated using the online application *Seismic Design Maps*, provided by OSHPD. 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 2019 CBC and Table 20.3-1 of ASCE 7-16. The values presented on the following page are for the risk-targeted maximum considered earthquake (MCE_R).

2019 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	2.009g	Figure 1613.2.1(1)
MCE_R Ground Motion Spectral Response Acceleration – Class B (1 sec), S_1	0.72g	Figure 1613.2.1(2)
Site Coefficient, F_A	1	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}	2.009g	Section 1613.2.3 (Eqn 16-36)
Site Class Modified MCE_R Spectral Response Acceleration – (1 sec), S_{M1}	1.223g*	Section 1613.2.3 (Eqn 16-37)
5% Damped Design Spectral Response Acceleration (short), S_{DS}	1.34g	Section 1613.2.4 (Eqn 16-38)
5% Damped Design Spectral Response Acceleration (1 sec), S_{D1}	0.816g*	Section 1613.2.4 (Eqn 16-39)
Note: *Per Section 11.4.8 of ASCE/SEI 7-16, a ground motion hazard analysis shall be performed for projects for Site Class "E" sites with Ss greater than or equal to 1.0g and for Site Class "D" and "E" sites with S1 greater than 0.2g. Section 11.4.8 also provides exceptions which indicates that the ground motion hazard analysis may be waived provided the exceptions are followed. Using the code based values presented in the table above, in lieu of a performing a ground motion hazard analysis, requires the exceptions outlined in ASCE 7-16 Section 11.4.8 be followed.		

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

Parameter	Value	ASCE 7-16 Reference
Mapped MCE_G Peak Ground Acceleration, PGA	0.868g	Figure 22-9
Site Coefficient, F_{PGA}	1.1	Table 11.8-1
Site Class Modified MCE_G Peak Ground Acceleration, PGA_M	0.954g	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 2019 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 mean earthquake contributing to the MCE peak ground acceleration is characterized as a 6.83 magnitude event occurring at a hypocentral distance of 8.62 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 mean earthquake contributing to the DE peak ground acceleration is characterized as a 6.74 magnitude occurring at a hypocentral distance of 12.51 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

6.4 Liquefaction Potential

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 Los Angeles Quadrangle (CDMG, 1999; CGS, 2017) indicates that the site is located within an area designated as having a potential for liquefaction. The historic high groundwater level in the vicinity of the site is at a depth of approximately 20 feet (CDMG, 1998). Groundwater was encountered in boring B1 at a depth of 27 feet below ground surface, and in boring B2 at a depth of 15 feet below ground surface.

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.

The liquefaction analysis was performed for a Design Earthquake level by using a historic high groundwater table of 15 feet below the ground surface, a magnitude 6.74 earthquake, and a peak horizontal acceleration of 0.636g ($⅔PGA_M$). The enclosed liquefaction analyses, included herein for borings B1 and B2, indicate that the alluvial soils below the historic high groundwater level could be susceptible up to 0.7 inch of liquefaction settlement during Design Earthquake ground motion (see enclosed calculation sheets, Figures 5 through 8).

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 the Maximum Considered Earthquake level by using a historic high groundwater table of 15 feet below the ground surface, a magnitude 6.83 earthquake, and a peak horizontal acceleration of 0.954g (PGA_M). The enclosed liquefaction analyses, included herein for borings B1 and B2, indicate that the alluvial soils below the historic high groundwater level could be susceptible up to 0.7 inch of liquefaction settlement during Maximum Considered Earthquake ground motion (see enclosed calculation sheets, Figures 9 through 12).

6.5 Seismically Induced Dry Settlement

Dynamic compaction of dry and loose sands may occur during a major earthquake. Typically, settlements occur in thick beds of such soils. The seismically induced settlement calculations were performed in accordance with the American Society of Civil Engineers, Technical Engineering and Design Guides as adapted from the US Army Corps of Engineers, No. 9.

The calculations provided herein for borings B1 and B2 indicate that the alluvial soils could be susceptible to approximately 0.02 and 0.08 inch, respectively, of seismically induced dry settlement as a result of the Design Earthquake peak ground acceleration (⅔PGA_M). The calculations provided herein for borings B1 and B2 indicate that the alluvial soils could be prone to approximately 0.05 and 0.27 inch, respectively, of seismically induced dry settlement as a result of the Maximum Considered Earthquake ground acceleration (PGA_M). Calculations of the anticipated seismically induced dry settlements are provided as Figures 13 through 16.

6.6 Slope Stability

The topography at the site is relatively level to gently sloping to the southwest. The site is not located within or a Hillside Ordinance Area, however the site is within a City of Los Angeles Hillside Grading Area (City of Los Angeles, 2022). Also, the site is not located within an area identified as having a potential for seismic slope instability (CDMG, 1999; CGS, 2017). There are no known landslides near the site, nor is the site in the path of any known or potential landslides. Therefore, the potential for slope stability hazards to adversely affect the proposed development is considered low.

6.7 Earthquake-Induced Flooding

Earthquake-induced flooding is inundation caused by failure of dams or other water-retaining structures due to earthquakes. The Los Angeles County Safety Element (Leighton, 1990) indicates that the site is not located within a dam inundation area for upslope reservoirs. Therefore, the potential for inundation at the site as a result of an earthquake-induced dam failure is considered low.

6.8 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 resulting 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 (LACDPW, 2022; FEMA, 2022).

6.9 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 oil or gas wells are not documented in the immediate site vicinity (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 during construction will need to be properly abandoned in accordance with the current requirements of the CalGEM.

The site is not located within the boundaries of a city-designated 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.

6.10 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 site is not located within an area of known ground subsidence. No large-scale extraction of groundwater, gas, oil, or geothermal energy is occurring or planned at the site or in the general site vicinity. There appears to be little or no potential for ground subsidence due to withdrawal of fluids or gases at the site.

7. CONCLUSIONS AND RECOMMENDATIONS

7.1 General

7.1.1 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.

7.1.2 Up to 4½ 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. It is our opinion that the existing fill, in its present condition, is not suitable for direct support of proposed foundations or slabs. If needed, 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 7.4). Excavation for the subterranean level is anticipated to penetrate through the existing artificial fill and expose undisturbed alluvial soils throughout the excavation bottom.

7.1.3 The enclosed seismically induced settlement analyses indicate that the underlying site soils could be susceptible to approximately 0.72 inch of total settlement as a result of the Design Earthquake peak ground acceleration (⅔PGA_M).Differential settlement at the foundation level is anticipated to be less than 0.36 inch over a distance of 20 feet. The foundation design recommendations presented herein are intended to mitigate the effects of settlement on proposed improvements.

7.1.4 Groundwater was encountered during site exploration at depths of approximately 15 and 27 feet below existing ground surface. Excavation for construction of the proposed subterranean level is anticipated to extend to depths of approximately 12 feet below the ground surface, including foundation excavations. Based on these considerations, groundwater is not expected to be encountered during construction, with the exception of a deep drilled excavation such as for a shoring pile or elevator piston. However, local seepage could be encountered during excavation of the subterranean level, especially if conducted during the rainy season.

7.1.5 The results of laboratory testing indicate that the existing site soils are moderately compressible, which in its current condition could yield excessive static and differential settlements when subject to foundation loading. The grading and foundation recommendations presented herein are intended to mitigate the effects of settlement on the proposed structure.

7.1.6 Based on these considerations, it is recommended that proposed structure be supported on a reinforced concrete mat foundation system. For an on-grade structure, the mat foundation system may derive support in newly placed engineered fill subsequent to the recommended grading. For a structure with a subterranean level, the mat foundation system may derive support in competent alluvial soils found at and below a depth of 10 feet below the existing ground surface. In order to minimize differential settlement between the ramp, ramp walls, and basement level, it is recommended that the ramp and ramp walls for the subterranean parking garage be structurally supported on the mat foundation. All foundation excavations must be observed and approved by the Geotechnical Engineer (a representative of Geocon), prior to placing steel or concrete. Recommendations for the design of a mat foundation system are provided in Section 7.7.

7.1.7 For an on-grade structure, as a minimum, the upper 5 feet of existing site soils within the proposed on-grade footprint areas should be excavated and properly compacted for foundation and slab support. Excavation should be conducted as necessary to completely remove all artificial fill and any soft, unsuitable alluvium at the direction of the Geotechnical Engineer (a representative of Geocon). Proposed on-grade foundations should be underlain by a minimum of 3 feet of newly placed engineered fill. The excavation should extend laterally a minimum distance of 3 feet beyond the building footprint area or a distance equal to the depth of fill below the foundation, whichever is greater. Recommendations for earthwork are provided in the *Grading* section of this report (see Section 7.4).

7.1.8 Where the recommended lateral over-excavation cannot be performed, such as adjacent to property lines, the lateral component of the mat foundation design can rely solely on friction between the bottom of the mat and the underlying subgrade soils. The mat should not utilize passive pressure along the perimeter unless foundations are bounded by and in direct contact with newly placed engineered fill.

7.1.9 Prior to placing any fill, the upper twelve inches of the excavation bottom must be proof-rolled in the presence of the Geotechnical Engineer (a representative of Geocon). If determined to be excessively soft, stabilization of the bottom of the excavation may be required in order to provide a firm working surface upon which engineered fill can be placed and heavy equipment can operate. Recommendations for earthwork and bottom stabilization are provided in the *Grading* section of this report (see Section 7.4).

7.1.10 The grading contractor should be aware that the existing soils are currently at or above optimum moisture content. If the site soils are oversaturated at the time of grading, they will likely require some spreading and drying activities in order to achieve proper compaction; however, this could change seasonally.

7.1.11 Excavations up to 12 feet in vertical height may be required for construction of the subterranean level, including foundation depths. Due to the depth of the excavation and the proximity to the property lines, city streets and adjacent offsite structures, excavations will require sloping or shoring measures in order to provide a stable excavation. Where shoring is required it is recommended that a soldier pile shoring system by utilized. In addition, where the proposed excavation will be deeper than and adjacent to an offsite structure or will be subject to traffic loading, the proposed shoring should be designed to resist the surcharge imposed by the adjacent offsite structure. Recommendations for *Shoring* are provided in Section 7.19 of this report.

7.1.12 Due to the nature of the proposed design and intent for a subterranean level, waterproofing of subterranean walls and slabs is recommended, and likely required by the building official. 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 to recommend a product or method, which would provide protection to subterranean walls, floor slabs and foundations.

7.1.13 Foundations for small outlying structures, such as block walls up to 6 feet high, planter walls or trash enclosures, which will not be tied-in to the proposed structure, may be supported on conventional foundations bearing 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 proper compaction cannot be performed, foundations may derive support directly in the undisturbed alluvial soils at and below a depth of 2 feet, and should be deepened as necessary to maintain a minimum of 12-inch embedment into recommended bearing materials. If the soils exposed in the excavation bottom are soft or loose, compaction of the soft 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 in writing by a Geocon representative.

7.1.14 Where new paving is to be placed, it is recommended that all existing fill soils 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 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 for paving support. Paving recommendations are provided in the *Preliminary Pavement Recommendations* section of this report (see Section 7.12).

7.1.15 Based on the results of the percolation testing and groundwater depths at the site, infiltration of stormwater into the underlying soils is not considered feasible for this project. It is suggested that stormwater be retained, filtered and discharged in accordance with the requirements of the local governing agency. Results of the percolation testing are provided in the *Stormwater Infiltration* section of this report (see Section 7.25).

7.1.16 Once the design and foundation loading configuration 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 re-evaluated by this office.

7.1.17 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.

7.2 Soil and Excavation Characteristics

7.2.1 The in-situ soils can be excavated with moderate effort using conventional excavation equipment. Some caving should be anticipated in unshored excavations, especially where granular soils are encountered. In addition, the contractor should also be aware that casing may be required to prevent caving of drilled excavations.

7.2.2 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.

7.2.3 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 and shoring. Excavation recommendations are provided in the *Temporary Excavations* section of this report (see Section 7.18).

7.2.4 The upper five feet of site soils encountered during this investigation are considered to have a "medium" expansive potential (EI = 73); and the soils are classified as "expansive" based on the 2019 California Building Code (CBC) Section 1803.5.3. Recommendations presented herein assume that the proposed foundations and slabs will derive support in "medium" expansive materials.

7.3 Minimum Resistivity, pH, and Water-Soluble Sulfate

7.3.1 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 are considered "severely corrosive" with respect to corrosion of buried ferrous metals on site. Due to the corrosive potential of the soils, it is recommended that PVC, ABS or other approved plastic piping be utilized in lieu of cast-iron when in direct contact with the site soils. The results are presented in Appendix B (Figure B22) and should be considered for design of underground structures.

7.3.2 Laboratory tests were performed on representative samples of the site materials to measure the percentage of water-soluble sulfate content. Results from the laboratory water-soluble sulfate tests are presented in Appendix B (Figure B22) and indicate that the on-site materials possess a sulfate exposure class of "S0" to concrete structures as defined by 2019 CBC Section 1904 and ACI 318-19 Chapter 19.

7.3.3 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.

7.4 Grading

7.4.1 Earthwork is anticipated to include excavation of site soils for the proposed subterranean level or building pad, foundations, elevator pit, and utility trenches, as well as placement of backfill for building pad, walls, ramps and trenches.

7.4.2 A preconstruction conference should be held at the site prior to the beginning of excavation operations with the owner, contractor, civil engineer, geotechnical engineer, and building official in attendance. Special soil handling requirements can be discussed at that time.

7.4.3 Earthwork should be observed, and compacted fill tested by representatives of Geocon West, Inc. The existing fill and alluvial soil encountered during exploration are suitable for re-use as an engineered fill, provided any encountered oversize material (greater than 6 inches) and any encountered deleterious debris are removed.

7.4.4 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.

7.4.5 For an on-grade structure, as a minimum, it is recommended that the upper 5 feet of existing site soils within the proposed on-grade building footprint areas be excavated and properly compacted for foundation and slab support. Deeper excavation should be conducted as necessary to completely remove all existing artificial fill or soft soil at the direction of the Geotechnical Engineer (a representative of Geocon). Proposed on-grade foundations should be underlain by a minimum of 3 feet of newly placed engineered fill. The excavation should extend laterally a minimum distance of 3 feet beyond the building footprint area or a distance equal to the depth of fill below the foundation, whichever is greater.

7.4.6 Where the recommended lateral over-excavation cannot be performed, such as adjacent to property lines, the lateral component of the mat foundation design can rely solely on friction between the bottom of the mat and the underlying subgrade soils. The mat should not utilize passive pressure along the perimeter unless foundations are bounded by and in direct contact with newly placed engineered fill.

7.4.7 Additional grading should be conducted as necessary to maintain the required 3 feet of newly placed engineered fill below foundations for an on-grade structure. The grading contractor should verify all bottom of footing elevations prior to commencement of grading activities to ensure that grading is conducted deep enough to provide the required three feet of engineered fill below foundations.

7.4.8 Prior to placing any fill, the upper 12 inches of the excavation bottom must be proof-rolled in the presence of the Geotechnical Engineer (a representative of Geocon) and approved in writing. All 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.

7.4.9 Due to the potential for high-moisture content soils at the excavation bottom or if construction is performed during the rainy season and the excavation bottom becomes saturated, stabilization measures may have to be implemented to prevent excessive disturbance the excavation bottom. Should this condition exist, rubber tire equipment should not be allowed in the excavation bottom until it is stabilized, or extensive soil disturbance could result. Track mounted equipment should be considered to minimize disturbance to the soils.

7.4.10 One method of subgrade stabilization would consist of introducing a thin lift of 3 to 6-inch diameter crushed angular rock into the soft excavation bottom. The use of crushed concrete will also be acceptable. The crushed rock should be spread thinly across the excavation bottom and pressed into the soils by track rolling or wheel rolling with heavy equipment. It is very important that voids between the rock fragments are not created so the rock must be thoroughly pressed or blended into the soils. All subgrade soils must be properly compacted and proof-rolled in the presence of the Geotechnical Engineer (a representative of Geocon West, Inc.).

7.4.11 Subgrade stabilization may also be accomplished by placing a 1-foot-thick layer of washed, angular 3/4-inch gravel atop a stabilization fabric (Mirafi 500X or equivalent), subsequent to subgrade approval. This gravel placement procedure should be conducted in sections until the entire excavation bottom has been blanketed by fabric and gravel. Heavy equipment may operate upon the gravel once it has been placed. The gravel should be compacted to a dense state utilizing a vibratory drum roller. The placement of gravel at the subgrade level may be coordinated with the temporary dewatering of the site. The gravel and fabric system will function as both a permeable material for any necessary dewatering procedures as well as a stable material upon which heavy equipment may operate. It is recommended that the contractor consult with the Geotechnical Engineer to discuss this procedure in more detail.

7.4.12 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 millimeter. Soils with more than 15 percent finer than 0.005 millimeter may be compacted to 90 percent of the laboratory maximum dry density in accordance with ASTM D 1557 (latest edition). Based on the nature of the site soils, all fill and backfill soils should be placed in horizontal loose layers approximately 6 to 8 inches thick, moisture conditioned to at least two percent above optimum moisture content and properly compacted to a minimum of 90 percent of the maximum dry density in accordance with ASTM D 1557 (latest edition).

7.4.13 The grading contractor should be aware that the existing soils are currently at or above optimum moisture content. If the site soils are oversaturated at the time of grading, they will likely require some spreading and drying activities in order to achieve proper compaction; however, this could change seasonally.

7.4.14 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 structure, 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 alluvial soils at and below a depth of 2 feet below the existing ground surface, 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.

7.4.15 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 two 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 7.12).

7.4.16 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. If necessary, import soils used as structural fill should have an expansion index less than 50 and corrosivity properties that are equally or less detrimental to that of the existing onsite soils (see Figure B22).

7.4.17 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 7.5). 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)

7.4.18 Due to the expansive potential of the soils, it is recommended that the subgrade be maintained at least two percent above optimum moisture content prior to and at the time of concrete placement.

7.4.19 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 sands, fill, steel, gravel, or concrete.

7.5 Controlled Low Strength Material (CLSM)

7.5.1 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 pounds per square inch (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.

7.6 Shrinkage

7.6.1 Shrinkage results when a volume of material removed at one density is compacted to a higher density. A shrinkage factor between 5 and 10 percent should be anticipated when excavating and compacting the upper 5 feet of existing earth materials on the site to an average relative compaction of 92 percent.

7.6.2 If import soils will be utilized in the building pad, the soils must be placed uniformly and at equal thickness at the direction of the Geotechnical Engineer (a representative of Geocon West, Inc.). Soils can be borrowed from non-building pad areas and later replaced with imported soils.

7.7 Mat Foundation Design

7.7.1 It is recommended that a reinforced concrete mat foundation be utilized for support of the proposed structure. The reinforced concrete mat foundation may derive support in the newly placed engineered fill or competent alluvium found at and below a depth of 10 feet below ground surface. Proposed on-grade foundations should be underlain by a minimum of 3 feet of newly placed engineered fill. Any exposed soft soils should be compacted to a dense state or penetrated by proposed foundations at the direction of the Geotechnical Engineer (a representative of Geocon).

7.7.2 The recommended maximum allowable bearing value for the design of a reinforced concrete mat foundation 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.

7.7.3 A vertical modulus of subgrade reaction of 75 pounds per cubic inch may be used in the design of mat foundations deriving support in newly placed engineered fill, competent alluvial soils, or stabilized subgrade. This value is a unit value for use with a one-foot square footing. 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)

7.7.4 The thickness of and reinforcement for the mat foundation should be designed by the project structural engineer.

7.7.5 Waterproofing of subterranean walls and slabs is recommended 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. 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.

7.7.6 The foundation subgrade should be maintained at least two percent above optimum moisture content prior to and at the time of concrete placement

7.7.7 For seismic design purposes, a coefficient of friction of 0.3 may be utilized between the concrete mat and subgrade soils without a moisture barrier, and 0.15 for slabs underlain by a moisture barrier.

7.7.8 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.

7.7.9 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.

7.8 Foundation Settlement

7.8.1 The enclosed seismically-induced settlement analysis indicates that the site soils could be prone to up to 0.72 inch 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 0.36 inch 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.

7.8.2 The maximum expected static settlement the proposed structure supported on a mat foundation deriving support in the recommended bearing materials and designed with a maximum bearing pressure of 3,000 psf is estimated to be less than 1½ inches and occur below the heaviest loaded structural element. Settlement of the foundation system is expected to occur on initial application of loading. Differential settlement is expected to be less than ¾ inch between the center and corner of the mat foundation.

7.8.3 Based on seismic considerations, the proposed structure should be designed for a combined static and seismically induced differential settlement of less than 1¼ inch between the center and corner of the mat.

7.8.4 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.

7.9 Miscellaneous Foundations

7.9.1 Foundations for small outlying structures, such as block walls up to 6 feet high, planter walls or trash enclosures, which will not be tied-in to the proposed structure, may be supported on conventional foundations bearing 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 proper compaction cannot be performed, foundations may derive support directly in the undisturbed alluvial soils at and below a depth of 2 feet below the existing ground surface, and should be deepened as necessary to maintain a minimum of 12-inch embedment into recommended bearing materials.

7.9.2 If the soils exposed in the excavation bottom are soft, compaction of the soft 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. Miscellaneous foundations may be designed for a bearing value of 1,500 psf, and should be a minimum of 12 inches in width, 24 inches in depth below the lowest adjacent grade and 12 inches into the recommended bearing material. The allowable bearing pressure may be increased by up to one-third for transient loads due to wind or seismic forces.

7.9.3 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.

7.10 Lateral Design

7.10.1 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 0.3 may be used with the dead load forces in the undisturbed alluvial soils, newly placed engineered fill, or stabilized subgrade.

7.10.2 Passive earth pressure for the sides of foundations and slabs poured against properly compacted engineered fill may be computed as an equivalent fluid having a density of 180 pcf with a maximum earth pressure of 1,800 pcf. Passive earth pressure for the sides of foundations and slabs poured against the alluvial soils found at and below a depth of 10 feet may be computed as an equivalent fluid having a density of 250 pcf with a maximum earth pressure of 2,500 pcf. When combining passive and friction for lateral resistance, the passive component should be reduced by one-third.

7.10.3 Where the recommended lateral over-excavation cannot be performed, such as adjacent to property lines, the lateral component of the mat foundation design can rely solely on friction between the bottom of the mat and the underlying subgrade soils. The mat should not utilize passive pressure along the perimeter unless foundations are bounded by and in direct contact with newly placed engineered fill.

7.11 Exterior Concrete Slabs-on-Grade

7.11.1 Exterior concrete slabs-on-grade, at the ground surface, subject to vehicle loading should be designed in accordance with the recommendations in the *Preliminary Pavement Recommendations* section of this report (Section 7.12).

7.11.2 Exterior concrete slabs-on-grade for walkways or flatwork, not subject to vehicle loading, should be a minimum of 4-inches thick and minimum slab reinforcement should consist of No. 3 steel reinforcing bars placed 18 inches on center in both horizontal directions. Steel reinforcing should be positioned vertically near the slab midpoint. Prior to construction of slabs, the upper 12 inches of subgrade should be moistened to at least two percent over 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 ¼ the slab thickness. The project structural engineer should design construction joints as necessary.

7.11.3 Slabs-on-grade at the ground surface 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 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) 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 Los Angeles 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 Los Angeles 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.

7.11.4 For seismic design purposes, a coefficient of friction of 0.3 may be utilized between concrete slabs and subgrade soils without a moisture barrier, and 0.15 for slabs underlain by a moisture barrier.

7.11.5 The moisture content of the slab subgrade should be maintained at least two percent above optimum moisture content prior to and at the time of concrete placement.

7.11.6 The recommendations of this report are intended to reduce the potential for cracking of slabs due to settlement. 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.

7.12 Preliminary Pavement Recommendations

7.12.1 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 over optimum moisture content, and properly compacted to at least 92 percent relative compaction, as determined by ASTM Test Method D 1557 (latest edition).

7.12.2 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.

7.12.3 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

7.12.4 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).

7.12.5 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).

7.12.6 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.

7.13 Retaining Wall Design

7.13.1 The recommendations presented below are generally applicable to the design of rigid concrete or masonry retaining walls having a maximum height of 10 feet. In the event that walls higher than 10 feet are planned, Geocon should be contacted for additional recommendations.

7.13.2 Retaining wall foundations may be designed in accordance with the recommendations provided in the *Mat Foundation Design* section of this report (see Section 7.7).

7.13.3 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 on the following page presents recommended pressures to be used in retaining wall design, assuming that proper drainage will be maintained.

RETAINING WALL WITH LEVEL BACKFILL SURFACE

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 10	30	68

7.13.4 The wall pressures provided above assume that the proposed retaining walls will support relatively undisturbed alluvium. If sloping techniques are to be utilized for construction of proposed walls, which would result in a wedge of engineered fill behind the retaining walls, revised earth pressures may be required to account for the expansive potential of the soil placed as engineered fill. This should be evaluated once the use of sloping measures is established and once the geotechnical characteristics of the engineered backfill soils can be further evaluated.

7.13.5 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 96 pcf. The value includes hydrostatic pressures plus buoyant lateral earth pressures.

7.13.6 Additional active 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. The surcharge pressure should be evaluated in accordance with the recommendations in Section 7.25 of this report.

7.13.7 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.

7.13.8 Seismic lateral forces will be required for any retaining walls in excess of 6 feet. Recommendations for seismic lateral forces are presented in the following Section.

7.14 Dynamic (Seismic) Lateral Forces

7.14.1 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 2019 CBC).

7.14.2 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 2019 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.

7.15 Retaining Wall Drainage

7.15.1 Retaining walls not designed for hydrostatic pressures should be provided with a drainage system extended at least two-thirds the height of the wall. 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 17). 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.

7.15.2 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 18). 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.

7.15.3 Subdrainage pipes at the base of the retaining wall drainage system should outlet to an acceptable location via controlled drainage structures. Drainage should not be allowed to flow uncontrolled over descending slopes.

7.15.4 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.

7.16 Elevator Pit Design

7.16.1 The elevator pit slab and retaining wall should be designed by the project structural engineer. Elevator pit walls may be designed in accordance with the recommendations in the *Mat Foundation Design* and *Retaining Wall Design* sections of this report (see Section 7.7 and 7.13).

7.16.2 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.

7.16.3 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 7.15).

7.16.4 Subdrainage pipes at the base of the retaining wall drainage system should outlet to a location acceptable to the building official.

7.16.5 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.

7.17 Elevator Piston

7.17.1 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.

7.17.2 Casing will be required since some caving is expected 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.

7.17.3 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.

7.18 Temporary Excavations

7.18.1 Excavations on the order of 12 feet in height may be required for excavation and construction of the subterranean level, including foundation depths. The excavations are expected to expose artificial fill and alluvial soils, which may be subject to caving where granular soils are exposed. Temporary vertical excavations up to 5 feet in height may be attempted where not surcharged by adjacent traffic or structures.

7.18.2 Vertical excavations greater than 5 feet or where surcharged by existing structures will require sloping 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 1:1 slope gradient or flatter up to a maximum of 12 feet in height. A uniform slope does not have a vertical portion.

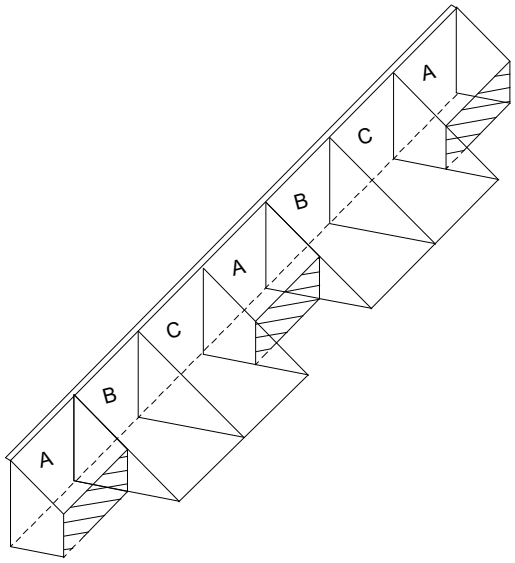
7.18.3 If excavations in close proximity to an adjacent property line and/or structure are required, special excavation measures such as slot-cutting or shoring may be necessary in order to maintain lateral support of offsite improvements. Recommendations for slot cutting and shoring are provided in Sections 7.19 and 7.20 of this report.

7.18.4 Where temporary construction slope 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 slopes 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. Geocon personnel should inspect the soils exposed in the cut slopes during excavation 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.

7.19 Slot Cutting

7.19.1 The slot-cutting method employs the earth as a buttress and allows the earth excavation to proceed in phases. Where slot-cutting is used for foundation construction, the proposed construction techniques should be discussed with the structural engineer so that appropriate modifications can be made to the foundation design; such as additional reinforcing or details for doweling.

7.19.2 It is recommended that the initial temporary excavation along the property line be sloped back at a uniform 1:1 (H:V) slope gradient or flatter for excavation of the existing soils to the necessary depth. The temporary excavation should not extend below the surcharge area of any adjacent foundations. The surcharge area may be defined by a 1:1 projection down and away from the bottom of an existing foundation. The temporary slope may then be excavated using the slot-cutting (see illustration below).



7.19.3 Alternate "A" slots of 8 feet in width may be worked. The remaining earth buttresses ("B" and "C" slots) should also be 8 feet in width. The wall, foundation, or backfill should be completed in the "A" slots to a point where support of the offsite property and/or any existing structures is restored before the "B" slots are excavated. After completing the wall, foundation, or backfill in the "B" slots, finally the "C" slots may be excavated. Slot-cutting is not recommended for vertical excavations greater than 5 feet in height. Slot-cut calculations are provided on the following pages. The project structural engineer should confirm the surcharge load, and the slot-cut calculations should be revised as needed for each surcharge condition as the project progresses.

A surcharge load of 1,000 pounds per linear foot is included in the slot-cut calculation to account for miscellaneous minor surcharges.

Slot Cut Calculation

Input:

Height of Slots	(H)	5.0	feet
Unit Weight of Soils	(γ)	125.0	pcf
Friction Angle of Soils	(ϕ)	27.0	degrees
Cohesion of Soils	(c)	300.0	psf
Factor of Safety	(FS)	1.25	

Factor of Safety = Resistance Force/Driving Force

Design Equations

$b = H/(\tan \alpha)$

$A = 0.5*H*b$

$W = 0.5*H*b*\gamma$ *(per lineal foot of slot width)*

$F_1 = d*W*(\sin \alpha)$

$R_1 = d*[W*(\cos\alpha)*(\tan \phi)+(c*b)]$

$R_2 = 2*[(0.5*H*b)*c]$

FS = Resistance Force/Driving Force

$FS = (R_1+R_2)/(F_1)$

Surcharge Pressure:

Line Load	(q_L)	1000.0	plf
Distance Away from Edge of Excavation	(X)	0.0	feet

Failure Angle (α) degrees	Width of Failure Wedge (b) feet	Area of Failure Wedge (A) feet^2	Weight of Failure Wedge (W) lbs/lineal foot	**Driving Force** Wedge + Surcharge per lineal foot of Slot Wdith	**Resisting Force** Failure Wedge per lineal foot of Slot Width	**Resisting Force** Side Resistance Force lbs	**Allowable Width of Slots*** (d) feet
45	5.0	13	1562.5	1812.0	3044.6	7500.0	8.0
46	4.8	12	1508.9	1804.7	2973.3	7242.7	8.0
47	4.7	12	1457.1	1797.0	2904.8	6993.9	8.0
48	4.5	11	1406.9	1788.7	2839.0	6753.0	8.0
49	4.3	11	1358.3	1779.8	2775.8	6519.7	8.0
50	4.2	10	1311.1	1770.4	2715.0	6293.2	8.0
51	4.0	10	1265.3	1760.5	2656.5	6073.4	8.0
52	3.9	10	1220.8	1750.0	2600.2	5859.6	8.0
53	3.8	9	1177.4	1739.0	2545.9	5651.7	8.0
54	3.6	9	1135.2	1727.4	2493.6	5449.1	8.0
55	3.5	9	1094.1	1715.4	2443.2	5251.6	8.0
56	3.4	8	1053.9	1702.8	2394.5	5058.8	8.0
57	3.2	8	1014.7	1689.7	2347.6	4870.6	8.0
58	3.1	8	976.4	1676.0	2302.4	4686.5	8.0
59	3.0	8	938.8	1661.9	2258.8	4506.5	8.0
60	2.9	7	902.1	1647.3	2216.6	4330.1	8.0
61	2.8	7	866.1	1632.1	2176.0	4157.3	8.0
62	2.7	7	830.8	1616.5	2136.8	3987.8	8.0
63	2.5	6	796.1	1600.4	2099.0	3821.4	8.0
64	2.4	6	762.1	1583.7	2062.5	3658.0	8.0
65	2.3	6	728.6	1566.6	2027.3	3497.3	8.0
66	2.2	6	695.7	1549.1	1993.4	3339.2	8.0
67	2.1	5	663.2	1531.0	1960.7	3183.6	8.0
68	2.0	5	631.3	1512.5	1929.2	3030.2	8.0
69	1.9	5	599.8	1493.5	1898.8	2879.0	8.0
70	1.8	5	568.7	1474.1	1869.6	2729.8	8.0

* Width of Slots to achieve a minimum of 1.25 Factor of Safety, with a Maximum Allowable Slot Width of 8-feet.

Critical Slot Width with Factor of Safety equal or exceeding 1.25:

d_{allow} = 8.0 feet

A surcharge load of 300 pounds per square foot is included in the slot-cut calculation to account for traffic surcharges.

Slot Cut Calculation

Input:

Height of Slots	(H)	5.0	feet
Unit Weight of Soils	(γ)	125.0	pcf
Friction Angle of Soils	(ϕ)	27.0	degrees
Cohesion of Soils	(c)	300.0	psf
Factor of Safety	(FS)	1.25	

Factor of Safety = Resistance Force/Driving Force

Design Equations

$b = H/(\tan \alpha)$

$A = 0.5*H*b$

$W = 0.5*H*b*\gamma$ *(per lineal foot of slot width)*

$F_1 = d*W*(\sin \alpha)$

$R_1 = d*[W*(\cos\alpha)*(\tan \phi)+(c*b)]$

$R_2 = 2*[(0.5*H*b)*c]$

FS = Resistance Force/Driving Force

$FS = (R_1+R_2)/(F_1)$

Surcharge Pressure:

Traffic Surcharge	(q)	300.0	psf
Distance Away from Edge of Excavation	(X)	0.0	feet

Failure Angle (α) degrees	Width of Failure Wedge (b) feet	Area of Failure Wedge (A) feet^2	Weight of Failure Wedge (W) lbs/lineal foot	**Driving Force** Wedge + Surcharge per lineal foot of Slot Wdith	**Resisting Force** Failure Wedge per lineal foot of Slot Width	**Resisting Force** Side Resistance Force lbs	**Allowable Width of Slots*** (d) feet
45	5.0	13	1562.5	2165.5	2792.4	7500.0	8.0
46	4.8	12	1508.9	2127.4	2725.5	7242.7	8.0
47	4.7	12	1457.1	2088.6	2661.6	6993.9	8.0
48	4.5	11	1406.9	2049.2	2600.4	6753.0	8.0
49	4.3	11	1358.3	2009.2	2541.8	6519.7	8.0
50	4.2	10	1311.1	1968.5	2485.8	6293.2	8.0
51	4.0	10	1265.3	1927.3	2432.1	6073.4	8.0
52	3.9	10	1220.8	1885.5	2380.6	5859.6	8.0
53	3.8	9	1177.4	1843.1	2331.2	5651.7	8.0
54	3.6	9	1135.2	1800.1	2283.9	5449.1	8.0
55	3.5	9	1094.1	1756.6	2238.6	5251.6	8.0
56	3.4	8	1053.9	1712.5	2195.1	5058.8	8.0
57	3.2	8	1014.7	1668.0	2153.4	4870.6	8.0
58	3.1	8	976.4	1622.9	2113.4	4686.5	8.0
59	3.0	8	938.8	1577.3	2075.1	4506.5	8.0
60	2.9	7	902.1	1531.3	2038.3	4330.1	8.0
61	2.8	7	866.1	1484.7	2003.1	4157.3	8.0
62	2.7	7	830.8	1437.8	1969.4	3987.8	8.0
63	2.5	6	796.1	1390.3	1937.0	3821.4	8.0
64	2.4	6	762.1	1342.5	1906.1	3658.0	8.0
65	2.3	6	728.6	1294.3	1876.6	3497.3	8.0
66	2.2	6	695.7	1245.6	1848.3	3339.2	8.0
67	2.1	5	663.2	1196.6	1821.3	3183.6	8.0
68	2.0	5	631.3	1147.2	1795.6	3030.2	8.0
69	1.9	5	599.8	1097.5	1771.0	2879.0	8.0
70	1.8	5	568.7	1047.4	1747.7	2729.8	8.0

* Width of Slots to achieve a minimum of 1.25 Factor of Safety, with a Maximum Allowable Slot Width of 8-feet.

Critical Slot Width with Factor of Safety equal or exceeding 1.25:

d_{allow} = 8.0 feet

7.20 Shoring – Soldier Pile Design and Installation

7.20.1 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.

7.20.2 One method of shoring would consist of steel soldier piles, placed in drilled holes and backfilled with concrete. The steel soldier piles may also be installed utilizing high frequency vibration. 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.

7.20.3 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 foundations and/or adjacent drainage systems.

7.20.4 The proposed soldier piles may also be designed as permanent piles. The required pile depths, dimensions, and 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 Wall Design* section of this report (see Section 7.13).

7.20.5 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 soils below the bottom plane of excavation may be assumed to be 120 psf per foot (value has been reduced for buoyant forces). Where piles are installed by vibration techniques, the passive pressure may be assumed to mobilize across a width equal to the two times the dimension of the beam flange. The allowable passive value may be doubled for isolated piles, spaced a minimum of three 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 alluvium.

7.20.6 Some caving is should be anticipated, especially where granular soils are encountered and the contractor should have casing available prior to commencement of drilling activities. When 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. As an alternative, piles may be vibrated into place; however, there is always a risk that excessive vibrations in sandy soils could induce settlements and distress to adjacent offsite improvements. Continuous observation of the drilling and pouring of the piles by the Geotechnical Engineer (a representative of Geocon West, Inc.), is required.

7.20.7 Groundwater was encountered during site exploration at depths of 15 and 27 feet. The contractor should be prepared for groundwater during pile installation. 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.

7.20.8 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.

7.20.9 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 psf.

7.20.10 If a vibratory method of solider pile installation is utilized, predrilling may be performed prior to installation of the steel beams. If predrilling is performed, it is recommended that the bore diameter be at least 2 inches smaller than the largest dimension of the pile to prevent excessive loss in the frictional component of the pile capacity. Predrilling should not be conducted below the proposed excavation bottom.

7.20.11 If a vibratory method is utilized, the owner should be aware of the potential risks associated with vibratory efforts, which typically involve inducing settlement within the vicinity of the pile which could result in a potential for damage to existing improvements in the area.

7.20.12 The level of vibration that results from the installation of the piles should not exceed a threshold where occupants of nearby structures are disturbed, despite higher vibration tolerances that a building may endure without deformation or damage. The main parameter used for vibration assessment is peak particle velocity in units of inch per second (in/sec). The acceptable range of peak particle velocity should be evaluated based on the age and condition of adjacent structures, as well as the tolerance of human response to vibration. Based on Table 19 of the *Transportation and Construction Induced Vibration Guidance Manual* (Caltrans 2020), a continuous source of vibrations (ex. vibratory pile driving) which generates a maximum peak particle velocity of 0.5 in/sec is considered tolerable for modern industrial/commercial buildings and new residential structures. The Client should be aware that a lower value may be necessary if older or fragile structures are in the immediate vicinity of the site.

7.20.13 Vibrations should be monitored and record with seismographs during pile installation to detect the magnitude of vibration and oscillation experienced by adjacent structures. If the vibrations exceed the acceptable range during installation, the shoring contractor should modify the installation procedure to reduce the values to within the acceptable range. Vibration monitoring is not the responsibility of the Geotechnical Engineer.

7.20.14 Geocon does not practice in the field of vibration monitoring. If construction techniques will be implemented, it is recommended that qualified consultant be retained to provide site specific recommendations for vibration thresholds and monitoring.

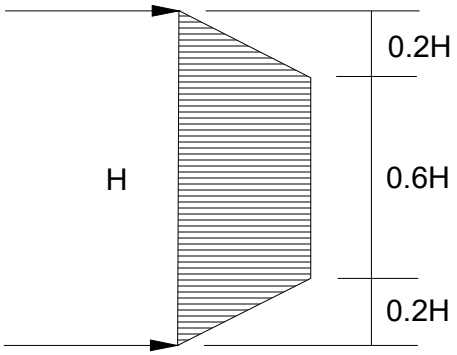
7.20.15 The frictional resistance between the soldier piles and retained soil may be used to resist the vertical component of the load. The coefficient of friction may be taken as 0.3 based on uniform contact between the steel beam and lean-mix concrete and alluvial soils. The portion of soldier piles 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 350 psf (value has been reduced for buoyant forces).

7.20.16 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.

7.20.17 For the design of unbraced shoring, it is recommended that an equivalent fluid pressure 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 pressures are provided in the following table. A diagram depicting the trapezoidal pressure distribution of lateral earth pressure is provided below the table.

HEIGHT OF SHORING (FEET)	**EQUIVALENT FLUID PRESSURE (Pounds Per Cubic Foot) (ACTIVE PRESSURE)**	**EQUIVALENT FLUID PRESSURE Active Trapezoidal (Where H is the height of the shoring in feet)**
Up to 12	25	16H

Trapezoidal Distribution of Pressure



7.20.18 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.

7.20.19 In addition to the recommended earth pressure, the upper ten feet of the shoring 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 shoring due to normal street traffic. If the traffic is kept back at least ten feet from the shoring, the traffic surcharge may be neglected.

7.20.20 Additional active 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. The surcharge pressure should be evaluated in accordance with the recommendations in Section 7.26 of this report.

7.20.21 It is difficult to accurately predict the amount of deflection of a shored embankment. It should be realized that some deflection will occur. It is recommended that the deflection be minimized to prevent damage to existing structures and adjacent improvements. Where public right-of-ways are present or adjacent offsite structures do not surcharge the shoring excavation, the shoring deflection should be limited to less than 1 inch at the top of the shored embankment. Where offsite structures are within the shoring surcharge area it is recommended that the beam deflection be limited to less than ½ inch at the elevation of the adjacent offsite foundation. The allowable deflection is dependent on many factors, such as the presence of structures and utilities near the top of the embankment, and will be assessed and designed by the project shoring engineer.

7.20.22 Because of the depth of the excavation, some means of monitoring the performance of the shoring system is suggested. The monitoring should consist of periodic surveying of the lateral and vertical locations of the tops of all soldier piles and the lateral movement along the entire lengths of selected soldier piles.

7.20.23 Due to the depth of the excavation and proximity to adjacent structures, it is suggested that prior to excavation the existing improvements be inspected to document the present condition. For documentation purposes, photographs should be taken of preconstruction distress conditions and level surveys of adjacent grade and pavement should be considered. During excavation activities, the adjacent structures and pavement should be periodically inspected for signs of distress. In the event that distress or settlement is noted, an investigation should be performed and corrective measures taken so that continued or worsened distress or settlement is mitigated. Documentation and monitoring of the offsite structures and improvements is not the responsibility of the geotechnical engineer.

7.21 Temporary Tie-Back Anchors

7.21.1 Temporary tie-back anchors may be used with the solider pile wall system to resist lateral loads. Post-grouted friction anchors are recommended. For design purposes, it may be assumed that the active wedge adjacent to the shoring is defined by a plane drawn 35 degrees with the vertical through the bottom plane of the excavation. Friction anchors should extend a minimum of 20 feet beyond the potentially active wedge and to greater lengths if necessary to develop the desired capacities. The locations and depths of all offsite utilities should be thoroughly checked and incorporated into the drilling angle design for the tie-back anchors.

7.21.2 The capacities of the anchors should be determined by testing of the initial anchors as outlined in a following section. Only the frictional resistance developed beyond the active wedge would be effective in resisting lateral loads. Anchors should be placed at least 6 feet on center to be considered isolated. For preliminary design purposes, it is estimated that drilled friction anchors constructed without utilizing post-grouting techniques will develop average skin frictions as follows:

- 5 feet below the top of the excavation – 700 psf

7.21.3 Depending on the techniques utilized, and the experience of the contractor performing the installation, a maximum allowable friction capacity of 2.2 kips per linear foot for post-grouted anchors (for a minimum 20-foot length beyond the active wedge) may be assumed for design purposes. Only the frictional resistance developed beyond the active wedge should be utilized in resisting lateral loads.

7.22 Anchor Installation

7.22.1 Tied-back anchors are typically installed between 20 and 40 degrees below the horizontal; however, occasionally alternative angles are necessary to avoid existing improvements and utilities. The locations and depths of all offsite utilities should be thoroughly checked prior to design and installation of the tie-back anchors. Caving of the anchor shafts, particularly within sand and gravel deposits or seepage zones, should be anticipated during installation and provisions should be implemented in order to minimize such caving. It is suggested that hollow-stem auger drilling equipment be used to install the anchors. The anchor shafts should be filled with concrete by pumping from the tip out, and the concrete should extend from the tip of the anchor to the active wedge. In order to minimize the chances of caving, it is recommended that the portion of the anchor shaft within the active wedge be backfilled with sand before testing the anchor. This portion of the shaft should be filled tightly and flush with the face of the excavation. The sand backfill should be placed by pumping; the sand may contain a small amount of cement to facilitate pumping.

7.23 Anchor Testing

7.23.1 All of the anchors should be tested to at least 150 percent of design load. The total deflection during this test should not exceed 12 inches. The rate of creep under the 150 percent test load should not exceed 0.1 inch over a 15-minute period in order for the anchor to be approved for the design loading.

7.23.2 At least 10 percent of the anchors should be selected for "quick" 200 percent tests and three additional anchors should be selected for 24-hour 200 percent tests. The purpose of the 200 percent tests is to verify the friction value assumed in design. The anchors should be tested to develop twice the assumed friction value. These tests should be performed prior to installation of additional tiebacks. Where satisfactory tests are not achieved on the initial anchors, the anchor diameter and/or length should be increased until satisfactory test results are obtained.

7.23.3 The total deflection during the 24-hour 200 percent test should not exceed 12 inches. During the 24-hour tests, the anchor deflection should not exceed 0.75 inches measured after the 200 percent test load is applied.

7.23.4 For the "quick" 200 percent tests, the 200 percent test load should be maintained for 30 minutes. The total deflection of the anchor during the 200 percent quick tests should not exceed 12 inches; the deflection after the 200 percent load has been applied should not exceed 0.25 inch during the 30-minute period.

7.23.5 After a satisfactory test, each anchor should be locked-off at the design load. This should be verified by rechecking the load in the anchor. The load should be within 10 percent of the design load. A representative of this firm should observe the installation and testing of the anchors.

7.24 Internal Bracing

7.24.1 Rakers may be utilized to brace the soldier piles in lieu of tieback anchors. The raker bracing could be supported laterally by temporary concrete footings (deadmen) or by the permanent, interior footings. For design of such temporary footings or deadmen, poured with the bearing surface normal to rakers inclined at 45 degrees, a bearing value of 1,500 psf may be used, provided the shallowest point of the footing is at least 1 foot below the lowest adjacent grade. The structural engineer should review the shoring plans to determine if raker footings conflict with the structural foundation system. The client should be aware that the utilization of rakers could significantly impact the construction schedule due to their intrusion into the construction site and potential interference with equipment.

7.25 Stormwater Infiltration

7.25.1 During the May 6, 2022 site exploration, boring B1 was utilized to perform percolation testing. The boring was advanced 10 feet below the existing ground surface, then a bentonite cap was placed on the bottom of the boring. Slotted casing was placed in the boring, and the annular space between the casing and excavation was filled with a filter pack of clean sand. The boring was then filled with water to pre-saturate the soils. The casing was 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 Small Diameter Boring Infiltration 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 Figure 19.

Boring	Soil Type	Infiltration Depth (ft)	Measured Percolation Rate (in / hour)	Design Infiltration Rate (in / hour)
B1	ML	5-10	0.01	0

7.25.2 The results of the percolation testing indicate that the soils are not conducive to infiltration of stormwater. It is suggested that stormwater be retained, filtered and discharged in accordance

7.26 Surcharge from Adjacent Structures and Improvements

7.26.1 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.

7.26.2 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.

7.26.3 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.

7.27 Surface Drainage

7.27.1 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.

7.27.2 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 2019 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.

7.27.3 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.

7.27.4 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 an 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.

7.28 Plan Review

7.28.1 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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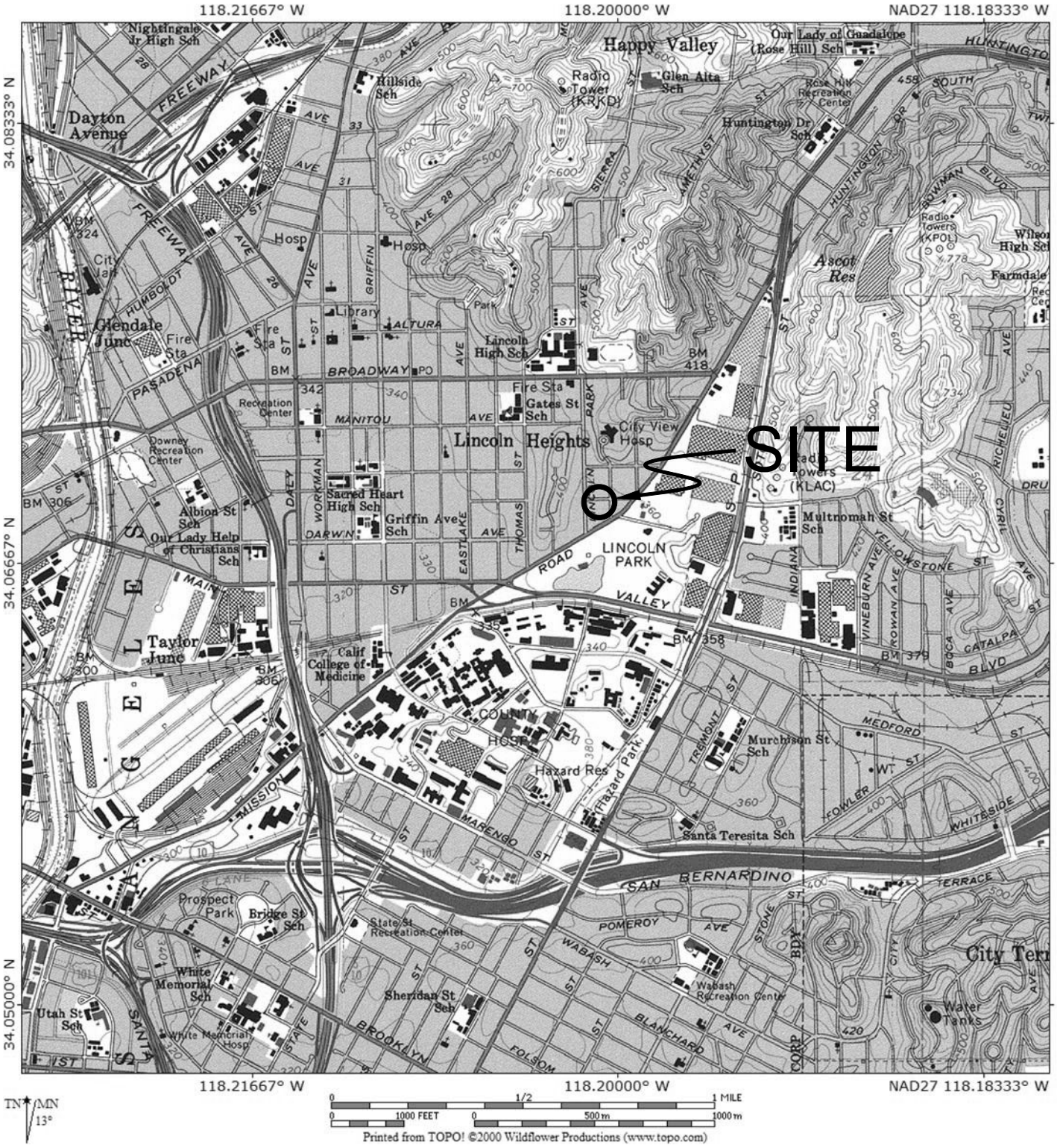

U.S.G.S. TOPOGRAPHIC MAPS, 7.5 MINUTE SERIES, LOS ANGELES, CA QUADRANGLE

GEOCON
WEST, INC.

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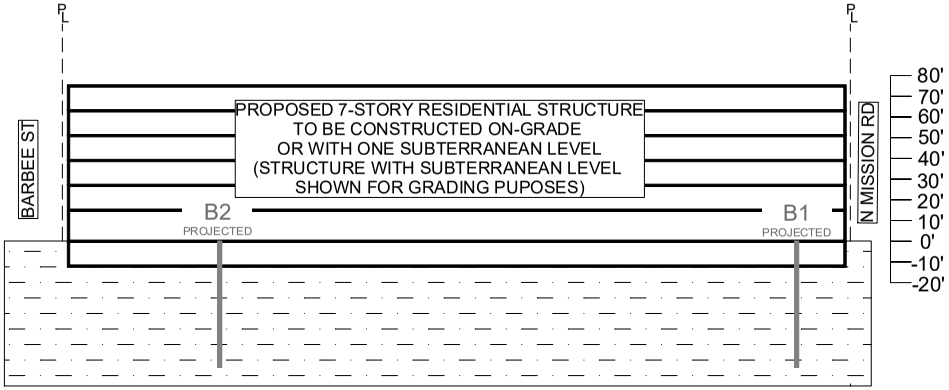
VICINITY MAP

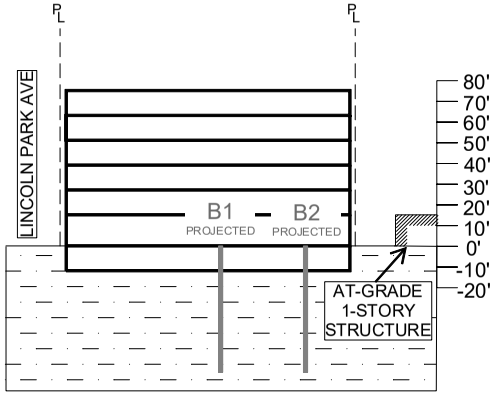
2010-2036 NORTH LINCOLN PARK AVENUE
3601-3615 NORTH MISSION ROAD
LOS ANGELES, CALIFORNIA

DRAFTED BY: CB	CHECKED BY: SFK	JUN. 2022	PROJECT NO. W1562-06-01	FIG. 1

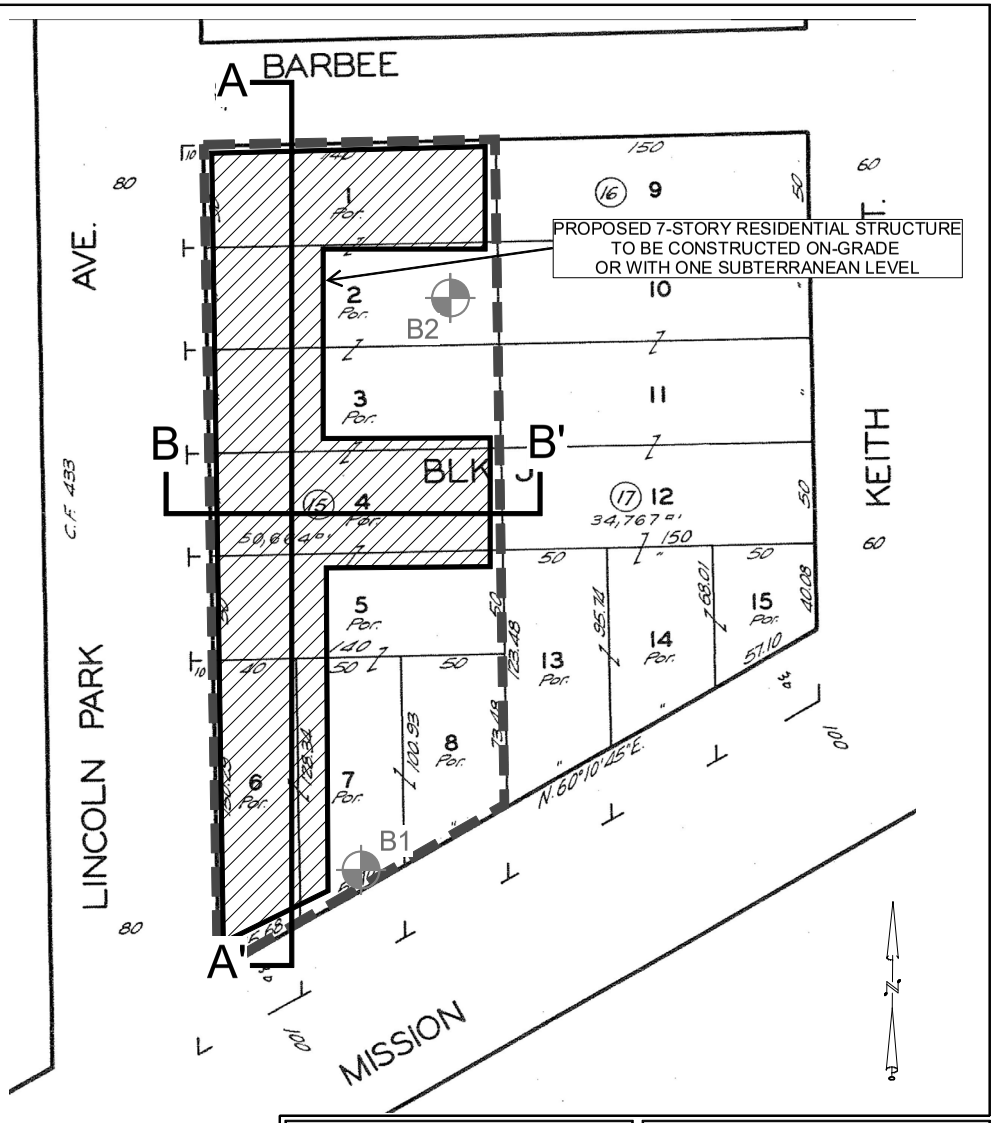
SECTION A - A'



SECTION B - B'



PROPOSED 7-STORY RESIDENTIAL STRUCTURE
TO BE CONSTRUCTED ON-GRADE
OR WITH ONE SUBTERRANEAN LEVEL
(STRUCTURE WITH SUBTERRANEAN LEVEL
SHOWN FOR GRADING PUPOSES)



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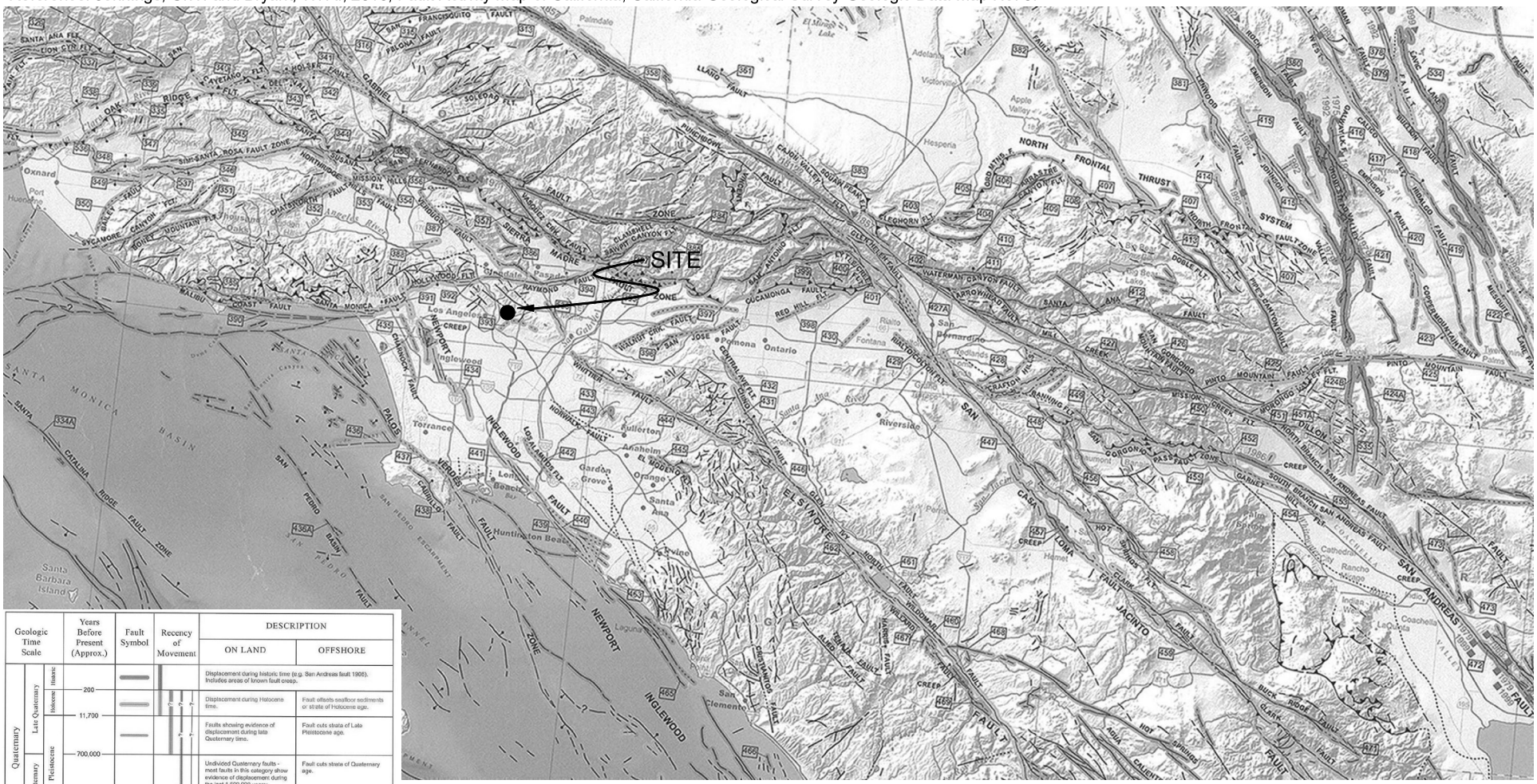
DRAFTED BY: JJK	CHECKED BY: HHD

SITE PLAN		
2010-2036 NORTH LINCOLN PARK AVENUE 3601-3615 NORTH MISSION ROAD LOS ANGELES, CALIFORNIA		
JUNE 2022	PROJECT NO: W1562-06-01	FIG. 2

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 (Historic)	200			Displacement during historic time (e.g. San Andreas fault 1906). Includes areas of known fault creep.	
		Holocene	11,700		? ? ?	Displacement during Holocene time.	Fault offsets seafloor sediments or strata of Holocene 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 Plio-Pleistocene age.	Fault cuts strata of Quaternary age.
Pre-Quaternary			1,600,000*			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.
			4.5 billion (Age of Earth)				

* Quaternary now recognized as extending to 2.6 Ma (Walker and Geissman, 2009). Quaternary faults in this map were established using the previous 1.6 Ma criterion.

0 12 24 Miles

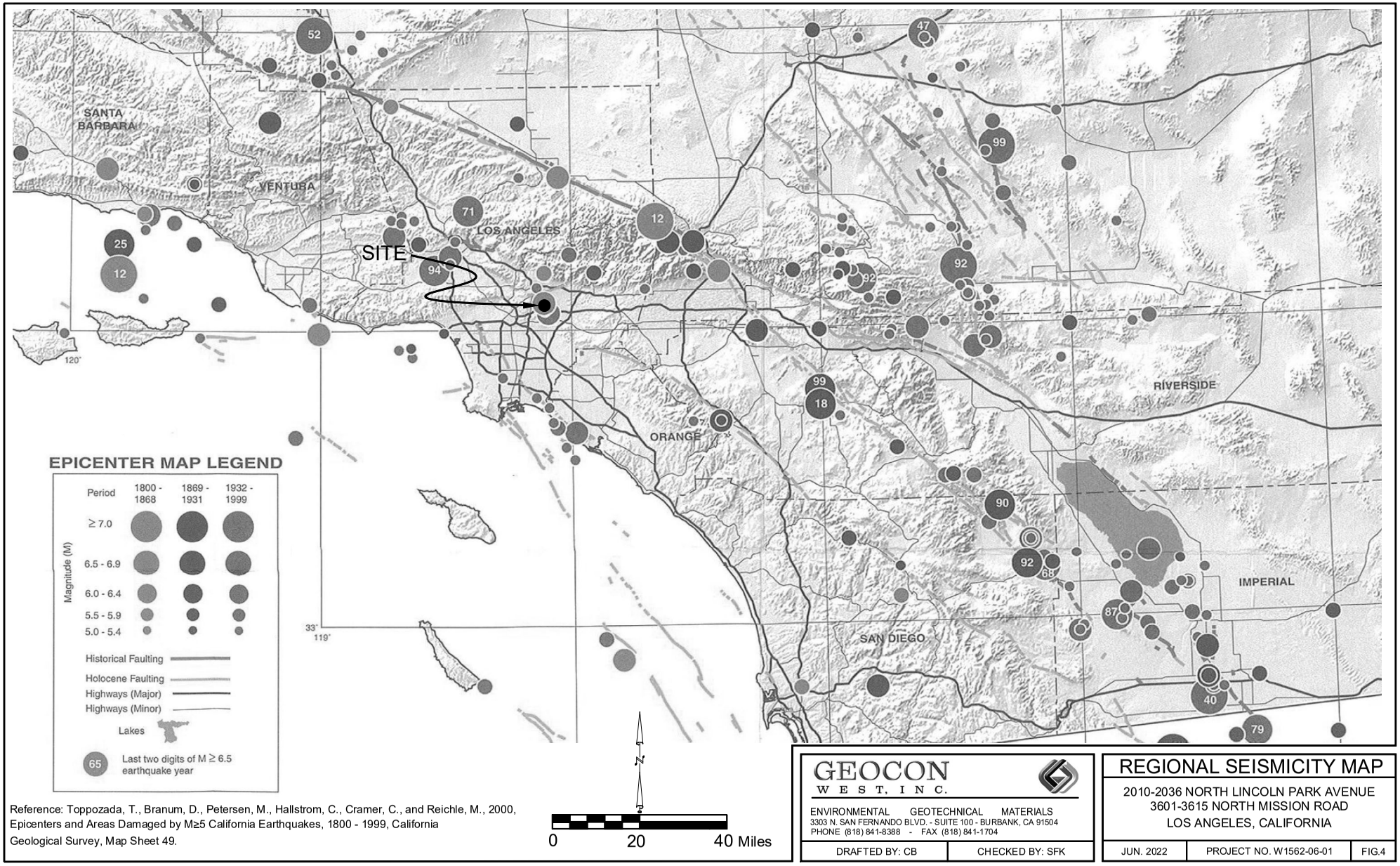
GEOCON WEST, INC.
ENVIRONMENTAL GEOTECHNICAL MATERIALS
3303 N. SAN FERNANDO BLVD. - SUITE 100 - BURBANK, CA 91504
PHONE (818) 841-8388 - FAX (818) 841-1704

DRAFTED BY: CB | CHECKED BY: SFK

REGIONAL FAULT MAP

2010-2036 NORTH LINCOLN PARK AVENUE
3601-3615 NORTH MISSION ROAD
LOS ANGELES, CALIFORNIA

JUN. 2022 | PROJECT NO. W1562-06-01 | 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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DRAFTED BY: CB | CHECKED BY: SFK

REGIONAL SEISMICITY MAP

2010-2036 NORTH LINCOLN PARK AVENUE
3601-3615 NORTH MISSION ROAD
LOS ANGELES, CALIFORNIA

JUN. 2022 | PROJECT NO. W1562-06-01 | FIG.4

GEOCON

Project: 3601 N Mission RD
File No. : W1562-06-01
Boring : B1

EMPIRICAL ESTIMATION OF LIQUEFACTION POTENTIAL
DESIGN EARTHQUAKE

NCEER (1996) METHOD
EARTHQUAKE INFORMATION:

Earthquake Magnitude:	6.74
Peak Horiz. Acceleration PGA_M (g):	0.954
2/3 PGA_M (g):	0.636
Calculated Mag.Wtg.Factor:	0.764
Historic High Groundwater:	15.0
Groundwater Depth During Exploration:	27.0

By Thomas F. Blake (1994-1996)
ENERGY & ROD CORRECTIONS:

Energy Correction (CE) for N60:	1.25
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	130.5	0	47.0	5.5	1		149	1.700	89.9	130.5	Infin.	0.998	0.315	--
2.0	130.5	0	47.0	5.5	1		149	1.700	89.9	130.5	Infin.	0.993	0.314	--
3.0	130.5	0	47.0	5.5	1		149	1.700	89.9	130.5	Infin.	0.989	0.313	--
4.5	130.5	0	47.0	5.5	1		149	1.700	89.9	130.5	Infin.	0.983	0.311	--
5.0	130.5	0	47.0	5.5	1		149	1.700	89.9	130.5	Infin.	0.978	0.309	--
6.5	130.5	0	47.0	5.5	1		149	1.668	88.2	130.5	Infin.	0.974	0.308	--
7.0	130.5	0	31.4	7.5	1		113	1.600	56.4	130.5	Infin.	0.969	0.306	--
8.0	130.5	0	31.4	7.5	1		113	1.461	51.5	130.5	Infin.	0.966	0.305	--
9.0	130.5	0	31.4	7.5	1		113	1.372	48.4	130.5	Infin.	0.961	0.304	--
10.0	122.7	0	27.0	10.0	1	89	100	1.300	46.5	122.7	Infin.	0.957	0.302	--
11.0	122.7	0	27.0	10.0	1	89	100	1.240	44.7	122.7	Infin.	0.952	0.301	--
12.0	122.7	0	27.0	10.0	1	89	100	1.187	43.1	122.7	Infin.	0.947	0.300	--
13.0	122.7	0	27.0	10.0	1	89	100	1.141	41.7	122.7	Infin.	0.943	0.298	--
14.0	122.7	0	27.0	10.0	1	89	100	1.100	40.4	122.7	Infin.	0.938	0.297	--
15.0	122.7	0	42.0	15.0	1		115	1.063	54.0	122.7	Infin.	0.934	0.295	--
16.5	122.7	1	42.0	15.0	1		115	1.021	51.9	60.3	Infin.	0.928	0.300	Non-Liq.
17.0	132.1	1	13.2	17.5	1		63	1.005	17.0	69.7	0.185	0.923	0.303	0.61
18.0	132.1	1	13.2	17.5	1		63	0.967	16.4	69.7	0.178	0.920	0.313	0.57
19.0	132.1	1	13.2	17.5	1		63	0.940	15.9	69.7	0.173	0.915	0.319	0.54
20.0	132.1	1	13.2	17.5	1		63	0.915	15.5	69.7	0.169	0.911	0.324	0.52
21.0	127.1	1	22.0	20.0	1	82	79	0.892	33.3	64.7	Infin.	0.906	0.330	Non-Liq.
22.0	127.1	1	22.0	20.0	1	82	79	0.871	32.7	64.7	Infin.	0.902	0.334	Non-Liq.
23.0	127.1	1	22.0	20.0	1	82	79	0.852	32.1	64.7	Infin.	0.897	0.339	Non-Liq.
24.0	127.1	1	22.0	20.0	1	82	79	0.833	31.6	64.7	Infin.	0.893	0.343	Non-Liq.
25.0	127.1	1	22.0	20.0	1	82	79	0.816	31.1	64.7	Infin.	0.888	0.346	Non-Liq.
26.0	133.7	1	17.0	25.0	0	78		0.800	26.5	71.3	~	0.883	0.349	~
27.0	133.7	1	17.0	25.0	0	78		0.788	26.2	71.3	~	0.879	0.352	~
28.0	133.7	1	17.0	25.0	0	78		0.779	26.0	71.3	~	0.874	0.355	~
29.0	133.7	1	17.0	25.0	0	78		0.771	25.8	71.3	~	0.870	0.357	~
30.0	133.7	1	17.0	25.0	0	78		0.764	25.6	71.3	~	0.865	0.359	~
31.0	136.2	1	11.0	30.0	0	80		0.756	19.5	73.8	~	0.861	0.361	~
32.0	136.2	1	11.0	30.0	0	80		0.748	19.4	73.8	~	0.856	0.362	~
33.0	136.2	1	11.0	30.0	0	80		0.741	19.2	73.8	~	0.851	0.364	~
34.0	136.2	1	11.0	30.0	0	80		0.734	19.1	73.8	~	0.847	0.365	~
35.0	125.7	1	22.0	35.0	1	66	71	0.728	31.0	63.3	Infin.	0.842	0.366	Non-Liq.
36.0	125.7	1	22.0	35.0	1	66	71	0.722	30.8	63.3	Infin.	0.838	0.367	Non-Liq.
37.0	125.7	1	22.0	35.0	1	66	71	0.716	30.6	63.3	Infin.	0.833	0.368	Non-Liq.
38.0	125.7	1	22.0	35.0	1	66	71	0.711	30.5	63.3	Infin.	0.829	0.369	Non-Liq.
39.0	125.7	1	22.0	35.0	1	66	71	0.705	30.3	63.3	Infin.	0.824	0.369	Non-Liq.
40.5	125.7	1	22.0	35.0	1	66	71	0.699	30.1	63.3	Infin.	0.818	0.370	Non-Liq.
41.0	125.7	1	43.0	40.0	1		96	0.696	44.9	63.3	Infin.	0.814	0.369	Non-Liq.
42.0	125.7	1	43.0	40.0	1		96	0.690	44.5	63.3	Infin.	0.810	0.371	Non-Liq.
43.0	133.9	1	51.0	45.0	1		102	0.685	52.4	71.5	Infin.	0.806	0.371	Non-Liq.
44.0	133.9	1	51.0	45.0	1		102	0.679	52.0	71.5	Infin.	0.801	0.371	Non-Liq.
45.0	133.9	1	51.0	45.0	1		102	0.674	51.6	71.5	Infin.	0.797	0.370	Non-Liq.
46.5	133.9	1	51.0	45.0	1		102	0.668	51.1	71.5	Infin.	0.791	0.370	Non-Liq.
47.0	133.9	1	45.0	50.0	1		93	0.665	44.9	71.5	Infin.	0.786	0.369	Non-Liq.
48.0	133.9	1	45.0	50.0	1		93	0.659	44.5	71.5	Infin.	0.783	0.369	Non-Liq.
49.0	133.9	1	45.0	50.0	1		93	0.654	44.1	71.5	Infin.	0.778	0.369	Non-Liq.
50.0	133.9	1	45.0	50.0	1		93	0.649	43.8	71.5	Infin.	0.774	0.368	Non-Liq.
51.0	133.9	1	45.0	50.0	1		93	0.645	43.5	71.5	Infin.	0.769	0.367	Non-Liq.
52.0	133.9	1	45.0	50.0	1		93	0.640	43.2	71.5	Infin.	0.765	0.367	Non-Liq.
53.0	133.9	1	45.0	50.0	1		93	0.636	42.9	71.5	Infin.	0.760	0.366	Non-Liq.
54.0	133.9	1	45.0	50.0	1		93	0.631	42.6	71.5	Infin.	0.755	0.365	Non-Liq.
55.0	133.9	1	45.0	50.0	1		93	0.627	42.3	71.5	Infin.	0.751	0.364	Non-Liq.
56.0	133.9	1	60.0	55.0	1		105	0.623	56.1	71.5	Infin.	0.746	0.363	Non-Liq.
57.0	133.9	1	60.0	55.0	1		105	0.619	55.7	71.5	Infin.	0.742	0.362	Non-Liq.
58.0	133.9	1	60.0	55.0	1		105	0.615	55.3	71.5	Infin.	0.737	0.361	Non-Liq.
59.0	133.9	1	60.0	55.0	1		105	0.611	55.0	71.5	Infin.	0.733	0.360	Non-Liq.
60.0	133.9	1	60.0	55.0	1		105	0.607	54.6	71.5	Infin.	0.728	0.358	Non-Liq.

GEOCON

Project: 3601 N Mission RD
File No. : W1562-06-01
Boring : B1

LIQUEFACTION SETTLEMENT ANALYSIS
DESIGN EARTHQUAKE

(SATURATED SAND AT INITIAL LIQUEFACTION CONDITION)

NCEER (1996) METHOD
EARTHQUAKE INFORMATION:

Earthquake Magnitude:	6.74
PGAM (g):	0.954
2/3 PGAM (g):	0.64
Calculated Mag.Wtg.Factor:	0.764
Historic High Groundwater:	15.0
Groundwater @ Exploration:	27.0

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	47	130.5	0.033	0.033	149	90	0.414	--	0.00	0.00
2.0	47	130.5	0.098	0.098	149	90	0.414	--	0.00	0.00
3.0	47	130.5	0.163	0.163	149	90	0.414	--	0.00	0.00
4.5	47	130.5	0.245	0.245	149	90	0.414	--	0.00	0.00
5.0	47	130.5	0.277	0.277	149	90	0.414	--	0.00	0.00
6.5	47	130.5	0.375	0.375	149	88	0.414	--	0.00	0.00
7.0	31	130.5	0.408	0.408	113	56	0.414	--	0.00	0.00
8.0	31	130.5	0.489	0.489	113	52	0.414	--	0.00	0.00
9.0	31	130.5	0.555	0.555	113	48	0.414	--	0.00	0.00
10.0	27	122.7	0.618	0.618	100	46	0.414	--	0.00	0.00
11.0	27	122.7	0.679	0.679	100	45	0.414	--	0.00	0.00
12.0	27	122.7	0.741	0.741	100	43	0.414	--	0.00	0.00
13.0	27	122.7	0.802	0.802	100	42	0.414	--	0.00	0.00
14.0	27	122.7	0.863	0.863	100	40	0.414	--	0.00	0.00
15.0	42	122.7	0.925	0.925	115	54	0.414	--	0.00	0.00
16.5	42	122.7	1.001	0.978	115	52	0.424	Non-Liq.	0.00	0.00
17.0	13	132.1	1.033	0.994	63	17	0.430	0.61	1.70	0.10
18.0	13	132.1	1.116	1.038	63	16	0.445	0.57	1.70	0.20
19.0	13	132.1	1.182	1.073	63	16	0.456	0.54	1.70	0.20
20.0	13	132.1	1.248	1.108	63	15	0.466	0.52	1.70	0.20
21.0	22	127.1	1.313	1.141	79	33	0.476	Non-Liq.	0.00	0.00
22.0	22	127.1	1.376	1.173	79	33	0.485	Non-Liq.	0.00	0.00
23.0	22	127.1	1.440	1.206	79	32	0.494	Non-Liq.	0.00	0.00
24.0	22	127.1	1.503	1.238	79	32	0.502	Non-Liq.	0.00	0.00
25.0	22	127.1	1.567	1.271	79	31	0.510	Non-Liq.	0.00	0.00
26.0	17	133.7	1.632	1.305		26	0.517	~	0.00	0.00
27.0	17	133.7	1.699	1.340		26	0.524	~	0.00	0.00
28.0	17	133.7	1.766	1.376		26	0.531	~	0.00	0.00
29.0	17	133.7	1.833	1.411		26	0.537	~	0.00	0.00
30.0	17	133.7	1.900	1.447		26	0.543	~	0.00	0.00
31.0	11	136.2	1.967	1.483		19	0.548	~	0.00	0.00
32.0	11	136.2	2.035	1.520		19	0.554	~	0.00	0.00
33.0	11	136.2	2.103	1.557		19	0.559	~	0.00	0.00
34.0	11	136.2	2.171	1.594		19	0.563	~	0.00	0.00
35.0	22	125.7	2.237	1.628	71	31	0.568	Non-Liq.	0.00	0.00
36.0	22	125.7	2.300	1.660	71	31	0.573	Non-Liq.	0.00	0.00
37.0	22	125.7	2.362	1.692	71	31	0.578	Non-Liq.	0.00	0.00
38.0	22	125.7	2.425	1.723	71	30	0.582	Non-Liq.	0.00	0.00
39.0	22	125.7	2.488	1.755	71	30	0.586	Non-Liq.	0.00	0.00
40.5	22	125.7	2.567	1.795	71	30	0.592	Non-Liq.	0.00	0.00
41.0	43	125.7	2.598	1.810	96	45	0.594	Non-Liq.	0.00	0.00
42.0	43	125.7	2.677	1.850	96	45	0.598	Non-Liq.	0.00	0.00
43.0	51	133.9	2.742	1.884	102	52	0.602	Non-Liq.	0.00	0.00
44.0	51	133.9	2.809	1.919	102	52	0.605	Non-Liq.	0.00	0.00
45.0	51	133.9	2.876	1.955	102	52	0.608	Non-Liq.	0.00	0.00
46.5	51	133.9	2.959	2.000	102	51	0.612	Non-Liq.	0.00	0.00
47.0	45	133.9	2.993	2.018	93	45	0.613	Non-Liq.	0.00	0.00
48.0	45	133.9	3.076	2.062	93	44	0.617	Non-Liq.	0.00	0.00
49.0	45	133.9	3.143	2.098	93	44	0.620	Non-Liq.	0.00	0.00
50.0	45	133.9	3.210	2.134	93	44	0.622	Non-Liq.	0.00	0.00
51.0	45	133.9	3.277	2.170	93	44	0.625	Non-Liq.	0.00	0.00
52.0	45	133.9	3.344	2.205	93	43	0.627	Non-Liq.	0.00	0.00
53.0	45	133.9	3.411	2.241	93	43	0.630	Non-Liq.	0.00	0.00
54.0	45	133.9	3.478	2.277	93	43	0.632	Non-Liq.	0.00	0.00
55.0	45	133.9	3.545	2.313	93	42	0.634	Non-Liq.	0.00	0.00
56.0	60	133.9	3.612	2.348	105	56	0.636	Non-Liq.	0.00	0.00
57.0	60	133.9	3.679	2.384	105	56	0.638	Non-Liq.	0.00	0.00
58.0	60	133.9	3.746	2.420	105	55	0.640	Non-Liq.	0.00	0.00
59.0	60	133.9	3.813	2.456	105	55	0.642	Non-Liq.	0.00	0.00
60.0	60	133.9	3.880	2.491	105	55	0.644	Non-Liq.	0.00	0.00

TOTAL SETTLEMENT = 0.7 INCHES

Figure 6

GEOCON

Project: 3601 N Mission RD
File No. : W1562-06-01
Boring : B2

EMPIRICAL ESTIMATION OF LIQUEFACTION POTENTIAL
DESIGN EARTHQUAKE

NCEER (1996) METHOD
EARTHQUAKE INFORMATION:

Earthquake Magnitude:	6.74
Peak Horiz. Acceleration PGA_M (g):	0.954
2/3 PGA_M (g):	0.636
Calculated Mag.Wtg.Factor:	0.764
Historic High Groundwater:	15.0
Groundwater Depth During Exploration:	15.0

By Thomas F. Blake (1994-1996)
ENERGY & ROD CORRECTIONS:

Energy Correction (CE) for N60:	1.25
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	127.4	0	7.0	2.5	1		62	1.700	13.4	127.4	0.146	0.998	0.315	--
2.5	127.4	0	7.0	2.5	1	0	62	1.700	13.4	127.4	0.146	0.992	0.314	--
3.0	127.4	0	7.0	2.5	1	63	62	1.700	20.4	127.4	0.222	0.987	0.312	--
4.0	127.4	0	7.0	2.5	1	63	62	1.700	20.4	127.4	0.222	0.984	0.311	--
5.0	127.4	0	7.0	2.5	1	63	62	1.700	20.4	127.4	0.222	0.979	0.310	--
6.5	127.4	0	7.0	2.5	1	63	62	1.688	20.3	127.4	0.221	0.974	0.308	--
7.0	133.6	0	9.0	7.5	1	75	61	1.618	23.4	133.6	0.261	0.969	0.306	--
8.0	133.6	0	9.0	7.5	1	75	61	1.471	21.9	133.6	0.241	0.966	0.305	--
9.0	133.6	0	9.0	7.5	1	75	61	1.379	21.0	133.6	0.229	0.961	0.304	--
10.5	133.6	0	9.0	7.5	1	75	61	1.285	20.0	133.6	0.218	0.955	0.302	--
11.0	133.6	0	9.0	7.5	1	75	61	1.252	19.7	133.6	0.214	0.951	0.301	--
12.0	133.6	0	9.0	7.5	1	75	61	1.180	19.0	133.6	0.206	0.947	0.300	--
13.0	133.6	0	9.0	7.5	1	75	61	1.131	18.5	133.6	0.201	0.943	0.298	--
14.0	128.1	0	13.0	13.5	0	77		1.088	23.4	128.1	~	0.938	0.297	~
15.0	128.1	0	13.0	13.5	0	77		1.059	22.9	128.1	~	0.934	0.295	~
16.5	128.1	1	13.0	13.5	0	77		1.037	22.6	65.7	~	0.928	0.300	~
17.0	127.8	1	45.0	17.5	1	0	115	1.028	59.4	65.4	Infin.	0.923	0.303	Non-Liq.
18.0	127.8	1	45.0	17.5	1	0	115	1.008	58.2	65.4	Infin.	0.920	0.312	Non-Liq.
19.0	127.8	1	45.0	17.5	1	0	115	0.992	57.3	65.4	Infin.	0.915	0.318	Non-Liq.
20.0	127.8	1	45.0	17.5	1	0	115	0.977	56.4	65.4	Infin.	0.911	0.324	Non-Liq.
21.0	127.8	1	45.0	17.5	1	0	115	0.963	55.6	65.4	Infin.	0.906	0.329	Non-Liq.
22.0	127.8	1	45.0	17.5	1	0	115	0.949	54.8	65.4	Infin.	0.902	0.334	Non-Liq.
23.0	127.8	1	40.0	22.5	1	0	104	0.936	52.1	65.4	Infin.	0.897	0.338	Non-Liq.
24.0	127.8	1	40.0	22.5	1	0	104	0.923	51.4	65.4	Infin.	0.893	0.342	Non-Liq.
25.0	127.8	1	40.0	22.5	1	0	104	0.911	50.7	65.4	Infin.	0.888	0.345	Non-Liq.
26.0	127.8	1	40.0	22.5	1	0	104	0.900	50.1	65.4	Infin.	0.883	0.349	Non-Liq.
27.0	127.8	1	40.0	22.5	1	0	104	0.888	49.4	65.4	Infin.	0.879	0.351	Non-Liq.
28.0	120.0	1	74.0	27.5	1	0	137	0.878	95.5	57.6	Infin.	0.874	0.354	Non-Liq.
29.0	120.0	1	74.0	27.5	1	0	137	0.869	94.5	57.6	Infin.	0.870	0.357	Non-Liq.
30.0	120.0	1	74.0	27.5	1	0	137	0.860	93.5	57.6	Infin.	0.865	0.359	Non-Liq.
31.0	120.0	1	74.0	27.5	1	0	137	0.852	92.5	57.6	Infin.	0.861	0.362	Non-Liq.
32.0	120.0	1	74.0	27.5	1	0	137	0.843	91.6	57.6	Infin.	0.856	0.364	Non-Liq.
33.0	129.1	1	67.0	32.5	1	0	126	0.834	83.9	66.7	Infin.	0.851	0.365	Non-Liq.
34.0	129.1	1	67.0	32.5	1	0	126	0.825	82.9	66.7	Infin.	0.847	0.367	Non-Liq.
35.0	129.1	1	67.0	32.5	1	0	126	0.816	82.0	66.7	Infin.	0.842	0.368	Non-Liq.
36.0	129.1	1	67.0	32.5	1	0	126	0.808	81.2	66.7	Infin.	0.838	0.369	Non-Liq.
37.0	129.1	1	67.0	32.5	1	0	126	0.800	80.4	66.7	Infin.	0.833	0.370	Non-Liq.
38.0	129.1	1	67.0	32.5	1	0	126	0.791	79.5	66.7	Infin.	0.829	0.370	Non-Liq.
39.0	129.1	1	67.0	32.5	1	0	126	0.784	78.8	66.7	Infin.	0.824	0.371	Non-Liq.
40.0	129.1	1	67.0	32.5	1	0	126	0.776	78.0	66.7	Infin.	0.819	0.371	Non-Liq.
41.0	129.1	1	67.0	32.5	1	0	126	0.769	77.3	66.7	Infin.	0.815	0.372	Non-Liq.
42.0	129.1	1	67.0	32.5	1	0	126	0.762	76.5	66.7	Infin.	0.810	0.372	Non-Liq.
43.0	129.1	1	67.0	32.5	1	0	126	0.755	75.8	66.7	Infin.	0.806	0.372	Non-Liq.
44.0	129.1	1	67.0	32.5	1	0	126	0.748	75.2	66.7	Infin.	0.801	0.372	Non-Liq.
45.0	129.1	1	67.0	32.5	1	0	126	0.741	74.5	66.7	Infin.	0.797	0.372	Non-Liq.
46.0	125.4	1	50.0	45.0	1	0	102	0.735	55.1	63.0	Infin.	0.792	0.372	Non-Liq.
47.0	125.4	1	50.0	45.0	1	0	102	0.729	54.7	63.0	Infin.	0.787	0.372	Non-Liq.
48.0	125.4	1	50.0	45.0	1	0	102	0.723	54.2	63.0	Infin.	0.783	0.371	Non-Liq.
49.0	125.4	1	50.0	45.0	1	0	102	0.718	53.8	63.0	Infin.	0.778	0.371	Non-Liq.
50.0	125.4	1	50.0	45.0	1	0	102	0.712	53.4	63.0	Infin.	0.774	0.371	Non-Liq.
51.0	125.4	1	66.0	50.0	1	0	114	0.707	70.0	63.0	Infin.	0.769	0.370	Non-Liq.
52.0	125.4	1	66.0	50.0	1	0	114	0.702	69.5	63.0	Infin.	0.765	0.370	Non-Liq.
53.0	125.4	1	66.0	50.0	1	0	114	0.696	68.9	63.0	Infin.	0.760	0.369	Non-Liq.
54.0	125.4	1	66.0	50.0	1	0	114	0.691	68.4	63.0	Infin.	0.755	0.368	Non-Liq.
55.0	125.4	1	66.0	50.0	1	0	114	0.686	68.0	63.0	Infin.	0.751	0.368	Non-Liq.
56.0	125.4	1	78.0	55.0	1	0	120	0.682	79.7	63.0	Infin.	0.746	0.367	Non-Liq.
57.0	125.4	1	78.0	55.0	1	0	120	0.677	79.2	63.0	Infin.	0.742	0.366	Non-Liq.
58.0	125.4	1	78.0	55.0	1	0	120	0.672	78.6	63.0	Infin.	0.737	0.365	Non-Liq.
59.0	125.4	1	78.0	55.0	1	0	120	0.668	78.1	63.0	Infin.	0.733	0.364	Non-Liq.
60.0	125.4	1	78.0	55.0	1	0	120	0.663	77.6	63.0	Infin.	0.728	0.363	Non-Liq.

GEOCON

Project: 3601 N Mission RD
File No. : W1562-06-01
Boring : B2

LIQUEFACTION SETTLEMENT ANALYSIS
DESIGN EARTHQUAKE

(SATURATED SAND AT INITIAL LIQUEFACTION CONDITION)

NCEER (1996) METHOD
EARTHQUAKE INFORMATION:

Earthquake Magnitude:	6.74
PGAM (g):	0.954
2/3 PGAM (g):	0.64
Calculated Mag.Wtg.Factor:	0.764
Historic High Groundwater:	15.0
Groundwater @ Exploration:	15.0

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	7	127.4	0.032	0.032	62	13	0.414	--	0.00	0.00
2.5	7	127.4	0.111	0.111	62	13	0.414	--	0.00	0.00
3.0	7	127.4	0.143	0.143	62	20	0.414	--	0.00	0.00
4.0	7	127.4	0.223	0.223	62	20	0.414	--	0.00	0.00
5.0	7	127.4	0.287	0.287	62	20	0.414	--	0.00	0.00
6.5	7	127.4	0.366	0.366	62	20	0.414	--	0.00	0.00
7.0	9	133.6	0.399	0.399	61	23	0.414	--	0.00	0.00
8.0	9	133.6	0.482	0.482	61	22	0.414	--	0.00	0.00
9.0	9	133.6	0.549	0.549	61	21	0.414	--	0.00	0.00
10.5	9	133.6	0.633	0.633	61	20	0.414	--	0.00	0.00
11.0	9	133.6	0.666	0.666	61	20	0.414	--	0.00	0.00
12.0	9	133.6	0.749	0.749	61	19	0.414	--	0.00	0.00
13.0	9	133.6	0.816	0.816	61	18	0.414	--	0.00	0.00
14.0	13	128.1	0.882	0.882		23	0.414	~	0.00	0.00
15.0	13	128.1	0.946	0.946		23	0.414	~	0.00	0.00
16.5	13	128.1	1.026	1.002		23	0.423	~	0.00	0.00
17.0	45	127.8	1.058	1.019	115	59	0.429	Non-Liq.	0.00	0.00
18.0	45	127.8	1.138	1.060	115	58	0.444	Non-Liq.	0.00	0.00
19.0	45	127.8	1.202	1.092	115	57	0.455	Non-Liq.	0.00	0.00
20.0	45	127.8	1.265	1.125	115	56	0.465	Non-Liq.	0.00	0.00
21.0	45	127.8	1.329	1.158	115	56	0.475	Non-Liq.	0.00	0.00
22.0	45	127.8	1.393	1.190	115	55	0.484	Non-Liq.	0.00	0.00
23.0	40	127.8	1.457	1.223	104	52	0.493	Non-Liq.	0.00	0.00
24.0	40	127.8	1.521	1.256	104	51	0.501	Non-Liq.	0.00	0.00
25.0	40	127.8	1.585	1.289	104	51	0.509	Non-Liq.	0.00	0.00
26.0	40	127.8	1.649	1.321	104	50	0.516	Non-Liq.	0.00	0.00
27.0	40	127.8	1.713	1.354	104	49	0.523	Non-Liq.	0.00	0.00
28.0	74	120.0	1.775	1.385	137	95	0.530	Non-Liq.	0.00	0.00
29.0	74	120.0	1.835	1.413	137	94	0.537	Non-Liq.	0.00	0.00
30.0	74	120.0	1.895	1.442	137	93	0.543	Non-Liq.	0.00	0.00
31.0	74	120.0	1.955	1.471	137	93	0.550	Non-Liq.	0.00	0.00
32.0	74	120.0	2.015	1.500	137	92	0.556	Non-Liq.	0.00	0.00
33.0	67	129.1	2.077	1.531	126	84	0.561	Non-Liq.	0.00	0.00
34.0	67	129.1	2.142	1.564	126	83	0.566	Non-Liq.	0.00	0.00
35.0	67	129.1	2.206	1.598	126	82	0.571	Non-Liq.	0.00	0.00
36.0	67	129.1	2.271	1.631	126	81	0.576	Non-Liq.	0.00	0.00
37.0	67	129.1	2.335	1.664	126	80	0.580	Non-Liq.	0.00	0.00
38.0	67	129.1	2.400	1.698	126	80	0.585	Non-Liq.	0.00	0.00
39.0	67	129.1	2.464	1.731	126	79	0.589	Non-Liq.	0.00	0.00
40.0	67	129.1	2.529	1.764	126	78	0.593	Non-Liq.	0.00	0.00
41.0	67	129.1	2.593	1.798	126	77	0.597	Non-Liq.	0.00	0.00
42.0	67	129.1	2.658	1.831	126	77	0.600	Non-Liq.	0.00	0.00
43.0	67	129.1	2.722	1.864	126	76	0.604	Non-Liq.	0.00	0.00
44.0	67	129.1	2.787	1.898	126	75	0.607	Non-Liq.	0.00	0.00
45.0	67	129.1	2.852	1.931	126	74	0.611	Non-Liq.	0.00	0.00
46.0	50	125.4	2.915	1.964	102	55	0.614	Non-Liq.	0.00	0.00
47.0	50	125.4	2.978	1.995	102	55	0.617	Non-Liq.	0.00	0.00
48.0	50	125.4	3.041	2.027	102	54	0.621	Non-Liq.	0.00	0.00
49.0	50	125.4	3.103	2.058	102	54	0.624	Non-Liq.	0.00	0.00
50.0	50	125.4	3.166	2.090	102	53	0.627	Non-Liq.	0.00	0.00
51.0	66	125.4	3.229	2.121	114	70	0.630	Non-Liq.	0.00	0.00
52.0	66	125.4	3.291	2.153	114	69	0.632	Non-Liq.	0.00	0.00
53.0	66	125.4	3.354	2.184	114	69	0.635	Non-Liq.	0.00	0.00
54.0	66	125.4	3.417	2.216	114	68	0.638	Non-Liq.	0.00	0.00
55.0	66	125.4	3.479	2.247	114	68	0.640	Non-Liq.	0.00	0.00
56.0	78	125.4	3.542	2.279	120	80	0.643	Non-Liq.	0.00	0.00
57.0	78	125.4	3.605	2.310	120	79	0.645	Non-Liq.	0.00	0.00
58.0	78	125.4	3.668	2.342	120	79	0.648	Non-Liq.	0.00	0.00
59.0	78	125.4	3.730	2.373	120	78	0.650	Non-Liq.	0.00	0.00
60.0	78	125.4	3.793	2.405	120	78	0.652	Non-Liq.	0.00	0.00

TOTAL SETTLEMENT = 0.0 INCHES

Figure 8

GEOCON

Project: 3601 N Mission RD
File No. : W1562-06-01
Boring : B1

EMPIRICAL ESTIMATION OF LIQUEFACTION POTENTIAL
MAXIMUM CONSIDERED EARTHQUAKE

NCEER (1996) METHOD
EARTHQUAKE INFORMATION:

Earthquake Magnitude:	6.83
Peak Horiz. Acceleration PGA_M (g):	0.954
Calculated Mag.Wtg.Factor:	0.791
Historic High Groundwater:	15.0
Groundwater Depth During Exploration:	27.0

By Thomas F. Blake (1994-1996)
ENERGY & ROD CORRECTIONS:

Energy Correction (CE) for N60:	1.25
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	130.5	0	47.0	5.5	1		149	1.700	89.9	130.5	Infin.	0.998	0.489	--
2.0	130.5	0	47.0	5.5	1		149	1.700	89.9	130.5	Infin.	0.993	0.487	--
3.0	130.5	0	47.0	5.5	1		149	1.700	89.9	130.5	Infin.	0.989	0.485	--
4.5	130.5	0	47.0	5.5	1		149	1.700	89.9	130.5	Infin.	0.983	0.482	--
5.0	130.5	0	47.0	5.5	1		149	1.700	89.9	130.5	Infin.	0.978	0.480	--
6.5	130.5	0	47.0	5.5	1		149	1.668	88.2	130.5	Infin.	0.974	0.477	--
7.0	130.5	0	31.4	7.5	1		113	1.600	56.4	130.5	Infin.	0.969	0.475	--
8.0	130.5	0	31.4	7.5	1		113	1.461	51.5	130.5	Infin.	0.966	0.474	--
9.0	130.5	0	31.4	7.5	1		113	1.372	48.4	130.5	Infin.	0.961	0.471	--
10.0	122.7	0	27.0	10.0	1	89	100	1.300	46.5	122.7	Infin.	0.957	0.469	--
11.0	122.7	0	27.0	10.0	1	89	100	1.240	44.7	122.7	Infin.	0.952	0.467	--
12.0	122.7	0	27.0	10.0	1	89	100	1.187	43.1	122.7	Infin.	0.947	0.465	--
13.0	122.7	0	27.0	10.0	1	89	100	1.141	41.7	122.7	Infin.	0.943	0.462	--
14.0	122.7	0	27.0	10.0	1	89	100	1.100	40.4	122.7	Infin.	0.938	0.460	--
15.0	122.7	0	42.0	15.0	1		115	1.063	54.0	122.7	Infin.	0.934	0.458	--
16.5	122.7	1	42.0	15.0	1		115	1.021	51.9	60.3	Infin.	0.928	0.466	Non-Liq.
17.0	132.1	1	13.2	17.5	1		63	1.005	17.0	69.7	0.185	0.923	0.471	0.39
18.0	132.1	1	13.2	17.5	1		63	0.967	16.4	69.7	0.178	0.920	0.485	0.37
19.0	132.1	1	13.2	17.5	1		63	0.940	15.9	69.7	0.173	0.915	0.495	0.35
20.0	132.1	1	13.2	17.5	1		63	0.915	15.5	69.7	0.169	0.911	0.503	0.34
21.0	127.1	1	22.0	20.0	1	82	79	0.892	33.3	64.7	Infin.	0.906	0.511	Non-Liq.
22.0	127.1	1	22.0	20.0	1	82	79	0.871	32.7	64.7	Infin.	0.902	0.519	Non-Liq.
23.0	127.1	1	22.0	20.0	1	82	79	0.852	32.1	64.7	Infin.	0.897	0.525	Non-Liq.
24.0	127.1	1	22.0	20.0	1	82	79	0.833	31.6	64.7	Infin.	0.893	0.531	Non-Liq.
25.0	127.1	1	22.0	20.0	1	82	79	0.816	31.1	64.7	Infin.	0.888	0.537	Non-Liq.
26.0	133.7	1	17.0	25.0	0	78		0.800	26.5	71.3	~	0.883	0.542	~
27.0	133.7	1	17.0	25.0	0	78		0.788	26.2	71.3	~	0.879	0.546	~
28.0	133.7	1	17.0	25.0	0	78		0.779	26.0	71.3	~	0.874	0.550	~
29.0	133.7	1	17.0	25.0	0	78		0.771	25.8	71.3	~	0.870	0.554	~
30.0	133.7	1	17.0	25.0	0	78		0.764	25.6	71.3	~	0.865	0.557	~
31.0	136.2	1	11.0	30.0	0	80		0.756	19.5	73.8	~	0.861	0.560	~
32.0	136.2	1	11.0	30.0	0	80		0.748	19.4	73.8	~	0.856	0.562	~
33.0	136.2	1	11.0	30.0	0	80		0.741	19.2	73.8	~	0.851	0.564	~
34.0	136.2	1	11.0	30.0	0	80		0.734	19.1	73.8	~	0.847	0.566	~
35.0	125.7	1	22.0	35.0	1	66	71	0.728	31.0	63.3	Infin.	0.842	0.567	Non-Liq.
36.0	125.7	1	22.0	35.0	1	66	71	0.722	30.8	63.3	Infin.	0.838	0.569	Non-Liq.
37.0	125.7	1	22.0	35.0	1	66	71	0.716	30.6	63.3	Infin.	0.833	0.571	Non-Liq.
38.0	125.7	1	22.0	35.0	1	66	71	0.711	30.5	63.3	Infin.	0.829	0.572	Non-Liq.
39.0	125.7	1	22.0	35.0	1	66	71	0.705	30.3	63.3	Infin.	0.824	0.573	Non-Liq.
40.5	125.7	1	22.0	35.0	1	66	71	0.699	30.1	63.3	Infin.	0.818	0.574	Non-Liq.
41.0	125.7	1	43.0	40.0	1		96	0.696	44.9	63.3	Infin.	0.814	0.573	Non-Liq.
42.0	125.7	1	43.0	40.0	1		96	0.690	44.5	63.3	Infin.	0.810	0.575	Non-Liq.
43.0	133.9	1	51.0	45.0	1		102	0.685	52.4	71.5	Infin.	0.806	0.575	Non-Liq.
44.0	133.9	1	51.0	45.0	1		102	0.679	52.0	71.5	Infin.	0.801	0.575	Non-Liq.
45.0	133.9	1	51.0	45.0	1		102	0.674	51.6	71.5	Infin.	0.797	0.575	Non-Liq.
46.5	133.9	1	51.0	45.0	1		102	0.668	51.1	71.5	Infin.	0.791	0.574	Non-Liq.
47.0	133.9	1	45.0	50.0	1		93	0.665	44.9	71.5	Infin.	0.786	0.572	Non-Liq.
48.0	133.9	1	45.0	50.0	1		93	0.659	44.5	71.5	Infin.	0.783	0.573	Non-Liq.
49.0	133.9	1	45.0	50.0	1		93	0.654	44.1	71.5	Infin.	0.778	0.572	Non-Liq.
50.0	133.9	1	45.0	50.0	1		93	0.649	43.8	71.5	Infin.	0.774	0.571	Non-Liq.
51.0	133.9	1	45.0	50.0	1		93	0.645	43.5	71.5	Infin.	0.769	0.570	Non-Liq.
52.0	133.9	1	45.0	50.0	1		93	0.640	43.2	71.5	Infin.	0.765	0.569	Non-Liq.
53.0	133.9	1	45.0	50.0	1		93	0.636	42.9	71.5	Infin.	0.760	0.567	Non-Liq.
54.0	133.9	1	45.0	50.0	1		93	0.631	42.6	71.5	Infin.	0.755	0.566	Non-Liq.
55.0	133.9	1	45.0	50.0	1		93	0.627	42.3	71.5	Infin.	0.751	0.564	Non-Liq.
56.0	133.9	1	60.0	55.0	1		105	0.623	56.1	71.5	Infin.	0.746	0.563	Non-Liq.
57.0	133.9	1	60.0	55.0	1		105	0.619	55.7	71.5	Infin.	0.742	0.561	Non-Liq.
58.0	133.9	1	60.0	55.0	1		105	0.615	55.3	71.5	Infin.	0.737	0.560	Non-Liq.
59.0	133.9	1	60.0	55.0	1		105	0.611	55.0	71.5	Infin.	0.733	0.558	Non-Liq.
60.0	133.9	1	60.0	55.0	1		105	0.607	54.6	71.5	Infin.	0.728	0.556	Non-Liq.

GEOCON

Project: 3601 N Mission RD
File No. : W1562-06-01
Boring : B1

LIQUEFACTION SETTLEMENT ANALYSIS
MAXIMUM CONSIDERED EARTHQUAKE

(SATURATED SAND AT INITIAL LIQUEFACTION CONDITION)

NCEER (1996) METHOD
EARTHQUAKE INFORMATION:

Earthquake Magnitude:	6.83
PGA_M (g):	0.954
Calculated Mag.Wtg.Factor:	0.791
Historic High Groundwater:	15.0
Groundwater @ Exploration:	27.0

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	47	130.5	0.033	0.033	149	90	0.620	--	0.00	0.00
2	47	130.5	0.098	0.098	149	90	0.620	--	0.00	0.00
3	47	130.5	0.163	0.163	149	90	0.620	--	0.00	0.00
5	47	130.5	0.245	0.245	149	90	0.620	--	0.00	0.00
5	47	130.5	0.277	0.277	149	90	0.620	--	0.00	0.00
7	47	130.5	0.375	0.375	149	88	0.620	--	0.00	0.00
7	31	130.5	0.408	0.408	113	56	0.620	--	0.00	0.00
8	31	130.5	0.489	0.489	113	52	0.620	--	0.00	0.00
9	31	130.5	0.555	0.555	113	48	0.620	--	0.00	0.00
10	27	122.7	0.618	0.618	100	46	0.620	--	0.00	0.00
11	27	122.7	0.679	0.679	100	45	0.620	--	0.00	0.00
12	27	122.7	0.741	0.741	100	43	0.620	--	0.00	0.00
13	27	122.7	0.802	0.802	100	42	0.620	--	0.00	0.00
14	27	122.7	0.863	0.863	100	40	0.620	--	0.00	0.00
15	42	122.7	0.925	0.925	115	54	0.620	--	0.00	0.00
17	42	122.7	1.001	0.978	115	52	0.635	Non-Liq.	0.00	0.00
17	13	132.1	1.033	0.994	63	17	0.644	0.39	1.70	0.10
18	13	132.1	1.116	1.038	63	16	0.667	0.37	1.70	0.20
19	13	132.1	1.182	1.073	63	16	0.683	0.35	1.70	0.20
20	13	132.1	1.248	1.108	63	15	0.699	0.34	1.70	0.20
21	22	127.1	1.313	1.141	79	33	0.713	Non-Liq.	0.00	0.00
22	22	127.1	1.376	1.173	79	33	0.727	Non-Liq.	0.00	0.00
23	22	127.1	1.440	1.206	79	32	0.740	Non-Liq.	0.00	0.00
24	22	127.1	1.503	1.238	79	32	0.753	Non-Liq.	0.00	0.00
25	22	127.1	1.567	1.271	79	31	0.765	Non-Liq.	0.00	0.00
26	17	133.7	1.632	1.305		26	0.776	~	0.00	0.00
27	17	133.7	1.699	1.340		26	0.786	~	0.00	0.00
28	17	133.7	1.766	1.376		26	0.796	~	0.00	0.00
29	17	133.7	1.833	1.411		26	0.805	~	0.00	0.00
30	17	133.7	1.900	1.447		26	0.814	~	0.00	0.00
31	11	136.2	1.967	1.483		19	0.822	~	0.00	0.00
32	11	136.2	2.035	1.520		19	0.830	~	0.00	0.00
33	11	136.2	2.103	1.557		19	0.838	~	0.00	0.00
34	11	136.2	2.171	1.594		19	0.845	~	0.00	0.00
35	22	125.7	2.237	1.628	71	31	0.852	Non-Liq.	0.00	0.00
36	22	125.7	2.300	1.660	71	31	0.859	Non-Liq.	0.00	0.00
37	22	125.7	2.362	1.692	71	31	0.866	Non-Liq.	0.00	0.00
38	22	125.7	2.425	1.723	71	30	0.873	Non-Liq.	0.00	0.00
39	22	125.7	2.488	1.755	71	30	0.879	Non-Liq.	0.00	0.00
41	22	125.7	2.567	1.795	71	30	0.887	Non-Liq.	0.00	0.00
41	43	125.7	2.598	1.810	96	45	0.890	Non-Liq.	0.00	0.00
42	43	125.7	2.677	1.850	96	45	0.897	Non-Liq.	0.00	0.00
43	51	133.9	2.742	1.884	102	52	0.903	Non-Liq.	0.00	0.00
44	51	133.9	2.809	1.919	102	52	0.907	Non-Liq.	0.00	0.00
45	51	133.9	2.876	1.955	102	52	0.912	Non-Liq.	0.00	0.00
47	51	133.9	2.959	2.000	102	51	0.918	Non-Liq.	0.00	0.00
47	45	133.9	2.993	2.018	93	45	0.920	Non-Liq.	0.00	0.00
48	45	133.9	3.076	2.062	93	44	0.925	Non-Liq.	0.00	0.00
49	45	133.9	3.143	2.098	93	44	0.929	Non-Liq.	0.00	0.00
50	45	133.9	3.210	2.134	93	44	0.933	Non-Liq.	0.00	0.00
51	45	133.9	3.277	2.170	93	44	0.937	Non-Liq.	0.00	0.00
52	45	133.9	3.344	2.205	93	43	0.940	Non-Liq.	0.00	0.00
53	45	133.9	3.411	2.241	93	43	0.944	Non-Liq.	0.00	0.00
54	45	133.9	3.478	2.277	93	43	0.947	Non-Liq.	0.00	0.00
55	45	133.9	3.545	2.313	93	42	0.951	Non-Liq.	0.00	0.00
56	60	133.9	3.612	2.348	105	56	0.954	Non-Liq.	0.00	0.00
57	60	133.9	3.679	2.384	105	56	0.957	Non-Liq.	0.00	0.00
58	60	133.9	3.746	2.420	105	55	0.960	Non-Liq.	0.00	0.00
59	60	133.9	3.813	2.456	105	55	0.963	Non-Liq.	0.00	0.00
60	60	133.9	3.880	2.491	105	55	0.966	Non-Liq.	0.00	0.00

TOTAL SETTLEMENT = 0.7 INCHES

Figure 10

GEOCON

Project: 3601 N Mission RD
File No. : W1562-06-01
Boring : B2

EMPIRICAL ESTIMATION OF LIQUEFACTION POTENTIAL
MAXIMUM CONSIDERED EARTHQUAKE

NCEER (1996) METHOD
EARTHQUAKE INFORMATION:

Earthquake Magnitude:	6.83
Peak Horiz. Acceleration PGA_M (g):	0.954
Calculated Mag.Wtg.Factor:	0.791
Historic High Groundwater:	15.0
Groundwater Depth During Exploration:	15.0

By Thomas F. Blake (1994-1996)
ENERGY & ROD CORRECTIONS:

Energy Correction (CE) for N60:	1.25
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	127.4	0	7.0	2.5	1		62	1.700	13.4	127.4	0.146	0.998	0.489	--
2.5	127.4	0	7.0	2.5	1		62	1.700	13.4	127.4	0.146	0.992	0.486	--
3.0	127.4	0	7.0	2.5	1	63	62	1.700	20.4	127.4	0.222	0.987	0.484	--
4.0	127.4	0	7.0	2.5	1	63	62	1.700	20.4	127.4	0.222	0.984	0.483	--
5.0	127.4	0	7.0	2.5	1	63	62	1.700	20.4	127.4	0.222	0.979	0.480	--
6.5	127.4	0	7.0	2.5	1	63	62	1.688	20.3	127.4	0.221	0.974	0.477	--
7.0	133.6	0	9.0	7.5	1	75	61	1.618	23.4	133.6	0.261	0.969	0.475	--
8.0	133.6	0	9.0	7.5	1	75	61	1.471	21.9	133.6	0.241	0.966	0.474	--
9.0	133.6	0	9.0	7.5	1	75	61	1.379	21.0	133.6	0.229	0.961	0.471	--
10.5	133.6	0	9.0	7.5	1	75	61	1.285	20.0	133.6	0.218	0.955	0.469	--
11.0	133.6	0	9.0	7.5	1	75	61	1.252	19.7	133.6	0.214	0.951	0.466	--
12.0	133.6	0	9.0	7.5	1	75	61	1.180	19.0	133.6	0.206	0.947	0.465	--
13.0	133.6	0	9.0	7.5	1	75	61	1.131	18.5	133.6	0.201	0.943	0.462	--
14.0	128.1	0	13.0	13.5	0	77		1.088	23.4	128.1	~	0.938	0.460	~
15.0	128.1	0	13.0	13.5	0	77		1.059	22.9	128.1	~	0.934	0.458	~
16.5	128.1	1	13.0	13.5	0	77		1.037	22.6	65.7	~	0.928	0.466	~
17.0	127.8	1	45.0	17.5	1		115	1.028	59.4	65.4	Infin.	0.923	0.470	Non-Liq.
18.0	127.8	1	45.0	17.5	1		115	1.008	58.2	65.4	Infin.	0.920	0.484	Non-Liq.
19.0	127.8	1	45.0	17.5	1		115	0.992	57.3	65.4	Infin.	0.915	0.494	Non-Liq.
20.0	127.8	1	45.0	17.5	1		115	0.977	56.4	65.4	Infin.	0.911	0.502	Non-Liq.
21.0	127.8	1	45.0	17.5	1		115	0.963	55.6	65.4	Infin.	0.906	0.510	Non-Liq.
22.0	127.8	1	45.0	17.5	1		115	0.949	54.8	65.4	Infin.	0.902	0.518	Non-Liq.
23.0	127.8	1	40.0	22.5	1		104	0.936	52.1	65.4	Infin.	0.897	0.524	Non-Liq.
24.0	127.8	1	40.0	22.5	1		104	0.923	51.4	65.4	Infin.	0.893	0.530	Non-Liq.
25.0	127.8	1	40.0	22.5	1		104	0.911	50.7	65.4	Infin.	0.888	0.536	Non-Liq.
26.0	127.8	1	40.0	22.5	1		104	0.900	50.1	65.4	Infin.	0.883	0.541	Non-Liq.
27.0	127.8	1	40.0	22.5	1		104	0.888	49.4	65.4	Infin.	0.879	0.545	Non-Liq.
28.0	120.0	1	74.0	27.5	1		137	0.878	95.5	57.6	Infin.	0.874	0.549	Non-Liq.
29.0	120.0	1	74.0	27.5	1		137	0.869	94.5	57.6	Infin.	0.870	0.554	Non-Liq.
30.0	120.0	1	74.0	27.5	1		137	0.860	93.5	57.6	Infin.	0.865	0.557	Non-Liq.
31.0	120.0	1	74.0	27.5	1		137	0.852	92.5	57.6	Infin.	0.861	0.561	Non-Liq.
32.0	120.0	1	74.0	27.5	1		137	0.843	91.6	57.6	Infin.	0.856	0.564	Non-Liq.
33.0	129.1	1	67.0	32.5	1		126	0.834	83.9	66.7	Infin.	0.851	0.566	Non-Liq.
34.0	129.1	1	67.0	32.5	1		126	0.825	82.9	66.7	Infin.	0.847	0.569	Non-Liq.
35.0	129.1	1	67.0	32.5	1		126	0.816	82.0	66.7	Infin.	0.842	0.570	Non-Liq.
36.0	129.1	1	67.0	32.5	1		126	0.808	81.2	66.7	Infin.	0.838	0.572	Non-Liq.
37.0	129.1	1	67.0	32.5	1		126	0.800	80.4	66.7	Infin.	0.833	0.573	Non-Liq.
38.0	129.1	1	67.0	32.5	1		126	0.791	79.5	66.7	Infin.	0.829	0.574	Non-Liq.
39.0	129.1	1	67.0	32.5	1		126	0.784	78.8	66.7	Infin.	0.824	0.575	Non-Liq.
40.0	129.1	1	67.0	32.5	1		126	0.776	78.0	66.7	Infin.	0.819	0.576	Non-Liq.
41.0	129.1	1	67.0	32.5	1		126	0.769	77.3	66.7	Infin.	0.815	0.576	Non-Liq.
42.0	129.1	1	67.0	32.5	1		126	0.762	76.5	66.7	Infin.	0.810	0.577	Non-Liq.
43.0	129.1	1	67.0	32.5	1		126	0.755	75.8	66.7	Infin.	0.806	0.577	Non-Liq.
44.0	129.1	1	67.0	32.5	1		126	0.748	75.2	66.7	Infin.	0.801	0.577	Non-Liq.
45.0	129.1	1	67.0	32.5	1		126	0.741	74.5	66.7	Infin.	0.797	0.577	Non-Liq.
46.0	125.4	1	50.0	45.0	1		102	0.735	55.1	63.0	Infin.	0.792	0.577	Non-Liq.
47.0	125.4	1	50.0	45.0	1		102	0.729	54.7	63.0	Infin.	0.787	0.576	Non-Liq.
48.0	125.4	1	50.0	45.0	1		102	0.723	54.2	63.0	Infin.	0.783	0.576	Non-Liq.
49.0	125.4	1	50.0	45.0	1		102	0.718	53.8	63.0	Infin.	0.778	0.575	Non-Liq.
50.0	125.4	1	50.0	45.0	1		102	0.712	53.4	63.0	Infin.	0.774	0.575	Non-Liq.
51.0	125.4	1	66.0	50.0	1		114	0.707	70.0	63.0	Infin.	0.769	0.574	Non-Liq.
52.0	125.4	1	66.0	50.0	1		114	0.702	69.5	63.0	Infin.	0.765	0.573	Non-Liq.
53.0	125.4	1	66.0	50.0	1		114	0.696	68.9	63.0	Infin.	0.760	0.572	Non-Liq.
54.0	125.4	1	66.0	50.0	1		114	0.691	68.4	63.0	Infin.	0.755	0.571	Non-Liq.
55.0	125.4	1	66.0	50.0	1		114	0.686	68.0	63.0	Infin.	0.751	0.570	Non-Liq.
56.0	125.4	1	78.0	55.0	1		120	0.682	79.7	63.0	Infin.	0.746	0.569	Non-Liq.
57.0	125.4	1	78.0	55.0	1		120	0.677	79.2	63.0	Infin.	0.742	0.568	Non-Liq.
58.0	125.4	1	78.0	55.0	1		120	0.672	78.6	63.0	Infin.	0.737	0.566	Non-Liq.
59.0	125.4	1	78.0	55.0	1		120	0.668	78.1	63.0	Infin.	0.733	0.565	Non-Liq.
60.0	125.4	1	78.0	55.0	1		120	0.663	77.6	63.0	Infin.	0.728	0.563	Non-Liq.

Figure 11

GEOCON

Project: 3601 N Mission RD
File No. : W1562-06-01
Boring : B2

LIQUEFACTION SETTLEMENT ANALYSIS
MAXIMUM CONSIDERED EARTHQUAKE

(SATURATED SAND AT INITIAL LIQUEFACTION CONDITION)

NCEER (1996) METHOD
EARTHQUAKE INFORMATION:

Earthquake Magnitude:	6.83
PGA_M (g):	0.954
Calculated Mag.Wtg.Factor:	0.791
Historic High Groundwater:	15.0
Groundwater @ Exploration:	15.0

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	7	127.4	0.032	0.032	62	13	0.620	--	0.00	0.00
2.5	7	127.4	0.111	0.111	62	13	0.620	--	0.00	0.00
3.0	7	127.4	0.143	0.143	62	20	0.620	--	0.00	0.00
4.0	7	127.4	0.223	0.223	62	20	0.620	--	0.00	0.00
5.0	7	127.4	0.287	0.287	62	20	0.620	--	0.00	0.00
6.5	7	127.4	0.366	0.366	62	20	0.620	--	0.00	0.00
7.0	9	133.6	0.399	0.399	61	23	0.620	--	0.00	0.00
8.0	9	133.6	0.482	0.482	61	22	0.620	--	0.00	0.00
9.0	9	133.6	0.549	0.549	61	21	0.620	--	0.00	0.00
10.5	9	133.6	0.633	0.633	61	20	0.620	--	0.00	0.00
11.0	9	133.6	0.666	0.666	61	20	0.620	--	0.00	0.00
12.0	9	133.6	0.749	0.749	61	19	0.620	--	0.00	0.00
13.0	9	133.6	0.816	0.816	61	18	0.620	--	0.00	0.00
14.0	13	128.1	0.882	0.882		23	0.620	~	0.00	0.00
15.0	13	128.1	0.946	0.946		23	0.620	~	0.00	0.00
16.5	13	128.1	1.026	1.002		23	0.635	~	0.00	0.00
17.0	45	127.8	1.058	1.019	115	59	0.644	Non-Liq.	0.00	0.00
18.0	45	127.8	1.138	1.060	115	58	0.666	Non-Liq.	0.00	0.00
19.0	45	127.8	1.202	1.092	115	57	0.682	Non-Liq.	0.00	0.00
20.0	45	127.8	1.265	1.125	115	56	0.697	Non-Liq.	0.00	0.00
21.0	45	127.8	1.329	1.158	115	56	0.712	Non-Liq.	0.00	0.00
22.0	45	127.8	1.393	1.190	115	55	0.726	Non-Liq.	0.00	0.00
23.0	40	127.8	1.457	1.223	104	52	0.739	Non-Liq.	0.00	0.00
24.0	40	127.8	1.521	1.256	104	51	0.751	Non-Liq.	0.00	0.00
25.0	40	127.8	1.585	1.289	104	51	0.763	Non-Liq.	0.00	0.00
26.0	40	127.8	1.649	1.321	104	50	0.774	Non-Liq.	0.00	0.00
27.0	40	127.8	1.713	1.354	104	49	0.784	Non-Liq.	0.00	0.00
28.0	74	120.0	1.775	1.385	137	95	0.795	Non-Liq.	0.00	0.00
29.0	74	120.0	1.835	1.413	137	94	0.805	Non-Liq.	0.00	0.00
30.0	74	120.0	1.895	1.442	137	93	0.815	Non-Liq.	0.00	0.00
31.0	74	120.0	1.955	1.471	137	93	0.824	Non-Liq.	0.00	0.00
32.0	74	120.0	2.015	1.500	137	92	0.833	Non-Liq.	0.00	0.00
33.0	67	129.1	2.077	1.531	126	84	0.841	Non-Liq.	0.00	0.00
34.0	67	129.1	2.142	1.564	126	83	0.849	Non-Liq.	0.00	0.00
35.0	67	129.1	2.206	1.598	126	82	0.856	Non-Liq.	0.00	0.00
36.0	67	129.1	2.271	1.631	126	81	0.863	Non-Liq.	0.00	0.00
37.0	67	129.1	2.335	1.664	126	80	0.870	Non-Liq.	0.00	0.00
38.0	67	129.1	2.400	1.698	126	80	0.877	Non-Liq.	0.00	0.00
39.0	67	129.1	2.464	1.731	126	79	0.883	Non-Liq.	0.00	0.00
40.0	67	129.1	2.529	1.764	126	78	0.889	Non-Liq.	0.00	0.00
41.0	67	129.1	2.593	1.798	126	77	0.895	Non-Liq.	0.00	0.00
42.0	67	129.1	2.658	1.831	126	77	0.900	Non-Liq.	0.00	0.00
43.0	67	129.1	2.722	1.864	126	76	0.905	Non-Liq.	0.00	0.00
44.0	67	129.1	2.787	1.898	126	75	0.911	Non-Liq.	0.00	0.00
45.0	67	129.1	2.852	1.931	126	74	0.916	Non-Liq.	0.00	0.00
46.0	50	125.4	2.915	1.964	102	55	0.921	Non-Liq.	0.00	0.00
47.0	50	125.4	2.978	1.995	102	55	0.926	Non-Liq.	0.00	0.00
48.0	50	125.4	3.041	2.027	102	54	0.930	Non-Liq.	0.00	0.00
49.0	50	125.4	3.103	2.058	102	54	0.935	Non-Liq.	0.00	0.00
50.0	50	125.4	3.166	2.090	102	53	0.940	Non-Liq.	0.00	0.00
51.0	66	125.4	3.229	2.121	114	70	0.944	Non-Liq.	0.00	0.00
52.0	66	125.4	3.291	2.153	114	69	0.948	Non-Liq.	0.00	0.00
53.0	66	125.4	3.354	2.184	114	69	0.952	Non-Liq.	0.00	0.00
54.0	66	125.4	3.417	2.216	114	68	0.956	Non-Liq.	0.00	0.00
55.0	66	125.4	3.479	2.247	114	68	0.960	Non-Liq.	0.00	0.00
56.0	78	125.4	3.542	2.279	120	80	0.964	Non-Liq.	0.00	0.00
57.0	78	125.4	3.605	2.310	120	79	0.968	Non-Liq.	0.00	0.00
58.0	78	125.4	3.668	2.342	120	79	0.971	Non-Liq.	0.00	0.00
59.0	78	125.4	3.730	2.373	120	78	0.975	Non-Liq.	0.00	0.00
60.0	78	125.4	3.793	2.405	120	78	0.978	Non-Liq.	0.00	0.00

TOTAL SETTLEMENT = 0.0 INCHES

Figure 12

GEOCON

Project: 3601 N Mission RD
File No. : W1562-06-01
Boring : B1

TECHNICAL ENGINEERING AND DESIGN GUIDES AS ADAPTED FROM THE US ARMY CORPS OF ENGINEERS, NO. 9
EVALUATION OF EARTHQUAKE-INDUCED SETTLEMENTS IN DRY SANDY SOILS
DESIGN EARTHQUAKE

DE EARTHQUAKE INFORMATION:

Earthquake Magnitude:	6.74
Peak Horiz. Acceleration (g):	0.636

Fig 4.1 Fig 4.2 Fig 4.4

Depth of Base of Strata (ft)	Thickness of Layer (ft)	Depth of Mid-point of Layer (ft)	Soil Unit Weight (pcf)	Overburden Pressure at Mid-point (tsf)	Mean Effective Pressure at Mid-point (tsf)	Average Cyclic Shear Stress [Tav]	Field SPT [N]	Correction Factor [Cer]	Relative Density [Dr] (%)	Correction Factor [Cn]	Corrected [N1]60	rd Factor	Maximum Shear Mod. [Gmax] (tsf)	[yeff]*[Geff] [Gmax]	yeff Shear Strain	[yeff]*100%	Volumetric Strain M7.5 [E15] (%)	Number of Strain Cycles [Nc]	Corrected Vol. Strains [Ec]	Estimated Settlement [S] (inches)
1.0	1.0	0.5	130.5	0.03	0.02	0.013	47	1.25	149.1	1.7	89.9	1.0	296.059	4.51E-05	6.00E-05	0.006	9.88E-04	8.9108	7.82E-04	0.00
2.0	1.0	1.5	130.5	0.10	0.07	0.040	47	1.25	149.1	1.7	89.9	1.0	512.789	7.66E-05	1.40E-04	0.014	2.31E-03	8.9108	1.82E-03	0.00
3.0	1.0	2.5	130.5	0.16	0.11	0.067	47	1.25	149.1	1.7	89.9	1.0	662.008	9.70E-05	1.60E-04	0.016	2.64E-03	8.9108	2.09E-03	0.00
4.5	1.5	3.8	130.5	0.24	0.16	0.101	47	1.25	149.1	1.7	89.9	1.0	810.791	1.16E-04	1.70E-04	0.017	2.80E-03	8.9108	2.22E-03	0.00
5.0	0.5	4.8	130.5	0.31	0.21	0.128	47	1.25	149.1	1.7	89.9	1.0	912.515	1.28E-04	1.50E-04	0.015	2.47E-03	8.9108	1.95E-03	0.00
6.5	1.5	5.8	130.5	0.38	0.25	0.155	47	1.25	149.1	1.7	88.2	1.0	997.649	1.39E-04	1.50E-04	0.015	2.53E-03	8.9108	2.00E-03	0.00
7.0	0.5	6.8	130.5	0.44	0.30	0.181	31.35	1.25	112.8	1.6	56.4	1.0	931.408	1.72E-04	1.50E-04	0.015	4.32E-03	8.9108	3.42E-03	0.00
8.0	1.0	7.5	130.5	0.49	0.33	0.201	31.35	1.25	112.8	1.5	51.5	1.0	952.403	1.84E-04	1.50E-04	0.015	4.82E-03	8.9108	3.81E-03	0.00
9.0	1.0	8.5	130.5	0.55	0.37	0.228	31.35	1.25	112.8	1.4	48.4	1.0	992.974	1.96E-04	1.50E-04	0.015	5.20E-03	8.9108	4.11E-03	0.00
10.0	1.0	9.5	122.7	0.62	0.41	0.253	27	1.25	100.4	1.3	46.5	1.0	1034.159	2.06E-04	4.50E-04	0.045	1.64E-02	8.9108	1.29E-02	0.00
11.0	1.0	10.5	122.7	0.68	0.46	0.278	27	1.25	100.4	1.2	44.7	1.0	1069.899	2.15E-04	4.50E-04	0.045	1.72E-02	8.9108	1.36E-02	0.00
12.0	1.0	11.5	122.7	0.74	0.50	0.302	27	1.25	100.4	1.2	43.1	0.9	1103.721	2.23E-04	4.50E-04	0.045	1.79E-02	8.9108	1.42E-02	0.00
13.0	1.0	12.5	122.7	0.80	0.54	0.327	27	1.25	100.4	1.1	41.7	0.9	1135.878	2.31E-04	3.70E-04	0.037	1.53E-02	8.9108	1.21E-02	0.00
14.0	1.0	13.5	122.7	0.86	0.58	0.351	27	1.25	100.4	1.1	40.4	0.9	1166.576	2.38E-04	3.70E-04	0.037	1.59E-02	8.9108	1.26E-02	0.00
15.0	1.0	14.5	122.7	0.92	0.62	0.375	42	1.25	114.8	1.1	54.0	0.9	1329.811	2.19E-04	3.70E-04	0.037	1.12E-02	8.9108	8.89E-03	0.00
16.5	1.5	15.8	122.7	1.00	0.67	0.404	42	1.25	114.8	1.0	51.9	0.9	1365.601	2.26E-04	3.70E-04	0.037	1.18E-02	8.9108	9.33E-03	0.00
17.0	0.5	16.8	132.1	1.06	0.71	0.428	13.2	1.25	62.6	1.0	17.0	0.9	970.918	3.33E-04	7.10E-04	0.071	8.61E-02	8.9108	6.81E-02	0.00
18.0	1.0	17.5	132.1	1.11	0.75	0.447	13.2	1.25	62.6	1.0	16.4	0.9	980.619	3.40E-04	7.10E-04	0.071	9.02E-02	8.9108	7.14E-02	0.00
19.0	1.0	18.5	132.1	1.18	0.79	0.472	13.2	1.25	62.6	0.9	15.9	0.9	999.657	3.48E-04	7.10E-04	0.071	9.34E-02	8.9108	7.39E-02	0.00
20.0	1.0	19.5	132.1	1.25	0.83	0.496	13.2	1.25	62.6	0.9	15.5	0.9	1017.996	3.54E-04	7.10E-04	0.071	9.65E-02	8.9108	7.63E-02	0.00
21.0	1.0	20.5	127.1	1.31	0.88	0.520	22	1.25	79.4	0.9	33.3	0.9	1348.007	2.77E-04	3.70E-04	0.037	2.00E-02	8.9108	1.59E-02	0.00
22.0	1.0	21.5	127.1	1.37	0.92	0.543	22	1.25	79.4	0.9	32.7	0.9	1371.763	2.81E-04	3.70E-04	0.037	2.05E-02	8.9108	1.62E-02	0.00
23.0	1.0	22.5	127.1	1.44	0.96	0.566	22	1.25	79.4	0.9	32.1	0.9	1394.875	2.84E-04	3.70E-04	0.037	2.09E-02	8.9108	1.66E-02	0.00
24.0	1.0	23.5	127.1	1.50	1.01	0.588	22	1.25	79.4	0.8	31.6	0.9	1417.390	2.87E-04	3.00E-04	0.030	1.73E-02	8.9108	1.37E-02	0.00
25.0	1.0	24.5	127.1	1.56	1.05	0.610	22	1.25	79.4	0.8	31.1	0.9	1439.347	2.90E-04	3.00E-04	0.030	1.77E-02	8.9108	1.40E-02	0.00
26.0	1.0	25.5	133.7	1.63	1.09	0.633	17	1.25	67.3	0.8	26.5	0.9	1392.304	3.07E-04	5.20E-04	0.052	3.71E-02	8.9108	2.94E-02	0.00
27.0	1.0	26.5	133.7	1.70	1.14	0.656	17	1.25	67.3	0.8	26.2	0.9	1415.207	3.10E-04	5.20E-04	0.052	3.76E-02	8.9108	2.98E-02	0.00
28.0	1.0	27.5	133.7	1.76	1.18	0.678	17	1.25	67.3	0.8	26.0	0.9	1439.136	3.12E-04	5.20E-04	0.052	3.80E-02	8.9108	3.00E-02	0.00
29.0	1.0	28.5	133.7	1.83	1.23	0.700	17	1.25	67.3	0.8	25.8	0.9	1462.505	3.13E-04	5.20E-04	0.052	3.83E-02	8.9108	3.03E-02	0.00
30.0	1.0	29.5	133.7	1.90	1.27	0.722	17	1.25	67.3	0.8	25.6	0.9	1485.346	3.15E-04	5.20E-04	0.052	3.87E-02	8.9108	3.06E-02	0.00
31.0	1.0	30.5	136.2	1.96	1.32	0.743	11	1.25	52.1	0.8	19.5	0.9	1379.778	3.46E-04	5.20E-04	0.052	5.37E-02	8.9108	4.25E-02	0.00
32.0	1.0	31.5	136.2	2.03	1.36	0.765	11	1.25	52.1	0.7	19.4	0.9	1400.499	3.47E-04	5.20E-04	0.052	5.41E-02	8.9108	4.28E-02	0.00
33.0	1.0	32.5	136.2	2.10	1.41	0.786	11	1.25	52.1	0.7	19.2	0.9	1420.804	3.48E-04	5.20E-04	0.052	5.45E-02	8.9108	4.31E-02	0.00
34.0	1.0	33.5	136.2	2.17	1.45	0.807	11	1.25	52.1	0.7	19.1	0.8	1440.714	3.49E-04	5.20E-04	0.052	5.49E-02	8.9108	4.34E-02	0.00
35.0	1.0	34.5	125.7	2.23	1.50	0.826	22	1.25	71.1	0.7	31.0	0.8	1718.358	2.97E-04	3.00E-04	0.030	1.77E-02	8.9108	1.40E-02	0.00
36.0	1.0	35.5	125.7	2.30	1.54	0.844	22	1.25	71.1	0.7	30.8	0.8	1738.783	2.98E-04	3.00E-04	0.030	1.79E-02	8.9108	1.41E-02	0.00
37.0	1.0	36.5	125.7	2.36	1.58	0.861	22	1.25	71.1	0.7	30.6	0.8	1758.855	2.98E-04	3.00E-04	0.030	1.80E-02	8.9108	1.42E-02	0.00
38.0	1.0	37.5	125.7	2.42	1.62	0.879	22	1.25	71.1	0.7	30.5	0.8	1778.590	2.98E-04	3.00E-04	0.030	1.81E-02	8.9108	1.43E-02	0.00
39.0	1.0	38.5	125.7	2.49	1.67	0.895	22	1.25	71.1	0.7	30.3	0.8	1798.002	2.98E-04	3.00E-04	0.030	1.82E-02	8.9108	1.44E-02	0.00
40.5	1.5	39.8	125.7	2.56	1.72	0.916	22	1.25	71.1	0.7	30.1	0.8	1821.831	2.98E-04	3.00E-04	0.030	1.84E-02	8.9108	1.46E-02	0.00
41.0	0.5	40.8	125.7	2.63	1.76	0.932	43	1.25	96.4	0.7	44.9	0.8	2108.011	2.60E-04	3.00E-04	0.030	1.14E-02	8.9108	8.99E-03	0.00
42.0	1.0	41.5	125.7	2.67	1.79	0.944	43	1.25	96.4	0.7	44.5	0.8	2120.395	2.61E-04	3.00E-04	0.030	1.15E-02	8.9108	9.09E-03	0.00
43.0	1.0	42.5	133.9	2.74	1.84	0.960	51	1.25	102.1	0.7	52.4	0.8	2265.792	2.46E-04	3.00E-04	0.030	9.45E-03	8.9108	7.47E-03	0.00
44.0	1.0	43.5	133.9	2.81	1.88	0.976	51	1.25	102.1	0.7	52.0	0.8	2287.234	2.46E-04	3.00E-04	0.030	9.54E-03	8.9108	7.55E-03	0.00
45.0	1.0	44.5	133.9	2.87	1.93	0.992	51	1.25	102.1	0.7	51.6	0.8	2308.318	2.47E-04	3.00E-04	0.030	9.63E-03	8.9108	7.62E-03	0.00
46.5	1.5	45.8	133.9	2.96	1.98	1.011	51	1.25	102.1	0.7	51.1	0.8	2334.190	2.47E-04	3.00E-04	0.030	9.74E-03	8.9108	7.71E-03	0.00
47.0	0.5	46.8	133.9	3.02	2.03	1.026	45	1.25	93.1	0.7	44.9	0.8	2261.147	2.57E-04	1.00E-02	1.000	3.79E-01	8.9108	3.00E-01	0.00
48.0	1.0	47.5	133.9	3.07	2.06	1.037	45	1.25	93.1	0.7	44.5	0.8	2272.730	2.57E-04	1.00E-02	1.000	3.83E-01	8.9108	3.03E-01	0.00
49.0	1.0	48.5	133.9	3.14	2.10	1.052	45	1.25	93.1	0.7	44.1	0.8	2291.704	2.57E-04	1.00E-02	1.000	3.87E-01	8.9108	3.06E-01	0.00
50.0	1.0	49.5	133.9	3.21	2.15	1.066	45	1.25	93.1	0.6	43.8	0.8	2310.394	2.57E-04	1.00E-02	1.000	3.90E-01	8.9108	3.09E-01	0.00

TOTAL SETTLEMENT = **0.02**

Figure 13

GEOCON

Project: 3601 N Mission RD
File No. : W1562-06-01
Boring : B2

TECHNICAL ENGINEERING AND DESIGN GUIDES AS ADAPTED FROM THE US ARMY CORPS OF ENGINEERS, NO. 9
EVALUATION OF EARTHQUAKE-INDUCED SETTLEMENTS IN DRY SANDY SOILS
DESIGN EARTHQUAKE

DE EARTHQUAKE INFORMATION:

Earthquake Magnitude:	6.74
Peak Horiz. Acceleration (g):	0.636

Fig 4.1 Fig 4.2 Fig 4.4

Depth of Base of Strata (ft)	Thickness of Layer (ft)	Depth of Mid-point of Layer (ft)	Soil Unit Weight (pcf)	Overburden Pressure at Mid-point (tsf)	Mean Effective Pressure at Mid-point (tsf)	Average Cyclic Shear Stress [Tav]	Field SPT [N]	Correction Factor [Cer]	Relative Density [Dr] (%)	Correction Factor [Cn]	Corrected [N1]60	rd Factor	Maximum Shear Mod. [Gmax] (tsf)	[yeff]*[Geff] [Gmax]	yeff Shear Strain	[yeff]*100%	Volumetric Strain M7.5 [E15] (%)	Number of Strain Cycles [Nc]	Corrected Vol. Strains [Ec]	Estimated Settlement [S] (inches)
1.0	1.0	0.5	127.4	0.03	0.02	0.013	7	1.25	61.7	1.7	13.4	1.0	155.039	8.41E-05	1.60E-04	0.016	2.59E-02	8.9108	2.05E-02	0.00
2.5	1.5	1.8	127.4	0.11	0.07	0.046	7	1.25	61.7	1.7	13.4	1.0	290.052	1.54E-04	2.30E-04	0.023	3.72E-02	8.9108	2.95E-02	0.00
3.0	0.5	2.8	127.4	0.18	0.12	0.072	7	1.25	61.7	1.7	20.4	1.0	418.325	1.64E-04	1.70E-04	0.017	1.66E-02	8.9108	1.31E-02	0.00
4.0	1.0	3.5	127.4	0.22	0.15	0.092	7	1.25	61.7	1.7	20.4	1.0	471.939	1.82E-04	1.70E-04	0.017	1.66E-02	8.9108	1.31E-02	0.00
5.0	1.0	4.5	127.4	0.29	0.19	0.118	7	1.25	61.7	1.7	20.4	1.0	535.133	2.03E-04	8.10E-04	0.081	7.92E-02	8.9108	6.26E-02	0.00
6.5	1.5	5.8	127.4	0.37	0.25	0.151	7	1.25	61.7	1.7	20.3	1.0	604.002	2.24E-04	4.50E-04	0.045	4.42E-02	8.9108	3.50E-02	0.01
7.0	0.5	6.8	133.6	0.43	0.29	0.177	9	1.25	60.6	1.6	23.4	1.0	686.641	2.28E-04	4.50E-04	0.045	3.73E-02	8.9108	2.95E-02	0.00
8.0	1.0	7.5	133.6	0.48	0.32	0.198	9	1.25	60.6	1.5	21.9	1.0	709.771	2.42E-04	4.50E-04	0.045	4.04E-02	8.9108	3.19E-02	0.01
9.0	1.0	8.5	133.6	0.55	0.37	0.225	9	1.25	60.6	1.4	21.0	1.0	746.518	2.58E-04	4.50E-04	0.045	4.25E-02	8.9108	3.36E-02	0.01
10.5	1.5	9.8	133.6	0.63	0.42	0.259	9	1.25	60.6	1.3	20.0	1.0	789.056	2.75E-04	4.50E-04	0.045	4.50E-02	8.9108	3.56E-02	0.01
11.0	0.5	10.8	133.6	0.70	0.47	0.285	9	1.25	60.6	1.3	19.7	1.0	825.164	2.85E-04	4.50E-04	0.045	4.59E-02	8.9108	3.63E-02	0.00
12.0	1.0	11.5	133.6	0.75	0.50	0.305	9	1.25	60.6	1.2	19.0	0.9	843.612	2.95E-04	3.70E-04	0.037	3.95E-02	8.9108	3.12E-02	0.01
13.0	1.0	12.5	133.6	0.81	0.55	0.332	9	1.25	60.6	1.1	18.5	0.9	872.667	3.05E-04	7.10E-04	0.071	7.82E-02	8.9108	6.19E-02	0.01
14.0	1.0	13.5	128.1	0.88	0.59	0.358	13	1.25	64.6	1.1	23.4	0.9	981.185	2.88E-04	3.70E-04	0.037	3.07E-02	8.9108	2.43E-02	0.01
15.0	1.0	14.5	128.1	0.94	0.63	0.382	13	1.25	64.6	1.1	22.9	0.9	1009.961	2.95E-04	3.70E-04	0.037	3.14E-02	8.9108	2.48E-02	0.01
16.5	1.5	15.8	128.1	1.02	0.69	0.413	13	1.25	64.6	1.0	22.6	0.9	1046.680	3.02E-04	7.10E-04	0.071	6.14E-02	8.9108	4.85E-02	0.00
17.0	0.5	16.8	127.8	1.09	0.73	0.438	45	1.25	114.9	1.0	59.4	0.9	1489.032	2.22E-04	3.70E-04	0.037	1.00E-02	8.9108	7.93E-03	0.00
18.0	1.0	17.5	127.8	1.14	0.76	0.456	45	1.25	114.9	1.0	58.2	0.9	1511.217	2.25E-04	3.70E-04	0.037	1.03E-02	8.9108	8.13E-03	0.00
19.0	1.0	18.5	127.8	1.20	0.80	0.480	45	1.25	114.9	1.0	57.3	0.9	1545.051	2.29E-04	3.70E-04	0.037	1.05E-02	8.9108	8.28E-03	0.00
20.0	1.0	19.5	127.8	1.26	0.85	0.504	45	1.25	114.9	1.0	56.4	0.9	1577.652	2.32E-04	3.70E-04	0.037	1.07E-02	8.9108	8.43E-03	0.00
21.0	1.0	20.5	127.8	1.33	0.89	0.527	45	1.25	114.9	1.0	55.6	0.9	1609.120	2.35E-04	3.70E-04	0.037	1.09E-02	8.9108	8.58E-03	0.00
22.0	1.0	21.5	127.8	1.39	0.93	0.550	45	1.25	114.9	0.9	54.8	0.9	1639.545	2.38E-04	3.70E-04	0.037	1.10E-02	8.9108	8.73E-03	0.00
23.0	1.0	22.5	127.8	1.46	0.98	0.573	40	1.25	104.3	0.9	52.1	0.9	1648.654	2.43E-04	3.70E-04	0.037	1.17E-02	8.9108	9.28E-03	0.00
24.0	1.0	23.5	127.8	1.52	1.02	0.596	40	1.25	104.3	0.9	51.4	0.9	1676.870	2.46E-04	3.00E-04	0.030	9.67E-03	8.9108	7.65E-03	0.00
25.0	1.0	24.5	127.8	1.58	1.06	0.618	40	1.25	104.3	0.9	50.7	0.9	1704.263	2.48E-04	3.00E-04	0.030	9.82E-03	8.9108	7.77E-03	0.00
26.0	1.0	25.5	127.8	1.65	1.10	0.640	40	1.25	104.3	0.9	50.1	0.9	1730.888	2.50E-04	3.00E-04	0.030	9.97E-03	8.9108	7.89E-03	0.00
27.0	1.0	26.5	127.8	1.71	1.15	0.661	40	1.25	104.3	0.9	49.4	0.9	1756.794	2.52E-04	3.00E-04	0.030	1.01E-02	8.9108	8.01E-03	0.00
28.0	1.0	27.5	120.0	1.77	1.19	0.682	74	1.25	136.9	0.9	95.5	0.9	2226.643	2.03E-04	3.00E-04	0.030	4.60E-03	8.9108	3.64E-03	0.00
29.0	1.0	28.5	120.0	1.83	1.23	0.701	74	1.25	136.9	0.9	94.5	0.9	2256.070	2.04E-04	3.00E-04	0.030	4.66E-03	8.9108	3.68E-03	0.00
30.0	1.0	29.5	120.0	1.89	1.27	0.720	74	1.25	136.9	0.9	93.5	0.9	2284.827	2.04E-04	3.00E-04	0.030	4.72E-03	8.9108	3.73E-03	0.00
31.0	1.0	30.5	120.0	1.95	1.31	0.739	74	1.25	136.9	0.9	92.5	0.9	2312.948	2.05E-04	3.00E-04	0.030	4.77E-03	8.9108	3.78E-03	0.00
32.0	1.0	31.5	120.0	2.01	1.35	0.758	74	1.25	136.9	0.8	91.6	0.9	2340.467	2.06E-04	3.00E-04	0.030	4.83E-03	8.9108	3.82E-03	0.00
33.0	1.0	32.5	129.1	2.08	1.39	0.776	67	1.25	126.5	0.8	83.9	0.9	2307.138	2.12E-04	3.00E-04	0.030	5.37E-03	8.9108	4.25E-03	0.00
34.0	1.0	33.5	129.1	2.14	1.43	0.796	67	1.25	126.5	0.8	82.9	0.8	2334.169	2.13E-04	3.00E-04	0.030	5.44E-03	8.9108	4.31E-03	0.00
35.0	1.0	34.5	129.1	2.20	1.48	0.815	67	1.25	126.5	0.8	82.0	0.8	2360.629	2.14E-04	3.00E-04	0.030	5.51E-03	8.9108	4.36E-03	0.00
36.0	1.0	35.5	129.1	2.27	1.52	0.833	67	1.25	126.5	0.8	81.2	0.8	2386.545	2.14E-04	3.00E-04	0.030	5.58E-03	8.9108	4.42E-03	0.00
37.0	1.0	36.5	129.1	2.33	1.56	0.852	67	1.25	126.5	0.8	80.4	0.8	2411.943	2.15E-04	3.00E-04	0.030	5.65E-03	8.9108	4.47E-03	0.00
38.0	1.0	37.5	129.1	2.40	1.61	0.870	67	1.25	126.5	0.8	79.5	0.8	2436.849	2.15E-04	3.00E-04	0.030	5.72E-03	8.9108	4.53E-03	0.00
39.0	1.0	38.5	129.1	2.46	1.65	0.887	67	1.25	126.5	0.8	78.8	0.8	2461.284	2.16E-04	3.00E-04	0.030	5.79E-03	8.9108	4.58E-03	0.00
40.0	1.0	39.5	129.1	2.53	1.69	0.904	67	1.25	126.5	0.8	78.0	0.8	2485.270	2.16E-04	3.00E-04	0.030	5.86E-03	8.9108	4.64E-03	0.00
41.0	1.0	40.5	129.1	2.59	1.74	0.921	67	1.25	126.5	0.8	77.3	0.8	2508.826	2.16E-04	3.00E-04	0.030	5.93E-03	8.9108	4.69E-03	0.00
42.0	1.0	41.5	129.1	2.66	1.78	0.937	67	1.25	126.5	0.8	76.5	0.8	2531.970	2.17E-04	3.00E-04	0.030	5.99E-03	8.9108	4.74E-03	0.00
43.0	1.0	42.5	129.1	2.72	1.82	0.953	67	1.25	126.5	0.8	75.8	0.8	2554.719	2.17E-04	3.00E-04	0.030	6.06E-03	8.9108	4.79E-03	0.00
44.0	1.0	43.5	129.1	2.79	1.87	0.969	67	1.25	126.5	0.7	75.2	0.8	2577.089	2.17E-04	3.00E-04	0.030	6.13E-03	8.9108	4.85E-03	0.00
45.0	1.0	44.5	129.1	2.85	1.91	0.984	67	1.25	126.5	0.7	74.5	0.8	2599.095	2.17E-04	3.00E-04	0.030	6.19E-03	8.9108	4.90E-03	0.00
46.0	1.0	45.5	125.4	2.91	1.95	0.998	50	1.25	101.5	0.7	55.1	0.8	2376.968	2.39E-04	3.00E-04	0.030	8.89E-03	8.9108	7.03E-03	0.00
47.0	1.0	46.5	125.4	2.98	1.99	1.012	50	1.25	101.5	0.7	54.7	0.8	2395.941	2.39E-04	3.00E-04	0.030	8.97E-03	8.9108	7.10E-03	0.00
48.0	1.0	47.5	125.4	3.04	2.04	1.026	50	1.25	101.5	0.7	54.2	0.8	2414.633	2.39E-04	1.00E-02	1.000	3.02E-01	8.9108	2.39E-01	0.00
49.0	1.0	48.5	125.4	3.10	2.08	1.039	50	1.25	101.5	0.7	53.8	0.8	2433.054	2.39E-04	1.00E-02	1.000	3.05E-01	8.9108	2.41E-01	0.00
50.0	1.0	49.5	125.4	3.16	2.12	1.051	50	1.25	101.5	0.7	53.4	0.8	2451.214	2.39E-04	1.00E-02	1.000	3.08E-01	8.9108	2.43E-01	0.00

TOTAL SETTLEMENT = **0.08**

Figure 14

GEOCON

Project: 3601 N Mission RD
File No. : W1562-06-01
Boring : B1

TECHNICAL ENGINEERING AND DESIGN GUIDES AS ADAPTED FROM THE US ARMY CORPS OF ENGINEERS, NO. 9
EVALUATION OF EARTHQUAKE-INDUCED SETTLEMENTS IN DRY SANDY SOILS
MAXIMUM CONSIDERED EARTHQUAKE

MCE EARTHQUAKE INFORMATION:

Earthquake Magnitude:	6.83
Peak Horiz. Acceleration (g):	0.954

Fig 4.1 Fig 4.2 Fig 4.4

Depth of Base of Strata (ft)	Thickness of Layer (ft)	Depth of Mid-point of Layer (ft)	Soil Unit Weight (pcf)	Overburden Pressure at Mid-point (tsf)	Mean Effective Pressure at Mid-point (tsf)	Average Cyclic Shear Stress [Tav]	Field SPT [N]	Correction Factor [Cer]	Relative Density [Dr] (%)	Correction Factor [Cn]	Corrected [N1]60	rd Factor	Maximum Shear Mod. [Gmax] (tsf)	[yeff]*[Geff] [Gmax]	yeff Shear Strain	[yeff]*100%	Volumetric Strain M7.5 [E15] (%)	Number of Strain Cycles [Nc]	Corrected Vol. Strains [Ec]	Estimated Settlement [S] (inches)
1.0	1.0	0.5	130.5	0.03	0.02	0.020	47	1.25	149.1	1.7	89.9	1.0	296.059	6.77E-05	1.00E-04	0.010	1.65E-03	9.5582	1.35E-03	0.00
2.0	1.0	1.5	130.5	0.10	0.07	0.061	47	1.25	149.1	1.7	89.9	1.0	512.789	1.15E-04	2.30E-04	0.023	3.79E-03	9.5582	3.09E-03	0.00
3.0	1.0	2.5	130.5	0.16	0.11	0.101	47	1.25	149.1	1.7	89.9	1.0	662.008	1.45E-04	1.70E-04	0.017	2.80E-03	9.5582	2.29E-03	0.00
4.5	1.5	3.8	130.5	0.24	0.16	0.152	47	1.25	149.1	1.7	89.9	1.0	810.791	1.74E-04	1.70E-04	0.017	2.80E-03	9.5582	2.29E-03	0.00
5.0	0.5	4.8	130.5	0.31	0.21	0.192	47	1.25	149.1	1.7	89.9	1.0	912.515	1.92E-04	1.50E-04	0.015	2.47E-03	9.5582	2.02E-03	0.00
6.5	1.5	5.8	130.5	0.38	0.25	0.232	47	1.25	149.1	1.7	88.2	1.0	997.649	2.09E-04	4.50E-04	0.045	7.58E-03	9.5582	6.19E-03	0.00
7.0	0.5	6.8	130.5	0.44	0.30	0.272	31.35	1.25	112.8	1.6	56.4	1.0	931.408	2.57E-04	4.50E-04	0.045	1.30E-02	9.5582	1.06E-02	0.00
8.0	1.0	7.5	130.5	0.49	0.33	0.302	31.35	1.25	112.8	1.5	51.5	1.0	952.403	2.76E-04	4.50E-04	0.045	1.45E-02	9.5582	1.18E-02	0.00
9.0	1.0	8.5	130.5	0.55	0.37	0.341	31.35	1.25	112.8	1.4	48.4	1.0	992.974	2.94E-04	4.50E-04	0.045	1.56E-02	9.5582	1.27E-02	0.00
10.0	1.0	9.5	122.7	0.62	0.41	0.380	27	1.25	100.4	1.3	46.5	1.0	1034.159	3.09E-04	1.00E-03	0.100	3.64E-02	9.5582	2.97E-02	0.01
11.0	1.0	10.5	122.7	0.68	0.46	0.417	27	1.25	100.4	1.2	44.7	1.0	1069.899	3.22E-04	1.00E-03	0.100	3.81E-02	9.5582	3.11E-02	0.01
12.0	1.0	11.5	122.7	0.74	0.50	0.453	27	1.25	100.4	1.2	43.1	0.9	1103.721	3.35E-04	1.00E-03	0.100	3.98E-02	9.5582	3.25E-02	0.01
13.0	1.0	12.5	122.7	0.80	0.54	0.490	27	1.25	100.4	1.1	41.7	0.9	1135.878	3.46E-04	7.10E-04	0.071	2.94E-02	9.5582	2.40E-02	0.01
14.0	1.0	13.5	122.7	0.86	0.58	0.526	27	1.25	100.4	1.1	40.4	0.9	1166.576	3.56E-04	7.10E-04	0.071	3.05E-02	9.5582	2.49E-02	0.01
15.0	1.0	14.5	122.7	0.92	0.62	0.562	42	1.25	114.8	1.1	54.0	0.9	1329.811	3.29E-04	7.10E-04	0.071	2.16E-02	9.5582	1.76E-02	0.00
16.5	1.5	15.8	122.7	1.00	0.67	0.606	42	1.25	114.8	1.0	51.9	0.9	1365.601	3.39E-04	7.10E-04	0.071	2.26E-02	9.5582	1.85E-02	0.00
17.0	0.5	16.8	132.1	1.06	0.71	0.642	13.2	1.25	62.6	1.0	17.0	0.9	970.918	4.99E-04	1.20E-03	0.120	1.46E-01	9.5582	1.19E-01	0.00
18.0	1.0	17.5	132.1	1.11	0.75	0.670	13.2	1.25	62.6	1.0	16.4	0.9	980.619	5.10E-04	2.20E-03	0.220	2.79E-01	9.5582	2.28E-01	0.00
19.0	1.0	18.5	132.1	1.18	0.79	0.707	13.2	1.25	62.6	0.9	15.9	0.9	999.657	5.21E-04	2.20E-03	0.220	2.89E-01	9.5582	2.36E-01	0.00
20.0	1.0	19.5	132.1	1.25	0.83	0.744	13.2	1.25	62.6	0.9	15.5	0.9	1017.996	5.31E-04	2.20E-03	0.220	2.99E-01	9.5582	2.44E-01	0.00
21.0	1.0	20.5	127.1	1.31	0.88	0.780	22	1.25	79.4	0.9	33.3	0.9	1348.007	4.15E-04	1.20E-03	0.120	6.50E-02	9.5582	5.31E-02	0.00
22.0	1.0	21.5	127.1	1.37	0.92	0.814	22	1.25	79.4	0.9	32.7	0.9	1371.763	4.21E-04	1.20E-03	0.120	6.65E-02	9.5582	5.43E-02	0.00
23.0	1.0	22.5	127.1	1.44	0.96	0.848	22	1.25	79.4	0.9	32.1	0.9	1394.875	4.26E-04	1.20E-03	0.120	6.79E-02	9.5582	5.54E-02	0.00
24.0	1.0	23.5	127.1	1.50	1.01	0.882	22	1.25	79.4	0.8	31.6	0.9	1417.390	4.31E-04	8.10E-04	0.081	4.68E-02	9.5582	3.82E-02	0.00
25.0	1.0	24.5	127.1	1.56	1.05	0.915	22	1.25	79.4	0.8	31.1	0.9	1439.347	4.35E-04	8.10E-04	0.081	4.77E-02	9.5582	3.89E-02	0.00
26.0	1.0	25.5	133.7	1.63	1.09	0.949	17	1.25	67.3	0.8	26.5	0.9	1392.304	4.61E-04	8.10E-04	0.081	5.78E-02	9.5582	4.72E-02	0.00
27.0	1.0	26.5	133.7	1.70	1.14	0.983	17	1.25	67.3	0.8	26.2	0.9	1415.207	4.65E-04	8.10E-04	0.081	5.86E-02	9.5582	4.79E-02	0.00
28.0	1.0	27.5	133.7	1.76	1.18	1.017	17	1.25	67.3	0.8	26.0	0.9	1439.136	4.67E-04	8.10E-04	0.081	5.92E-02	9.5582	4.83E-02	0.00
29.0	1.0	28.5	133.7	1.83	1.23	1.050	17	1.25	67.3	0.8	25.8	0.9	1462.505	4.70E-04	8.10E-04	0.081	5.97E-02	9.5582	4.87E-02	0.00
30.0	1.0	29.5	133.7	1.90	1.27	1.082	17	1.25	67.3	0.8	25.6	0.9	1485.346	4.72E-04	8.10E-04	0.081	6.02E-02	9.5582	4.92E-02	0.00
31.0	1.0	30.5	136.2	1.96	1.32	1.115	11	1.25	52.1	0.8	19.5	0.9	1379.778	5.18E-04	1.30E-03	0.130	1.34E-01	9.5582	1.10E-01	0.00
32.0	1.0	31.5	136.2	2.03	1.36	1.147	11	1.25	52.1	0.7	19.4	0.9	1400.499	5.20E-04	1.30E-03	0.130	1.35E-01	9.5582	1.10E-01	0.00
33.0	1.0	32.5	136.2	2.10	1.41	1.178	11	1.25	52.1	0.7	19.2	0.9	1420.804	5.22E-04	1.30E-03	0.130	1.36E-01	9.5582	1.11E-01	0.00
34.0	1.0	33.5	136.2	2.17	1.45	1.209	11	1.25	52.1	0.7	19.1	0.8	1440.714	5.24E-04	1.30E-03	0.130	1.37E-01	9.5582	1.12E-01	0.00
35.0	1.0	34.5	125.7	2.23	1.50	1.238	22	1.25	71.1	0.7	31.0	0.8	1718.358	4.46E-04	8.10E-04	0.081	4.78E-02	9.5582	3.91E-02	0.00
36.0	1.0	35.5	125.7	2.30	1.54	1.265	22	1.25	71.1	0.7	30.8	0.8	1738.783	4.46E-04	8.10E-04	0.081	4.82E-02	9.5582	3.94E-02	0.00
37.0	1.0	36.5	125.7	2.36	1.58	1.291	22	1.25	71.1	0.7	30.6	0.8	1758.855	4.47E-04	8.10E-04	0.081	4.86E-02	9.5582	3.96E-02	0.00
38.0	1.0	37.5	125.7	2.42	1.62	1.317	22	1.25	71.1	0.7	30.5	0.8	1778.590	4.47E-04	8.10E-04	0.081	4.89E-02	9.5582	3.99E-02	0.00
39.0	1.0	38.5	125.7	2.49	1.67	1.342	22	1.25	71.1	0.7	30.3	0.8	1798.002	4.47E-04	8.10E-04	0.081	4.92E-02	9.5582	4.02E-02	0.00
40.5	1.5	39.8	125.7	2.56	1.72	1.373	22	1.25	71.1	0.7	30.1	0.8	1821.831	4.47E-04	8.10E-04	0.081	4.97E-02	9.5582	4.06E-02	0.00
41.0	0.5	40.8	125.7	2.63	1.76	1.397	43	1.25	96.4	0.7	44.9	0.8	2108.011	3.90E-04	5.20E-04	0.052	1.97E-02	9.5582	1.61E-02	0.00
42.0	1.0	41.5	125.7	2.67	1.79	1.415	43	1.25	96.4	0.7	44.5	0.8	2120.395	3.91E-04	5.20E-04	0.052	1.99E-02	9.5582	1.63E-02	0.00
43.0	1.0	42.5	133.9	2.74	1.84	1.439	51	1.25	102.1	0.7	52.4	0.8	2265.792	3.69E-04	5.20E-04	0.052	1.64E-02	9.5582	1.34E-02	0.00
44.0	1.0	43.5	133.9	2.81	1.88	1.463	51	1.25	102.1	0.7	52.0	0.8	2287.234	3.69E-04	5.20E-04	0.052	1.65E-02	9.5582	1.35E-02	0.00
45.0	1.0	44.5	133.9	2.87	1.93	1.487	51	1.25	102.1	0.7	51.6	0.8	2308.318	3.70E-04	5.20E-04	0.052	1.67E-02	9.5582	1.36E-02	0.00
46.5	1.5	45.8	133.9	2.96	1.98	1.516	51	1.25	102.1	0.7	51.1	0.8	2334.190	3.70E-04	5.20E-04	0.052	1.69E-02	9.5582	1.38E-02	0.00
47.0	0.5	46.8	133.9	3.02	2.03	1.539	45	1.25	93.1	0.7	44.9	0.8	2261.147	3.85E-04	1.00E-02	1.000	3.79E-01	9.5582	3.09E-01	0.00
48.0	1.0	47.5	133.9	3.07	2.06	1.555	45	1.25	93.1	0.7	44.5	0.8	2272.730	3.86E-04	1.00E-02	1.000	3.83E-01	9.5582	3.13E-01	0.00
49.0	1.0	48.5	133.9	3.14	2.10	1.577	45	1.25	93.1	0.7	44.1	0.8	2291.704	3.85E-04	1.00E-02	1.000	3.87E-01	9.5582	3.16E-01	0.00
50.0	1.0	49.5	133.9	3.21	2.15	1.598	45	1.25	93.1	0.6	43.8	0.8	2310.394	3.85E-04	1.00E-02	1.000	3.90E-01	9.5582	3.19E-01	0.00

TOTAL SETTLEMENT = **0.05**

Figure 15

GEOCON

Project: 3601 N Mission RD
File No. : W1562-06-01
Boring : B2

TECHNICAL ENGINEERING AND DESIGN GUIDES AS ADAPTED FROM THE US ARMY CORPS OF ENGINEERS, NO. 9
EVALUATION OF EARTHQUAKE-INDUCED SETTLEMENTS IN DRY SANDY SOILS
MAXIMUM CONSIDERED EARTHQUAKE

MCE EARTHQUAKE INFORMATION:

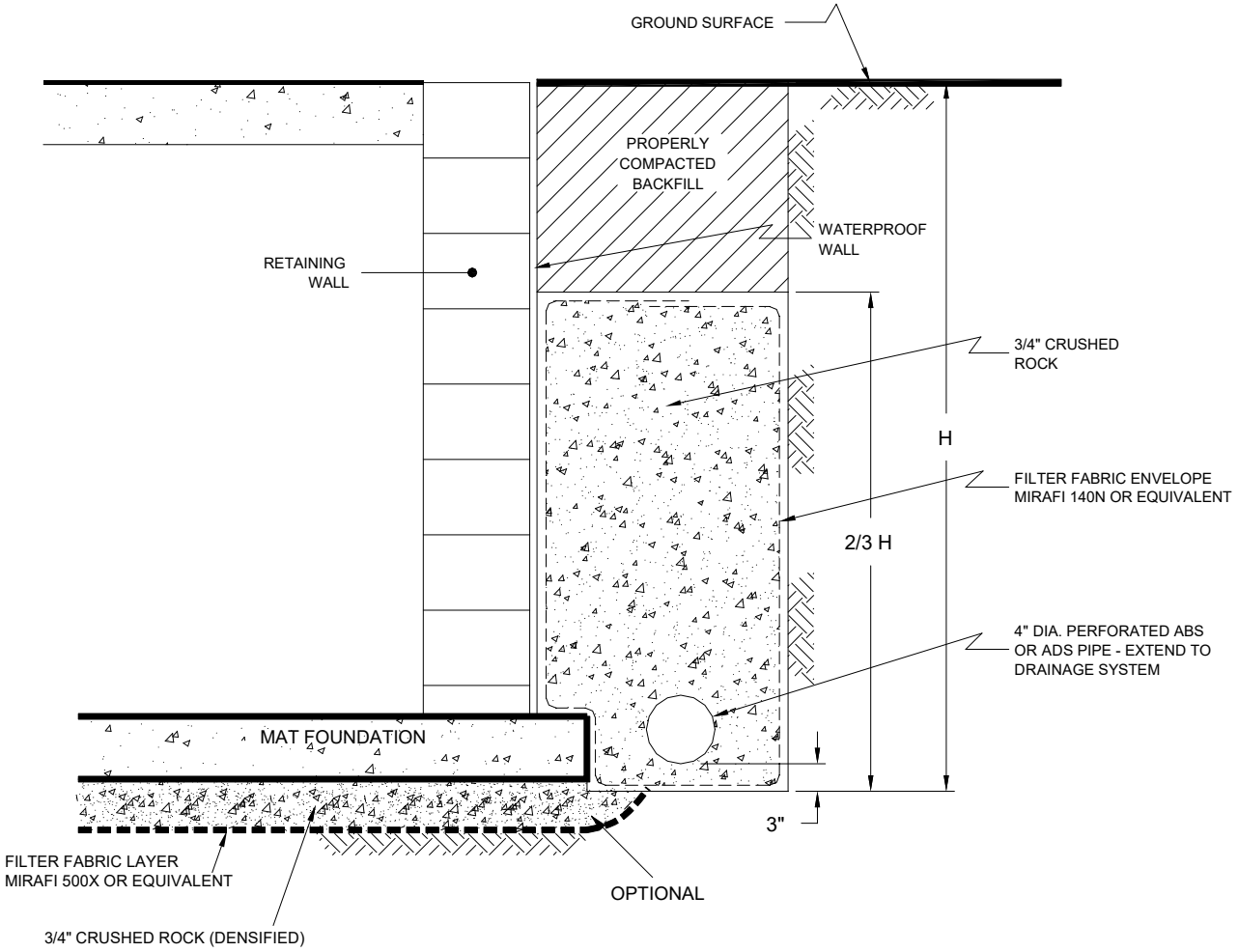
Earthquake Magnitude:	6.83
Peak Horiz. Acceleration (g):	0.954

Fig 4.1 Fig 4.2 Fig 4.4

Depth of Base of Strata (ft)	Thickness of Layer (ft)	Depth of Mid-point of Layer (ft)	Soil Unit Weight (pcf)	Overburden Pressure at Mid-point (tsf)	Mean Effective Pressure at Mid-point (tsf)	Average Cyclic Shear Stress [Tav]	Field SPT [N]	Correction Factor [Cer]	Relative Density [Dr] (%)	Correction Factor [Cn]	Corrected [N1]60	rd Factor	Maximum Shear Mod. [Gmax] (tsf)	[yeff]*[Geff] [Gmax]	yeff Shear Strain	[yeff]*100%	Volumetric Strain M7.5 [E15] (%)	Number of Strain Cycles [Nc]	Corrected Vol. Strains [Ec]	Estimated Settlement [S] (inches)
1.0	1.0	0.5	127.4	0.03	0.02	0.020	7	1.25	61.7	1.7	13.4	1.0	155.039	1.26E-04	2.30E-04	0.023	3.72E-02	9.5582	3.04E-02	0.00
2.5	1.5	1.8	127.4	0.11	0.07	0.069	7	1.25	61.7	1.7	13.4	1.0	290.052	2.30E-04	3.00E-03	0.300	4.86E-01	9.5582	3.97E-01	0.00
3.0	0.5	2.8	127.4	0.18	0.12	0.109	7	1.25	61.7	1.7	20.4	1.0	418.325	2.46E-04	8.10E-04	0.081	7.92E-02	9.5582	6.46E-02	0.00
4.0	1.0	3.5	127.4	0.22	0.15	0.138	7	1.25	61.7	1.7	20.4	1.0	471.939	2.73E-04	8.10E-04	0.081	7.92E-02	9.5582	6.46E-02	0.00
5.0	1.0	4.5	127.4	0.29	0.19	0.177	7	1.25	61.7	1.7	20.4	1.0	535.133	3.04E-04	5.00E-03	0.500	4.89E-01	9.5582	3.99E-01	0.00
6.5	1.5	5.8	127.4	0.37	0.25	0.226	7	1.25	61.7	1.7	20.3	1.0	604.002	3.36E-04	1.00E-03	0.100	9.83E-02	9.5582	8.02E-02	0.03
7.0	0.5	6.8	133.6	0.43	0.29	0.266	9	1.25	60.6	1.6	23.4	1.0	686.641	3.41E-04	1.00E-03	0.100	8.29E-02	9.5582	6.77E-02	0.01
8.0	1.0	7.5	133.6	0.48	0.32	0.296	9	1.25	60.6	1.5	21.9	1.0	709.771	3.63E-04	1.00E-03	0.100	8.97E-02	9.5582	7.32E-02	0.02
9.0	1.0	8.5	133.6	0.55	0.37	0.337	9	1.25	60.6	1.4	21.0	1.0	746.518	3.86E-04	1.00E-03	0.100	9.45E-02	9.5582	7.72E-02	0.02
10.5	1.5	9.8	133.6	0.63	0.42	0.388	9	1.25	60.6	1.3	20.0	1.0	789.056	4.12E-04	2.70E-03	0.270	2.70E-01	9.5582	2.20E-01	0.08
11.0	0.5	10.8	133.6	0.70	0.47	0.428	9	1.25	60.6	1.3	19.7	1.0	825.164	4.28E-04	2.70E-03	0.270	2.75E-01	9.5582	2.25E-01	0.03
12.0	1.0	11.5	133.6	0.75	0.50	0.458	9	1.25	60.6	1.2	19.0	0.9	843.612	4.42E-04	1.20E-03	0.120	1.28E-01	9.5582	1.05E-01	0.03
13.0	1.0	12.5	133.6	0.81	0.55	0.497	9	1.25	60.6	1.1	18.5	0.9	872.667	4.57E-04	1.20E-03	0.120	1.32E-01	9.5582	1.08E-01	0.03
14.0	1.0	13.5	128.1	0.88	0.59	0.536	13	1.25	64.6	1.1	23.4	0.9	981.185	4.32E-04	1.20E-03	0.120	9.96E-02	9.5582	8.13E-02	0.02
15.0	1.0	14.5	128.1	0.94	0.63	0.573	13	1.25	64.6	1.1	22.9	0.9	1009.961	4.42E-04	1.20E-03	0.120	1.02E-01	9.5582	8.32E-02	0.02
16.5	1.5	15.8	128.1	1.02	0.69	0.620	13	1.25	64.6	1.0	22.6	0.9	1046.680	4.53E-04	1.20E-03	0.120	1.04E-01	9.5582	8.47E-02	0.00
17.0	0.5	16.8	127.8	1.09	0.73	0.656	45	1.25	114.9	1.0	59.4	0.9	1489.032	3.32E-04	7.10E-04	0.071	1.92E-02	9.5582	1.57E-02	0.00
18.0	1.0	17.5	127.8	1.14	0.76	0.684	45	1.25	114.9	1.0	58.2	0.9	1511.217	3.38E-04	7.10E-04	0.071	1.97E-02	9.5582	1.61E-02	0.00
19.0	1.0	18.5	127.8	1.20	0.80	0.720	45	1.25	114.9	1.0	57.3	0.9	1545.051	3.43E-04	7.10E-04	0.071	2.01E-02	9.5582	1.64E-02	0.00
20.0	1.0	19.5	127.8	1.26	0.85	0.755	45	1.25	114.9	1.0	56.4	0.9	1577.652	3.48E-04	7.10E-04	0.071	2.05E-02	9.5582	1.67E-02	0.00
21.0	1.0	20.5	127.8	1.33	0.89	0.790	45	1.25	114.9	1.0	55.6	0.9	1609.120	3.52E-04	7.10E-04	0.071	2.08E-02	9.5582	1.70E-02	0.00
22.0	1.0	21.5	127.8	1.39	0.93	0.825	45	1.25	114.9	0.9	54.8	0.9	1639.545	3.57E-04	7.10E-04	0.071	2.12E-02	9.5582	1.73E-02	0.00
23.0	1.0	22.5	127.8	1.46	0.98	0.859	40	1.25	104.3	0.9	52.1	0.9	1648.654	3.65E-04	7.10E-04	0.071	2.25E-02	9.5582	1.84E-02	0.00
24.0	1.0	23.5	127.8	1.52	1.02	0.893	40	1.25	104.3	0.9	51.4	0.9	1676.870	3.68E-04	5.20E-04	0.052	1.68E-02	9.5582	1.37E-02	0.00
25.0	1.0	24.5	127.8	1.58	1.06	0.926	40	1.25	104.3	0.9	50.7	0.9	1704.263	3.72E-04	5.20E-04	0.052	1.70E-02	9.5582	1.39E-02	0.00
26.0	1.0	25.5	127.8	1.65	1.10	0.959	40	1.25	104.3	0.9	50.1	0.9	1730.888	3.75E-04	5.20E-04	0.052	1.73E-02	9.5582	1.41E-02	0.00
27.0	1.0	26.5	127.8	1.71	1.15	0.992	40	1.25	104.3	0.9	49.4	0.9	1756.794	3.77E-04	5.20E-04	0.052	1.75E-02	9.5582	1.43E-02	0.00
28.0	1.0	27.5	120.0	1.77	1.19	1.022	74	1.25	136.9	0.9	95.5	0.9	2226.643	3.04E-04	5.20E-04	0.052	7.97E-03	9.5582	6.51E-03	0.00
29.0	1.0	28.5	120.0	1.83	1.23	1.051	74	1.25	136.9	0.9	94.5	0.9	2256.070	3.05E-04	5.20E-04	0.052	8.07E-03	9.5582	6.59E-03	0.00
30.0	1.0	29.5	120.0	1.89	1.27	1.080	74	1.25	136.9	0.9	93.5	0.9	2284.827	3.06E-04	5.20E-04	0.052	8.17E-03	9.5582	6.67E-03	0.00
31.0	1.0	30.5	120.0	1.95	1.31	1.108	74	1.25	136.9	0.9	92.5	0.9	2312.948	3.07E-04	5.20E-04	0.052	8.27E-03	9.5582	6.75E-03	0.00
32.0	1.0	31.5	120.0	2.01	1.35	1.136	74	1.25	136.9	0.8	91.6	0.9	2340.467	3.08E-04	5.20E-04	0.052	8.37E-03	9.5582	6.83E-03	0.00
33.0	1.0	32.5	129.1	2.08	1.39	1.164	67	1.25	126.5	0.8	83.9	0.9	2307.138	3.18E-04	5.20E-04	0.052	9.31E-03	9.5582	7.60E-03	0.00
34.0	1.0	33.5	129.1	2.14	1.43	1.193	67	1.25	126.5	0.8	82.9	0.8	2334.169	3.19E-04	5.20E-04	0.052	9.44E-03	9.5582	7.70E-03	0.00
35.0	1.0	34.5	129.1	2.20	1.48	1.222	67	1.25	126.5	0.8	82.0	0.8	2360.629	3.20E-04	5.20E-04	0.052	9.56E-03	9.5582	7.80E-03	0.00
36.0	1.0	35.5	129.1	2.27	1.52	1.250	67	1.25	126.5	0.8	81.2	0.8	2386.545	3.21E-04	5.20E-04	0.052	9.68E-03	9.5582	7.90E-03	0.00
37.0	1.0	36.5	129.1	2.33	1.56	1.277	67	1.25	126.5	0.8	80.4	0.8	2411.943	3.22E-04	5.20E-04	0.052	9.80E-03	9.5582	8.00E-03	0.00
38.0	1.0	37.5	129.1	2.40	1.61	1.304	67	1.25	126.5	0.8	79.5	0.8	2436.849	3.23E-04	5.20E-04	0.052	9.92E-03	9.5582	8.10E-03	0.00
39.0	1.0	38.5	129.1	2.46	1.65	1.330	67	1.25	126.5	0.8	78.8	0.8	2461.284	3.23E-04	5.20E-04	0.052	1.00E-02	9.5582	8.20E-03	0.00
40.0	1.0	39.5	129.1	2.53	1.69	1.356	67	1.25	126.5	0.8	78.0	0.8	2485.270	3.24E-04	5.20E-04	0.052	1.02E-02	9.5582	8.29E-03	0.00
41.0	1.0	40.5	129.1	2.59	1.74	1.381	67	1.25	126.5	0.8	77.3	0.8	2508.826	3.25E-04	5.20E-04	0.052	1.03E-02	9.5582	8.39E-03	0.00
42.0	1.0	41.5	129.1	2.66	1.78	1.405	67	1.25	126.5	0.8	76.5	0.8	2531.970	3.25E-04	5.20E-04	0.052	1.04E-02	9.5582	8.48E-03	0.00
43.0	1.0	42.5	129.1	2.72	1.82	1.429	67	1.25	126.5	0.8	75.8	0.8	2554.719	3.25E-04	5.20E-04	0.052	1.05E-02	9.5582	8.58E-03	0.00
44.0	1.0	43.5	129.1	2.79	1.87	1.452	67	1.25	126.5	0.7	75.2	0.8	2577.089	3.25E-04	5.20E-04	0.052	1.06E-02	9.5582	8.67E-03	0.00
45.0	1.0	44.5	129.1	2.85	1.91	1.475	67	1.25	126.5	0.7	74.5	0.8	2599.095	3.26E-04	5.20E-04	0.052	1.07E-02	9.5582	8.76E-03	0.00
46.0	1.0	45.5	125.4	2.91	1.95	1.497	50	1.25	101.5	0.7	55.1	0.8	2376.968	3.59E-04	5.20E-04	0.052	1.54E-02	9.5582	1.26E-02	0.00
47.0	1.0	46.5	125.4	2.98	1.99	1.518	50	1.25	101.5	0.7	54.7	0.8	2395.941	3.59E-04	5.20E-04	0.052	1.56E-02	9.5582	1.27E-02	0.00
48.0	1.0	47.5	125.4	3.04	2.04	1.538	50	1.25	101.5	0.7	54.2	0.8	2414.633	3.59E-04	1.00E-02	1.000	3.02E-01	9.5582	2.47E-01	0.00
49.0	1.0	48.5	125.4	3.10	2.08	1.557	50	1.25	101.5	0.7	53.8	0.8	2433.054	3.58E-04	1.00E-02	1.000	3.05E-01	9.5582	2.49E-01	0.00
50.0	1.0	49.5	125.4	3.16	2.12	1.576	50	1.25	101.5	0.7	53.4	0.8	2451.214	3.58E-04	1.00E-02	1.000	3.08E-01	9.5582	2.51E-01	0.00

TOTAL SETTLEMENT = **0.27**

Figure 16



NO SCALE

GEOCON WEST, INC.

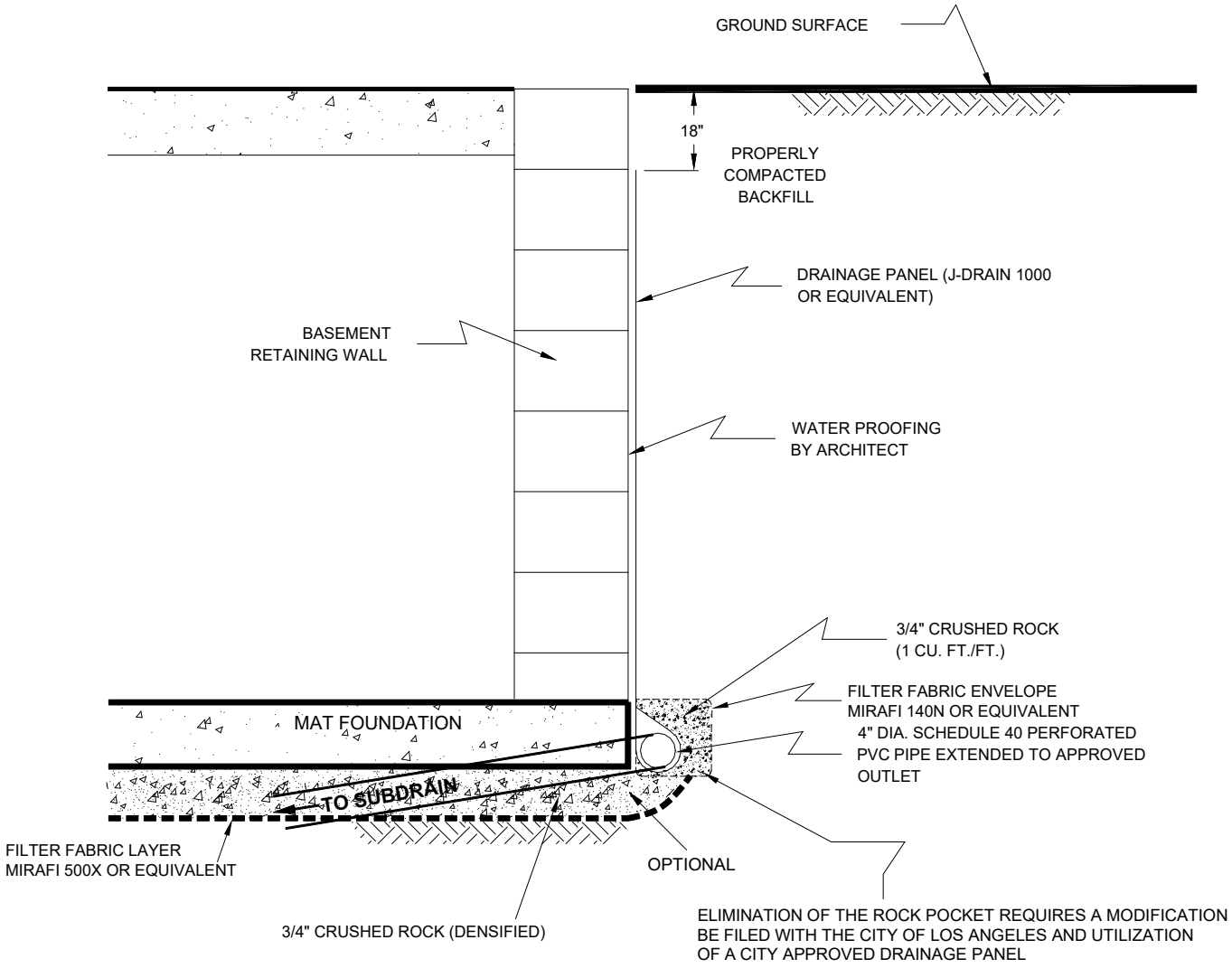
ENVIRONMENTAL GEOTECHNICAL MATERIALS
3303 N. SAN FERNANDO BLVD. - SUITE 100 - BURBANK, CA 91504
PHONE (818) 841-8388 - FAX (818) 841-1704

DRAFTED BY: JJK	CHECKED BY: HHD

RETAINING WALL DRAIN DETAIL

2010-2036 NORTH LINCOLN PARK AVENUE
3601-3615 NORTH MISSION ROAD
LOS ANGELES, CALIFORNIA

JUNE 2022	PROJECT NO. W1562-06-01	FIG. 17



NOTE: TOP OF DRAINAGE PANEL NOT MORE THAN 18 INCHES FROM GROUND SURFACE

NO SCALE

GEOCON WEST, INC.

ENVIRONMENTAL GEOTECHNICAL MATERIALS
3303 N. SAN FERNANDO BLVD. - SUITE 100 - BURBANK, CA 91504
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RETAINING WALL DRAIN DETAIL

2010-2036 NORTH LINCOLN PARK AVENUE
3601-3615 NORTH MISSION ROAD
LOS ANGELES, CALIFORNIA

JUNE 2022	PROJECT NO. W1562-06-01	FIG. 18

BORING PERCOLATION TEST FIELD LOG

Date:	Wednesday, June 8, 2022		**Boring/Test Number:**	Boring 1	
Project Number:	W1562-06-01		**Diameter of Boring:**	8	inches
Project Location:	3601 N Mission Rd		**Diameter of Casing:**	2	inches
Earth Description:	CL/ML		**Depth of Boring:**	10	feet
Tested By:	JJK		**Depth to Invert of BMP:**	5	feet
Liquid Description:	Water		**Depth to Water Table:**	27	feet
Measurement Method:	Sounder		**Depth to Initial Water Depth (d_1):**	60	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	0.0	
2	11:00 AM	11:30 AM	30	0.0	
3	11:30 AM	12:00 PM	30	0.4	
4	12:00 PM	12:30 PM	30	0.5	
5	12:30 PM	1:00 PM	30	0.0	
6	1:00 PM	1:30 PM	30	0.2	Stabilized Readings
7	1:30 PM	2:00 PM	30	0.1	Achieved with Readings
8	2:00 PM	2:30 PM	30	0.1	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: 60.0 inches

$$Test\ Section\ Surface\ Area, A = 2\pi rh + \pi r^2$$

A = **1558** in^2

$$Discharged\ Water\ Volume, V = \pi r^2 \Delta d$$

$$Percolation\ Rate = \left(\frac{V/A}{\Delta T}\right)$$

Reading 6	V =	**12**	in^3	Percolation Rate =	**0.02**	inches/hour
Reading 7	V =	**6**	in^3	Percolation Rate =	**0.01**	inches/hour
Reading 8	V =	**6**	in^3	Percolation Rate =	**0.01**	inches/hour

Measured Percolation Rate = **0.01** inches/hour

Reduction Factors

Small Diameter Boring, 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 = **0.00** inches/hour

GEOCON WEST, INC.

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DRAFTED BY: JJK | CHECKED BY: HHD

PERCOLATION TEST RESULTS

2010-2036 NORTH LINCOLN PARK AVENUE

3601-3615 NORTH MISSION ROAD

LOS ANGELES, CALIFORNIA

JUNE 2022 | PROJECT NO. W1562-06-01 | FIG. 19

APPENDIX A

APPENDIX A

FIELD INVESTIGATION

The site was explored on May 6, 2022 by excavating two 8-inch diameter borings to a maximum depth of approximately 61 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 rings to facilitate soil removal and testing. Standard Penetration Tests were performed in both borings. Bulk samples were also obtained.

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 A2. 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 depicted on the Site Plan (see Figure 2).

PROJECT NO. W1562-06-01

BORING 1

ELEV. (MSL.) -- DATE COMPLETED **05/06/2022**

EQUIPMENT **HOLLOW STEM AUGER** BY: **JJK**

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** Clayey Silt, firm, dry, dark brown. - slightly moist to moist			
2								
4								
6	B1@5.5'			ML	**ALLUVIUM** Clayey Silt, hard, slightly moist, brown.	47		
8	B1@7.5'			ML	Sandy Silt, hard, slightly moist to moist, brown, fine-grained sand.	57	113.0	15.5
10	B1@10'			ML	Silt, stiff, moist, brown.	27		
12	B1@12.5'			CL	Clay with Sand, hard, moist, brown, trace fine- to medium-grained.	50 (2")	103.9	18.1
14	B1@15'			SC	Clayey Sand, dense, moist, brown and olive gray, fine-grained, some medium- to coarse-grained.	42		
16								
18	B1@17.5'			CL	Sandy Clay, stiff, moist, gray, fine-grained.	24	108.5	21.8
20	B1@20'			ML	Silt with Sand, stiff, slightly moist to moist, gray.	22		
22	B1@22.5'				- moist	32	102.9	23.4
24								
26	B1@25'		▼		- gray with light gray mottles, trace fine-grained sand	17		
28	B1@27.5'				- very moist, light gray	24	109.9	21.6
				CL	Clay with Sand, firm, moist to very moist, light gray.			

W1562-06-01 BORING LOGS.GPJ

Figure A1,
Log of Boring 1, Page 1 of 3

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. W1562-06-01

BORING 1

ELEV. (MSL.) -- DATE COMPLETED **05/06/2022**

EQUIPMENT **HOLLOW STEM AUGER** BY: **JJK**

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'				- stiff	31	113.5	20.0
34					Sandy Clay, stiff, moist to very moist, light gray, trace medium- to coarse-grained.			
36	B1@35'					22		
38	B1@37.5'			CL	- gray and light gray, increase in medium- to coarse-grained	35	102.3	22.9
40	B1@40'				- hard	43		
42				ML	Silt, hard, moist, gray, trace fine-grained sand and clay.			
44	B1@42.5'			SM	Silty Sand, very dense, moist, gray, fine-grained.	50 (5")	112.9	18.6
46	B1@45'				- slightly moist to moist	51		
48					Sandy Silt, hard, slightly moist to moist, gray, 5-6" lens of Silty Sand.			
50	B1@50'			ML		45		
52								
54								
56	B1@55'				Silty Sand, very dense, very moist, gray, fine-grained, 3" lens of Sandy Silt.	60		
58				SM				

W1562-06-01 BORING LOGS.GPJ

Figure A1,
Log of Boring 1, Page 2 of 3

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. W1562-06-01

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	**BORING 1** ELEV. (MSL.) -- DATE COMPLETED **05/06/2022** EQUIPMENT **HOLLOW STEM AUGER** BY: **JJK**	PENETRATION RESISTANCE (BLOWS/FT*)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
					MATERIAL DESCRIPTION			
60	B1@60'			SM	- moist to very moist	57		
					Total depth of boring: 61 feet Fill to 4.5 feet. Groundwater encountered at 27 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.			

W1562-06-01 BORING LOGS.GPJ

Figure A1,
Log of Boring 1, Page 3 of 3

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. W1562-06-01

BORING 2

ELEV. (MSL.) -- DATE COMPLETED **05/06/2022**

EQUIPMENT **HOLLOW STEM AUGER** BY: **JJK**

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" BASE: 6"** **ARTIFICIAL FILL** Clayey Silt, firm, dry, dark brown.			
2								
	B2@2.5'			MH	**ALLUVIUM** Sandy Silt, soft, moist, brown, fine-grained sand.	7		
4								
6	B2@5.5'				- firm, moist to very moist	17	102.4	24.4
					Silt with Sand, firm, moist, brown.			
8	B2@7.5'			ML		9		
10								
	B2@10.5'				- stiff, slightly moist to moist	34	112.8	18.4
12					Clay with Sand, firm, moist, olive grayish brown.			
	B2@13.5'			CL		13		
14			▼					
16	B2@15.5'				- moist to very moist, gray	19	102.6	24.8
					Silty Sand, dense, very moist, gray, fine-grained.			
18	B2@17.5'					45		
20								
	B2@20.5'				- medium dense	48	104.8	22.0
22				SM				
	B2@22.5'				- dense	40		
24	B2@24'					40		
	B2@25.5'				- very dense, moist, olive gray	50 (3")	90.7	32.3
26								
28	B2@27.5'					74		

W1562-06-01 BORING LOGS.GPJ

Figure A2,
Log of Boring 2, Page 1 of 3

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. W1562-06-01

BORING 2

ELEV. (MSL.) -- DATE COMPLETED **05/06/2022**

EQUIPMENT **HOLLOW STEM AUGER** BY: **JJK**

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT*)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
30	B2@30.5'				- medium dense, very moist	25	106.1	21.7
32	B2@32.5'				- very dense, 5" lens of silt	67		
34								
36	B2@35.5'				- very moist to wet, no silt	50 (6")	26.1	99.4
38								
40	B2@40.5'				- no recovery	50 (6")		
42								
44				SM				
46	B2@45'				- very moist	50 (6")		
48								
50	B2@50'					66		
52								
54								
56	B2@55'				- moist to very moist	78		
58								

W1562-06-01 BORING LOGS.GPJ

Figure A2,
Log of Boring 2, Page 2 of 3

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. W1562-06-01

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	**BORING 2** ELEV. (MSL.) -- DATE COMPLETED **05/06/2022** EQUIPMENT **HOLLOW STEM AUGER** BY: **JJK**	PENETRATION RESISTANCE (BLOWS/FT*)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
					MATERIAL DESCRIPTION			
60	B2@60'			SM		50 (6")		
					Total depth of boring: 61 feet Fill to 2.5 feet. Groundwater encountered at 15 feet. Backfilled with soil cuttings and tamped. Patched with cold patch A/C. *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.			

W1562-06-01 BORING LOGS.GPJ

Figure A2,
Log of Boring 2, Page 3 of 3

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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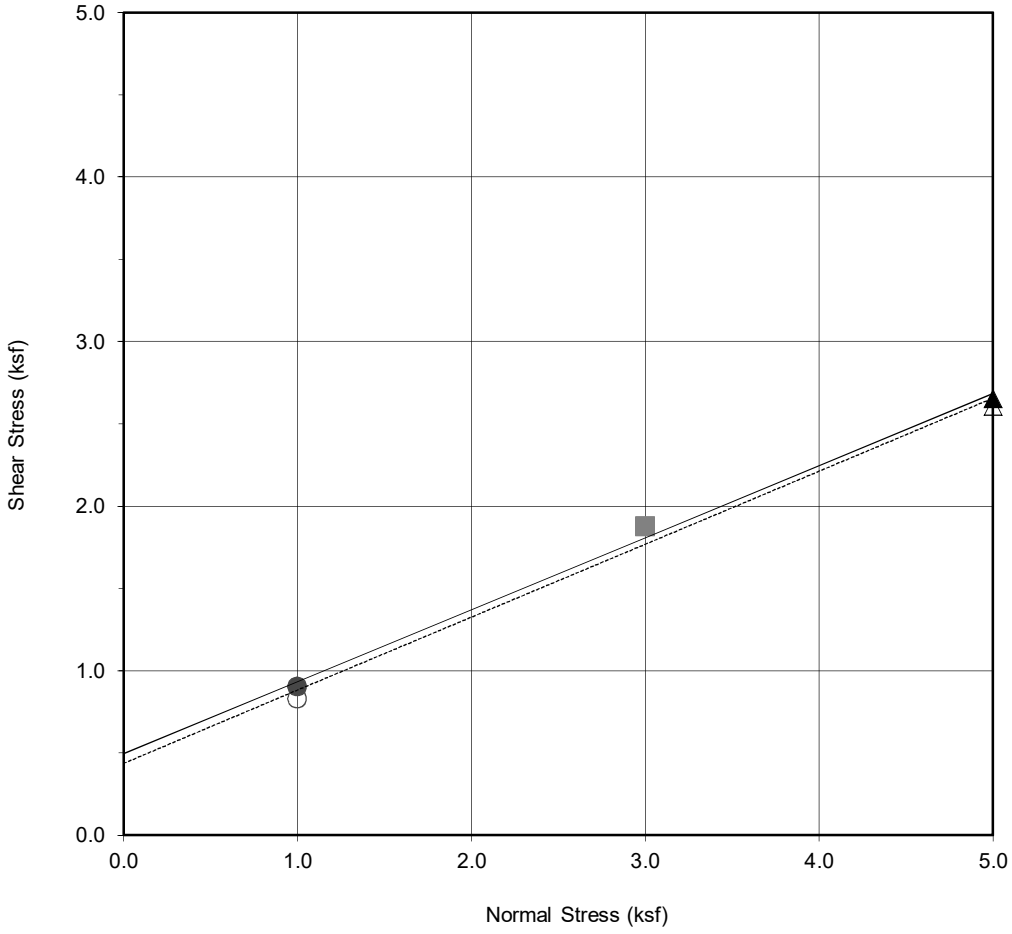
APPENDIX B

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, Atterberg Limits, grain size analysis, moisture density relationship, consolidation and expansion characteristics, corrosivity and in-place dry density and moisture content. The results of the laboratory tests are summarized in Figures B1 through B22. The in-place dry density and moisture content of the samples tested are presented on the boring logs, Appendix A.



Boring No.	**B1 + B2**
Sample No.	**B1+B2@0-5'**
Depth (ft)	**0-5'**
Sample Type:	Bulk

Soil Identification:		
Silty Clay w/ Sand (CL)		
Strength Parameters		
	C (psf)	ϕ (^{o})
Peak	494	23.7
Ultimate	436	23.9

Normal Strest (kip/ft2)	1	3	5
Peak Shear Stress (kip/ft²)	● 0.90	■ 1.87	▲ 2.65
Shear Stress @ End of Test (ksf)	○ 0.83	□ 1.87	△ 2.60
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 (%)	10.6	10.5	10.4
Initial Dry Density (pcf)	107.0	107.0	107.0
Initial Degree of Saturation (%)	49.6	49.5	48.7
Soil Height Before Shearing (in.)	1.2	1.2	1.2
Final Moisture Content (%)	20.6	19.1	16.8

GEOCON

DIRECT SHEAR TEST RESULTS

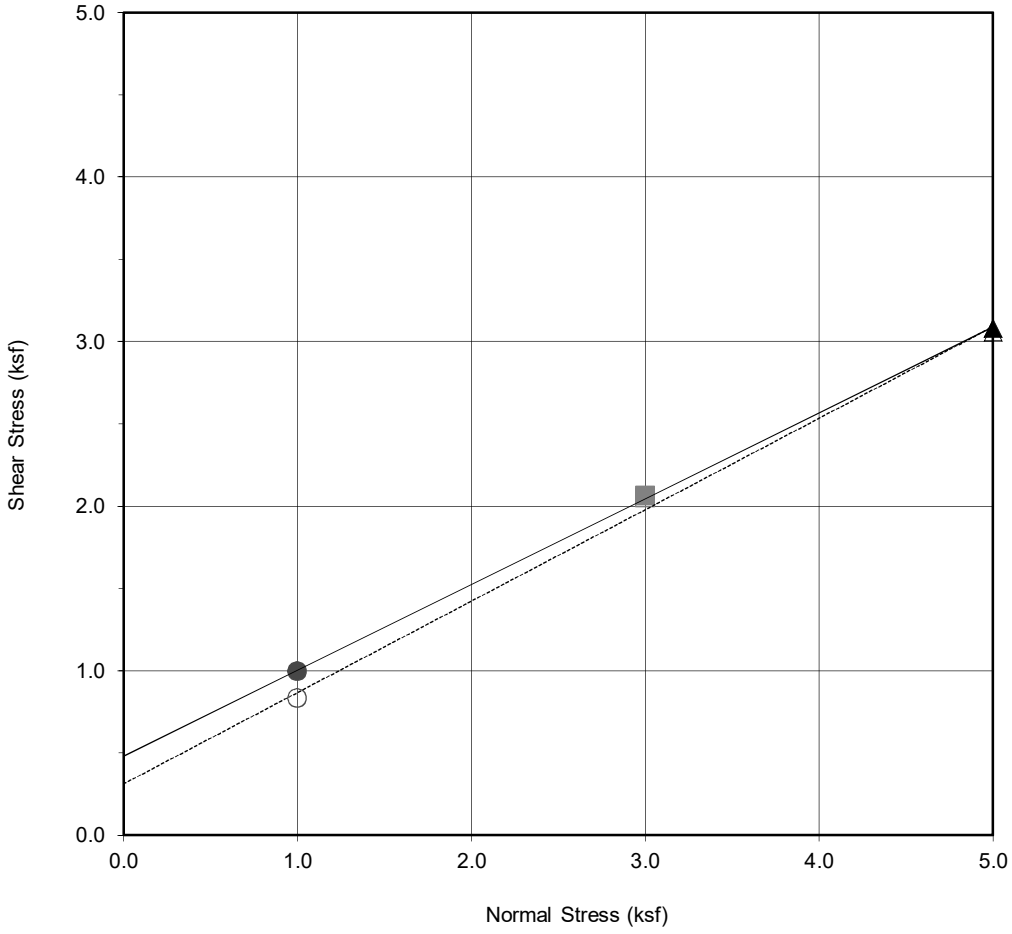
Consolidated Drained ASTM D-3080

Checked by: JJK

Project No.: W1562-06-01

2010-2036 NORTH LINCOLN PARK AVENUE
3601-3615 NORTH MISSION ROAD
LOS ANGELES, CALIFORNIA

JUNE, 2022 Figure B1



Boring No.	**B2**
Sample No.	**B2@5.5'**
Depth (ft)	**5.5**
Sample Type:	Ring

Soil Identification:		
Sandy Silt (ML)		
Strength Parameters		
	C (psf)	ϕ (^{o})
Peak	480	27.5
Ultimate	311	29.1

Normal Strest (kip/ft2)	1	3	5
Peak Shear Stress (kip/ft²)	● 0.99	■ 2.06	▲ 3.08
Shear Stress @ End of Test (ksf)	○ 0.83	□ 2.05	△ 3.06
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 (%)	23.0	23.9	24.0
Initial Dry Density (pcf)	102.6	102.3	101.4
Initial Degree of Saturation (%)	96.8	99.4	97.6
Soil Height Before Shearing (in.)	1.2	1.2	1.2
Final Moisture Content (%)	24.5	23.2	22.8

GEOCON

DIRECT SHEAR TEST RESULTS

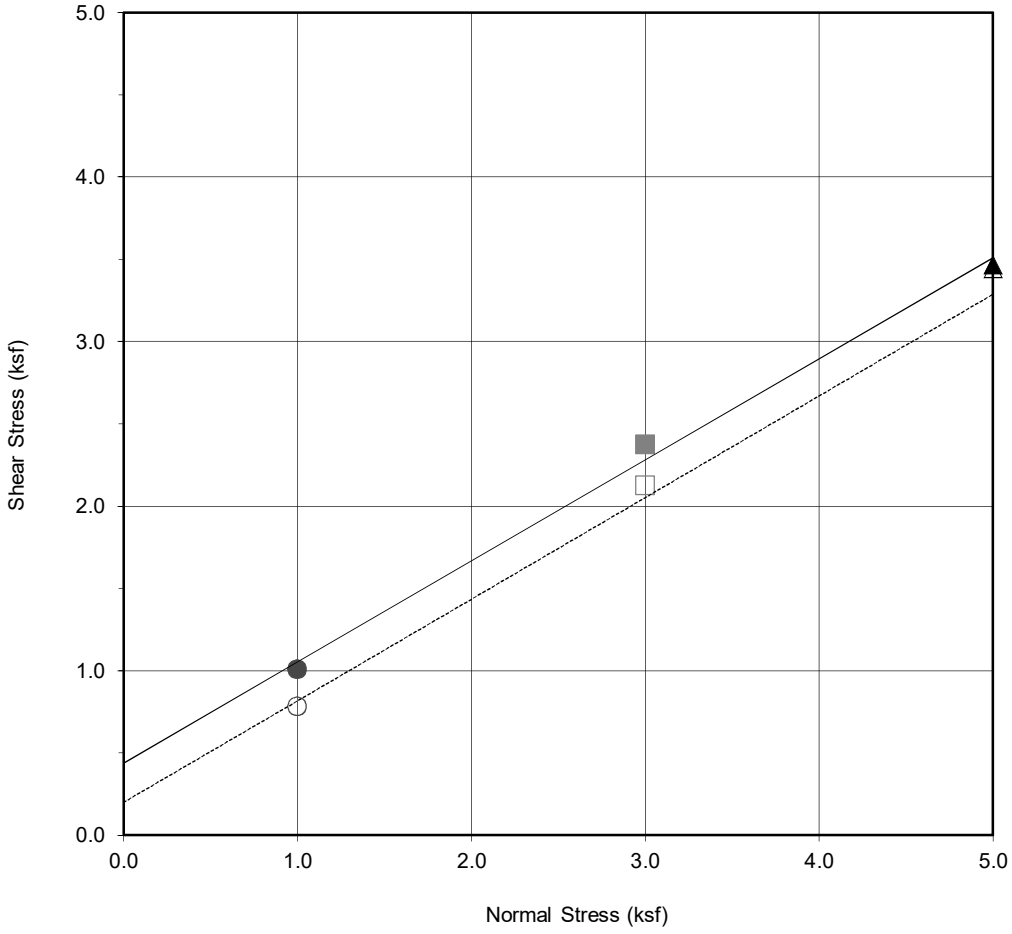
Consolidated Drained ASTM D-3080

Checked by: JJK

Project No.: W1562-06-01

2010-2036 NORTH LINCOLN PARK AVENUE
3601-3615 NORTH MISSION ROAD
LOS ANGELES, CALIFORNIA

JUNE, 2022 Figure B2



Boring No.	**B2**
Sample No.	**B2@10.5**
Depth (ft)	**10.5'**
Sample Type:	Ring

Soil Identification:		
Silt w/ Sand (ML)		
Strength Parameters		
	C (psf)	ϕ (^{o})
Peak	437	31.6
Ultimate	200	31.7

Normal Strest (kip/ft2)	1	3	5
Peak Shear Stress (kip/ft²)	● 1.01	■ 2.37	▲ 3.46
Shear Stress @ End of Test (ksf)	○ 0.78	□ 2.12	△ 3.44
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 (%)	18.9	18.8	19.0
Initial Dry Density (pcf)	108.0	109.7	110.3
Initial Degree of Saturation (%)	91.1	94.6	97.5
Soil Height Before Shearing (in.)	1.2	1.2	1.2
Final Moisture Content (%)	22.4	21.1	20.7

GEOCON

DIRECT SHEAR TEST RESULTS

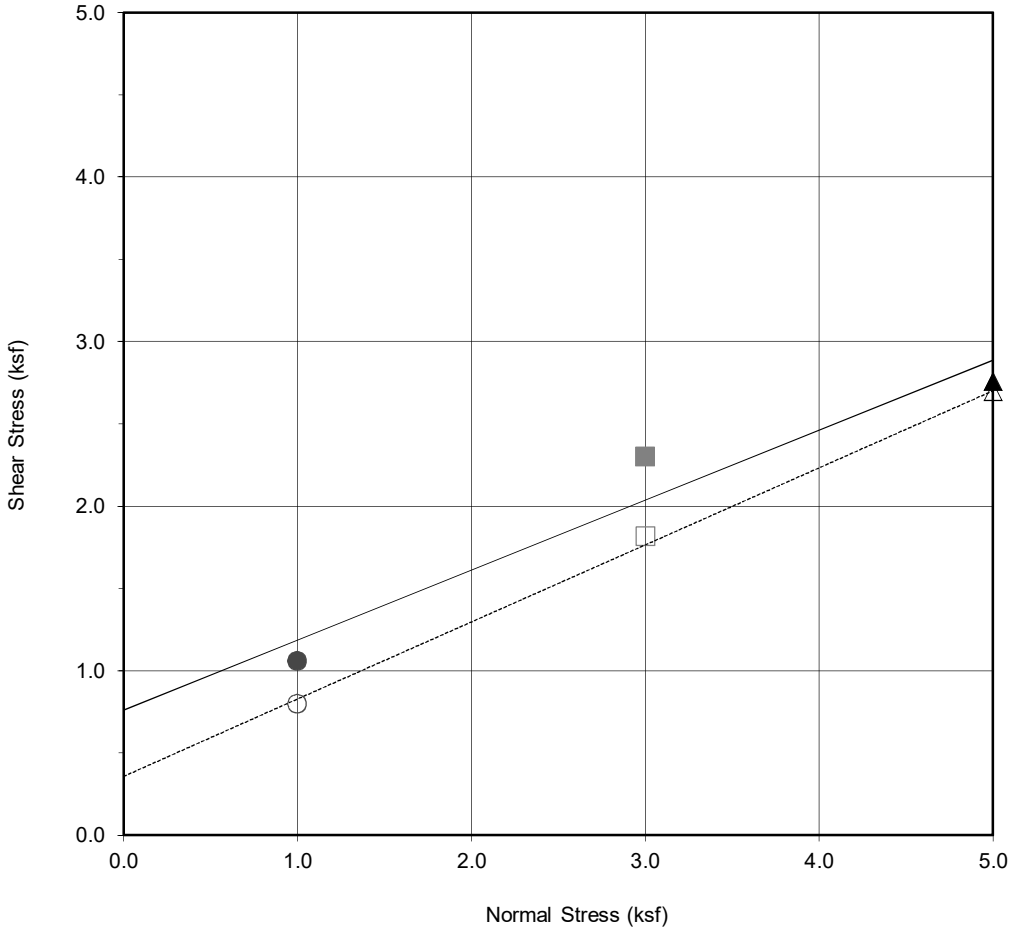
Consolidated Drained ASTM D-3080

Checked by: JJK

Project No.: W1562-06-01

2010-2036 NORTH LINCOLN PARK AVENUE
3601-3615 NORTH MISSION ROAD
LOS ANGELES, CALIFORNIA

JUNE, 2022 Figure B3



Boring No.	**B1**
Sample No.	**B1@22.5'**
Depth (ft)	**22.5'**
Sample Type:	Ring

Soil Identification:		
Silt w/ Sand (ML)		
Strength Parameters		
	C (psf)	ϕ (^{o})
Peak	760	23.0
Ultimate	357	25.1

Normal Strest (kip/ft2)	1	3	5
Peak Shear Stress (kip/ft²)	● 1.06	■ 2.30	▲ 2.76
Shear Stress @ End of Test (ksf)	○ 0.80	□ 1.82	△ 2.70
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 (%)	23.6	25.3	28.8
Initial Dry Density (pcf)	101.4	99.2	93.7
Initial Degree of Saturation (%)	96.3	97.6	97.3
Soil Height Before Shearing (in.)	1.2	1.2	1.2
Final Moisture Content (%)	26.9	26.4	28.6

GEOCON

DIRECT SHEAR TEST RESULTS

Consolidated Drained ASTM D-3080

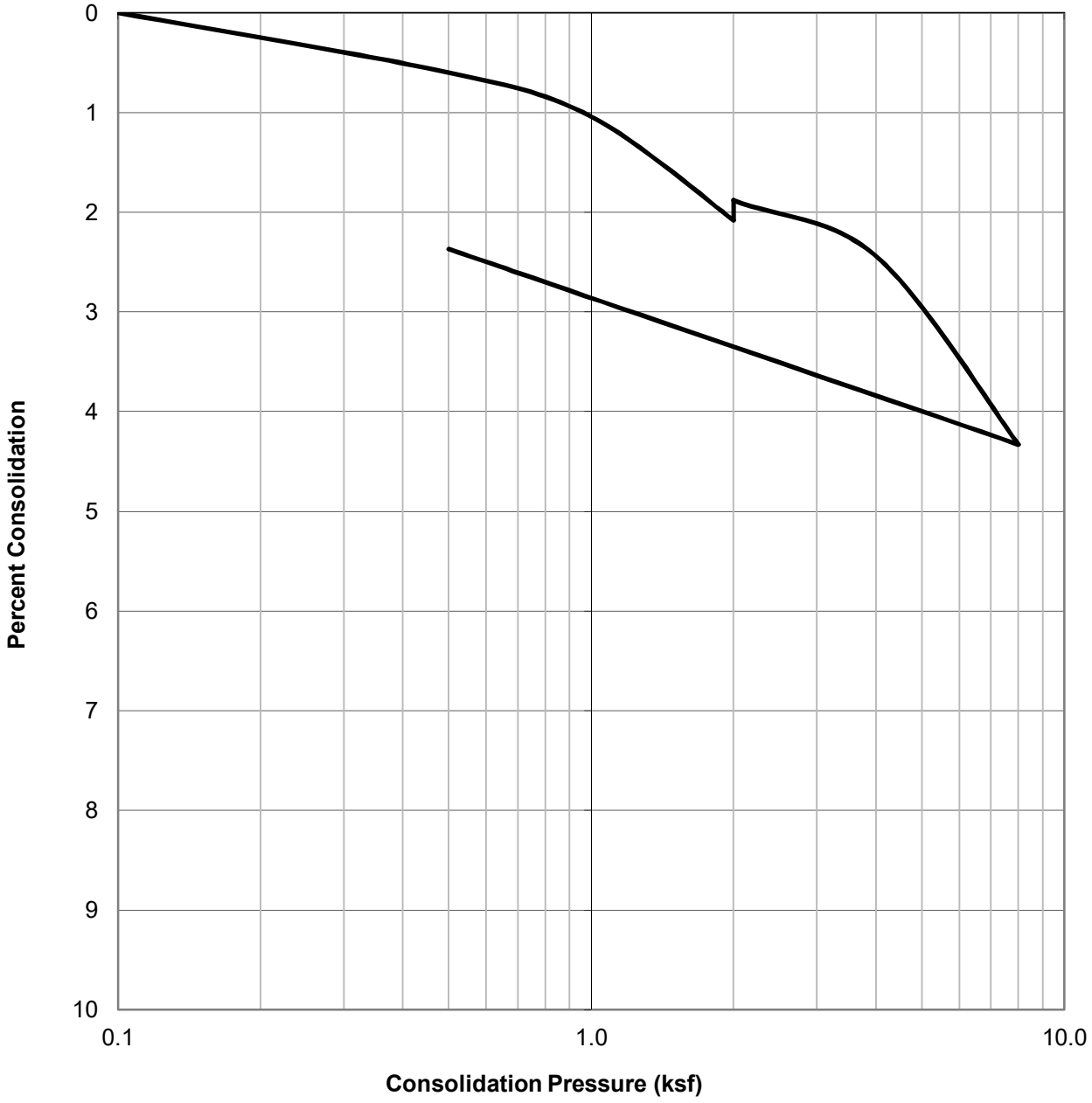
Checked by: JJK

Project No.: W1562-06-01

2010-2036 NORTH LINCOLN PARK AVENUE
3601-3615 NORTH MISSION ROAD
LOS ANGELES, CALIFORNIA

JUNE, 2022 Figure B4

WATER ADDED AT 2.0 KSF



SAMPLE ID.	SOIL TYPE	DRY DENSITY (PCF)	INITIAL MOISTURE (%)	FINAL MOISTURE (%)
B2@5.5	Sandy Silt (ML)	100.3	24.4	24.3

GEOCON

CONSOLIDATION TEST RESULTS

ASTM D-2435

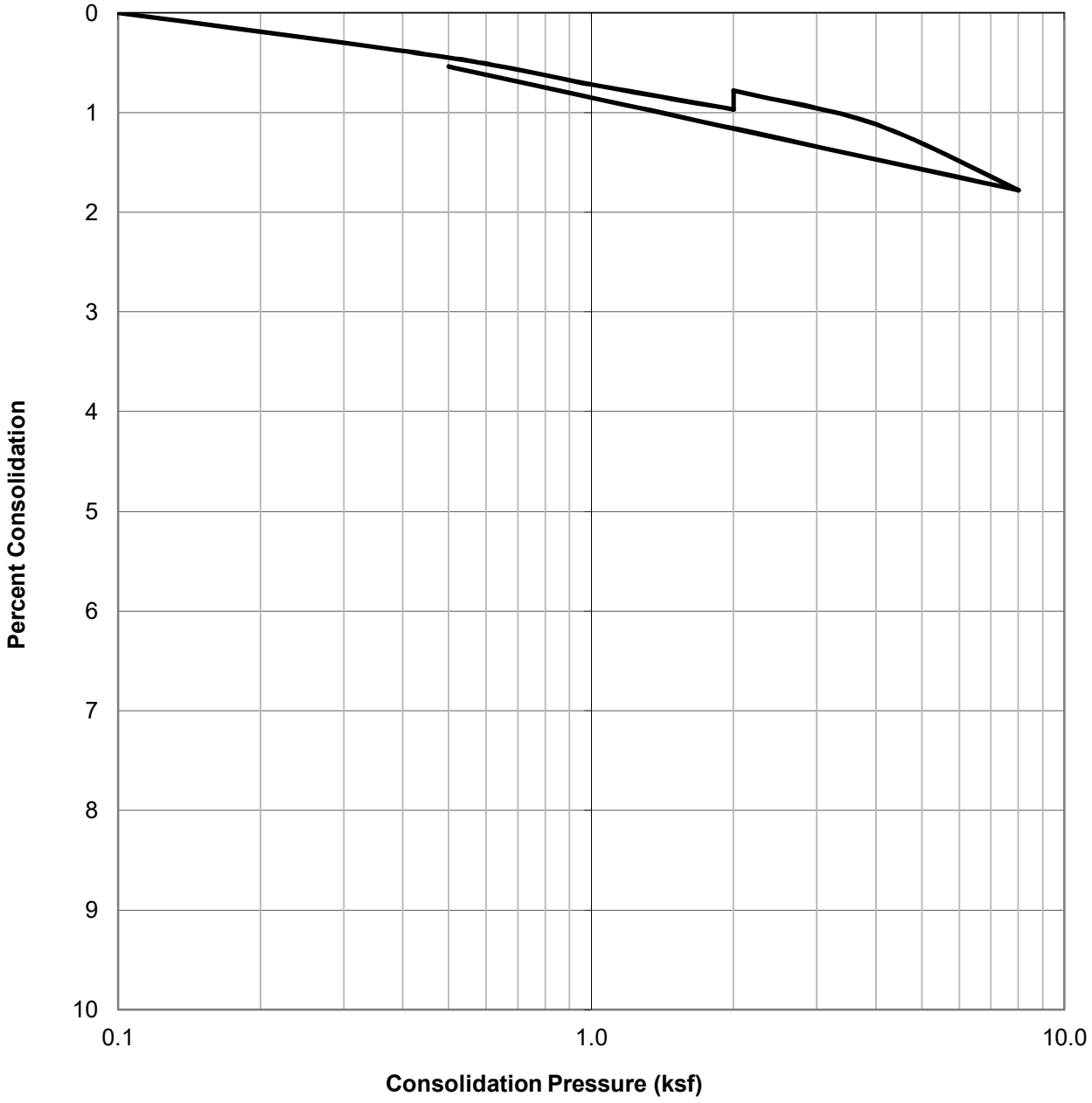
Checked by: JJK

Project No.: W1562-06-01

2010-2036 NORTH LINCOLN PARK AVENUE
3601-3615 NORTH MISSION ROAD
LOS ANGELES, CALIFORNIA

JUNE, 2022 Figure B5

WATER ADDED AT 2.0 KSF



SAMPLE ID.	SOIL TYPE	DRY DENSITY (PCF)	INITIAL MOISTURE (%)	FINAL MOISTURE (%)
B1@7.5	Sandy Silt (ML)	109.0	15.5	19.4

GEOCON

CONSOLIDATION TEST RESULTS

ASTM D-2435

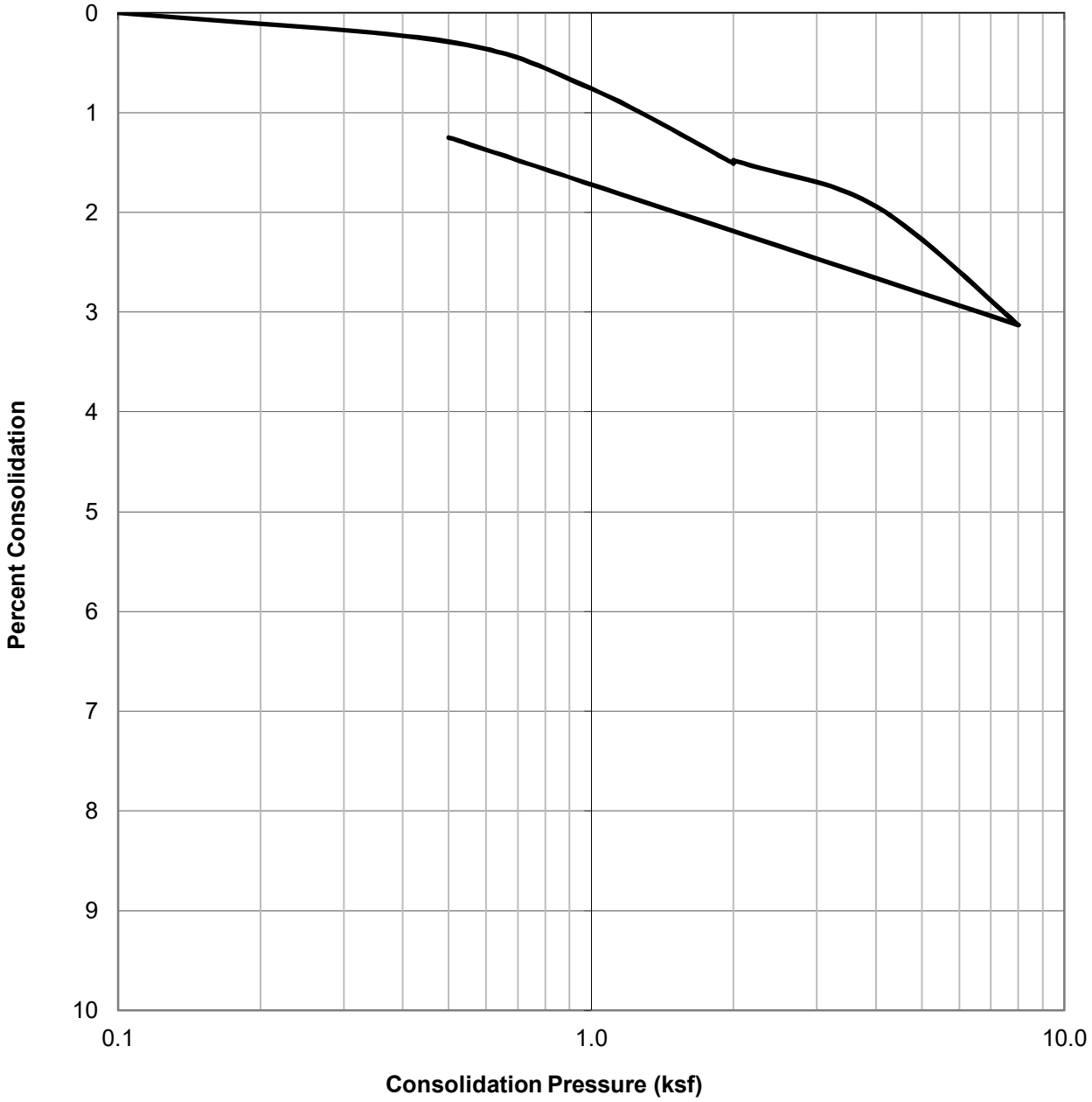
Checked by: JJK

Project No.: W1562-06-01

2010-2036 NORTH LINCOLN PARK AVENUE
3601-3615 NORTH MISSION ROAD
LOS ANGELES, CALIFORNIA

JUNE, 2022 Figure B6

WATER ADDED AT 2.0 KSF



SAMPLE ID.	SOIL TYPE	DRY DENSITY (PCF)	INITIAL MOISTURE (%)	FINAL MOISTURE (%)
B2@10.5	Silt w/ Sand (ML)	109.9	18.4	19.4

GEOCON

CONSOLIDATION TEST RESULTS

ASTM D-2435

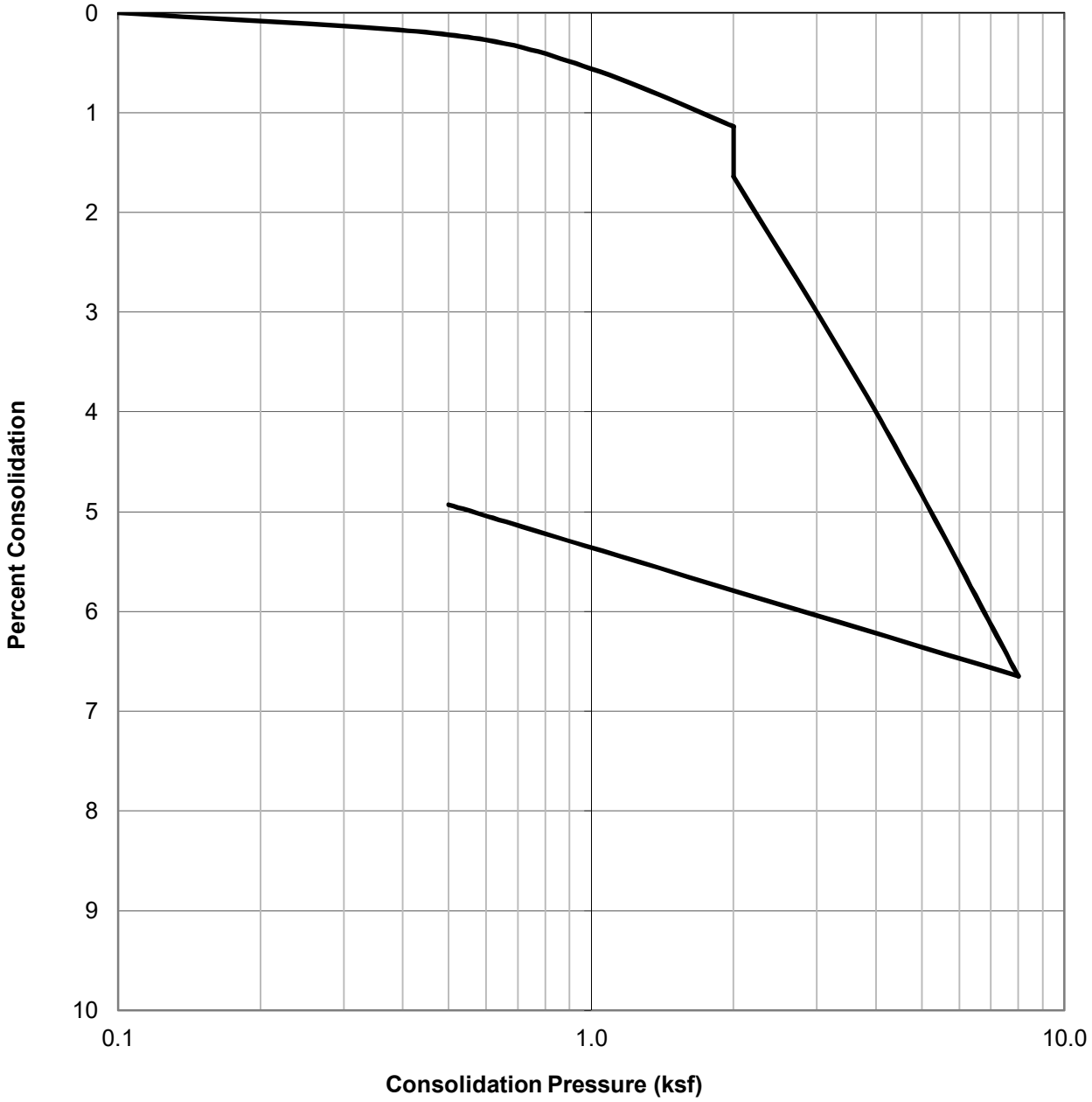
Checked by: JJK

Project No.: W1562-06-01

2010-2036 NORTH LINCOLN PARK AVENUE
3601-3615 NORTH MISSION ROAD
LOS ANGELES, CALIFORNIA

JUNE, 2022 Figure B7

WATER ADDED AT 2.0 KSF



SAMPLE ID.	SOIL TYPE	DRY DENSITY (PCF)	INITIAL MOISTURE (%)	FINAL MOISTURE (%)
B1@12.5	Clay w/ Sand (CL)	107.5	18.1	20.8

GEOCON

CONSOLIDATION TEST RESULTS

ASTM D-2435

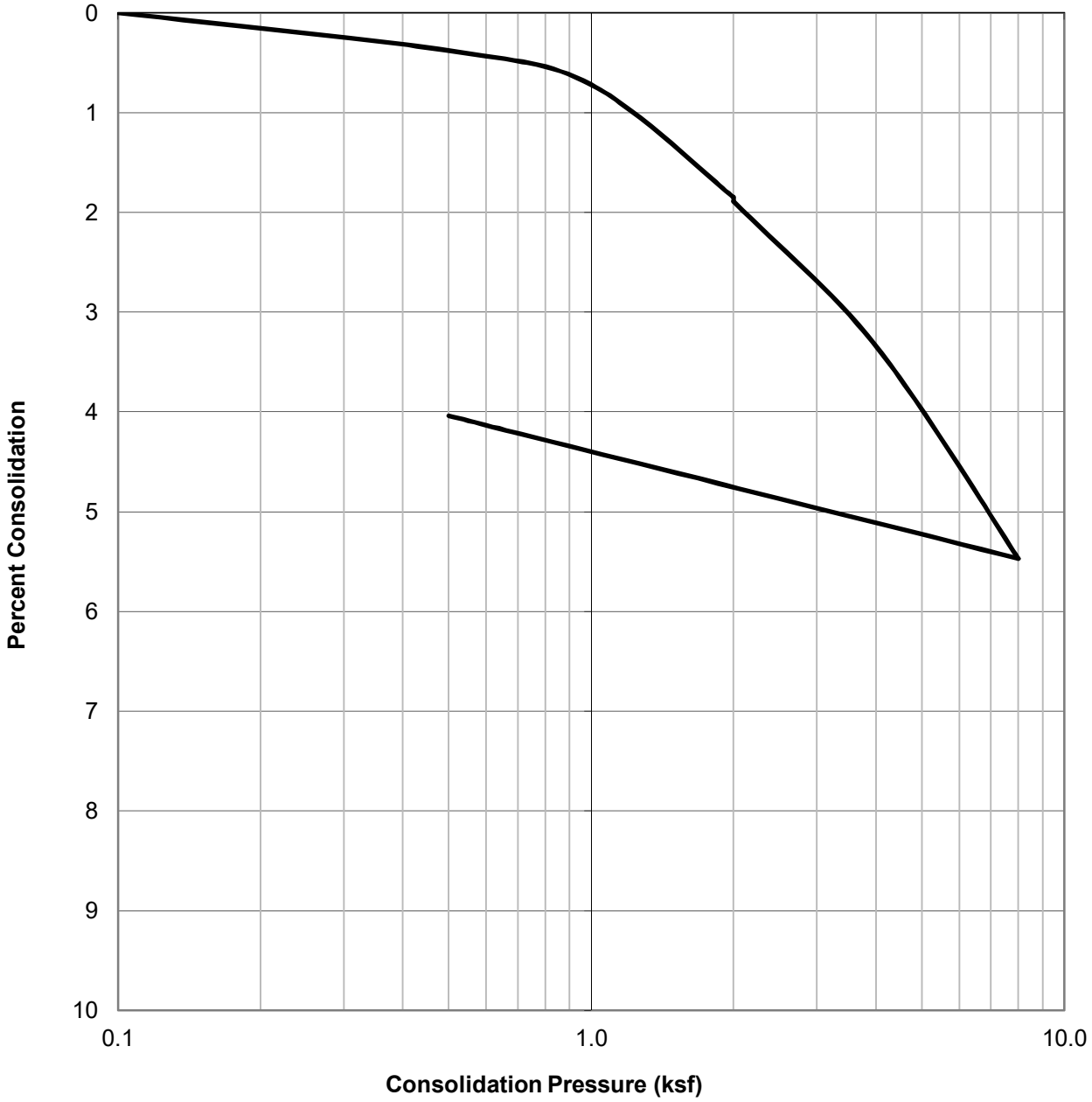
Checked by: JJK

Project No.: W1562-06-01

2010-2036 NORTH LINCOLN PARK AVENUE
3601-3615 NORTH MISSION ROAD
LOS ANGELES, CALIFORNIA

JUNE, 2022 Figure B8

WATER ADDED AT 2.0 KSF



SAMPLE ID.	SOIL TYPE	DRY DENSITY (PCF)	INITIAL MOISTURE (%)	FINAL MOISTURE (%)
B2@15.5	Clay w/ Sand (CL)	101.2	24.8	23.7

GEOCON

CONSOLIDATION TEST RESULTS

ASTM D-2435

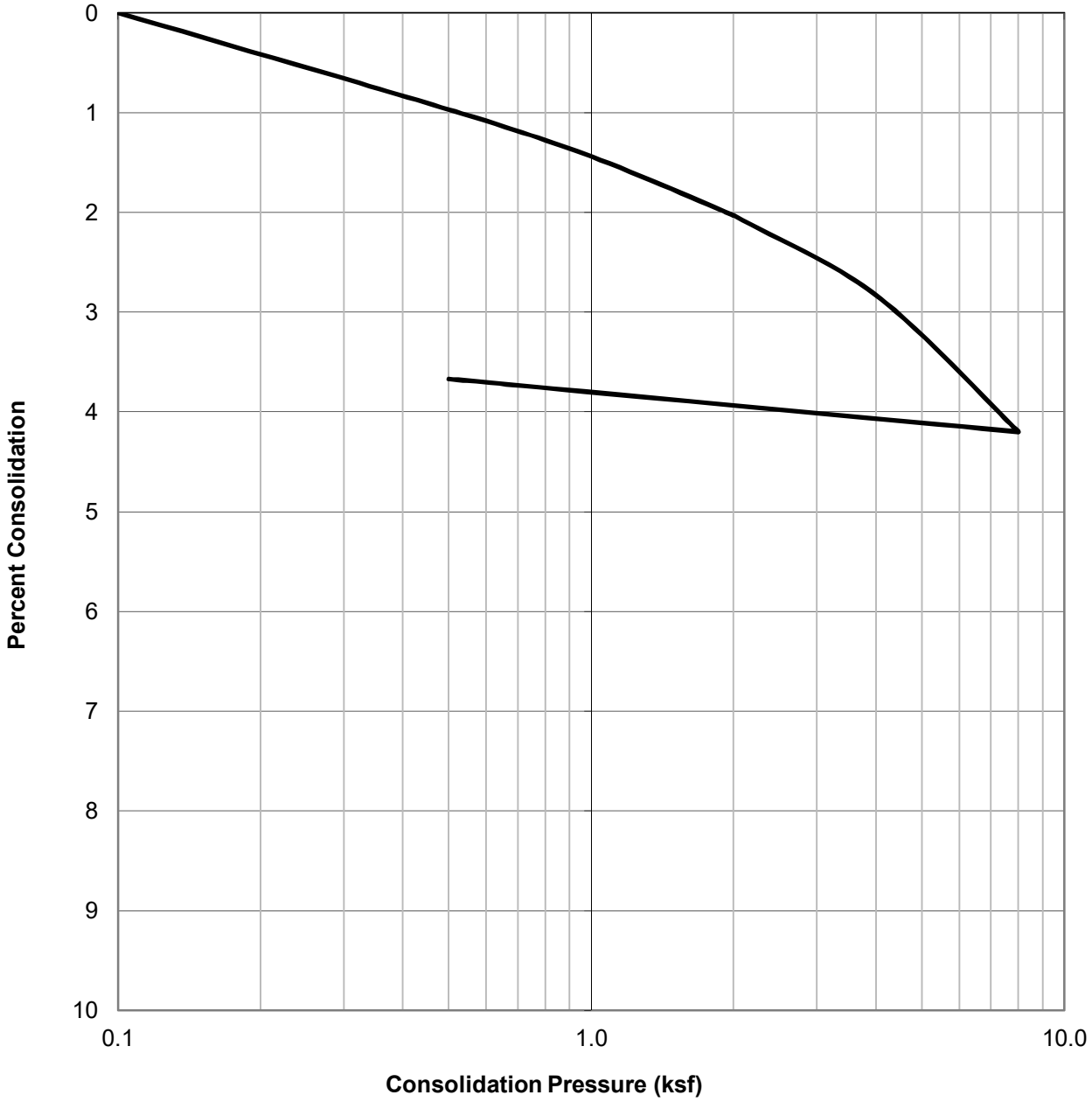
Checked by: JJK

Project No.: W1562-06-01

2010-2036 NORTH LINCOLN PARK AVENUE
3601-3615 NORTH MISSION ROAD
LOS ANGELES, CALIFORNIA

JUNE, 2022 Figure B9

WATER ADDED AT 2.0 KSF



SAMPLE ID.	SOIL TYPE	DRY DENSITY (PCF)	INITIAL MOISTURE (%)	FINAL MOISTURE (%)
B1@17.5	Sandy Clay (CL)	106.1	21.7	20.4

GEOCON

CONSOLIDATION TEST RESULTS

ASTM D-2435

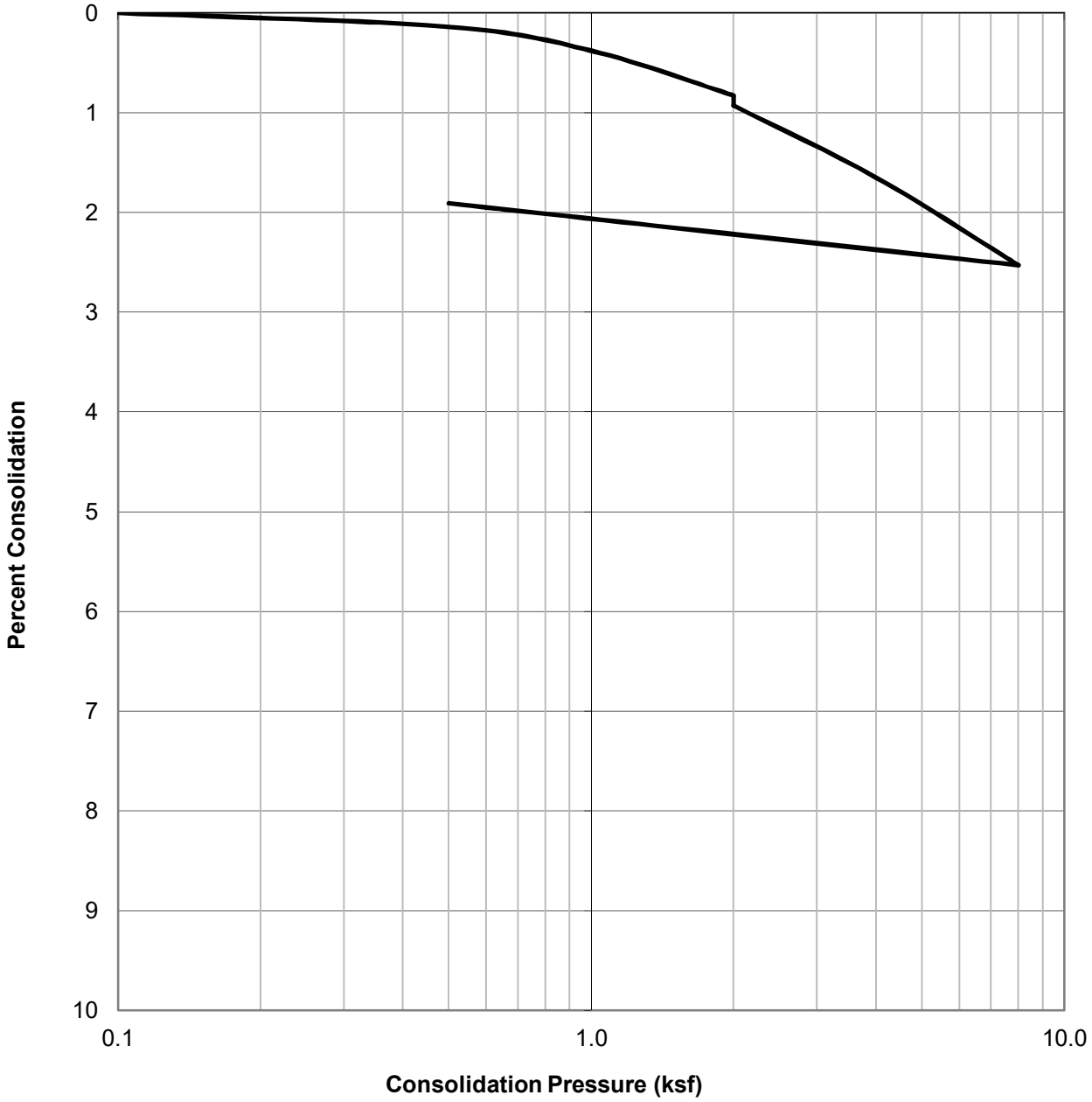
Checked by: JJK

Project No.: W1562-06-01

2010-2036 NORTH LINCOLN PARK AVENUE
3601-3615 NORTH MISSION ROAD
LOS ANGELES, CALIFORNIA

JUNE, 2022 Figure B10

WATER ADDED AT 2.0 KSF



SAMPLE ID.	SOIL TYPE	DRY DENSITY (PCF)	INITIAL MOISTURE (%)	FINAL MOISTURE (%)
B2@20.5	Silty Sand (SM)	100.5	22.0	22.9

GEOCON

CONSOLIDATION TEST RESULTS

ASTM D-2435

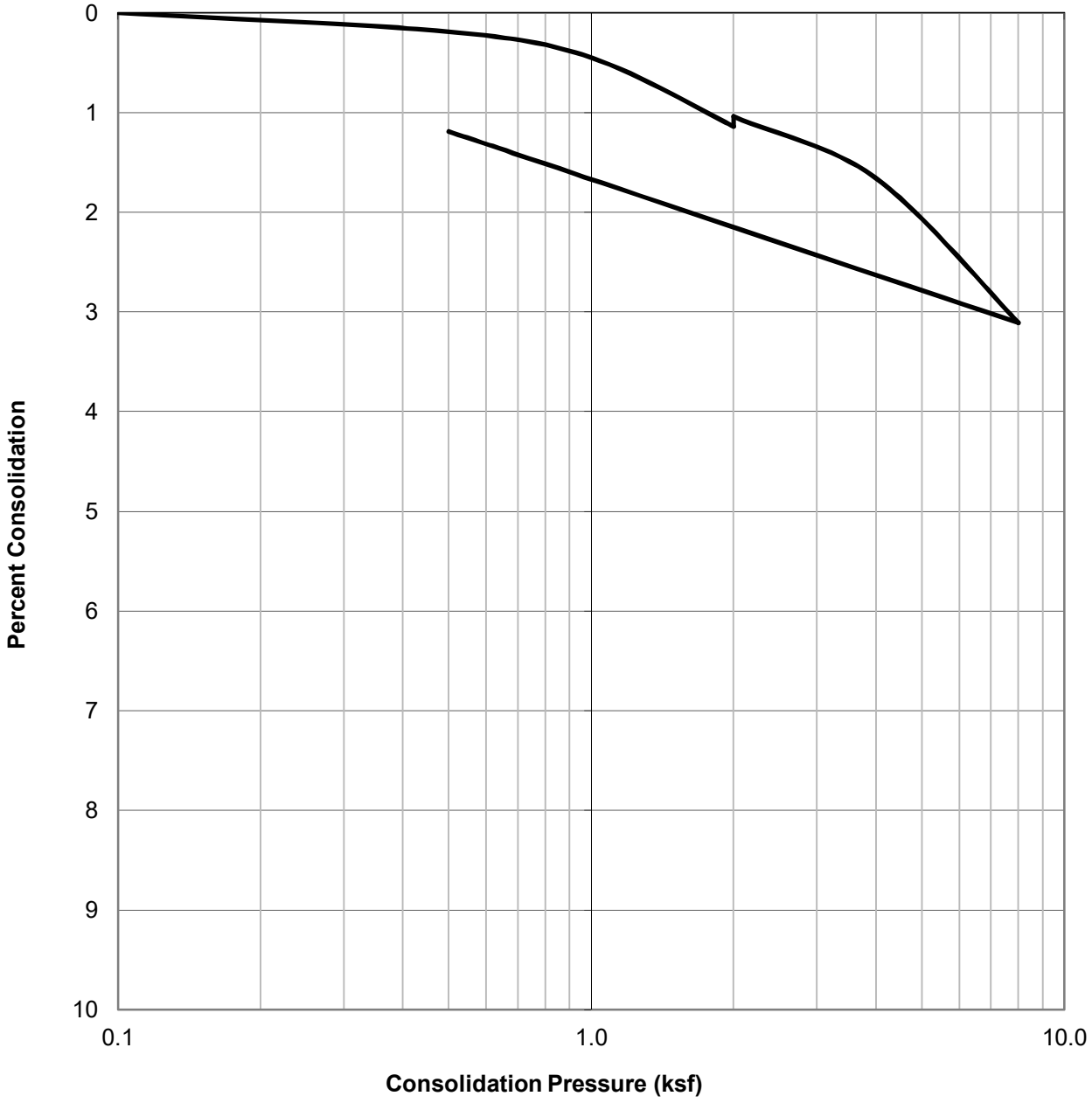
Checked by: JJK

Project No.: W1562-06-01

2010-2036 NORTH LINCOLN PARK AVENUE
3601-3615 NORTH MISSION ROAD
LOS ANGELES, CALIFORNIA

JUNE, 2022 Figure B11

WATER ADDED AT 2.0 KSF



SAMPLE ID.	SOIL TYPE	DRY DENSITY (PCF)	INITIAL MOISTURE (%)	FINAL MOISTURE (%)
B1@22.5	Silt w/ Sand (ML)	102.8	23.4	24.3

GEOCON

CONSOLIDATION TEST RESULTS

ASTM D-2435

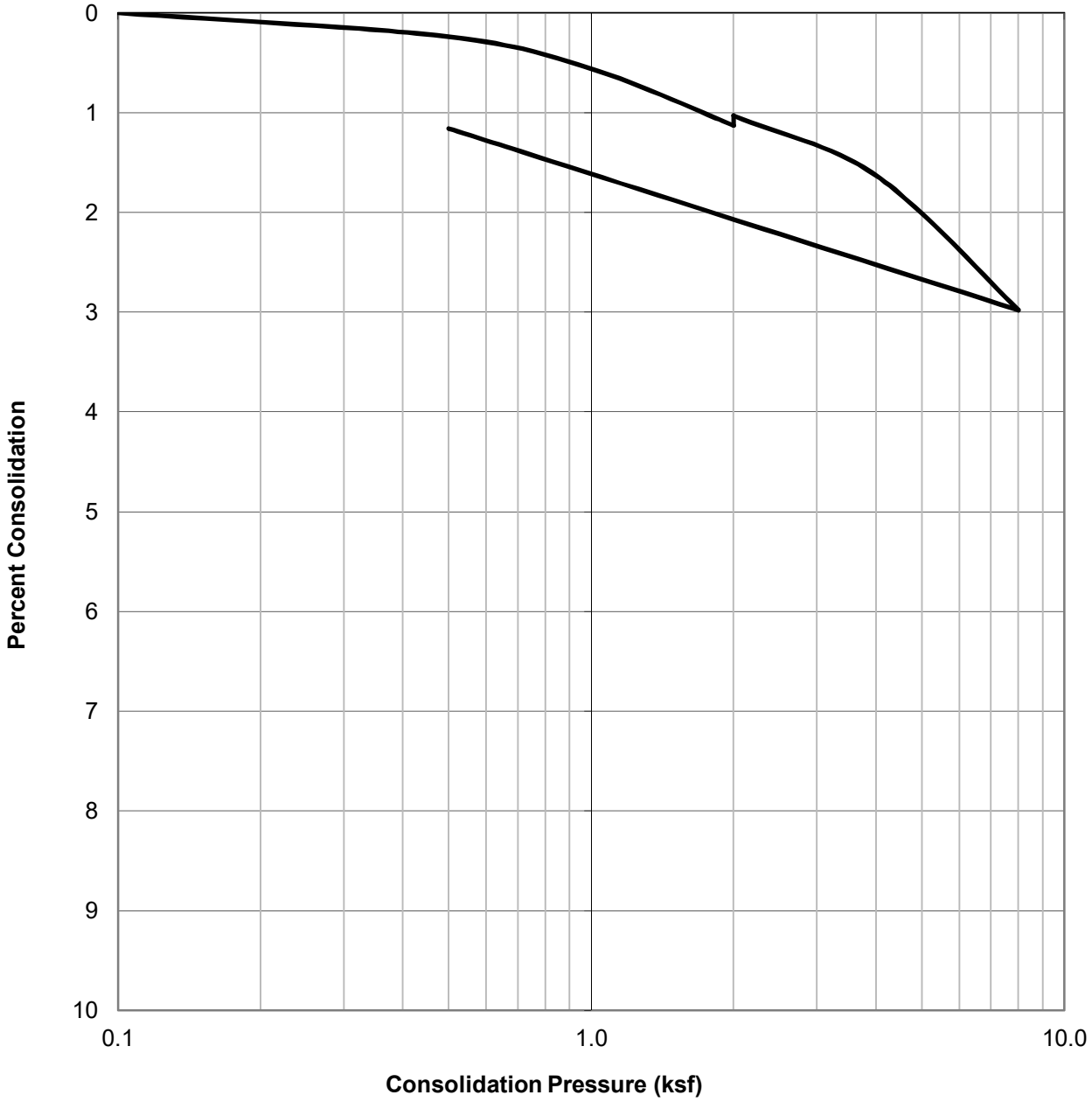
Checked by: JJK

Project No.: W1562-06-01

2010-2036 NORTH LINCOLN PARK AVENUE
3601-3615 NORTH MISSION ROAD
LOS ANGELES, CALIFORNIA

JUNE, 2022 Figure B12

WATER ADDED AT 2.0 KSF



SAMPLE ID.	SOIL TYPE	DRY DENSITY (PCF)	INITIAL MOISTURE (%)	FINAL MOISTURE (%)
B2@25.5	Silty Sand (SM)	88.4	32.3	33.7

GEOCON

CONSOLIDATION TEST RESULTS

ASTM D-2435

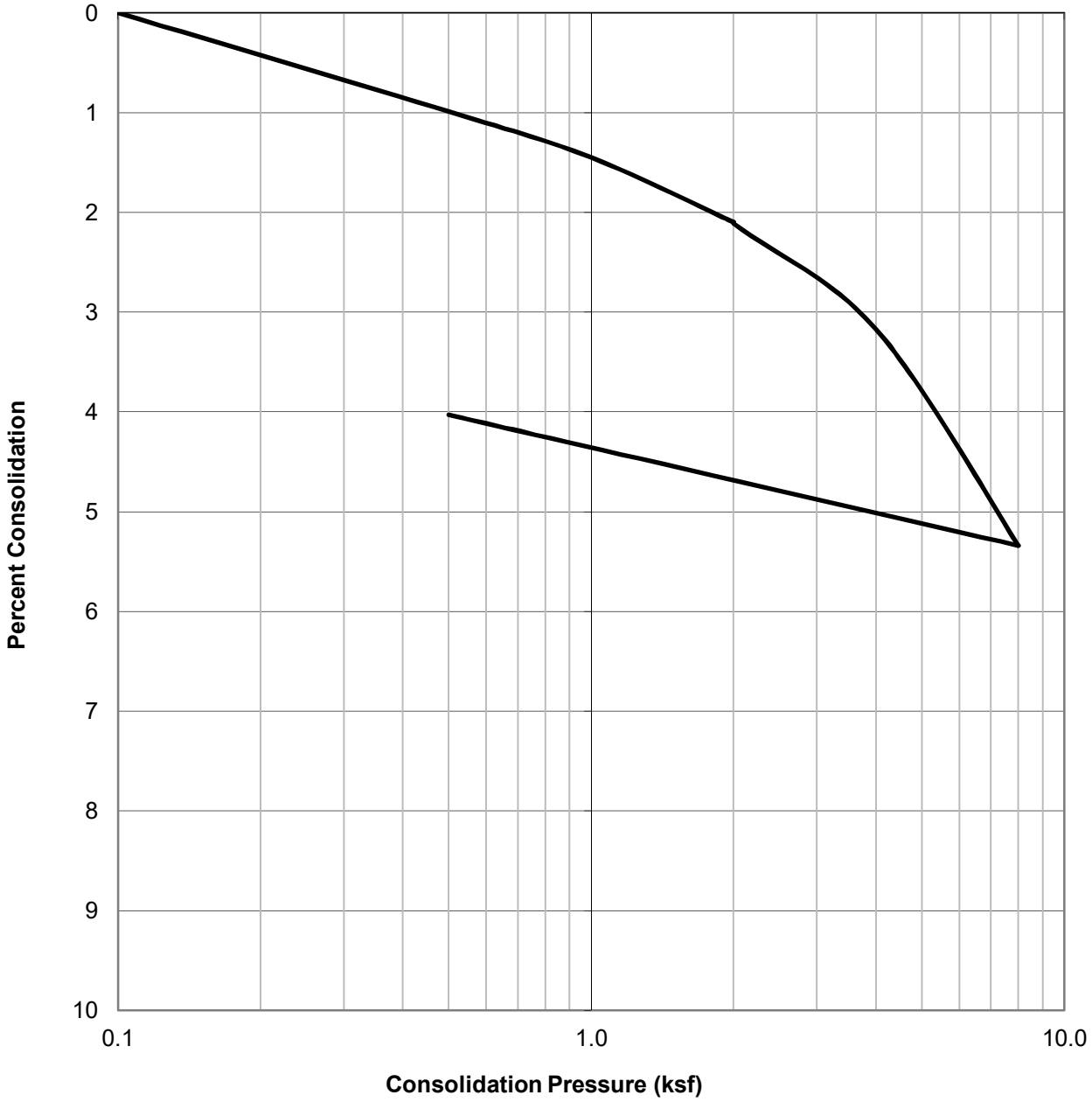
Checked by: JJK

Project No.: W1562-06-01

2010-2036 NORTH LINCOLN PARK AVENUE
3601-3615 NORTH MISSION ROAD
LOS ANGELES, CALIFORNIA

JUNE, 2022 Figure B13

WATER ADDED AT 2.0 KSF



SAMPLE ID.	SOIL TYPE	DRY DENSITY (PCF)	INITIAL MOISTURE (%)	FINAL MOISTURE (%)
B1@27.5	Silt w/ Sand (ML)	104.3	21.6	21.5

GEOCON

CONSOLIDATION TEST RESULTS

ASTM D-2435

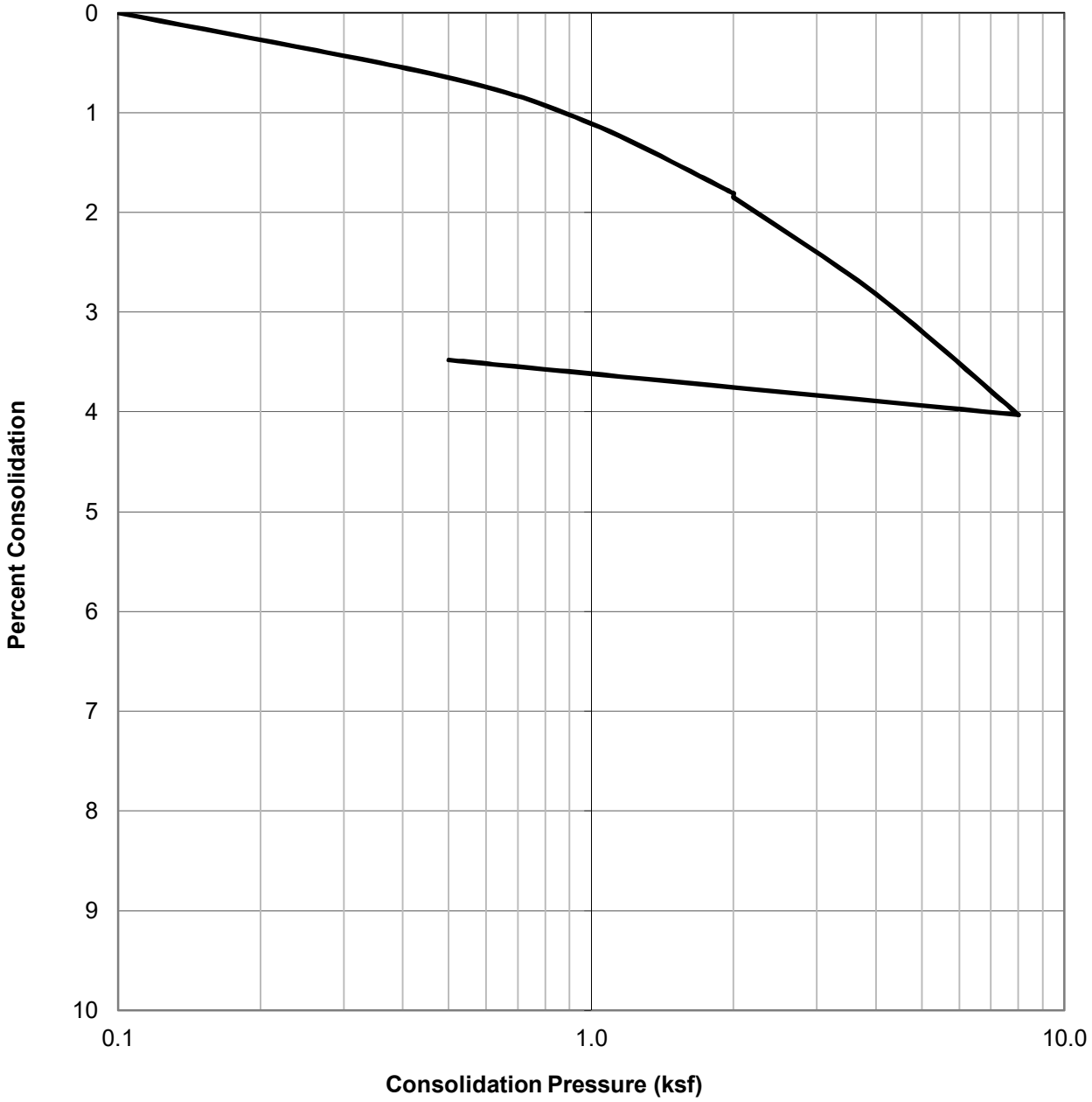
Checked by: JJK

Project No.: W1562-06-01

2010-2036 NORTH LINCOLN PARK AVENUE
3601-3615 NORTH MISSION ROAD
LOS ANGELES, CALIFORNIA

JUNE, 2022 Figure B14

WATER ADDED AT 2.0 KSF



SAMPLE ID.	SOIL TYPE	DRY DENSITY (PCF)	INITIAL MOISTURE (%)	FINAL MOISTURE (%)
B2@30.5	Silty Sand (SM)	104.0	21.7	20.5

GEOCON

CONSOLIDATION TEST RESULTS

ASTM D-2435

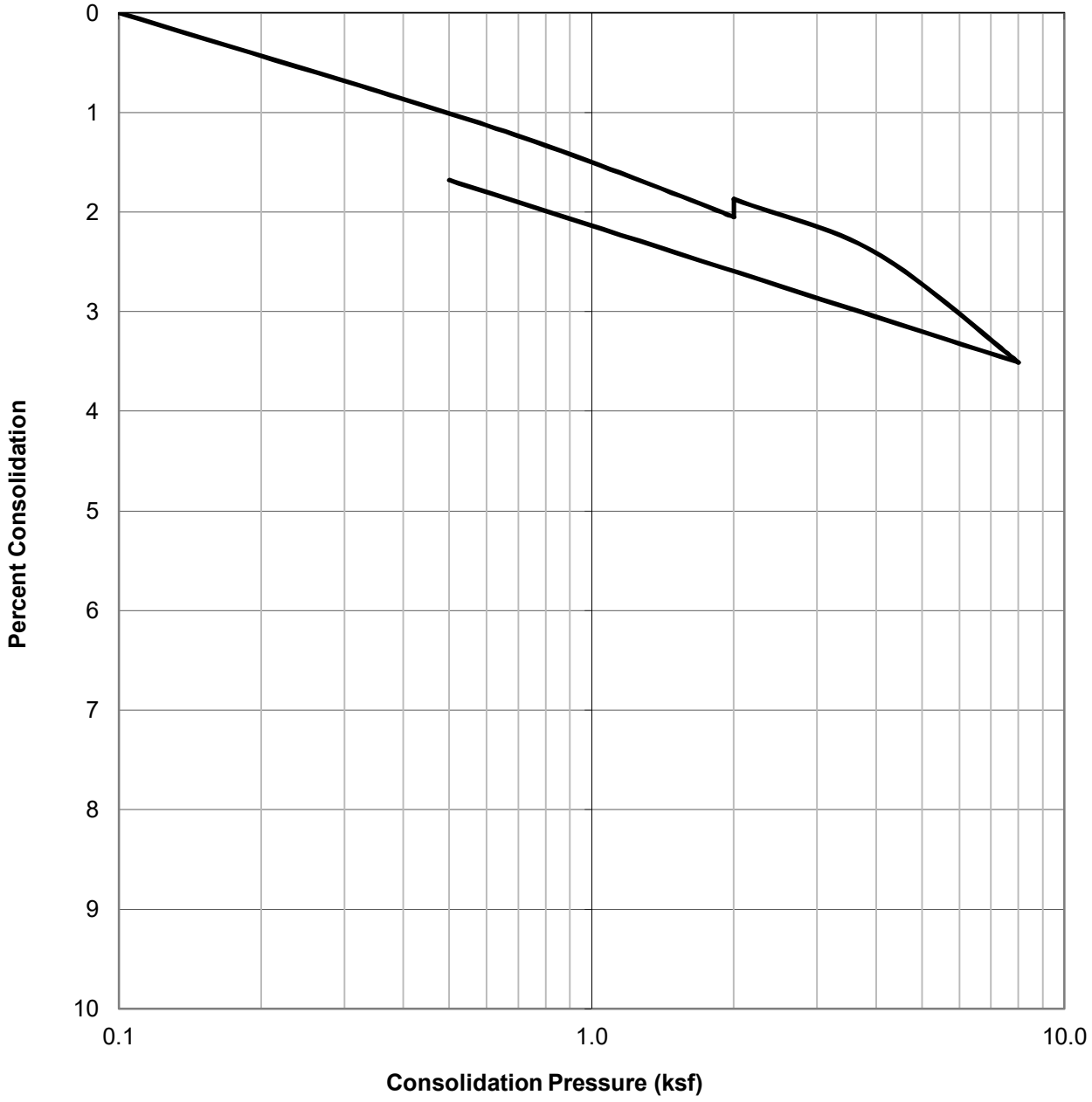
Checked by: JJK

Project No.: W1562-06-01

2010-2036 NORTH LINCOLN PARK AVENUE
3601-3615 NORTH MISSION ROAD
LOS ANGELES, CALIFORNIA

JUNE, 2022 Figure B15

WATER ADDED AT 2.0 KSF



SAMPLE ID.	SOIL TYPE	DRY DENSITY (PCF)	INITIAL MOISTURE (%)	FINAL MOISTURE (%)
B1@32.5	Silty Clay (CL)	107.9	19.7	21.3

GEOCON

CONSOLIDATION TEST RESULTS

ASTM D-2435

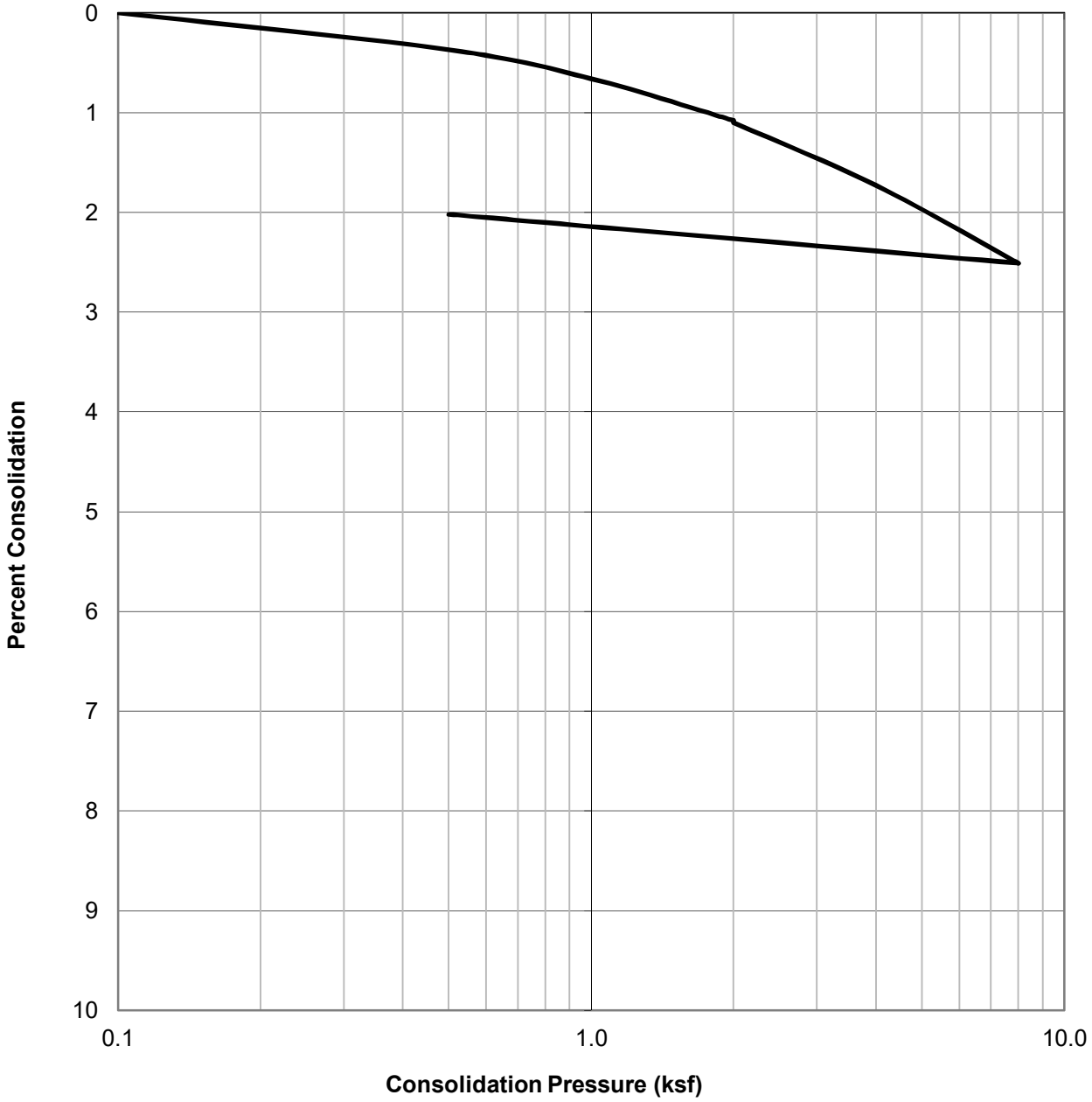
Checked by: JJK

Project No.: W1562-06-01

2010-2036 NORTH LINCOLN PARK AVENUE
3601-3615 NORTH MISSION ROAD
LOS ANGELES, CALIFORNIA

JUNE, 2022 Figure B16

WATER ADDED AT 2.0 KSF



SAMPLE ID.	SOIL TYPE	DRY DENSITY (PCF)	INITIAL MOISTURE (%)	FINAL MOISTURE (%)
B2@35.5	Silty Sand (SM)	101.5	26.1	24.2

GEOCON

CONSOLIDATION TEST RESULTS

ASTM D-2435

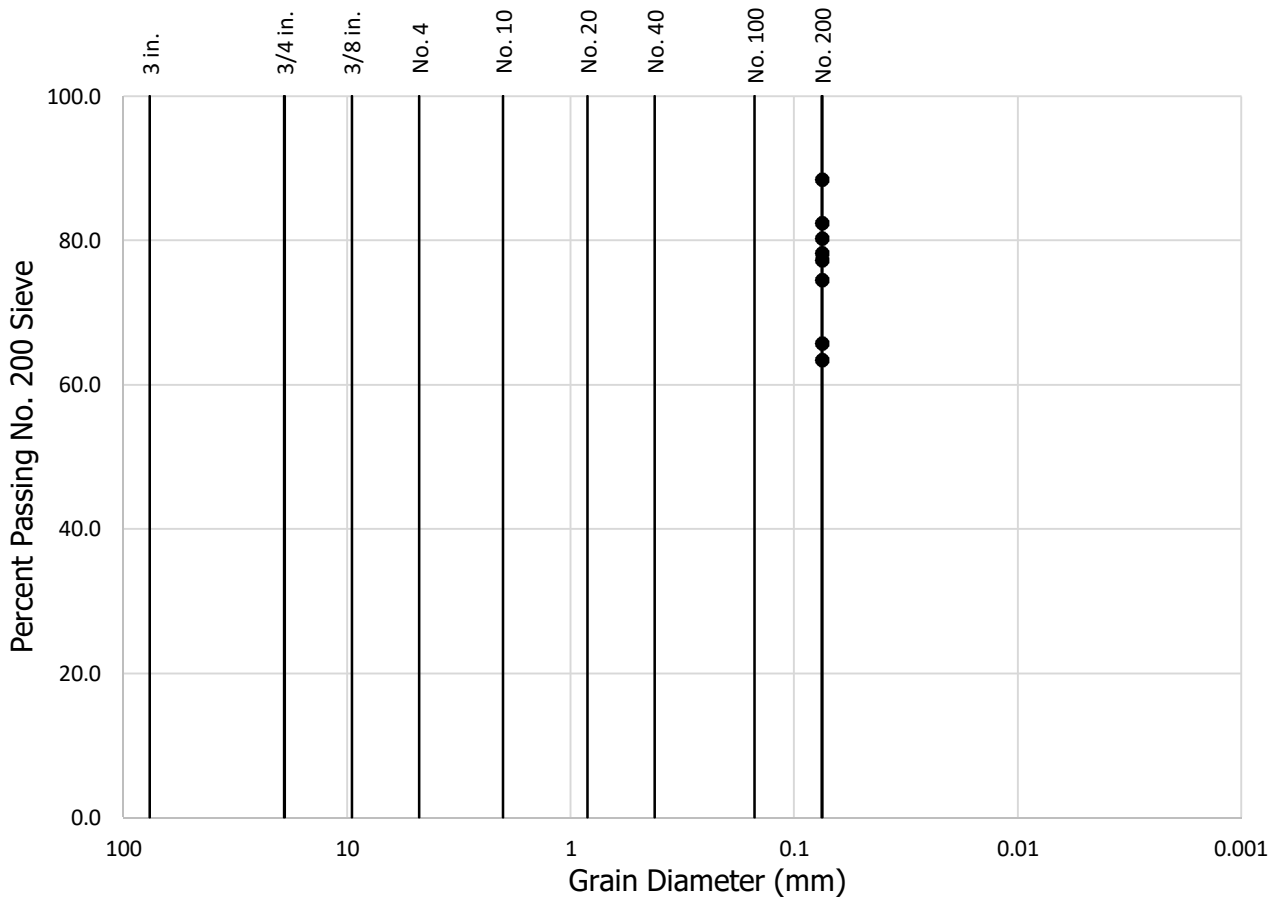
Checked by: JJK

Project No.: W1562-06-01

2010-2036 NORTH LINCOLN PARK AVENUE
3601-3615 NORTH MISSION ROAD
LOS ANGELES, CALIFORNIA

JUNE, 2022 Figure B17

GRAVEL		SAND			SILT AND CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	



Sample No.	Percent Passing No. 200 Sieve
B1 @ 10'	88.5
B1 @ 20'	82.4
B1 @ 25'	78.2
B1 @ 30'	80.3
B1 @ 35'	65.7
B2 @ 2.5'	63.4
B2 @ 7.5'	74.5
B2 @ 13.5'	77.2

GEOCON

GRAIN SIZE ANALYSIS

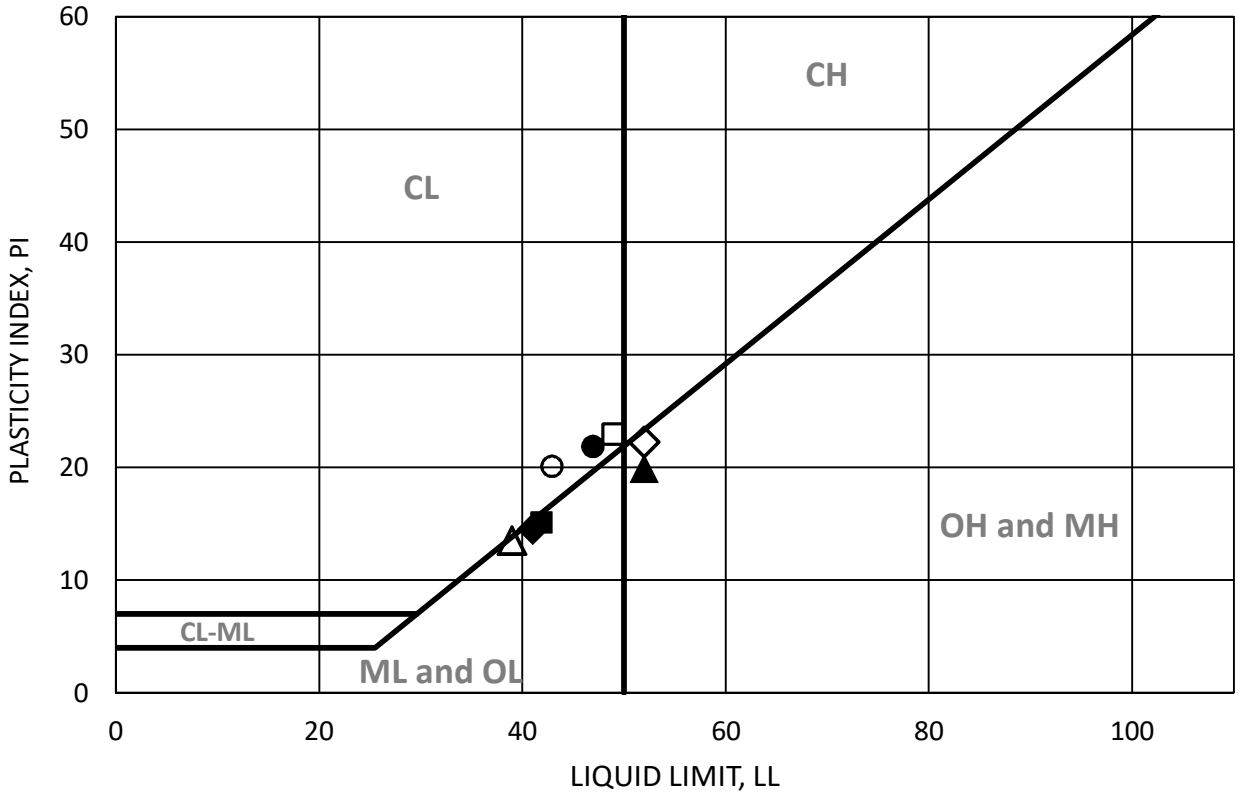
ASTM D-1140

Checked by: JJK

Project No.: W1562-06-01

2010-2036 NORTH LINCOLN PARK AVENUE
3601-3615 NORTH MISSION ROAD
LOS ANGELES, CALIFORNIA

JUNE, 2022 Figure B18



SYMBOL	BORING	DEPTH (ft)	LL	PL	PI	MOISTURE CONTENT AT SATURATION	SOIL BEHAVIOR
■	B1	10'	42	27	15		ML
◆	B1	20'	41	26	15		ML
▲	B1	25'	52	32	20		MH
●	B1	30'	47	25	22		CL
□	B1	35'	49	26	23		CL
◇	B2	2.5'	52	30	22		MH
△	B2	7.5'	39	26	13		ML
○	B2	13.5'	43	23	20		CL

N/P = Non-Plastic

GEOCON

ATTERBERG LIMITS

ASTM D-4318

Checked by: JJK

Project No.: W1562-06-01

2010-2036 NORTH LINCOLN PARK AVENUE
3601-3615 NORTH MISSION ROAD
LOS ANGELES, CALIFORNIA

JUNE, 2022 Figure B19

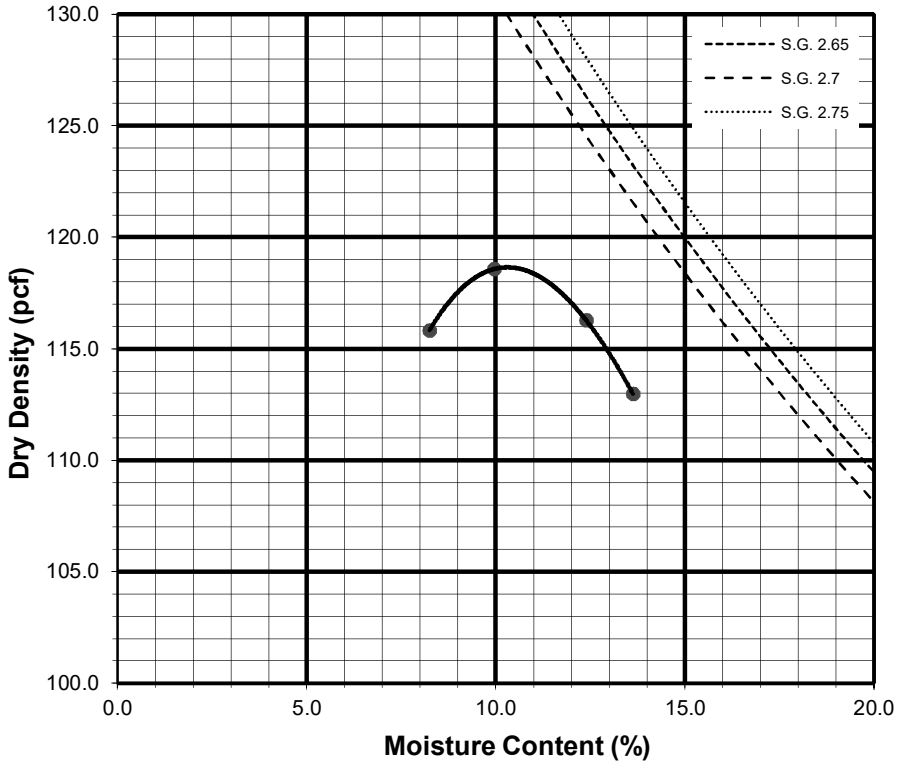
Sample No:

B1+B2@0-5'	Silty Clay w/ Sand (CL)

TEST NO.		1	2	3	4	5	6
Wt. Compacted Soil + Mold	(g)	5996	6072	6076	6041		
Weight of Mold	(g)	4102	4102	4102	4102		
Net Weight of Soil	(g)	1894	1970	1974	1939		
Wet Weight of Soil + Cont.	(g)	707.7	666.1	717.8	636.9		
Dry Weight of Soil + Cont.	(g)	663.3	619.2	653.7	578.1		
Weight of Container	(g)	125.0	148.4	136.4	146.9		
Moisture Content	(%)	8.2	10.0	12.4	13.6		
Wet Density	(pcf)	125.4	130.4	130.7	128.4		
Dry Density	(pcf)	115.8	118.6	116.3	113.0		

Maximum Dry Density (pcf)	**119.0**

Optimum Moisture Content (%)	**11.0**



Preparation Method: A

GEOCON

COMPACTION CHARACTERISTICS USING MODIFIED EFFORT TEST RESULTS

ASTM D-1557

Checked by: JJK

Project No.: W1562-06-01

2010-2036 NORTH LINCOLN PARK AVENUE
3601-3615 NORTH MISSION ROAD
LOS ANGELES, CALIFORNIA

JUNE, 2022 Figure B20

B1+B2@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)	759.8	789.6
Wt. of Mold	(gm)	367.6	367.6
Specific Gravity	(Assumed)	2.7	2.7
Wet Wt. of Soil + Cont.	(gm)	487.4	789.6
Dry Wt. of Soil + Cont.	(gm)	459.6	355.9
Wt. of Container	(gm)	187.4	367.6
Moisture Content	(%)	10.2	18.6
Wet Density	(pcf)	118.3	127.1
Dry Density	(pcf)	107.4	107.2
Void Ratio		0.6	0.7
Total Porosity		0.4	0.4
Pore Volume	(cc)	75.2	90.3
Degree of Saturation	(%) [S_{meas}]	48.7	73.2

Date	Time	Pressure (psi)	Elapsed Time (min)	Dial Readings (in.)
5/24/2022	10:00	1.0	0	0.3415
5/24/2022	10:10	1.0	10	0.341
Add Distilled Water to the Specimen				
5/25/2022	10:00	1.0	1430	0.414
5/25/2022	11:00	1.0	1490	0.414

Expansion Index (EI meas) =	73
Expansion Index (Report) =	**73**

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: JJK

Project No.: W1562-06-01

2010-2036 NORTH LINCOLN PARK AVENUE
3601-3615 NORTH MISSION ROAD
LOS ANGELES, CALIFORNIA

JUNE, 2022 Figure B21

SUMMARY OF LABORATORY
POTENTIAL OF HYDROGEN (pH) AND RESISTIVITY TEST RESULTS
AASHTO T289 ASTM D4972 and AASHTO T288 ASTM G187

Sample No.	pH	Resistivity (ohm centimeters)
B1+B2@0-5'	8.1	850 (Severely Corrosive)
B3@10-15'	8.2	930 (Severely Corrosive)

SUMMARY OF LABORATORY CHLORIDE CONTENT TEST RESULTS
AASHTO T291 ASTM C1218

Sample No.	Chloride Ion Content (%)
B1+B2@0-5'	0.007
B3@10-15'	0.007

SUMMARY OF LABORATORY WATER SOLUBLE SULFATE TEST RESULTS
AASHTO T290 ASTM C1580

Sample No.	Water Soluble Sulfate (% SO_4)	Sulfate Exposure
B1+B2@0-5'	0.019	S0
B3@10-15'	0.001	S0

GEOCON

CORROSIVITY TEST RESULTS

Checked by: JJK

Project No.: W1562-06-01

2010-2036 NORTH LINCOLN PARK AVENUE
3601-3615 NORTH MISSION ROAD
LOS ANGELES, CALIFORNIA

JUNE, 2022 Figure B22

CITY OF LOS ANGELES
CALIFORNIA

DEPARTMENT OF
BUILDING AND SAFETY
201 NORTH FIGUEROA STREET
LOS ANGELES, CA 90012

GEOLOGY AND SOILS REPORT APPROVAL LETTER

July 28, 2022

LOG # 122296
SOILS/GEOLOGY FILE - 2
LIQ

Lincoln Park Holdings, LLC
100 S. Citrus Avenue
Los Angeles, CA 90036

TRACT:	Park Tract (MR 6-434/435)
BLOCK:	J
LOTS:	FR (1 to 8)
LOCATION:	2010 - 2036 N. Lincoln Park Avenue & 3601 - 3615 E. Mission Road

CURRENT REFERENCE REPORT/LETTER	REPORT No.	DATE OF DOCUMENT	PREPARED BY
Geology/Soils Report	W1562-06-01	06/23/2022	Geocon West, Inc.

The Grading Division of the Department of Building and Safety has reviewed the referenced report that provides recommendations for the proposed development of five-stories of multi-family residential units over two parking levels (7-stories total) as well as an elevator pit. According to the report, the site is gently sloping to the south-southwest with approximately 3-4 feet of relief between the northern and southern property boundaries. According to the consultants, it has not been determined if the proposed structure will be constructed at-grade or over one level of subterranean parking, approximately 12 feet below the ground surface (see Figure 2, Site Plan, in the 06/23/2022 report).

Two borings were excavated to a maximum depth of 61 feet below the existing ground surface. The earth materials at the subsurface exploration locations consist of up to 4.5 feet of uncertified fill underlain by alluvium consisting of interbedded clay, silt, and sand. Groundwater was encountered from the field explorations at depths of 15 and 27 feet below the existing ground surface.

The consultants recommend to support the proposed structures on mat foundations bearing on competent native undisturbed alluvium soils, or a blanket of properly placed fill a minimum of 3 feet thick below the bottom of the foundations.

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 06/23/2022 report demonstrates that the site soils are subject to liquefaction. The earthquake induced total and

differential settlements are calculated to be 0.72 and 0.36 inches, respectively. To mitigate the earthquake induced settlements it is proposed to use a mat foundation. The requirements of the 2020 City of Los Angeles Building Code have been satisfied.

The referenced report is acceptable, provided the following conditions are complied with during site development:

(Note: Numbers in parenthesis ( ) refer to applicable sections of the 2020 City of LA Building Code. P/BC numbers refer the applicable Information Bulletin. Information Bulletins can be accessed on the internet at LADBS.ORG.)

1. 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).

   201 N. Figueroa Street 3rd Floor, LA (213) 482-7045

2. The entire site shall be made to conform to the provisions of Chapters 18 and 70 of the Code (7005.9).

3. 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).

4. 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).

5. 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.

6. 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.

7. A grading permit shall be obtained for all structural fill and retaining wall backfill (106.1.2).

8. Prior to the issuance of any permit, an accurate volume determination shall be made and included in the final plans, with regard to the amount of earth material to be exported from the site. For grading involving import or export of more than 1000 cubic yards of earth materials within the grading hillside area, approval is required by the Board of Building and Safety. Application for approval of the haul route must be filed with the Board of Building and Safety Commission Office. Processing time for application is approximately 8 weeks to hearing plus 10-day appeal period (7006.7.5).

9. 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.

10. 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).

11. Compacted fill shall extend beyond the footings a minimum distance equal to the depth of the fill below the bottom of footings or a minimum of three feet, whichever is greater, except for miscellaneous foundations (see pgs. 13 & 22 of the 06/23/2022 report) at locations where lateral over excavation is not possible (i.e., foundations adjacent to property lines or structures), in which case the foundations may be deepened to bear in native soils, as recommended (7011.3).

12. Existing uncertified fill shall not be used for support of footings, concrete slabs or new fill (1809.2, 7011.3).

13. Drainage in conformance with the provisions of the Code shall be maintained during and subsequent to construction (7013.12).

14. 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).

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15. All loose foundation excavation material shall be removed prior to commencement of framing (7005.3).

16. Controlled Low Strength Material, CLSM (slurry) if proposed to be used shall satisfy the requirements specified in P/BC 2020-121.

17. 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).

18. Temporary excavations that remove lateral support to the public way, adjacent property, or adjacent structures shall be supported by shoring or constructed using ABC slot cuts, 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)

19. Where any excavation, not addressed in the approved reports, would remove lateral support (as defined in 3307.3.1) from a public way, adjacent property or structures, a supplemental report shall be submitted to the Grading Division of the Department containing recommendations for shoring and sequence of construction. Shoring recommendations shall include the maximum allowable lateral deflection of shoring system to prevent damage to adjacent structures, properties and/or public ways. Report shall include a plot plan and cross-section(s) showing the construction type, number of stories, and location of

adjacent structures, and analysis incorporating all surcharge loads that demonstrate an acceptable factor of safety against failure. (7006.2 & 3307.3.2)

20. 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).

21. The soils engineer shall review and approve the shoring plans prior to issuance of the permit (3307.3.2).

22. 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.

23. Unsurcharged temporary excavation may be cut vertical up to 5 feet. Excavations over 5 feet, but not exceeding 12 feet, shall be trimmed back at a uniform gradient not exceeding 1:1, from top to bottom of excavation, as recommended.

24. Shoring shall be designed for the lateral earth pressures specified in the section titled "Shoring - Soldier Pile Design and Installation" starting on page 33 of the 06/23/2022 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.

25. 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.

26. A shoring monitoring program shall be implemented to the satisfaction of the soils engineer.

27. In the event shoring soldier beams/piles are installed using vibrating/driving equipment in the vicinity of existing structures, the following conditions shall be complied with:

    a. Ground vibrations shall be monitored during pile shoring installation adjacent to the pile driving operation.

    b. Peak particle velocities (PPV) for any single axis shall be limited to ½ inch/second.

    c. A settlement monitoring program shall be implemented until completion of pile installation.

    d. In the event any PPV is measured above the specified threshold (½ inch/second) or any settlement is measured/detected, pile driving shall be stopped and corrective actions shall be submitted to the Department for review before resuming pile driving.

28. In the event predrilling is needed for shoring pile installation:

    a. The diameter of the predrilled holes shall not exceed 75 percent of the depth of the web of the I-beam.

    b. The depth of the predrilled holes shall not exceed the planned excavation depth.

    c. The auger shall be backspun out of the pilot holes, leaving the soils in place.

29. Surcharged ABC slot-cut method may be used for temporary excavations with each slot-cut not exceeding 5 feet in height and not exceeding 8 feet in width, as recommended. The surcharge load shall not exceed the value given in the report. The soils engineer shall determine the clearance between the excavation and the existing foundation. The soils engineer shall verify in the field if the existing earth materials are stable in the slot-cut excavation. Each slot shall be inspected by the soils engineer and approved in writing prior to any worker access.

30. All foundations shall derive entire support from competent native undisturbed alluvium soils or a blanket of properly placed fill a minimum of 3 feet thick below the bottom of the foundations, as recommended and approved by the geologist and soils engineer by inspection.

31. 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 native undisturbed soils and/or properly placed fill soils, as recommended on pages 13 & 22 of the 06/23/2022 report.

32. The building design shall incorporate provisions for total anticipated differential settlements of 1.11 inches, which include 0.75 and 0.36 inches for static and seismic-induced loads, respectively. (1808.2)

33. Special provisions such as flexible or swing joints shall be made for buried utilities and drain lines to allow for differential vertical displacement.

34. Concrete floor slabs placed on expansive soil shall be placed on a 4-inch fill of coarse aggregate or on a moisture barrier membrane.

35. The seismic design shall be based on a Site Class D, as recommended. All other seismic design parameters shall be reviewed by LADBS building plan check.

36. Retaining walls up to 10 feet in height with a level backfill shall be designed for the lateral earth pressures specified in the section titled "Retaining Wall Design" starting on page 26 of the 06/23/2022 report. All surcharge loads shall be included into the design.

37. Retaining walls higher than 6 feet shall be designed for lateral earth pressure due to earthquake motions as specified on pages 27 and 28 of the 06/23/2022 report (1803.5.12).

38. Basement walls and other walls in which horizontal movement is restricted at the top shall be designed for at-rest pressure as specified on page 27 of the 06/23/2022 report (1610.1). All surcharge loads shall be included into the design.

39. 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).

40. 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).

41. Installation of the subdrain system shall be inspected and approved by the soils engineer of record and the City grading/building inspector (108.9).

42. 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).

43. Prefabricated drainage composites (Miradrain, Geotextiles) may be only used in addition to traditionally accepted methods of draining retained earth.

44. 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)

45. The structure shall be connected to the public sewer system per P/BC 2020-027.

46. All roof, pad and deck 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 (7013.10).

47. An on-site storm water infiltration system at the subject site shall not be implemented, as recommended.

48. All concentrated drainage shall be conducted in an approved device and disposed of in a manner approved by the LADBS (7013.10).

49. 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).

50. 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).

51. 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)

52. Prior to excavation an initial inspection shall be called with the LADBS Inspector. During the initial inspection, the sequence of construction; shoring; ABC slot cuts; pile installation; protection fences; and, dust and traffic control will be scheduled (108.9.1).

53. Installation of shoring, slot cutting and/or pile excavations shall be performed under the inspection and approval of the soils engineer and deputy grading inspector (1705.6, 1705.8).

54. 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]

55. 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).

56. No footing/slab shall be poured until the compaction report is submitted and approved by the Grading Division of the Department.

BRENDA PACK
Engineering Geologist Associate I

GLEN RAAD
Geotechnical Engineer I

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cc: Geocon West, Inc., Project Consultant
LA District Office

3601 Mission Summary Report

Table of Contents

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	3601 Mission
Construction Start Date	7/1/2024
Operational Year	2025
Lead Agency	City of Los Angeles
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	0.50
Precipitation (days)	8.60
Location	3601 N Mission Rd, Los Angeles, CA 90031, USA
County	Los Angeles-South Coast
City	Los Angeles
Air District	South Coast AQMD
Air Basin	South Coast
TAZ	4100
EDFZ	16
Electric Utility	Los Angeles Department of Water & Power
Gas Utility	Southern California Gas
App Version	2022.1.1.19

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

Apartments Mid Rise	184	Dwelling Unit	1.16	184,000	5,045	—	545	Residential apartment building

1.3. User-Selected Emission Reduction Measures by Emissions Sector

Sector	#	Measure Title
Construction	C-2*	Limit Heavy-Duty Diesel Vehicle Idling
Construction	C-9	Use Dust Suppressants
Transportation	T-1	Increase Residential Density
Transportation	T-3	Provide Transit-Oriented Development
Transportation	T-4	Integrate A ordable and Below Market Rate Housing
Transportation	T-14*	Provide Electric Vehicle Charging Infrastructure
Transportation	T-15	Limit Residential Parking Supply
Transportation	T-16	Unbundle Residential Parking Costs from Property Cost
Transportation	T-31-A*	Locate Project in Area with High Destination Accessibility
Transportation	T-33*	Locate Project near Bike Path/Bike Lane
Transportation	T-34*	Provide Bike Parking
Transportation	T-43*	Provide Real-Time Transit Information
Water	W-2	Use Grey Water
Water	W-5	Design Water-Efficient Landscapes

* Qualitative or supporting measure. Emission reductions not included in the mitigated emissions results.

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.	2.07	115	15.9	20.5	0.02	0.74	7.21	7.96	0.68	3.46	4.14	—	4,306	4,306	0.18	0.16	9.10	4,369
Mit.	2.07	115	15.9	20.5	0.02	0.74	7.21	7.96	0.68	3.46	4.14	—	4,306	4,306	0.18	0.16	9.10	4,369
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	2.07	1.74	11.0	18.9	0.02	0.38	1.90	2.28	0.35	0.45	0.80	—	4,209	4,209	0.18	0.17	0.24	4,264
Mit.	2.07	1.74	11.0	18.9	0.02	0.38	1.90	2.28	0.35	0.45	0.80	—	4,209	4,209	0.18	0.17	0.24	4,264
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.68	3.61	3.81	6.24	0.01	0.14	0.66	0.80	0.13	0.18	0.31	—	1,323	1,323	0.06	0.05	1.13	1,340
Mit.	0.68	3.61	3.81	6.24	0.01	0.14	0.66	0.80	0.13	0.18	0.31	—	1,323	1,323	0.06	0.05	1.13	1,340
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.12	0.66	0.70	1.14	< 0.005	0.03	0.12	0.15	0.02	0.03	0.06	—	219	219	0.01	0.01	0.19	222
Mit.	0.12	0.66	0.70	1.14	< 0.005	0.03	0.12	0.15	0.02	0.03	0.06	—	219	219	0.01	0.01	0.19	222
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

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.	4.81	8.64	3.15	39.8	0.07	0.09	6.02	6.11	0.08	1.53	1.61	86.5	8,695	8,782	9.16	0.32	26.4	9,132
Mit.	2.79	6.81	1.76	24.2	0.04	0.06	2.79	2.86	0.06	0.71	0.77	86.5	5,039	5,126	8.98	0.17	13.0	5,414
% Reduced	42%	21%	44%	39%	48%	27%	54%	53%	27%	54%	52%	—	42%	42%	2%	46%	51%	41%
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	3.77	7.65	3.29	27.1	0.07	0.08	6.02	6.10	0.08	1.53	1.61	86.5	8,381	8,468	9.17	0.33	1.97	8,797
Mit.	1.78	5.85	1.78	12.7	0.04	0.06	2.79	2.85	0.06	0.71	0.77	86.5	4,878	4,965	8.98	0.18	1.62	5,244
% Reduced	53%	24%	46%	53%	48%	29%	54%	53%	28%	54%	52%	—	42%	41%	2%	46%	18%	40%
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	4.24	8.10	3.25	33.6	0.07	0.08	5.69	5.77	0.08	1.45	1.52	86.5	8,151	8,238	9.15	0.32	11.6	8,573
Mit.	2.36	6.40	1.79	19.5	0.04	0.06	2.64	2.70	0.06	0.67	0.73	86.5	4,782	4,868	8.98	0.17	6.10	5,150
% Reduced	44%	21%	45%	42%	47%	27%	54%	53%	26%	54%	52%	—	41%	41%	2%	46%	48%	40%
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.77	1.48	0.59	6.13	0.01	0.02	1.04	1.05	0.01	0.26	0.28	14.3	1,349	1,364	1.52	0.05	1.92	1,419
Mit.	0.43	1.17	0.33	3.56	0.01	0.01	0.48	0.49	0.01	0.12	0.13	14.3	792	806	1.49	0.03	1.01	853
% Reduced	44%	21%	45%	42%	47%	27%	54%	53%	26%	54%	52%	—	41%	41%	2%	46%	48%	40%

6. Climate Risk Detailed Report

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	2	3	0	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	1	2	0	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	1	2	0	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	2	3	1	4
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	1	2	1	3
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	1	2	1	3

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.

7. Health and Equity Details

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	84.0
Healthy Places Index Score for Project Location (b)	7.00
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	Yes
Project Located in a Low-Income Community (Assembly Bill 1550)	Yes
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.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.