Exhibit B

ENV-2022-6190-CE

COUNTY CLERK'S USE

CITY OF LOS ANGELES
OFFICE OF THE CITY CLERK
200 NORTH SPRING STREET, ROOM 395
LOS ANGELES, CALIFORNIA 90012
CALIFORNIA ENVIRONMENTAL QUALITY ACT

NOTICE OF EXEMPTION

(PRC Section 21152; CEQA Guidelines Section 15062)

Filing of this form is optional. If filed, the form shall be filed with the County Clerk, 12400 E. Imperial Highway, Norwalk, CA 90650, pursuant to Public Resources Code Section 21152(b) and CEQA Guidelines Section 15062. Pursuant to Public Resources Code Section 21167 (d), the posting of this notice starts a 35-day statute of limitations on court challenges to reliance on an exemption for the project. Failure to file this notice as provided above, results in the statute of limitations being extended to 180 days.

PARENT CASE NUMBER(S) / REQUESTED ENTITLEMENTS
CPC-2022-6189-CU-DB-ZAA-SPR-HCA

LEAD CITY AGENCY	CASE NUMBER
City of Los Angeles (Department of City Planning)	ENV-2020-6190-CE
PROJECT TITLE N. A.	COUNCIL DISTRICT 14 – Kevin De Leon

PROJECT LOCATION (Street Address and Cross Streets and/or Attached Map) ☐ Map attached.
3106-3615 Mission Road/2010-2036 Lincoln Park Avenue

PROJECT DESCRIPTION: ☒ Additional page(s) attached.
Density Bonus project to construct a new 7-story, 184-unit multi-family residential structure, reserving 47 units for Very Low Income Households. The proposed project provides 103 automobile parking spaces and 129 bicycle parking spaces. .

NAME OF APPLICANT / OWNER:
Shay Yadin of Lincoln Park Holdings, LLC

CONTACT PERSON (If different from Applicant/Owner above)	(AREA CODE) TELEPHONE NUMBER | EXT.
Brian Silveira of Brian Silveira & Associates	(310)753-1090

EXEMPT STATUS: (Check all boxes, and include all exemptions, that apply and provide relevant citations.)

STATE CEQA STATUTE & GUIDELINES

☐ STATUTORY EXEMPTION(S)

Public Resources Code Section(s) _____

☒ CATEGORICAL EXEMPTION(S) (State CEQA Guidelines Sec. 15301-15333 / Class 1-Class 33)

CEQA Guideline Section(s) / Class(es) **15332**

☐ OTHER BASIS FOR EXEMPTION (E.g., CEQA Guidelines Section 15061(b)(3) or (b)(4) or Section 15378(b))

_____

JUSTIFICATION FOR PROJECT EXEMPTION: ☐ Additional page(s) attached
In-fill development meeting the conditions described in CEQA Guidelines 15332: (a) The project is consistent with the applicable general plan designation and all applicable general plan policies as well as with the applicable zoning designation and regulations. (b) The proposed development occurs within city limits on a project site of no more than five acres substantially surrounded by urban uses. (c) The project site has no value as habitat for endangered, rare, or threatened species. (d) Approval of the project would not result in any significant effects relating to traffic, noise, air quality, or water quality. (e) The site can be adequately served by all required utilities and public services.

☒ None of the exceptions in CEQA Guidelines Section 15300.2 to the categorical exemption(s) apply to the Project.

☐ The project is identified in one or more of the list of activities in the City of Los Angeles CEQA Guidelines as cited in the justification.

IF FILED BY APPLICANT, ATTACH CERTIFIED DOCUMENT ISSUED BY THE CITY PLANNING DEPARTMENT STATING THAT THE DEPARTMENT HAS FOUND THE PROJECT TO BE EXEMPT.
If different from the applicant, the identity of the person undertaking the project.

CITY STAFF USE ONLY:

CITY STAFF NAME AND SIGNATURE	STAFF TITLE
Kevin Golden	City Planner

ENTITLEMENTS APPROVED
DB/Density Bonus

FEE:	RECEIPT NO.	REC'D. BY (DCP DSC STAFF NAME)
$4,272.00	82658	Noah Mccoy

DISTRIBUTION: County Clerk, Agency Record
Rev. 3-27-2019

DEPARTMENT OF
CITY PLANNING

COMMISSION OFFICE
(213) 978-1300

CITY PLANNING COMMISSION

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CALIFORNIA

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MAYOR

EXECUTIVE OFFICES
200 N. SPRING STREET, ROOM 525
LOS ANGELES, CA 90012-4801
(213) 978-1271

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DEPUTY DIRECTOR

ARTHI L. VARMA, AICP
DEPUTY DIRECTOR

LISA M. WEBBER, AICP
DEPUTY DIRECTOR

January 20, 2023

Shay Yadin (A/O)
Lincoln Park Holdings, LLC
100 S. Citrus Ave.
Los Angeles, CA 90036

Brian Silveira (R)
Brian Silveira & Associates
1501.5 Cabrillo Ave.
Venice CA 90291

RE: Case No. CPC-2022-6189-CU-DB-ZAA-SPR-HCA
Address: 3601-3615 Mission Rd./2010-2036 Lincoln Park Ave.
Planning Area: Northeast Los Angeles
Zone : R3-1
D. M. : 136-5A225
C. D. : 14 – Kevin De Leon
CEQA : ENV-2022-6190-CE

RE: ENV-2022-6190-CE (Categorical Exemption - Class 32)

The requested entitlement is for the construction, use and maintenance of a new 7-story density bonus apartment building with 184 residential units above 2 levels of automobile parking under the Density Bonus program. The proposed project provides 103 automobile parking spaces and 127 bicycle parking spaces (115 long term and 12 short term).

The applicant is requesting a conditional use permit pursuant to LAMC 12.24. U 26 to permit a Density Bonus for a project for which the density increase is greater than the maximum 35% permitted in LAMC Section 12.22 A 25; in conjunction with the construction, use, and maintenance of 184 for-rent dwelling units in lieu of the 64 dwelling units otherwise permitted by LAMC 12.22 A 25; with 47 dwelling units reserved for Very Low Income Households; and pursuant to LAMC Section 12.24 F.

The applicant is requesting on-menu of incentives (12.22 A 25) to permit a 20 percent reduction in required open space to allow the provision of 15,480 square feet in lieu of the19,350 square feet required to pursuant to LAMC 12.21 G. 2, and 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; off-menu incentives 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 12.21 A. 4; waivers of development

standards to 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, to 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, 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 12.21.1, to 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, and to 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.

The applicant is requesting a yard adjustment pursuant to LAMC 12.28 to allow a 12' high fence and raised grade to encroach in the required 15' front yard setback for the R3-1 zone. And a Site Plan Review pursuant to LAMC 16.05 for a development that results in an increase of 50 or more dwelling units and/or guest rooms.

The subject property consists of an irregular parcel containing 8 lots totaling 50,656.5 square feet of lot area. The parcel is currently developed with a 42-stall automobile parking lot which serves the adjacent parcel, currently developed with a residential care facility. Project plans include replacing the surface parking lot on the subject site with a seven-story, 184-unit apartment building and two levels of at- and above-grade parking facilities containing a total of 145 parking spaces, 103 of which are devoted to the on-site residential uses and 42 of which are dedicated to the adjacent medical facility use. The project site does not include the parcel to the east currently developed with a residential care facility.

The project site is bounded by Mission Rd on the south, Lincoln Park Avenue on the west, Barbee Street on the north and a medical facility on the east. The street frontage along Mission Road(the designated front) is 129.5 feet, while the street frontage along Lincoln Park Avenue(the designated side) is roughly 347.5 feet. The project site is surrounded by urban development, consisting of multi-family residential and open space land uses.

The subject property contains 33 trees, 5 of which, are protected tree species per Los Angeles City ordinance, including five listed species and all species of oak trees. All of the 5 protected trees on the site are Western Oak. The removal, replacement, or addition of any tree is subject to the Bureau of Street Services, Urban Forestry Division.

The subject property is located in a highly urbanized area, approximately 2.5 miles northeast of downtown Los Angeles. The land use and zoning surrounding the subject site reflects a mix of multi-family uses and park space (zoned R3-1, RD1.5-1, [Q]PF-1D, and OS-1XL). There are multiple major bus routes running along Mission Road. Several local buses serve the area.

The subject property is located in a ZI-2129 State Enterprise Zone: East Los Angeles, a 500ft Park Zone, Active: Lincoln Park, an Urban Agriculture Incentive Zone, Fault Zone, and Liquefaction area. The project site is located within a Special Grading Area(BOE Basic Grid Map A-13372). The project proposes the grading and movement of approximately7,985 cubic yards of dirt, and as such, requires a Haul Route from the Los Angeles Department of Building and Safety.

The proposed project would not have a significant effect on the environment. A "significant effect on the environment" is defined as "a substantial, or potentially substantial, adverse change in the environment) (CEQA Guidelines, Public Resources Code Section 21068). The proposed project

and potential impacts were analyzed in accordance with the California Environmental Quality Act (CEQA) Guidelines. This document establishes guidelines and thresholds of significant impact. From analysis of the proposed project, it has been determined that it is Categorically Exempt from environmental review pursuant to Chapter 3, Article 19, Section 15332 of the CEQA Guidelines (Class 32). The Class 32 Exemption is intended to promote infill development within urbanized areas.

CLASS 32 CATEGORICAL EXEMPTION

The proposed project qualifies for a Class 32 Categorical Exemption since it is developed on an infill site and meets the following five applicable conditions: (a) The project is consistent with the applicable general plan designation and all applicable general plan policies as well as with the applicable zoning designation and regulations; (b) The proposed development occurs within city limits on a project site of no more than five acres substantially surrounded by urban uses; (c) The project site has no value as habitat for endangered, rare or threatened species; (d) Approval of the project would not result in any significant effects relating to traffic, noise, air quality, or water quality; and (e) The site can be adequately served by all required utilities and public services.

As a residential building developed on an infill site, this Project qualifies for the Class 15332 Categorical Exemption. The project can be characterized as in-fill development within urban areas for the purpose of qualifying for Class 32 Categorical Exemption as a result of meeting the five conditions listed below.

(a) The project is consistent with the applicable general plan designation and all applicable general plan policies as well as with applicable zoning designation and regulations:

The project site is located within the adopted Northeast Los Angeles Community Plan, which is one of 35 Community Plans that make up the Land Use Element of the General Plan. The Community Plan designates the subject property with a land use designation of Multiple Family Residential, with corresponding zones of R2, RD, RMP, RW2, R3, RAS3, R4, RAS4, and R5. The subject property is zoned R3-1, and is thus consistent with the existing land use designation.

Under the existing zoning of R3-1, the minimum lot area per dwelling unit is 800 sf. Therefore, the 50,656.5 square foot lot would allow sixty-four (64) units on the project site. The project is providing a 73 percent affordable housing set-aside for Very Low Income households, which would allow for an additional one hundred and twenty-two (122) units per the LAMC 12.21 A 25 and LAMC 12.24 U 26 for a combined total of 186 allowable units. The project is, therefore, within the parameters of the density allowed for projects in the R3 zone with its rate and depth of affordability.

Additionally, the project's on- and off-menu incentives and waivers of development standards allow for a 21 percent increase in floor area ratio, a 41-foot height increase, parking and open space design adjustments, and yard reductions, therefore, the project's requests for increases in the building envelope are consistent with the project's intended zoning regulations based upon what's allowable in the R3 zone for Density Bonus projects. The construction of a 184-unit apartment building would be consistent with the General Plan designation and zoning.

(b) The proposed development occurs within city limits on a project site of no more than five acres substantially surrounded by urban uses:

The project site is located in the Northeast Los Angeles Community Plan area within Los Angeles city limits. The project site encompasses approximately 50,656.5 square feet of total lot area. The site is in a built-up and previously developed area. The land use and zoning surrounding the subject site reflects a mix of and multi-family park space uses (zoned R3-1, RD1.5-1, [Q]PF-1D, and OS-1XL). Therefore, the project will occur within city limits on a project site of no more than five acres substantially surrounded by urban uses.

(c) The project site has no value as habitat for endangered, rare or threatened species:

The project site is located in an urbanized area within the Northeast Los Angeles Community Plan area. The project site is in an established neighborhood that has long been developed with urban multi-family residential and park space uses and structures. The subject property contains 33 trees, 5 of which, are protected tree species per Los Angeles City ordinance, including five listed species and all species of oak trees. All of the 5 protected trees on the site are Western Oak. The removal, replacement, or addition of any tree is subject to the Bureau of Street Services, Urban Forestry Division. Additionally, the project site does not include any riparian areas or other sensitive plant communities, and it does not have substantive value as a habitat for endangered, rare, or threatened species. Therefore, the project site has no value as habitat for endangered, rare, or threatened species.

(d) Approval of the project would not result in any significant effects relating to traffic, noise, air quality, or water quality:

Traffic. In regards to traffic, a significant impact may occur if the project conflicts with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system.

The requested entitlement is for the construction, use and maintenance of a new 7-story density bonus apartment building with 184 residential units above 2 levels of automobile parking under the Density Bonus program. The project proposed project provides 103 automobile parking spaces and 127 bicycle parking spaces (115 long term and 12 short term).

A basic run of the City of Los Angeles VMT Calculator was performed (See Appendix B of the Class 32 Categorical Exemption in case file ENV-2022-6190-CE with the Los Angeles City Planning Department). The VMT Calculator run determined that the project's one hundred eighty-four (184) new multi-family residences would generate 734 average daily trips (ADT) and 5,281 daily VMT. The proposed project would remove and replace the existing forty-two (42) commercial parking spaces, which currently do not generate any ADT or daily VMT. As such, the VMT generated by the project warranted further analysis of the project's VMT contribution.

The project will implement several mitigation measures to minimize its transportation impacts, including reduced on-site parking supply and unbundled parking. Through requests permitted by its density bonus and pursuant to LAMC 12.22 A.25, the project is

proposing 103 residential automobile parking spaces, a reduction of 112 spaces. Reducing the project's parking supply reduces the project's anticipated transportation impacts. As stated by LADOT, in an interdepartmental correspondence letter dated September 7, 2022 and attached to the subject case file, the Transportation Assessment prepared by KOA, a transportation engineering and mobility planning firm, reports in detail, how the project's transportation impacts will have less than significant VMT and ADT impacts.

Noise. With regards to noise, Luz Entitlement Services, LLC prepared a Noise Analysis for the project on August 2022. The purpose of the study is to analyze the project's noise impacts related to both temporary construction activity and long-term operation of the project. The subject property is located in a highly urbanized area, approximately 2.5 miles northeast of downtown Los Angeles. The land use and zoning surrounding the subject site reflects a mix of multi-family uses and park space.

As part of the analyses, Luz Entitlement Services, LLC used short-term noise measurement samples near the project site to determine the ambient noise conditions of the neighborhood near sensitive receptors. Noise levels are consistent with General Plan Noise Element guidelines for residential neighborhoods but are influenced by vehicle traffic on local streets or nearby arterials.

Additionally, the project must comply with the City of Los Angeles Noise Ordinance No. 144,331 and 161,574 and any subsequent ordinances which prohibit the emission or creation of noise beyond certain levels. The Ordinances cover both operational noise levels (i.e. post-construction), as well as any noise impact during construction. Section 41.40 of the LAMC regulates noise from demolition and construction activities and prohibits construction activity (including demolition) and repair work, where the use of any power tool, device, or equipment would disturb persons occupying sleeping quarters in any dwelling hotel, apartment, or other place of residence, between the hours of 9:00 p.m. and 7:00 a.m. Monday through Friday, and between 6:00 p.m. and 8:00 a.m. on Saturdays and holidays; all such activities are also prohibited on Sundays. Section 112.05 of the LAMC also specifies the maximum noise level of construction machinery that can be generated in any residential zone of the city or within 500 feet thereof. As referenced in the Noise Analysis prepared by Luz Entitlement Services, LLC dated August 2022, and attached to the subject environmental case file, as the project is required to comply with the above ordinances and regulations, it will not result in any significant noise impacts. Any noise arising from the construction of the project would be temporary in nature, would cease upon project completion, and are less than significant. Compliance with the applicable City ordinances and regulations will further limit the impacts of temporary construction noise.

The project will not generate permanent significant operational noise impacts. Thus, the project will not result in any significant permanent effects relating to noise.

Air Quality. The South Coast Air Quality Management District (SCAQMD) is the agency primarily responsible for comprehensive air pollution control in the South Coast Air Basin and reducing emissions from area and point stationary, mobile, and indirect sources. SCAQMD prepared the 2016 Air Quality Management Plan (AQMP) to meet federal and state ambient air quality standards. A significant air quality impact may occur if a project is inconsistent with the AQMP or would in some way represent a substantial hindrance to employing the policies or obtaining the goals of that plan. The proposed project will not

conflict with or obstruct the implementation of the AQMP and SCAQMD rules. Furthermore, as a mixed-use development, the project is expected to be far below the thresholds considered by SCAQMD to be potentially significant under CEQA guidelines. The applicant has estimated the project's impact on air quality, using the CalEEMod 2020.4.0 model provided by SCAQMD, by comparing the estimated levels of criteria pollutants to significance thresholds provided by SCAQMD. As referenced in the Air Quality Analysis completed for the project by Luz Entitlement Services, LLC in August 2022 and attached to the subject environmental case file, the levels of emissions from the project are all projected to be far below the thresholds considered by SCAQMD to be potentially significant under CEQA guidelines (the report provides the full analysis and the CalEEMod output report dated August 2022 and attached to the subject environmental case file provides the air quality modeling results). Potential impacts related to air quality from such a project will be less than significant.

During construction, appropriate dust control measures would be implemented as part of the proposed project, as required by SCAQMD Rule 403 - Fugitive Dust. Specifically, Rule 403 control requirements include, but are not limited to, applying water in sufficient quantities to prevent the generation of visible dust plumes, applying soil binders to uncovered areas, reestablishing ground cover as quickly as possible, utilizing a wheel washing system to remove bulk material from tires and vehicle undercarriages before vehicles exit the Project Site, and maintaining effective cover over exposed areas.

Best Management Practices will be implemented that would include (but not be limited to) the following:

- Unpaved demolition and construction areas shall be wetted at least three times daily during excavation and construction, and temporary dust covers shall be used to reduce emissions and meets SCAQMD Rule 403;
- All dirt/soil loads shall be secured by trimming, watering or other appropriate means to prevent spillage and dust;
- General contractors shall maintain and operate construction equipment to minimize exhaust emissions; and
- Trucks shall not idle but be turned off.

By implementing Best Management Practices, all construction-related impacts will be less than significant and temporary in nature. No permanent significant impacts are anticipated to occur from construction.

Water Quality. The project is not adjacent to any water sources and construction of the project will not impact water quality. The project is located in a long-established and heavily developed residential neighborhood and thus would not be expected to impact water quality. As a residential development, the project also will not generate, store, or dispose of substantial quantities of hazardous materials that could affect water quality. Construction activities would not involve any significant excavation near an identified water source. Furthermore, the project will comply with the City's stormwater management provisions per LAMC 64.70. The project will be subject to Regulatory Compliance Measures and Best Management Practices, which will ensure that stormwater runoff meets the established water quality standards and waste discharge requirements and that the project does not have any significant impacts on water quality. Therefore, development of the proposed project would not degrade the quality of

stormwater runoff from the site and would not result in any significant effects relating to water quality.

Moreover, a significant impact would occur if the project would: 1) exceed wastewater treatment requirements of the Los Angeles Regional Water Quality Control Board (LARWQCB), 2) increase water consumption or wastewater generation to such a degree that the capacity of facilities currently serving the project site would be exceeded, or 3) increase surface water runoff, resulting in the need for expanded off site storm water drainage facilities. All wastewater from the project would be treated according to requirements of the NPDES permit authorized by the LARWQCB. Therefore, the proposed project would result in a less than significant impact related to wastewater treatment requirements. Additionally, prior to any construction activities, the project applicant would be required to coordinate with the City of Los Angeles Bureau of Sanitation (BOS) to determine the exact wastewater conveyance requirements of the proposed project, and any upgrades to the wastewater lines in the vicinity of the project site that are needed to adequately serve the proposed project would be undertaken as part of the project. Therefore, the proposed project would not result in a significant impact related to water or wastewater infrastructure. Lastly, development of the proposed project would maintain existing drainage patterns; site generated surface water runoff would continue to flow to the City's storm drain system. The proposed project would not create or contribute runoff water that would exacerbate any existing deficiencies in the storm drain system or provide substantial additional sources of polluted runoff. Therefore, the proposed project would not result in a significant impact related to existing storm drain capacities.

(e) The site can be adequately served by all required utilities and public services:

The site is currently developed with a 42-stall automobile parking lot which serves the adjacent parcel, currently developed with a residential care facility and is in a highly urbanized area served by existing public utilities and services. The site is currently and adequately served by the City's Department of Water and Power, the City's Bureau of Sanitation, the Southern California Gas Company, the Los Angeles Police Department, the Los Angeles Fire Department, Los Angeles Unified School District, Los Angeles Public Library, and other public services. The site is also serviced by the LAPD's Northeast Division and the LA Fire Department's Central Bureau. These utilities and public services have continuously served the neighborhood for several decades.

The requested entitlement is for the construction, use and maintenance of a new 7-story density bonus apartment building with 184 residential units above 2 levels of automobile parking. As the project is located in a central, established, and relatively dense area of the city, the site can be adequately served by all required utilities and public services. In addition, the California Green Code requires new construction to meet stringent efficiency standards for both water and power, such as high-efficiency toilets, dual-flush water closets, minimum irrigation standards, and LED lighting. In addition, roof and site drainage as well as sewer availability must comply with Bureau of Engineering and Bureau of Sanitation standards; and hydrants, Fire Department Access, and Fire Safety must be reviewed and approved by the Los Angeles Fire Department before permits can be issued. Furthermore, the project must comply with all City Regulatory Compliance Measures (RCMs) that apply. As a result, the proposed project can be adequately served by all required utilities and public services.

EXCEPTIONS TO CATEGORICAL EXEMPTIONS

Planning staff evaluated the exceptions to the use of Categorical Exemptions for the proposed ordinance listed in "CEQA Guidelines" Section 15300.2 and determined that none of the exceptions apply to the proposed project.

(a) **Location. Classes 3, 4, 5, 6, and 11 are qualified by consideration of where the project is to be located – a project that is ordinarily insignificant in its impact on the environment may in a particularly sensitive environment be significant. Therefore, these classes are considered to apply all instances, except where the project may impact on an environmental resource of hazardous or critical concern where designated, precisely mapped, and officially adopted pursuant to law by federal, state, or local agencies.**

As the proposed project is not defined as a Class 3, 4, 5, 6 or 11 project, this exception is non-applicable. The project site in an urbanized area in the City of Los Angeles. The project site is not located in a particularly sensitive environment and is not located on a site containing wetlands, endangered species, or wildlife habitats.

Moreover, based on a review of the data reported on the Department of City Planning's ZIMAS for the subject property, the site is not located within an Airport Hazard Area, Coastal Zone, Very High Fire Severity Zone, Methane Hazzard Area, Flood Zone, High Wind Velocity Area, Landslide Zone, or Preliminary Fault Rupture Study Area. According to ZIMAS, the project is located within a Special Grading Area which will require the project to undergo review and approval by the Los Angeles Bureau of Engineering-Grading. As such, exception (a) does not apply.

(b) **Cumulative Impact. All exemptions for these classes are inapplicable when the cumulative impact of successive projects of the same type in the same place, over time is significant.**

This exception does not apply to the proposed project. The requested entitlement is for the construction, use and maintenance of a new 7-story density bonus apartment building with 184 residential units above 2 levels of automobile parking in an area previously developed and surrounded by residential and open space uses. The project is entirely consistent with the existing General Plan designation and zoning, which accounts for the impacts of developments which are within their parameters, and as permitted by the TOC Guidelines. Any successive projects of the same type and nature would reflect a development that is consistent with the underlying land use designation and the LAMC, and thus would be subject to the same regulations and requirements, including development standards and environmental impacts. The impacts of each subsequent project will be mitigated, and thus will not result in a cumulative impact. Further, there is insufficient evidence to conclude that the proposed project will be under construction at the same time as projects within the vicinity. Thus, exception (b) does not apply.

(c) **Significant Effect. A categorical exemption shall not be used for an activity where there is a reasonable possibility that the activity will have a significant effect on the environment due to unusual circumstances.**

The proposed project is for the construction, use and maintenance of a new 7-story density bonus apartment building with 184 residential units above 2 levels of automobile

parking in an area zoned and designated for residential uses and with land use entitlement requests for such development. Properties in the vicinity are developed with multi-family structures and open space. There are no special districts or other known circumstances that indicate a special or sensitive surrounding environment. Thus, there are no unusual circumstances which may lead to a significant effect on the environment.

(d) **Scenic Highways. A categorical exemption shall not be used for a project which may result in damage to scenic resources, including but not limited to, trees, historic buildings, rock outcroppings, or similar resources, within a highway officially designated as a state scenic highway. This does not apply to improvements which are required as mitigation by an adopted negative declaration or certified EIR.**

Based on a review of the California Scenic Highway Mapping System (http://www.dot.ca.gov/hq/LandArch/16_livability/_scenic_highways/), subject site is not located along a State Scenic Highway, nor are there any designated State Scenic Highways located near the project site. Based on this, the proposed project will not result in damage to scenic resources including trees, historic buildings, rock outcroppings, or similar resources, within a highway officially designated as a state scenic highway, and this exception does not apply.

(e) **Hazardous Waste Sites. A categorical exemption shall not be used for a project located on a site which is included on any list compiled pursuant to Section 65962.5 of the Government Code.**

Based on a review of the California Department of Toxic Substances Control "Envirostor Database" (http://www.envirostor.dtsc.ca.gov/public/), no known hazardous waste sites are located on the project site. In addition, there is no evidence of historic or current use, or disposal of hazardous or toxic materials at this location. The project is not listed on any hazardous materials list identified in California Government Code Section 65962.5. Based on this, the project will not result in a significant effect due to hazardous waste.

Additionally, the project site is not located within Hazardous Waste/Border Zone Properties area as designated by the City of Los Angeles. There are also no oil wells, elevators, in-ground hydrologic systems, monitoring or water supply wells, or above- or below-ground storage tanks, or potentially fluid-filled electrical equipment on or immediately adjacent to the project site. No industrial wastewater is generated on the project site and sanitary wastewater is discharged to the City Bureau of Sanitation. Therefore, this exception for a Class 32 Categorical Exemption does not apply.

(f) **Historical Resources. A categorical exemption shall not be used for a project which may cause a substantial adverse change in the significance of a historical resource.**

The project site is located within Northeast Community Plan. SurveyLA conducted a Historic Resources Survey Report for the Northeast Community Plan Area that identified potential historic residential and commercial properties.

An Historical Resource Technical Report was prepared by Teresa Grimes, and dated July 2022, which concluded that no historical resource would be demolished as part of

the project. The project does not involve the relocation of any historical resources, and the project does not involve conversion, rehabilitation, or alteration of any historical resources. In conclusion, the project does not meet City CEQA thresholds for impacts on historical resources.

Based on this, the project will not result in a substantial adverse change to the significance of a historic resource and this exception does not apply.

CONCLUSION

The proposed project is for the construction, use and maintenance of a new 7-story density bonus apartment building with 184 residential units above 2 levels of automobile parking in an area zoned and designated for residential uses on a 50,656.5 square foot lot. The project is consistent with the surrounding developments (which primarily consists of established residential and open space uses), is permitted by the DB Guidelines, and is entirely consistent with the existing General Plan designation, zoning, and requirements of the LAMC. The project will not generate a significant number of vehicle trips and will not result in any significant impacts to land use planning, environmental habitat, noise, air quality, or water quality. The project is located in an urbanized and long-developed area, and thus will be adequately served by all required public utilities and services. Thus, in conjunction with RCMs and compliance with other applicable regulations, the project will not result in a significant impact.

In addition, as the project is in an urbanized area, it is not in a particularly sensitive environment, and will not impact an environmental resource of hazardous or critical concern that is designated, precisely mapped, or officially adopted by any federal, state, or local agency. The project will not result in any significant impacts and, therefore, will not make a cumulatively considerable contribution to any significant impacts that are not already accounted for by the General Plan and future environmental clearances. The project is consistent with the surrounding developments, including established residential uses, does not present any unusual circumstances that would result in a significant impact on the environment, and would not constitute a substantial adverse change in the significance of a historic resource as defined by CEQA. Therefore, none of the possible exceptions to Categorical Exemptions, found in Section 15300.2 Exceptions, apply to this project, and as such, the project qualifies for a Class 32 Categorical Exemption.

GEOCON
WEST, INC.

GEOTECHNICAL
ENVIRONMENTAL
MATERIALS

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

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.

REGISTERED PROFESSIONAL ENGINEER
H. HARRY DERKALOUSDIAN
C 79694
CIVIL
STATE OF CALIFORNIA

PROFESSIONAL GEOLOGIST
SUSAN FRANZEN KIRKGARD
No. 1754
CERTIFIED ENGINEERING GEOLOGIST
STATE OF CALIFORNIA

Joshua Kulas
Staff Engineer

Harry Derkalousdian
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 ($\frac{2}{3}PGA_M$). 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 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 ($\frac{2}{3}PGA_M$). 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).

7.3 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 ($^{2}/_{3}PGA_{M}$). 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.

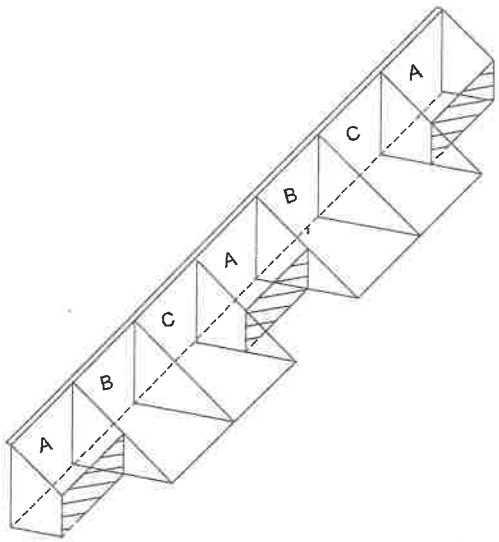
7.18.3 If excavations in close proximity to an adjacent property line and/or structure are required, special excavation measures such as slot-cutting or shoring may be necessary in order to maintain lateral support of offsite improvements. Recommendations for slot cutting and shoring are provided in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

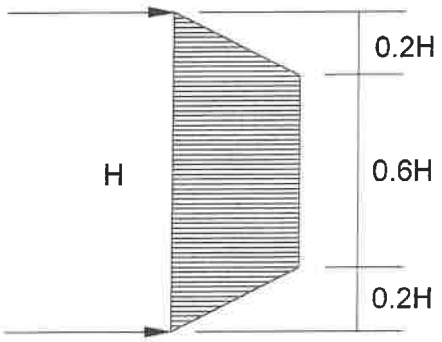
7.20.15 The frictional resistance between the soldier piles and retained soil may be used to resist the vertical component of the load. The coefficient of friction may be taken as 0.3 based on uniform contact between the steel beam and lean-mix concrete and alluvial soils. The portion of soldier piles 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.

LIST OF REFERENCES

California Division of Mines and Geology, 1999; *State of California Seismic Hazard Zones, Los Angeles Quadrangle,* Official Map, Released: March 25, 1999.

California Division of Mines and Geology, 1998, *Seismic Hazard Evaluation of the Los Angeles 7.5-Minute Quadrangle, Los Angeles County, California,* Open File Report 98-20.

California Geologic Energy Management Division, 2022, CalGEM Resources Well Finder, http://maps.conservation.ca.gov.doggr/index.html#close.

California Geological Survey, 2022a, CGS Information Warehouse, Regulatory Map Portal, http://maps.conservation.ca.gov/cgs/informationwarehouse/index.html?map=regulatorymaps.

California Geological Survey, 2022b, Earthquake Zones of Required Investigation, https://maps.conservation.ca.gov/cgs/EQZApp/app/.

California Geological Survey, 2012, *Geologic Compilation of Quaternary Surficial Deposits in Southern California, Los Angeles 30' X 60' Quadrangle*, A Project for the Department of Water Resources by the California Geological Survey, Compiled from existing sources by Trinda L. Bedrossian, CEG and Peter D. Roffers, CGS Special Report 217, Plate 9, Scale 1:100,000.

California Geological Survey, 2018, *Earthquake Fault Zones, A Guide for Government Agencies, Property Owners/Developers, and Geoscience Practitioners for Assessing Fault Rupture Hazards in California,* Special Publication 42, Revised 2018.

California Geological Survey, 2017, *Earthquake Zones of Required Investigations, Los Angeles Quadrangle, Revised* Official Map, dated June 15, 2017.

Jennings, C. W. and Bryant, W. A., 2010, *Fault Activity Map of California,* California Geological Survey Geologic Data Map No. 6.

Leighton and Associates, Inc., 1990, *Technical Appendix to the Safety Element of the Los Angeles County General Plan, Hazard Reduction in Los Angeles County.*

Los Angeles, City of, 2022, NavigateLA website, http://navigatela.lacity.org.

Los Angeles, City of, 1996, *Safety Element of the Los Angeles City General Plan.*

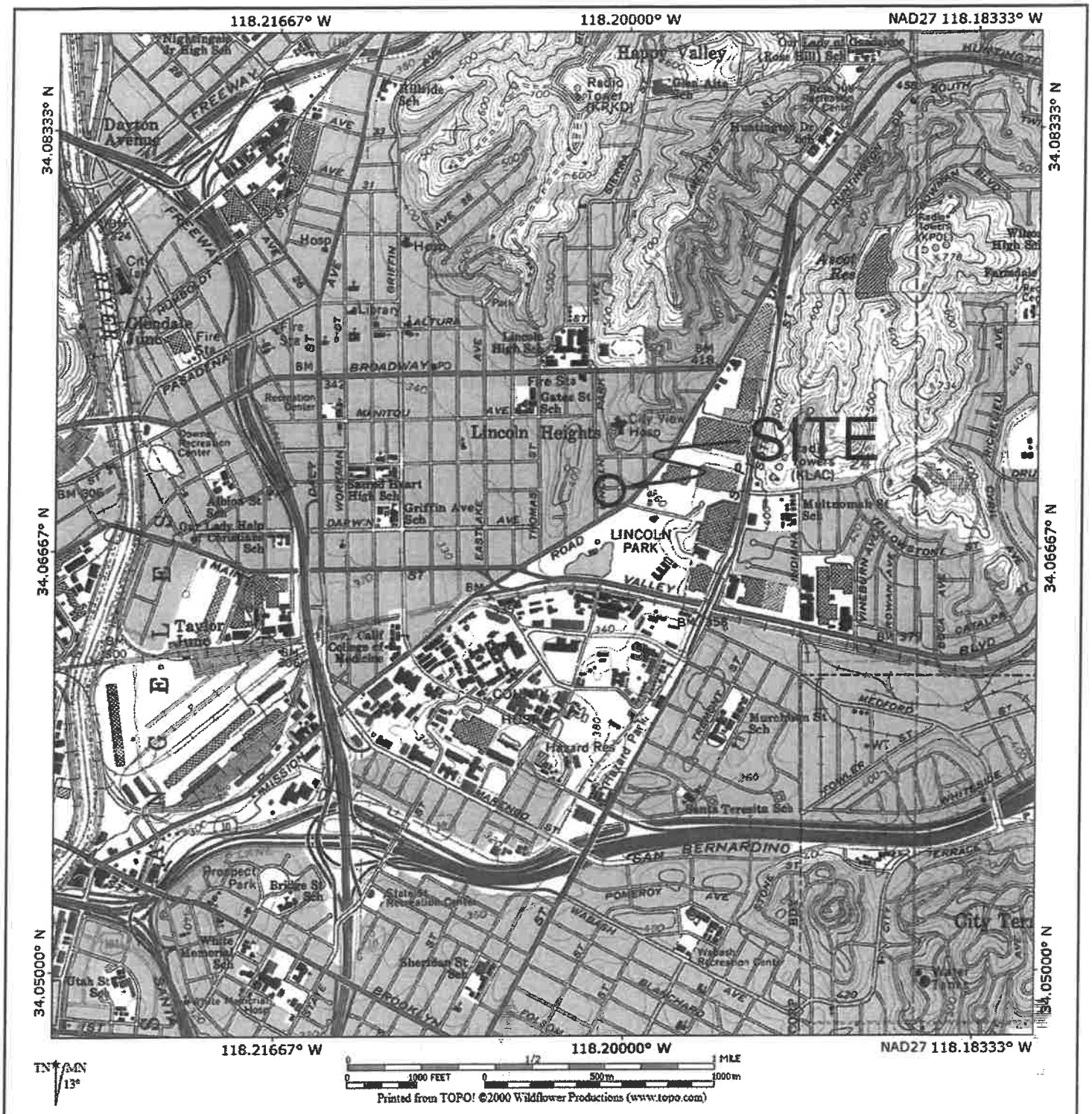
Los Angeles County Department of Public Works, 2022, Flood Zone Determination Website, http://dpw.lacounty.gov/apps/wmd/floodzone/map.htm.

Toppozada, T., Branum, D., Petersen, M, Hallstrom, C., and Reichle, M., 2000, *Epicenters and Areas Damaged by M> 5 California Earthquakes, 1800 – 1999,* California Geological Survey, Map Sheet 49.

U.S. Geological Survey and California Geological Survey, 2006, *Quaternary Fault and Fold Database for the United States,* accessed June 6, 2022 from USGS web site: http//earthquake.usgs.gov/hazards/qfaults/.

LIST OF REFERENCES (Continued)

Ziony, J. I., and Jones, L. M., 1989, *Map Showing Late Quaternary Faults and 1978–1984 Seismicity of the Los Angeles Region, California*, U.S. Geological Survey Miscellaneous Field Studies Map MF-1964.



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

GEOCON
WEST, INC.

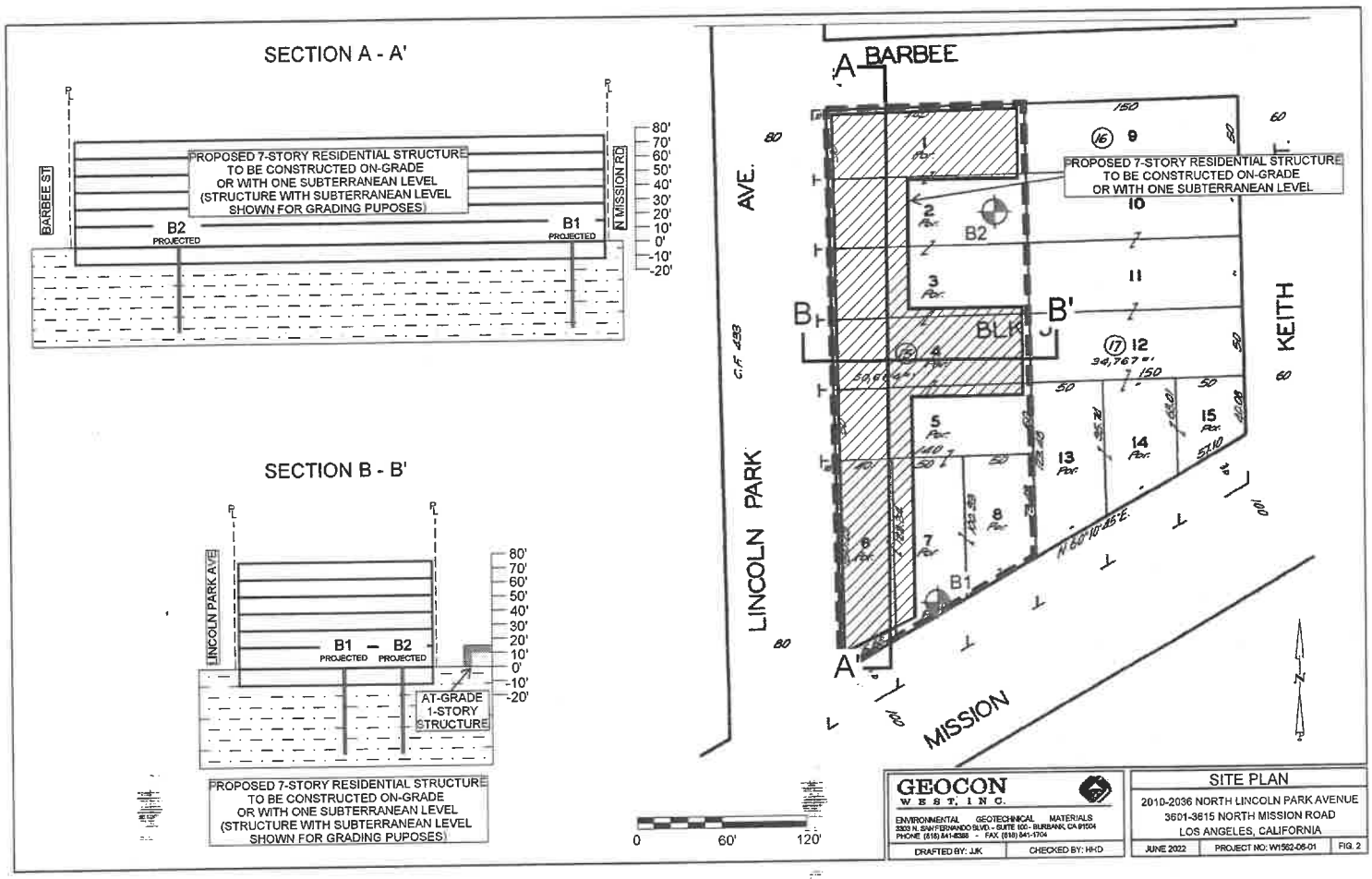
ENVIRONMENTAL GEOTECHNICAL MATERIALS
3303 N. SAN FERNANDO BLVD. - SUITE 100 - BURBANK, CA 91504
PHONE (818) 841-8388 - FAX (818) 841-1704

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'
BARBEE ST
N MISSION RD
PROPOSED 7-STORY RESIDENTIAL STRUCTURE
TO BE CONSTRUCTED ON-GRADE
OR WITH ONE SUBTERRANEAN LEVEL
(STRUCTURE WITH SUBTERRANEAN LEVEL
SHOWN FOR GRADING PUPOSES)
B2
PROJECTED
B1
PROJECTED
80'
70'
60'
50'
40'
30'
20'
10'
0'
-10'
-20'
SECTION B - B'
LINCOLN PARK AVE
B1 – B2
PROJECTED PROJECTED
AT-GRADE
1-STORY
STRUCTURE
PROPOSED 7-STORY RESIDENTIAL STRUCTURE
TO BE CONSTRUCTED ON-GRADE
OR WITH ONE SUBTERRANEAN LEVEL
(STRUCTURE WITH SUBTERRANEAN LEVEL
SHOWN FOR GRADING PUPOSES)
A
BARBEE
A'
B
B'
LINCOLN PARK AVE.
KEITH
MISSION
PROPOSED 7-STORY RESIDENTIAL STRUCTURE
TO BE CONSTRUCTED ON-GRADE
OR WITH ONE SUBTERRANEAN LEVEL
B1
B2
BLK
C.F. 439
N 54°10'45"E
0
60'
120'
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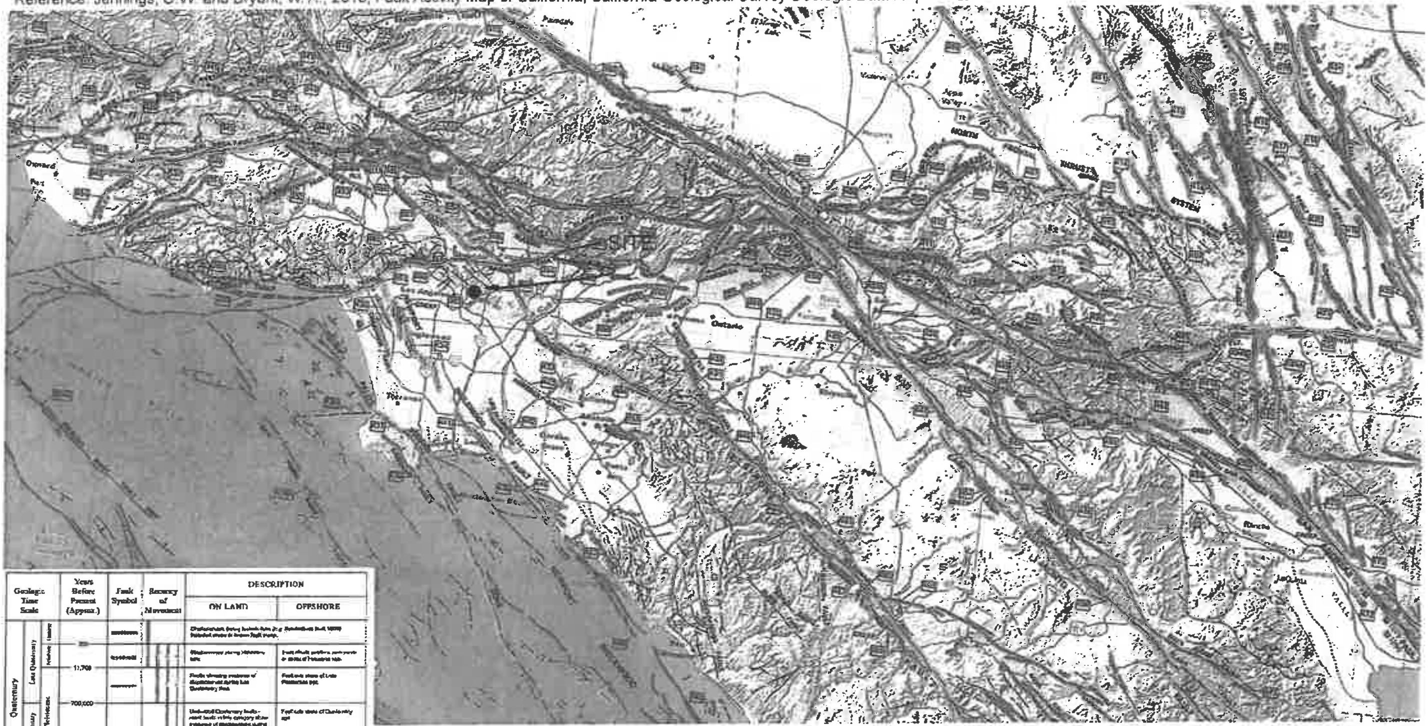
PHONE (818) 841-8388 - FAX (818) 841-1704
DRAFTED BY: JJK
CHECKED BY: HKD
SITE PLAN
2010-2036 NORTH LINCOLN PARK AVENUE
3601-3615 NORTH MISSION ROAD
LOS ANGELES, CALIFORNIA
JUNE 2022
PROJECT NO: W1562-06-01
FIG. 2

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	DESCRIPTION: OFFSHORE
Quaternary	Late Quaternary	Historic	200			[illegible]	
Quaternary	Late Quaternary	Holocene	11,700			[illegible]	[illegible]
Quaternary	Late Quaternary	Pleistocene	700,000			[illegible]	[illegible]
Quaternary	Early Quaternary	Pleistocene	1,600,000			[illegible]	[illegible]
Pre-Quaternary			4.5 billion (Age of Earth)			[illegible]	[illegible]

*[illegible]

N

0 12 24 Miles

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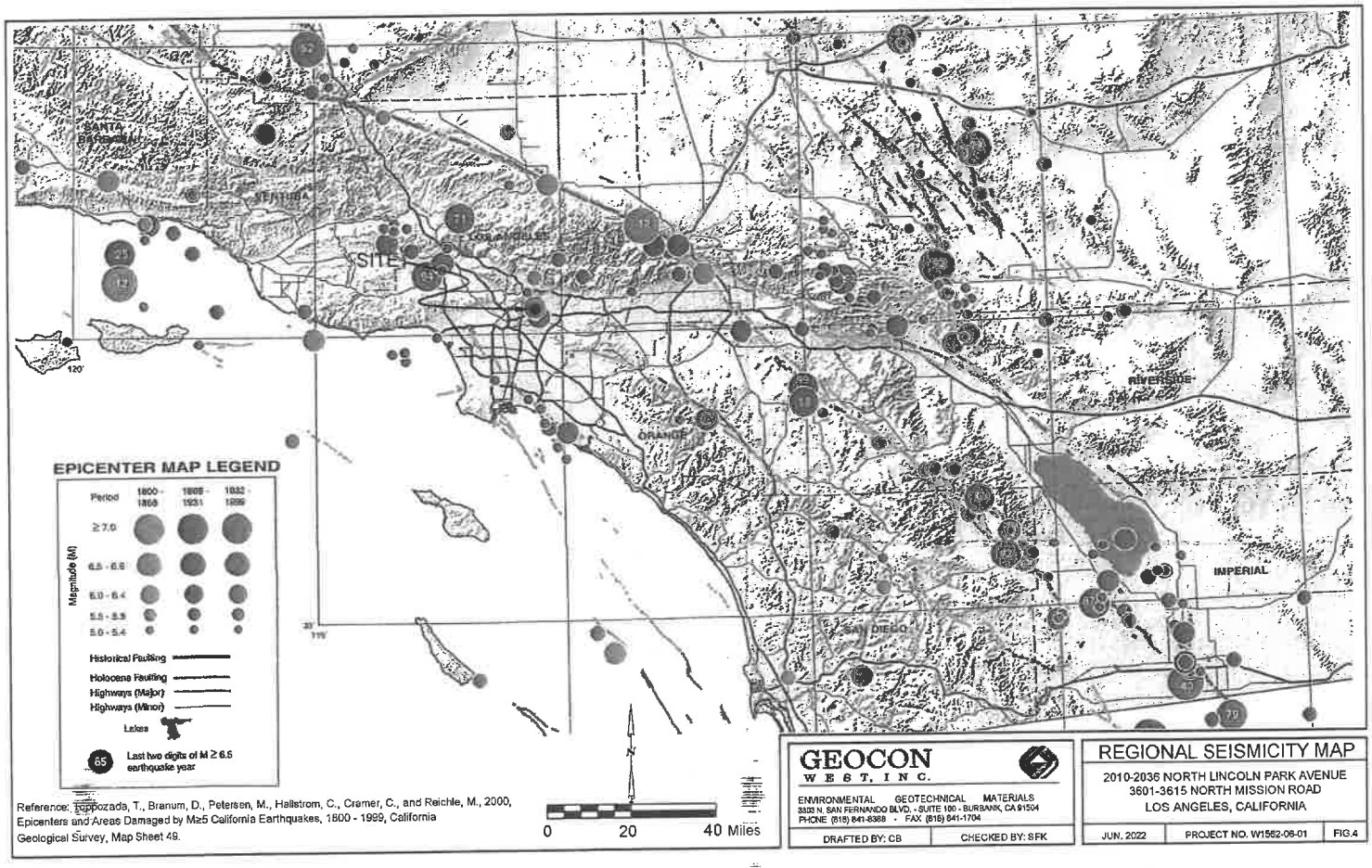
DRAFTED BY: CB | CHECKED BY: SFK

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.

Figure 5

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.

Figure 7

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.

Figure 9

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 [e_{15}] (%)	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	0.516	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/o'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)	(veff)*(Geff) (Gmax)	veff Shear Strain	(veff)*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	266.059	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	512.769	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	931.406	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	1.64E-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	982.974	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	25.8	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	1738.763	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	0.878	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	2287.284	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	2308.316	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	2334.166	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	3.76E-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: 3801 N Mission RD
File No.: W1582-06-01
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):	0.630

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) (ts	(veff)*(Geff) (Gmax)	veff Shear Strain	(veff)*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	280.052	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	416.325	1.64E-04	1.70E-04	0.017	1.68E-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	1.68E-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
6.0	1.0	5.5	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
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	606.002	2.24E-04	4.50E-04	0.045	4.42E-02	8.9108	3.50E-02	0.00
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	748.518	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	872.887	3.05E-04	7.10E-04	0.071	7.62E-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	2.68E-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	1008.961	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	1046.580	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	1489.092	2.22E-04	3.70E-04	0.037	1.00E-02	8.9108	7.89E-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	2312.946	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	2376.988	2.39E-04	3.00E-04	0.030	8.86E-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 (ts/f)	Mean Effective Pressure at Mid-point (ts/f)	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) (ts/f)	(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	298.059	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	2.28E-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	2.28E-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	89.2	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	960.619	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	1371.783	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	1438.347	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	4.48E-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	1.379	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	2285.792	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	43.6	0.8	2310.394	3.85E-04	1.00E-02	1.000	3.90E-01	9.5582	3.18E-01	0.00
																			TOTAL SETTLEMENT =	0.05

Figure 15

GEOCON

Project: 3801 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

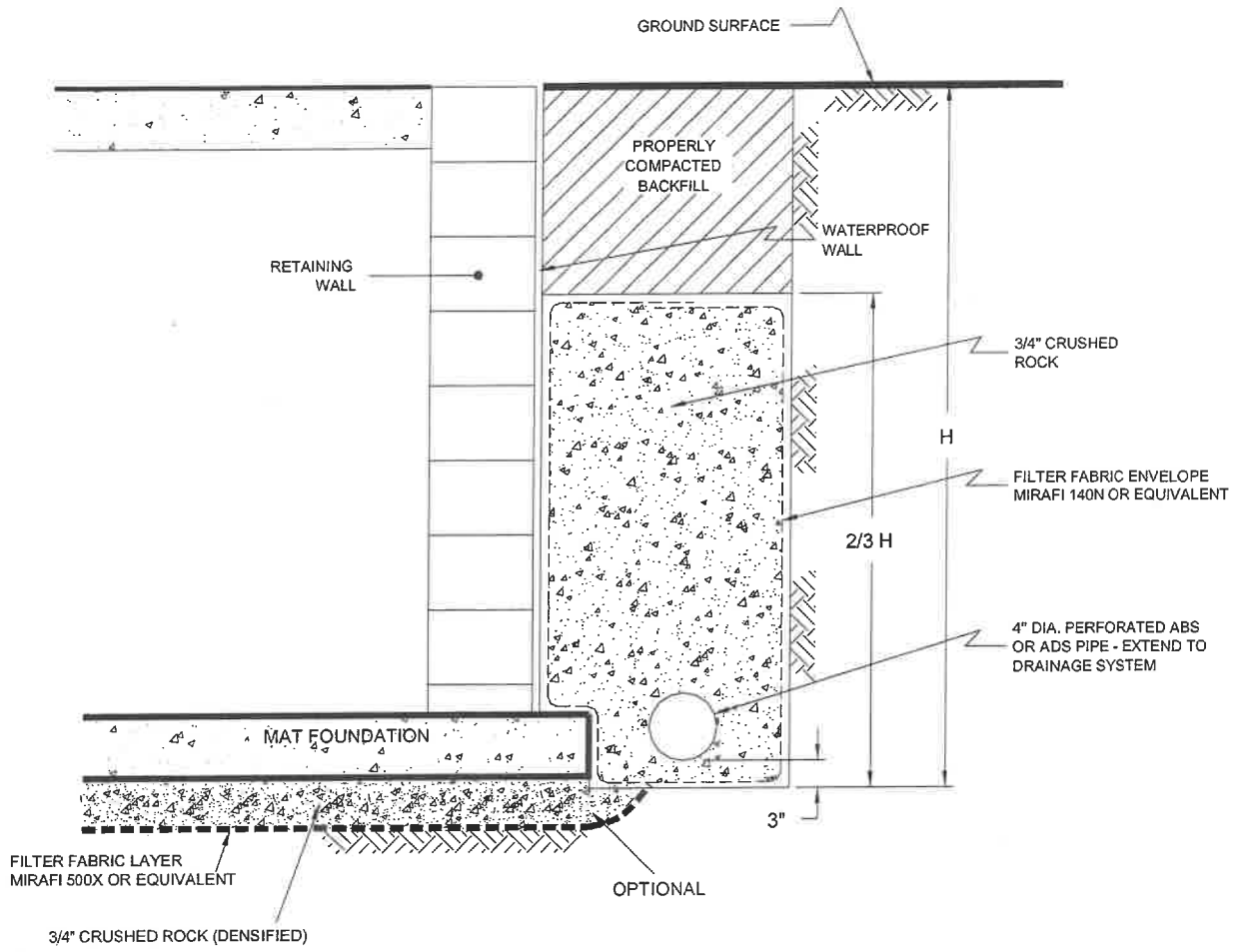
MCE EARTHQUAKE INFORMATION:

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)	(veff)*(Geff) (Gmax)	yeff Shear Strain	(veff)*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	280.052	2.30E-04	3.00E-03	0.300	4.88E-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	8.29E-02	9.5582	6.77E-02	0.01
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	8.97E-02	9.5582	7.32E-02	0.02
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	9.45E-02	9.5582	7.72E-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	825.184	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	1648.854	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	95.6	0.9	2226.843	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	3.08E-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	2307.136	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	2334.189	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	2360.628	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	2376.988	3.59E-04	5.20E-04	0.052	1.56E-02	9.5582	1.27E-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

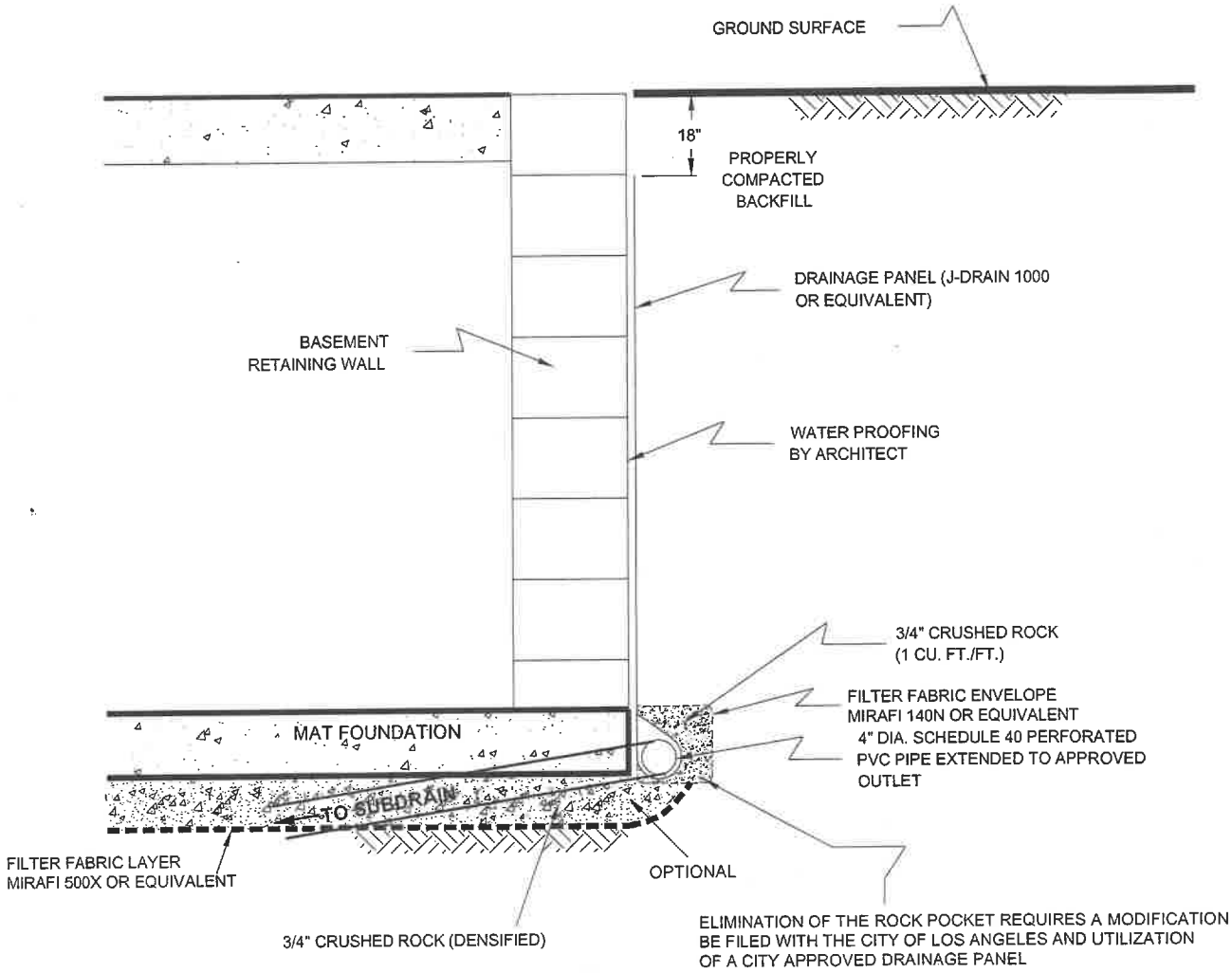
GEOCON WEST, INC.
ENVIRONMENTAL GEOTECHNICAL MATERIALS
3303 N. SAN FERNANDO BLVD. - SUITE 100 - BURBANK, CA 91504
PHONE (818) 841-8388 - FAX (818) 841-1704

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
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. 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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PHONE (818) 841-8388 - FAX (818) 841-1704

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.	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			
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		
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
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
- ... DISTURBED OR BAG SAMPLE
- ... STANDARD PENETRATION TEST
- ... CHUNK SAMPLE
- ... DRIVE SAMPLE (UNDISTURBED)
- ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

PROJECT NO. 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'			CL		22		
38	B1@37.5'				- 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.			
	B1@42.5'				Silty Sand, very dense, moist, gray, fine-grained.	50 (5")	112.9	18.6
44				SM				
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								
	B1@55'				Silty Sand, very dense, very moist, gray, fine-grained, 3" lens of Sandy Silt.	60		
56								
58				SM				

W1562-06-01 BORING LOGS.GPJ

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

SAMPLE SYMBOLS

- ☐ ... SAMPLING UNSUCCESSFUL
- ▨ ... DISTURBED OR BAG SAMPLE
- ◧ ... STANDARD PENETRATION TEST
- ◪ ... CHUNK SAMPLE
- ■ ... DRIVE SAMPLE (UNDISTURBED)
- ▼ ... 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.

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 (%)
0	BULK 0-5'				**AC: 3" BASE: 6"** **ARTIFICIAL FILL** Clayey Silt, firm, dry, dark brown.			
2								
4	B2@2.5'			MH	**ALLUVIUM** Sandy Silt, soft, moist, brown, fine-grained sand.	7		
6	B2@5.5'				- firm, moist to very moist	17	102.4	24.4
8	B2@7.5'			ML	Silt with Sand, firm, moist, brown.	9		
10	B2@10.5'				- stiff, slightly moist to moist	34	112.8	18.4
12					Clay with Sand, firm, moist, olive grayish brown.			
14	B2@13.5'		▼	CL		13		
16	B2@15.5'				- moist to very moist, gray	19	102.6	24.8
18	B2@17.5'			SM	Silty Sand, dense, very moist, gray, fine-grained.	45		
20	B2@20.5'				- medium dense	48	104.8	22.0
22	B2@22.5'				- dense	40		
24	B2@24'					40		
26	B2@25.5'				- very dense, moist, olive gray	50 (3")	90.7	32.3
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

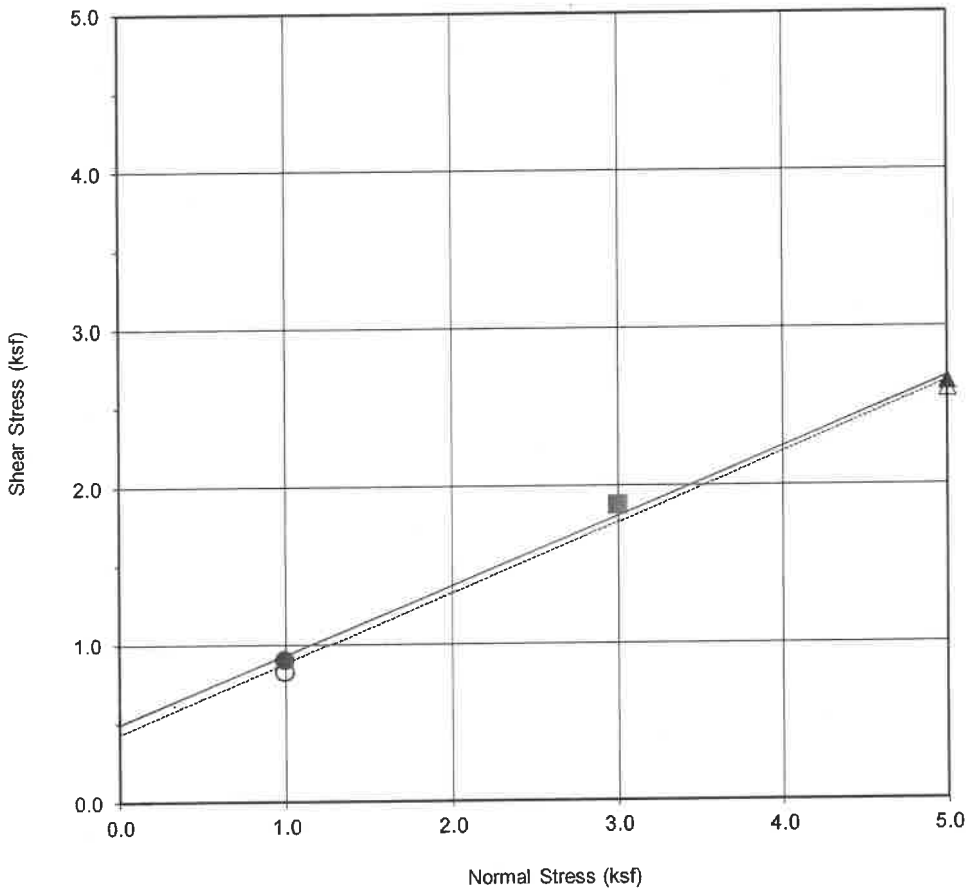
NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

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 (°)
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

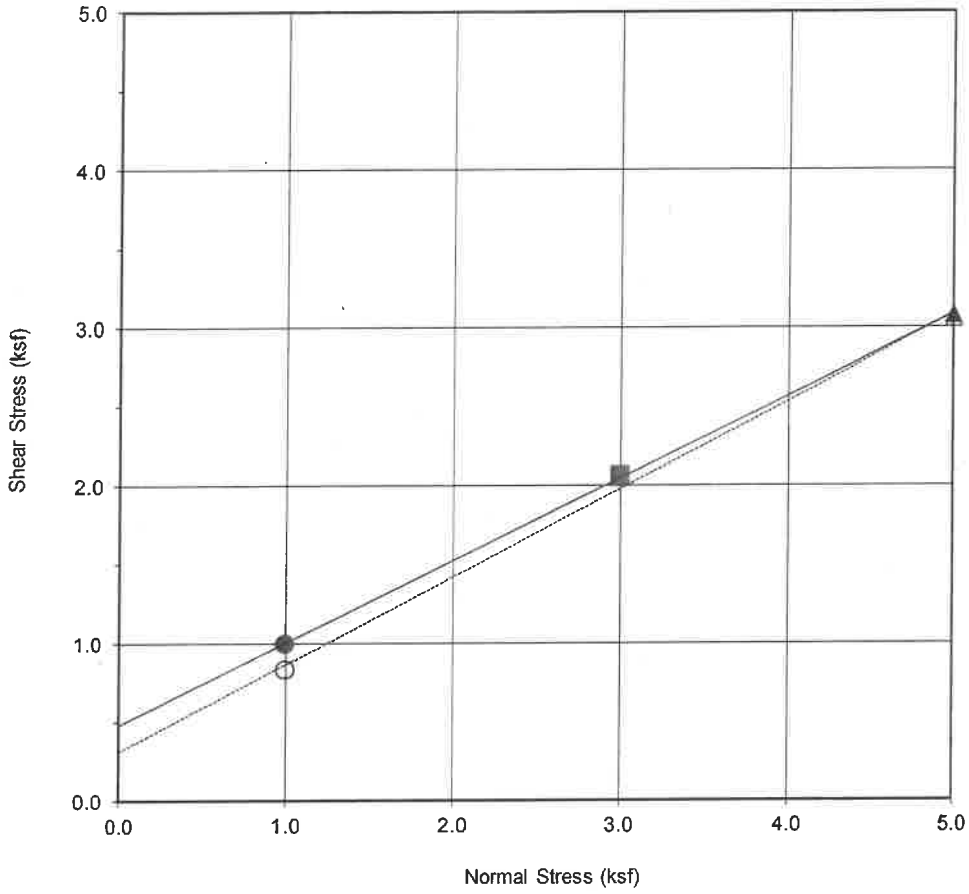
Consolidated Drained ASTM D-3080

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 (°)
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

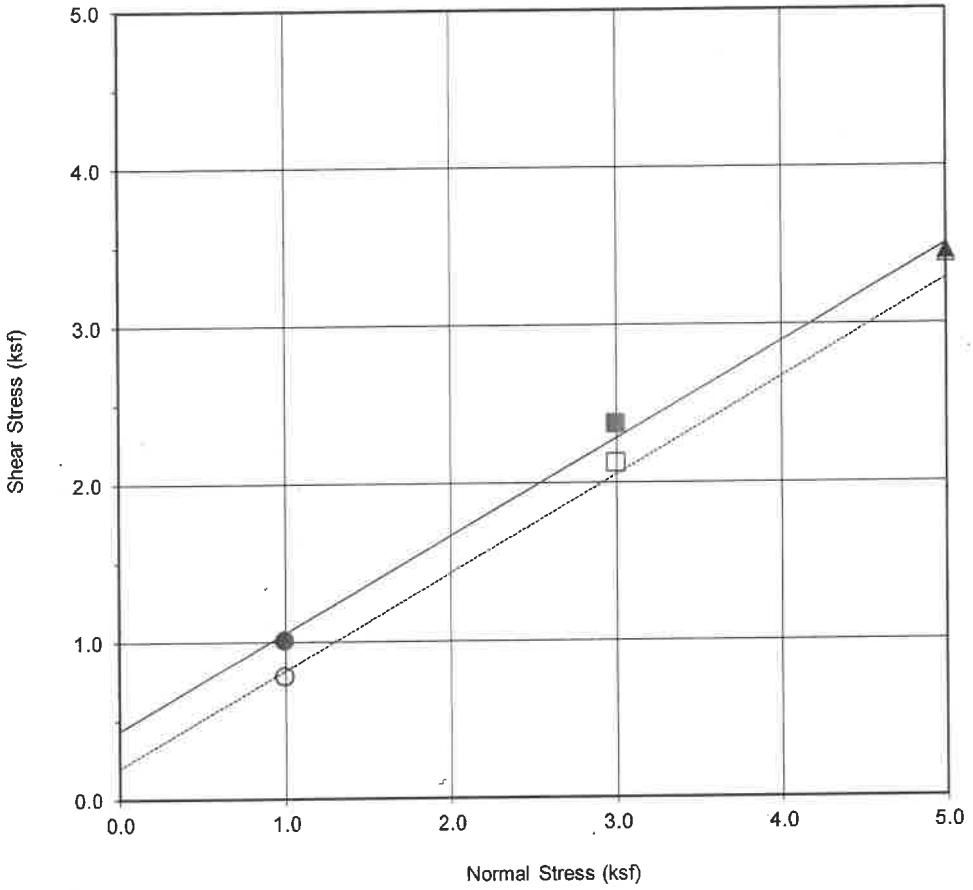
Consolidated Drained ASTM D-3080

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 (°)
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

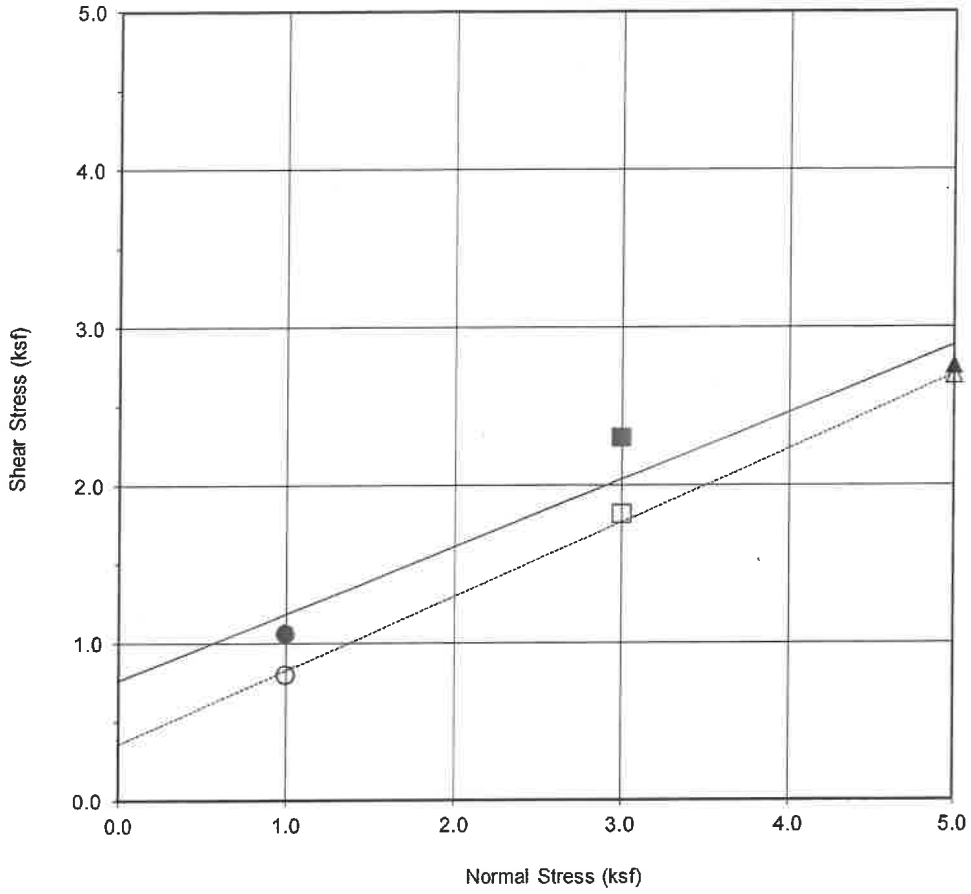
Consolidated Drained ASTM D-3080

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 (°)
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

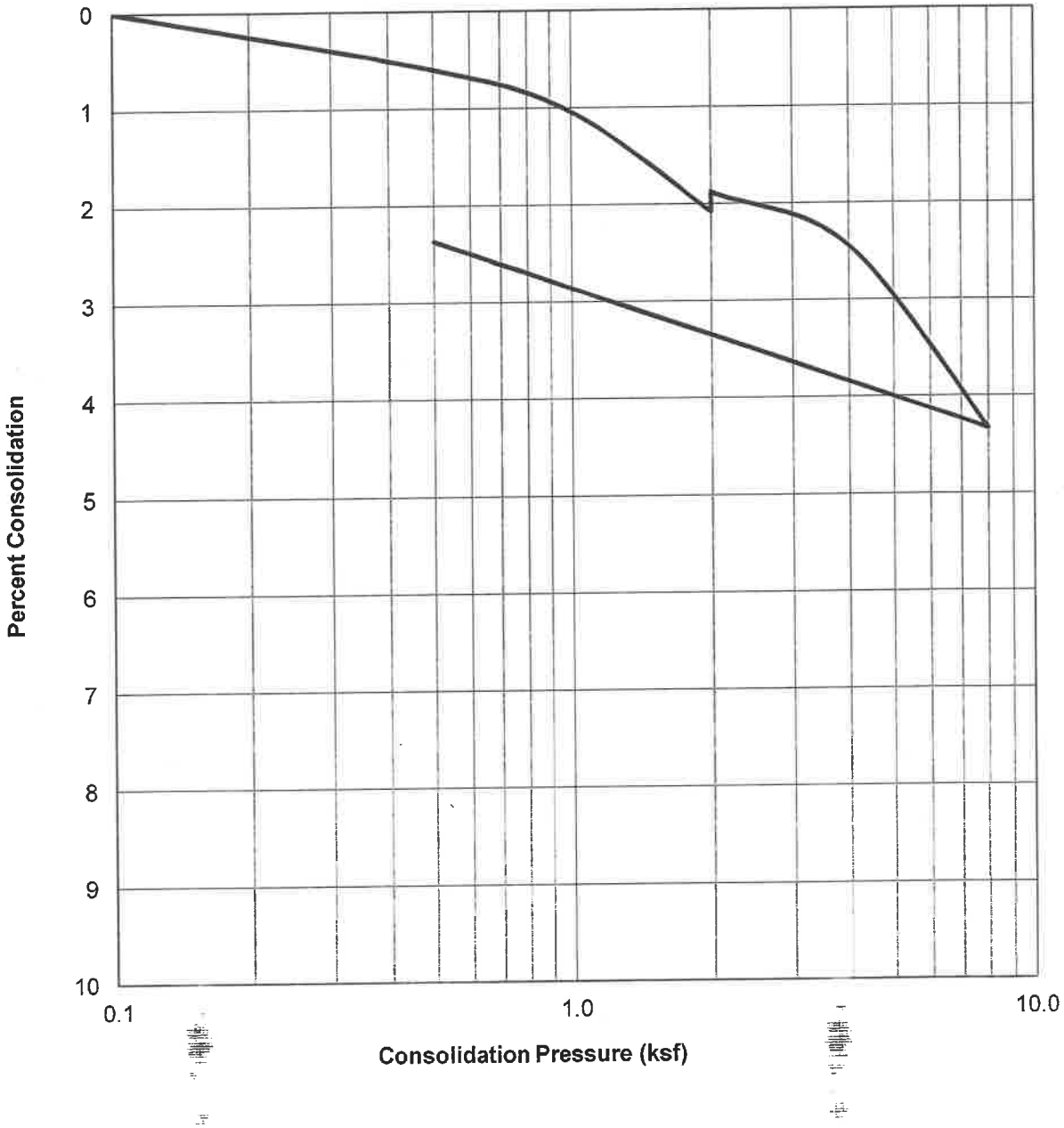
Checked by: JJK

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

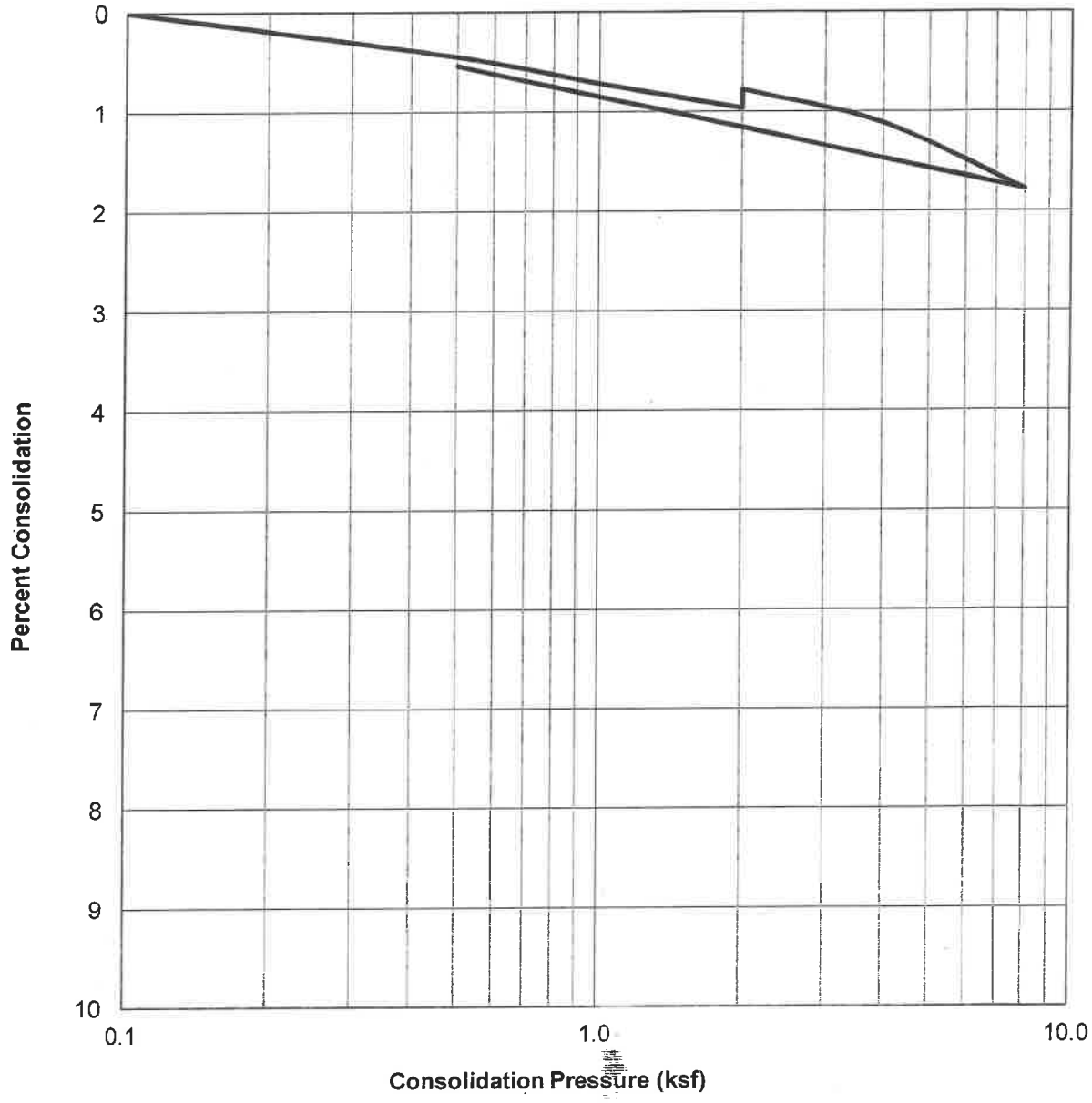
Checked by: JJK

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

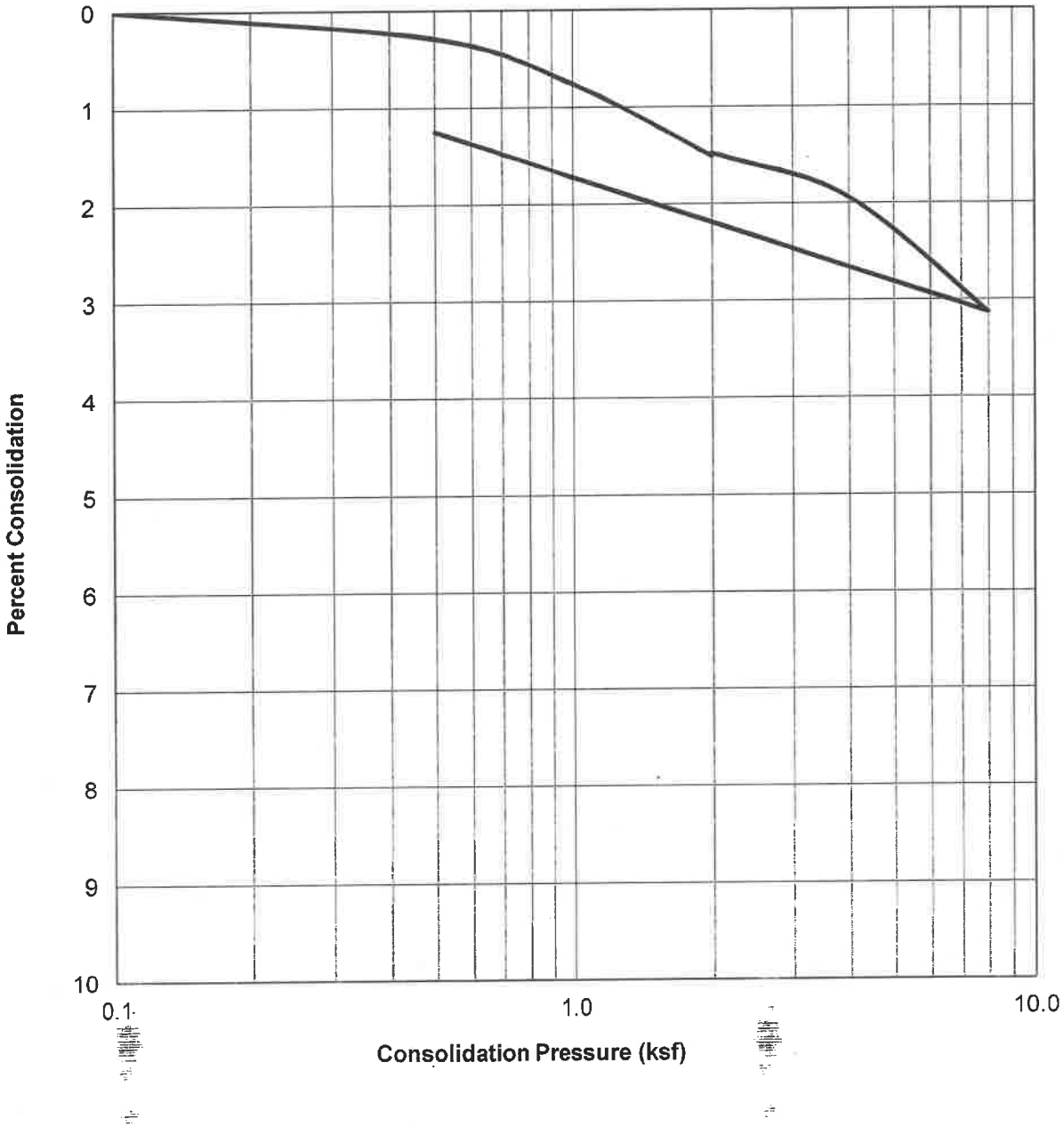
Checked by: JJK

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

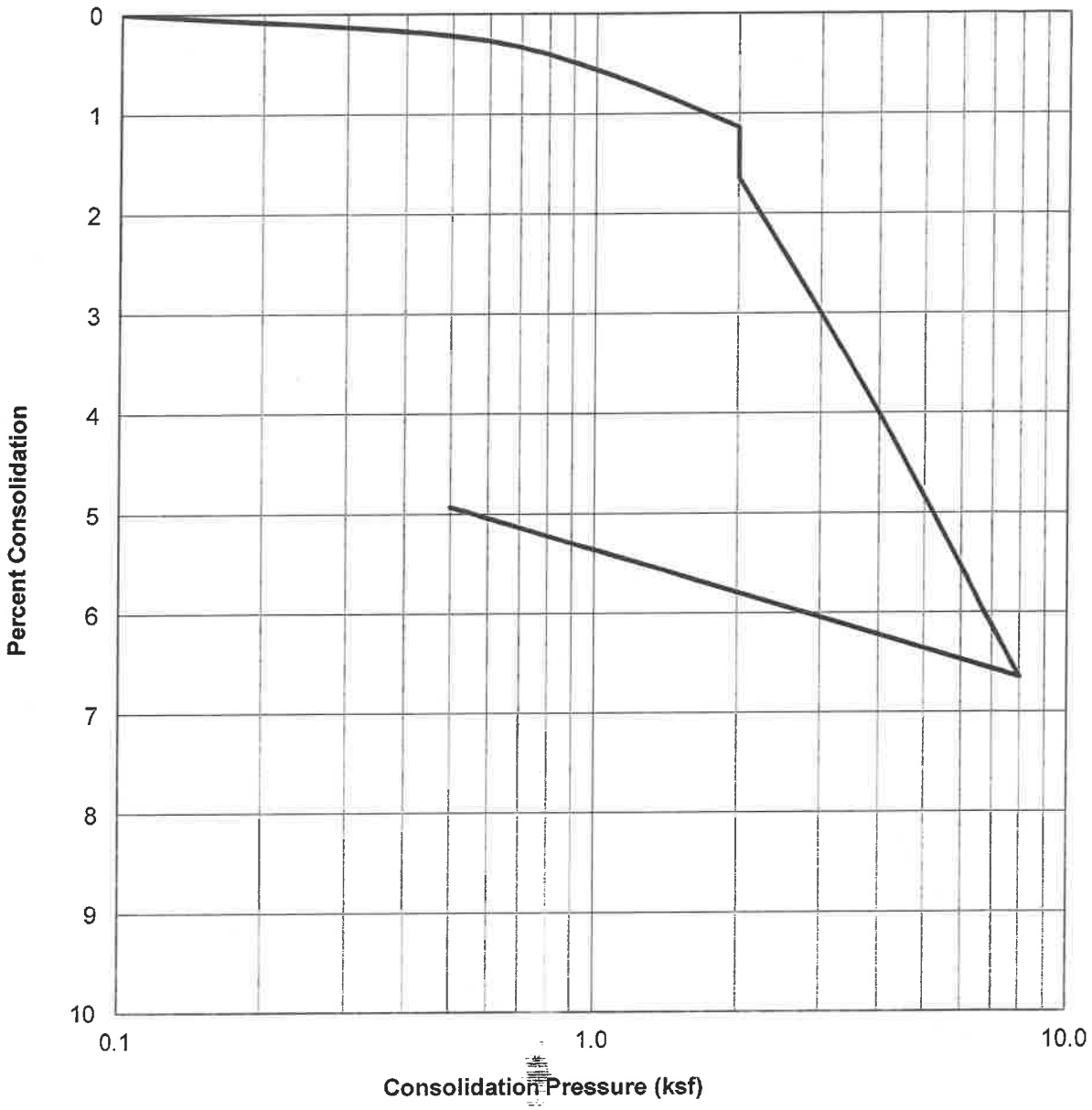
Checked by: JJK

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

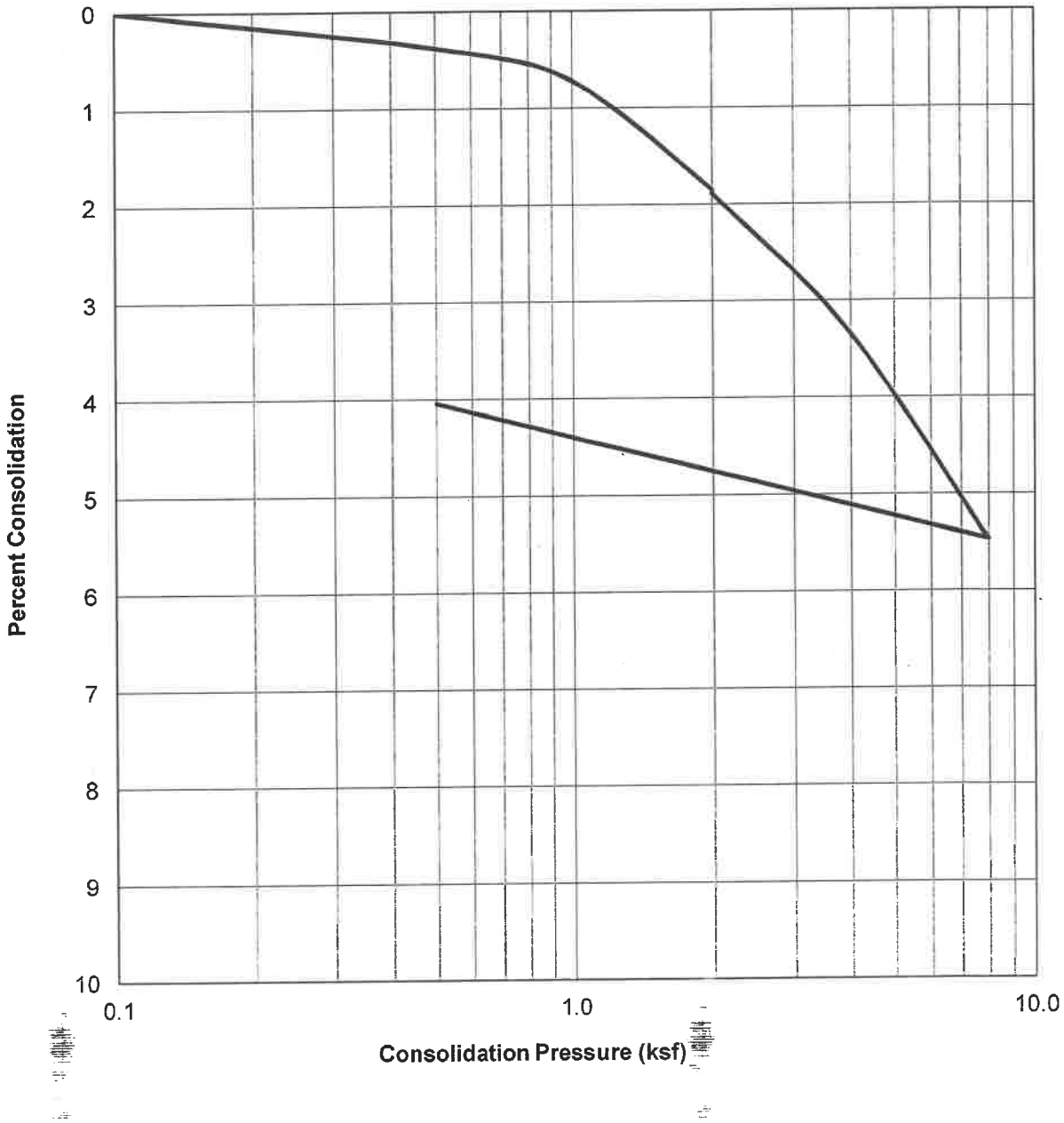
Checked by: JJK

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

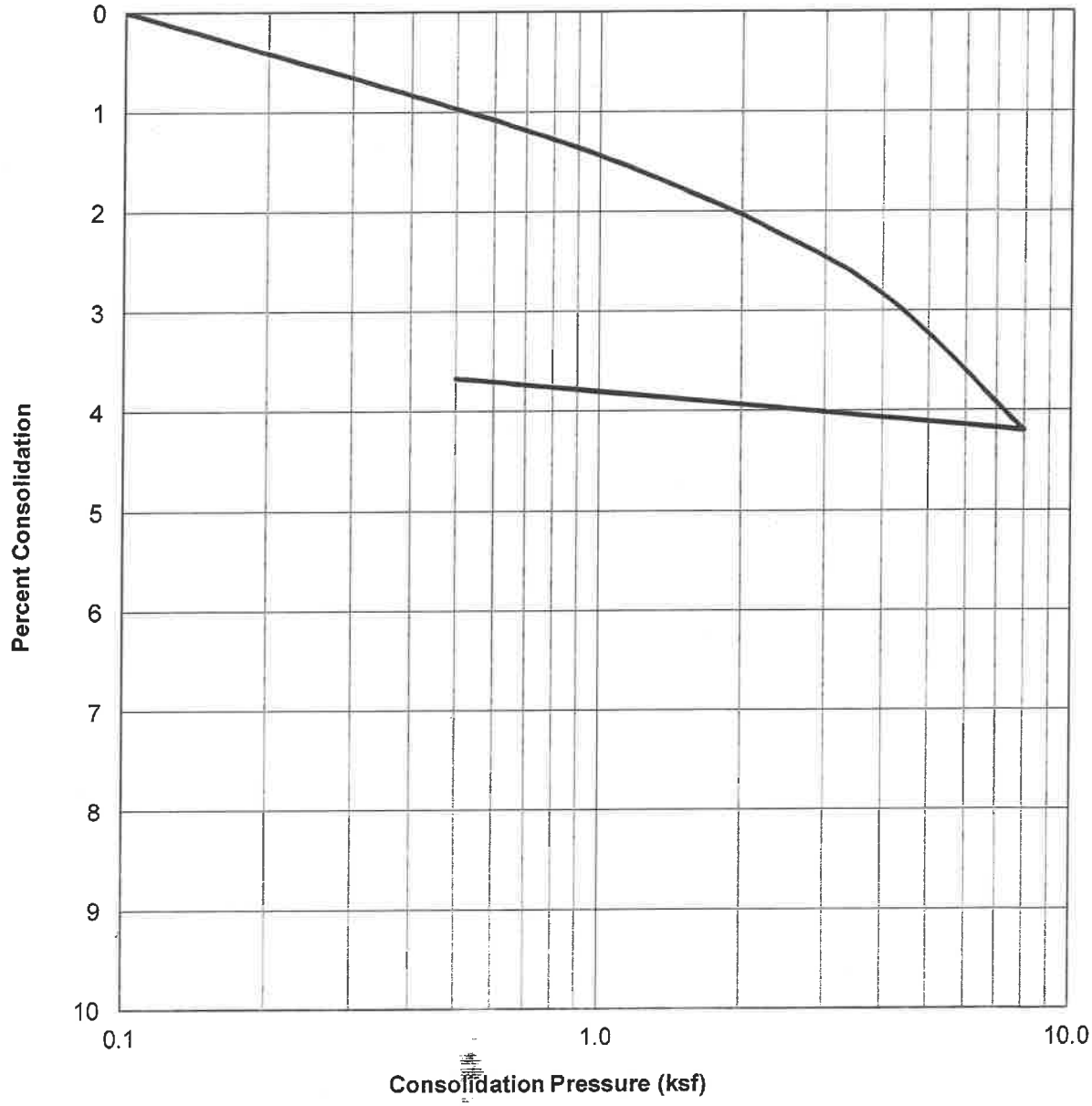
Checked by: JJK

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

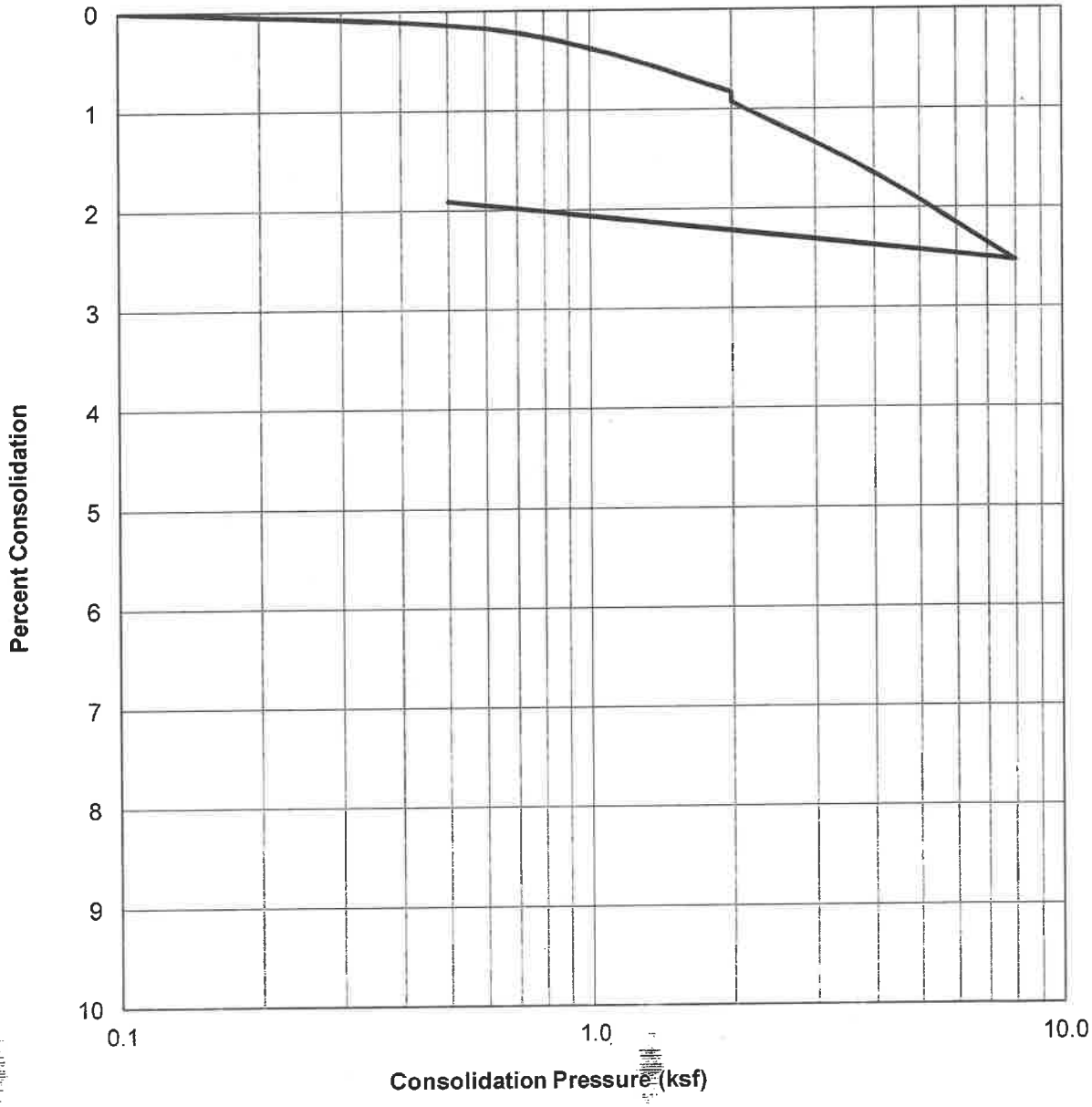
Checked by: JJK

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

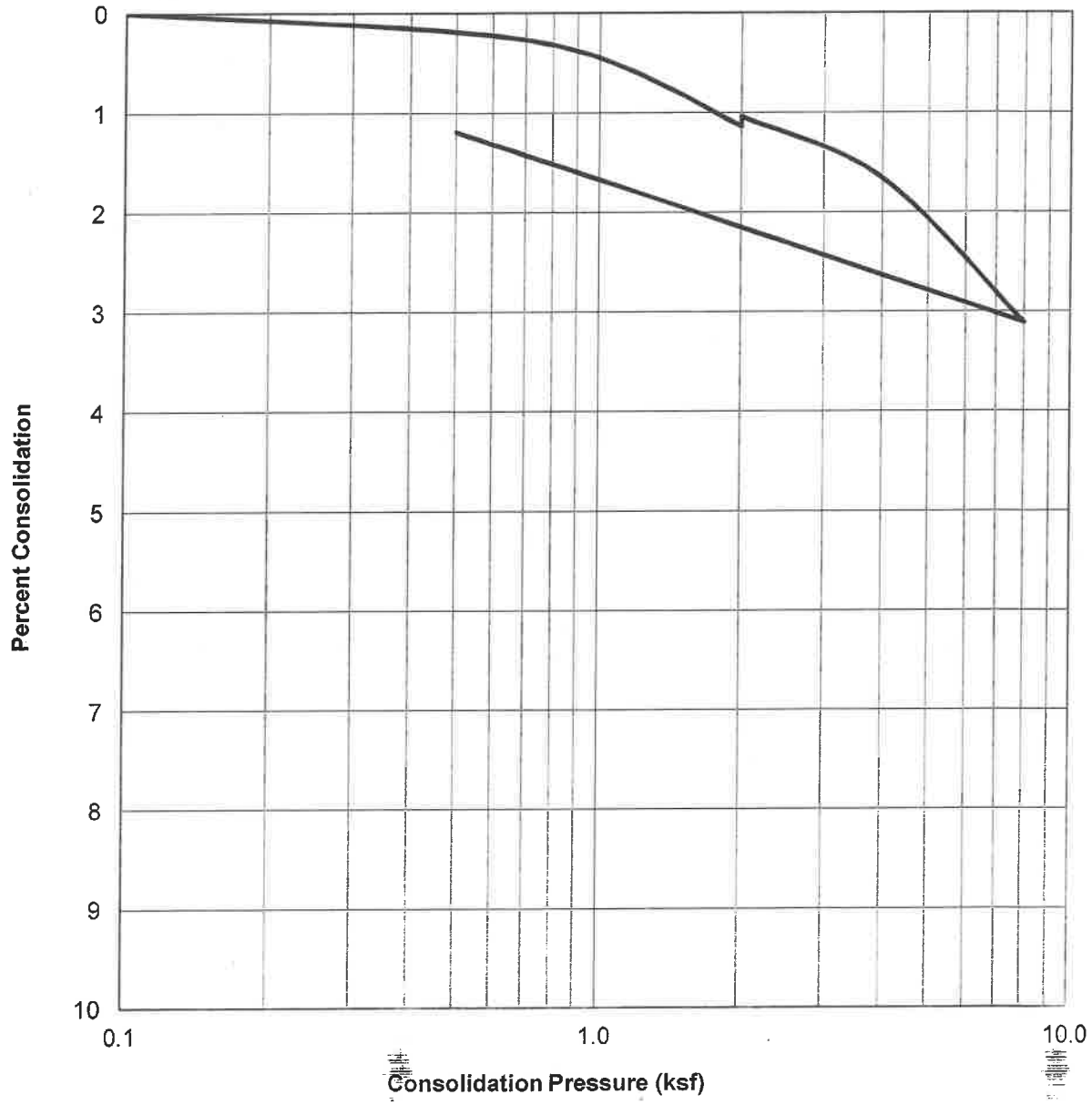
Checked by: JJK

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

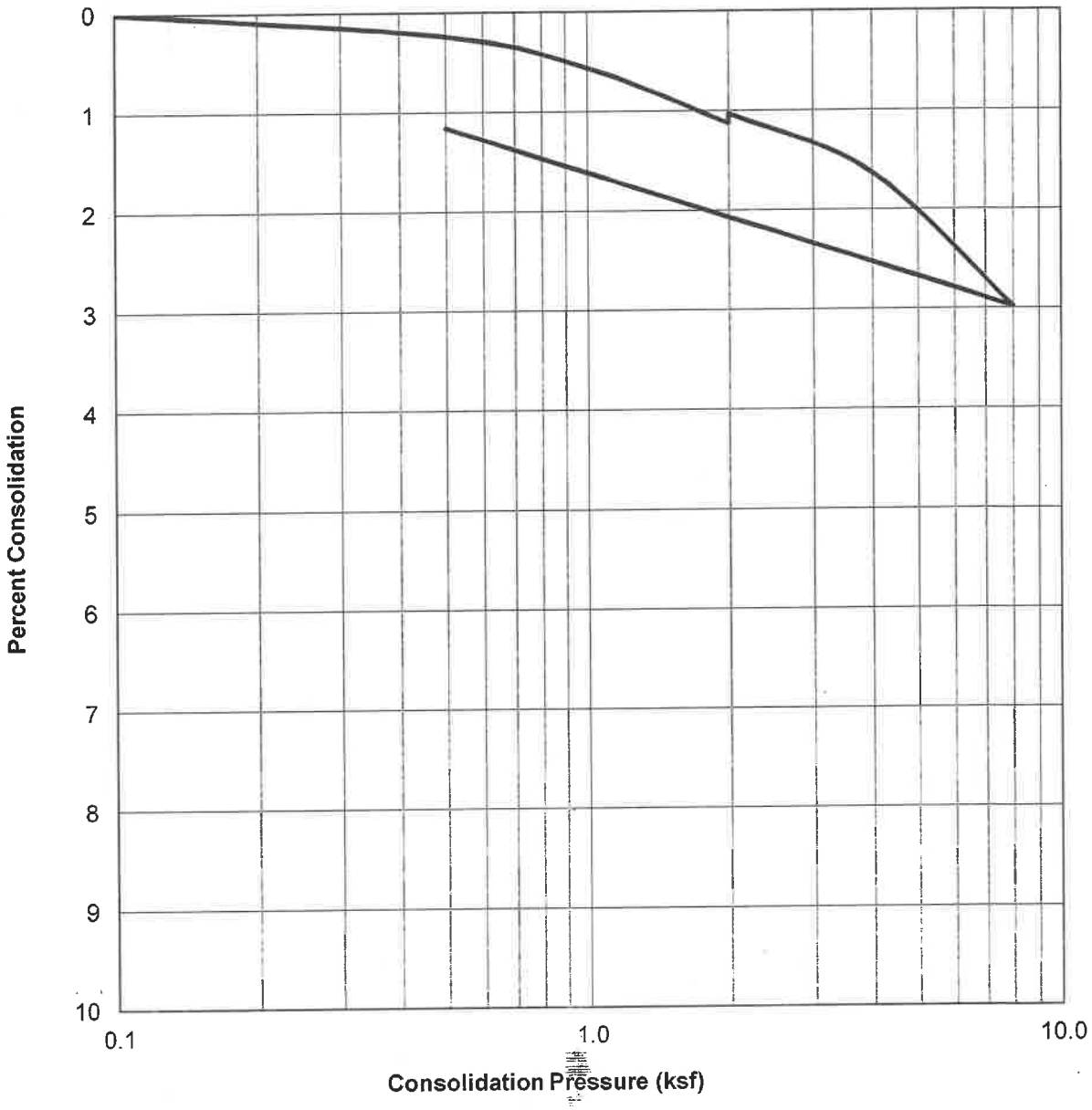
Checked by: JJK

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

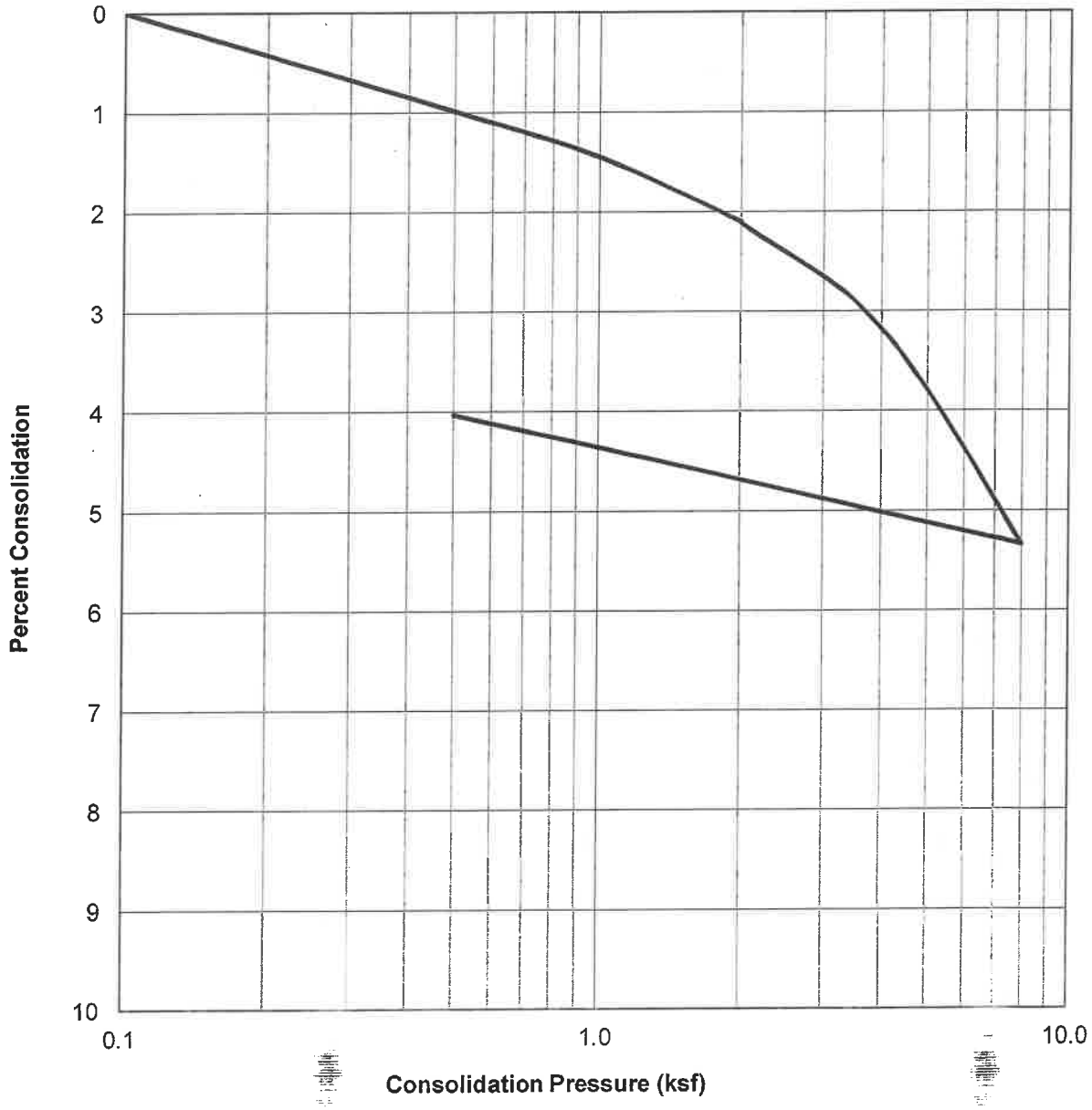
Checked by: JJK

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

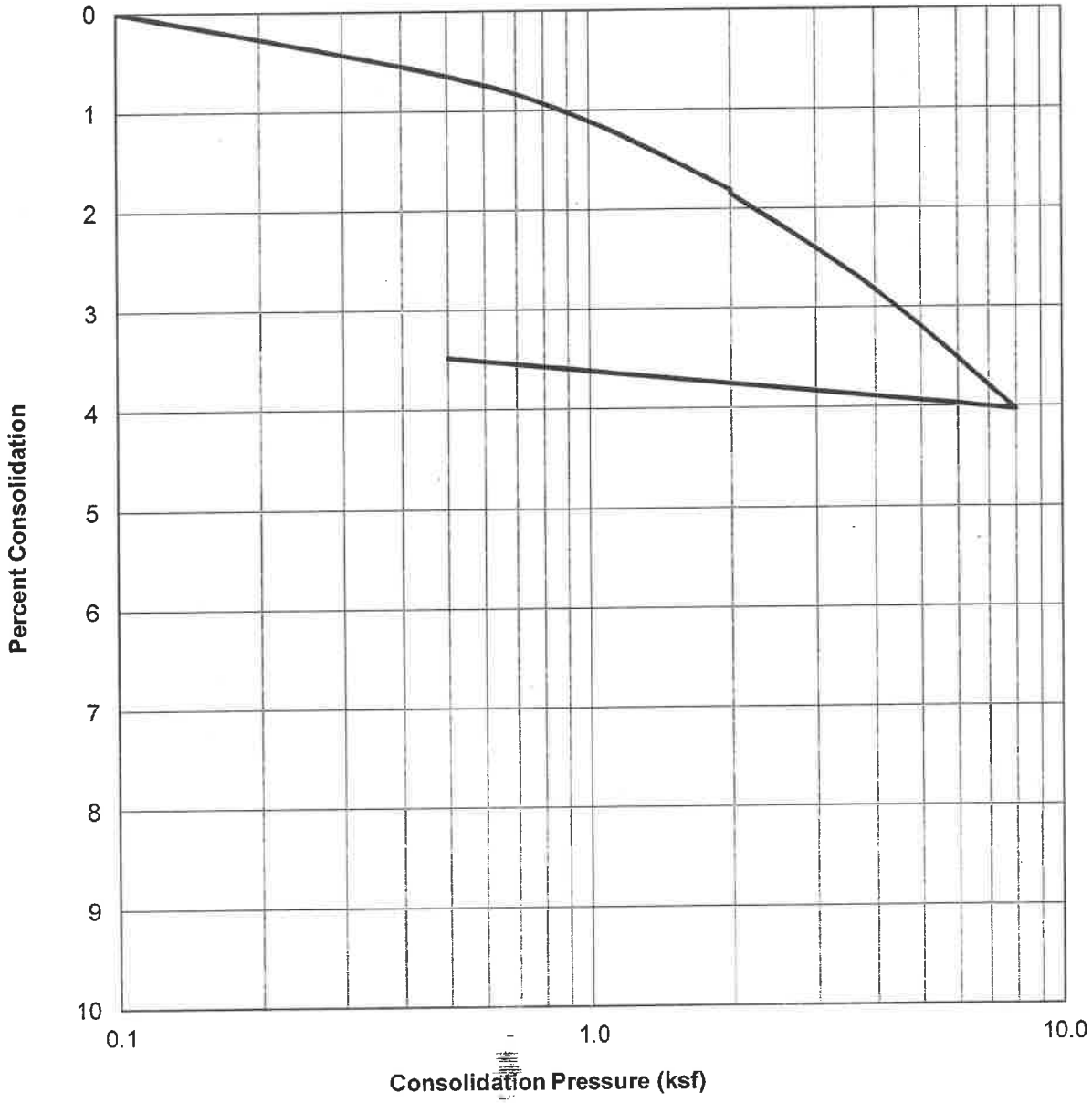
Checked by: JJK

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

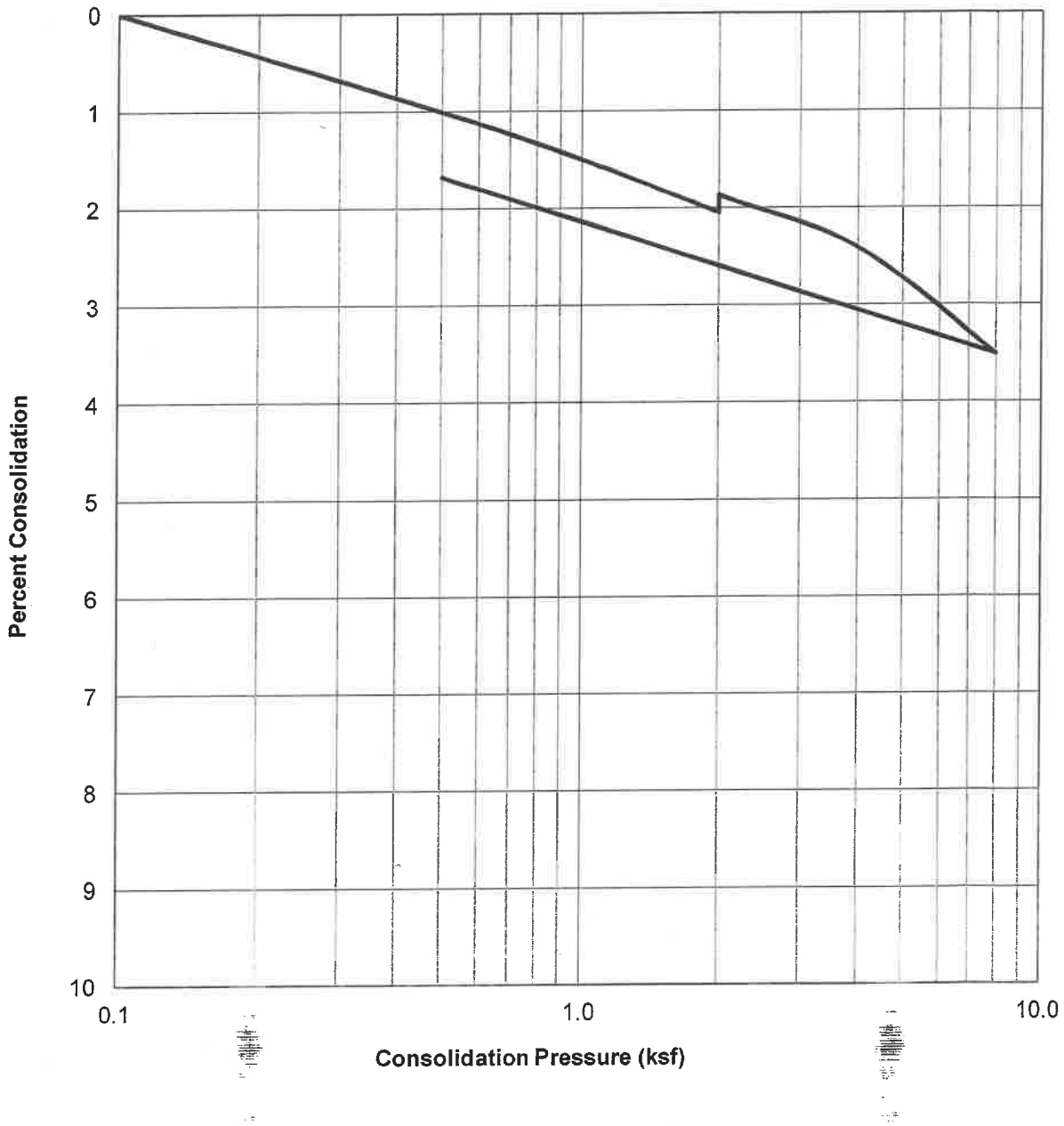
Checked by: JJK

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

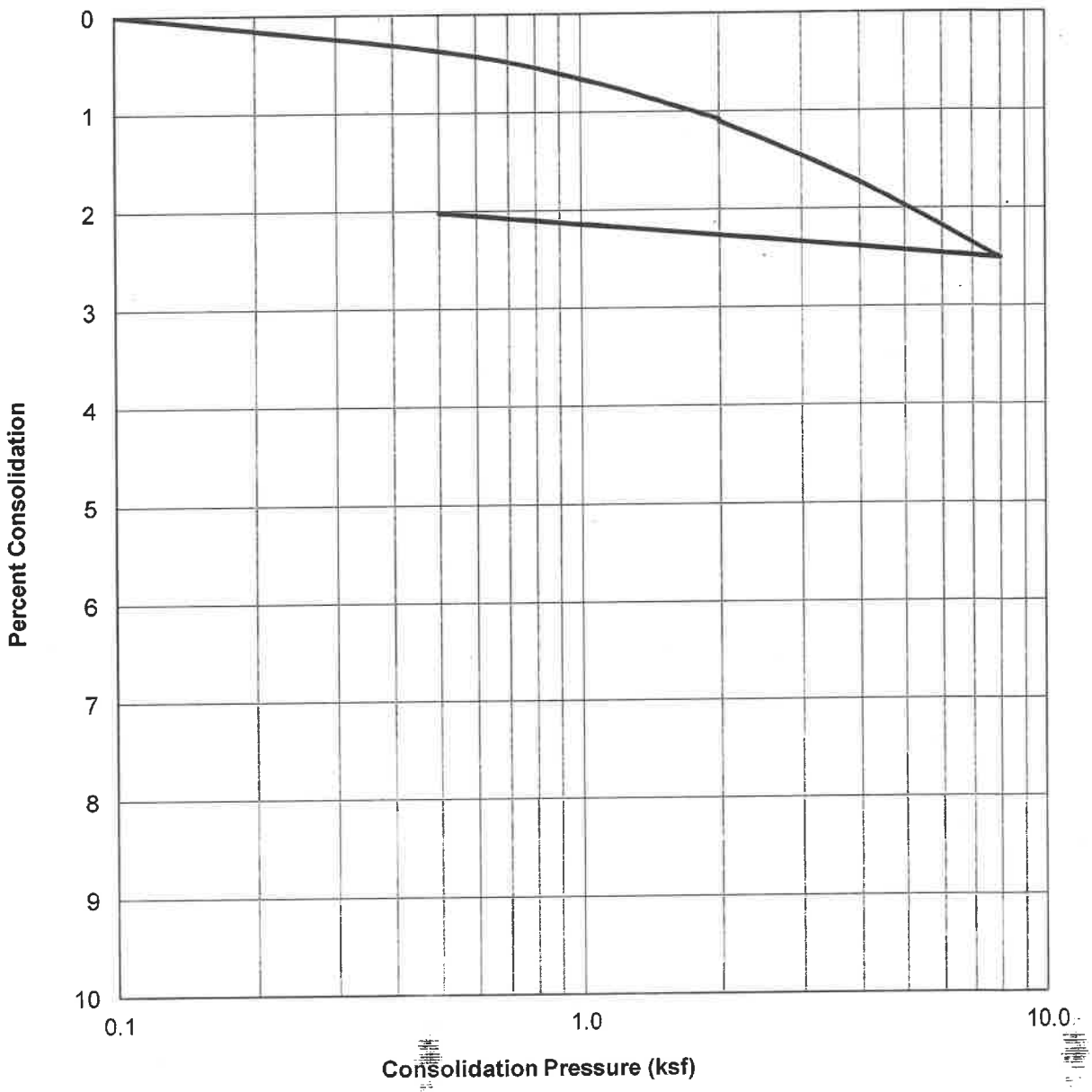
Checked by: JJK

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

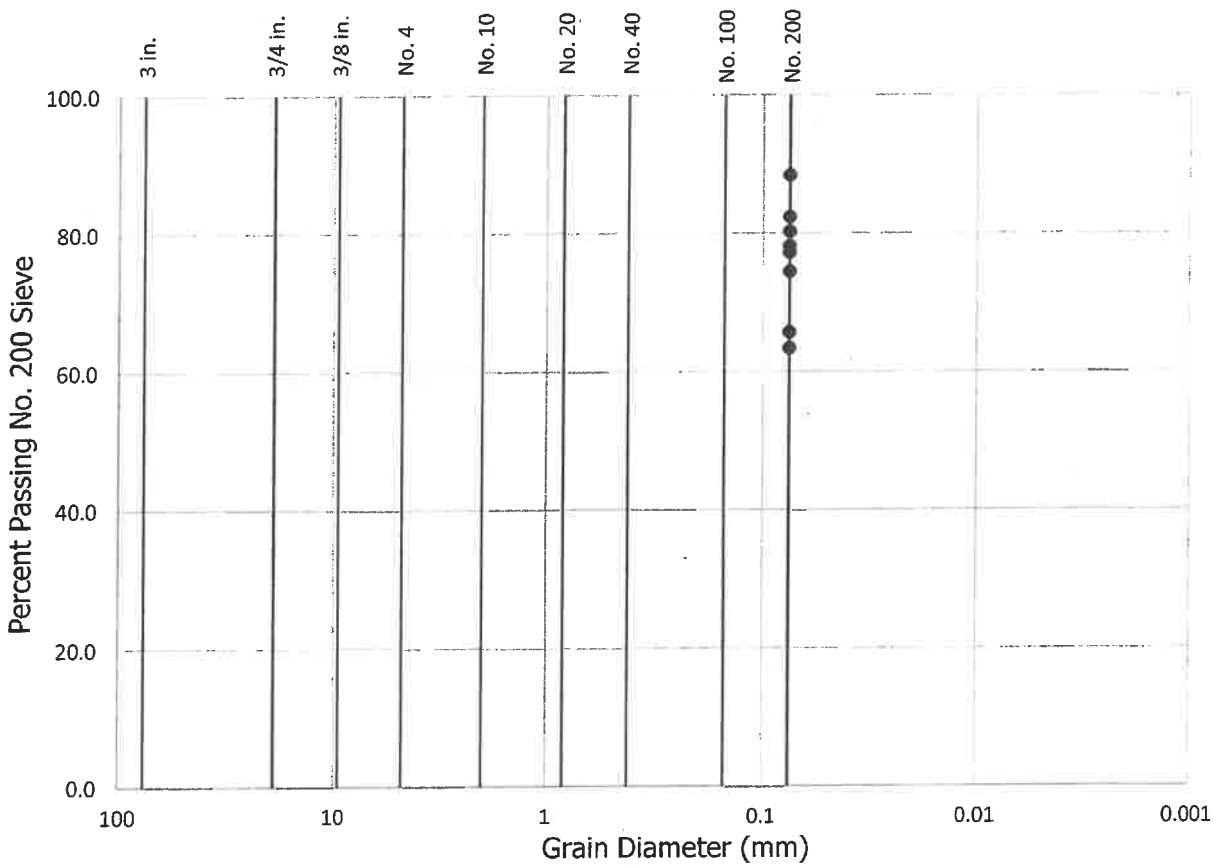
Checked by: JJK

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

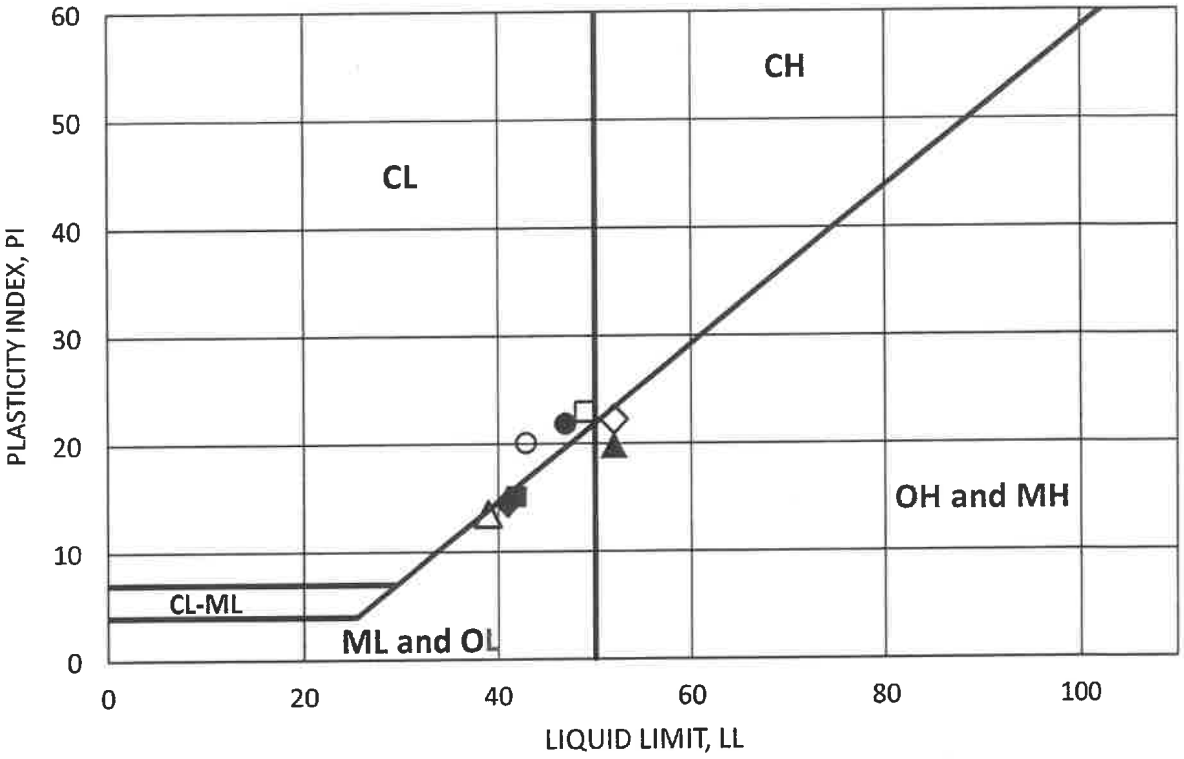
ASTM D-1140

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

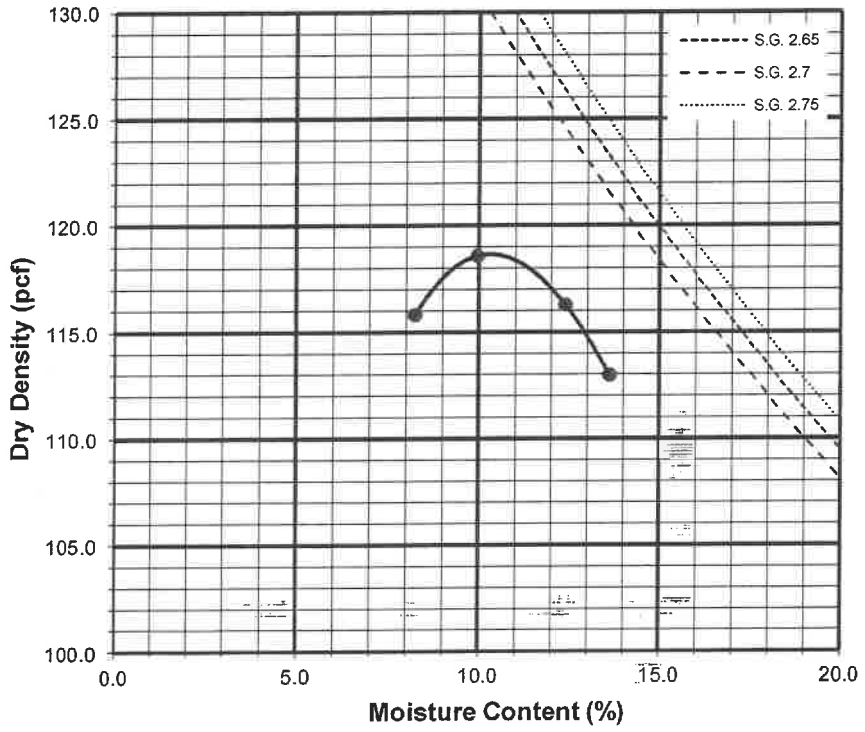
JUNE, 2022 Figure B19

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

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: 08-22-2022
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

	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
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:
There are 5 protected Sycamore trees on site. The developer intends to remove 2 of the protected trees and relocate 3 protected trees. It is not feasible to protect the trees in place due to grading requirements for the new structure. Existing drainage structures are in place at the curb.

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.

Trees #40, #41, and #42 are recommended for relocation. Tree # 18 and #39 are not recommended for relocation due to poor condition.

13. Recommendations:
Remove protected trees that are not suitable for relocation. Relocate existing sycamore trees in good condition on site.

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

15. Mitigation:
4:1 replacement of protected trees to be removed or relocated. These trees should be chosen by and located by the Landscape architect. Relocate protected trees that are suitable for transplant on site.

Clean-cut and treat any roots encountered during trenching that measure 1" diameter or larger. Protect and preserve by tunneling around all roots larger than 1" diameter.

Construction waste-water, i.e., paint products cleaning fluids, thinner, concrete or concrete run-off, plastering materials, etc., should not be allowed to drain within the driplines of any of the trees to remain.

It is the client/owner's responsibility to notify the Project Arborist to schedule any recommended monitoring of the trees on this site. Monitoring of on-site trees or newly-planted "mitigation" trees is no guarantee of tree survival or long-term tree health.

16. Protected Tree Construction Impact Guidelines:

A. Control of Diseases and Pests
California native Oaks, Western sycamores, Southern California black walnut, and California bay tree are susceptible to numerous, indigenous insect pests and should be monitored regularly for possible damaging infestations.

B. Protective Fencing During Grading or Construction, **if needed**
Equipment damage to the limbs, trunks, and roots must be avoided. Protected trees should be given as much space as possible free from vehicle compaction and construction encroachments. Protective fencing is recommended to help prevent construction encroachments within the dripline of any native Protected Tree listed to remain. Fencing must be in place before construction begins (refer to "Mitigation Measures"). Fencing should be installed as close to the dripline as possible. The fencing is to remain in place until the project has been completed. The Project Arborist should inspect the trees and fencing at the completion of the project prior to dismantling the fencing. **There are no protected trees to remain for this project.**

C. Methods and Frequency of Pruning
California native Oak, Western sycamore trees, Southern California black walnut, California bay tree will grow beyond their ability to support themselves and may fail at a main crotch or limb attachment if not pruned for weight reduction. Oaks, and sycamores, black walnuts and bay trees in a residential or public setting must be maintained for public safety as well as tree longevity. Corrective pruning, thinning, raising, and deadwood removal should be accomplished every 3 - 5 years by Certified Tree Workers or Certified Arborists. Large oaks and sycamores, black walnuts and bay trees should be inspected on an annual basis for health and structural integrity. Installing support cables can help to prevent main crotch failures. These trees should be diligently maintained to help prevent limb or main crotch failures. All pruning should be performed in accordance with ANSI. A-300 Pruning Standards.

D. Frequency of Watering
California native Oaks, Southern California black walnut, Western sycamores and California bay tree and native plants have the inherent ability to survive through the cyclical droughts of our region and generally do not require supplemental irrigation. Oaks in residential settings are susceptible to serious problems from overwatering. Care should be taken to avoid placing any sprinkler devices within watering distance to the trunks of any oak. Grass or ground covers must not be planted next to the trunks. Residential oaks would benefit from a deepwatering during the months of June and/or November during years of drought conditions. A twelve-hour, slow application with a "soaker-hose" is an effective method of deep-watering.

E. Grading Restrictions Near the Driplines
Care must be taken to limit grade changes near the trunk areas. If possible, the grade should not be lowered or raised around oaks during construction activities. Note: even a 2" raise of grade at the root collar could result in an Oak Root Fungus infection. The soil level must be lowered if the root flare or collar is not visible. Trenching within the dripline should be avoided if possible. If trenching for utilities is required in this critical zone, the work should be monitored by a Certified Arborist and roots should be tunneled-around and protected.

F. Transplanting guidelines:
Refer to ANSI A300 (Part 6)-2012 Planting and Transplanting. Tree Care Industry Association, Inc. <www.tcia.org>

Transplant during dormant period (December-March). The soil will need to be corrected for nutrients and for structure to reduce compaction and improve drainage. General soil preparation on a square foot basis: Broadcast the following uniformly; rates are per 1,000 square feet for a 6-inch lift. Incorporate them homogeneously 6" deep.

Agricultural gypsum - 20 pounds
Organic soil amendment (composts, manures, mushroom composts, straw, alfalfa, peat mosses etc.) - about 4 cubic yards, sufficient for 3% to 5% soil organic matter on a dry weight basis

If time allows, prune roots in the dormant period prior to transplanting to help prevent shock. Do not prune branches prior to transplanting. Allow one growing season (6 months) and prune branches in the following dormant period, and consult with certified arborist for pruning. Carefully inspect the root systems of each tree prior to transplanting. Use only hand-digging tools in the root zones of trees. Consult with the arborist before pruning any root greater than 2" diameter.

To determine the required size of the root ball, measure the stem caliper (stem diameter six inches above the ground). The root ball to be transplanted should be 10 to 12 inches for each inch of stem caliper. For example, if the stem cali- per is 3 inches, then the root ball should be 30 to 36 inches in diameter.

Dig a hole for balled plants 50 percent wider than the soil ball. The hole should be just deep enough that the root system is at the same depth it was before it was dug.

Replant the trees immediately after digging them up to prevent the fibrous roots from drying. Stake/Guy all trees for two years after transplanting. Place 2 to 3 inches of mulch over the soil, pulling it away from the trunk of the plant.

17.Matrix summarizing observations (protected trees)

Total number of protected trees on map: 5
Total Number of Declining or dead protected trees: 1
Total number of protected trees to be impacted by construction within dripline: 5
Total number of protected trees not dead, not removed or impacted: 0

18.Proposed protected tree removals

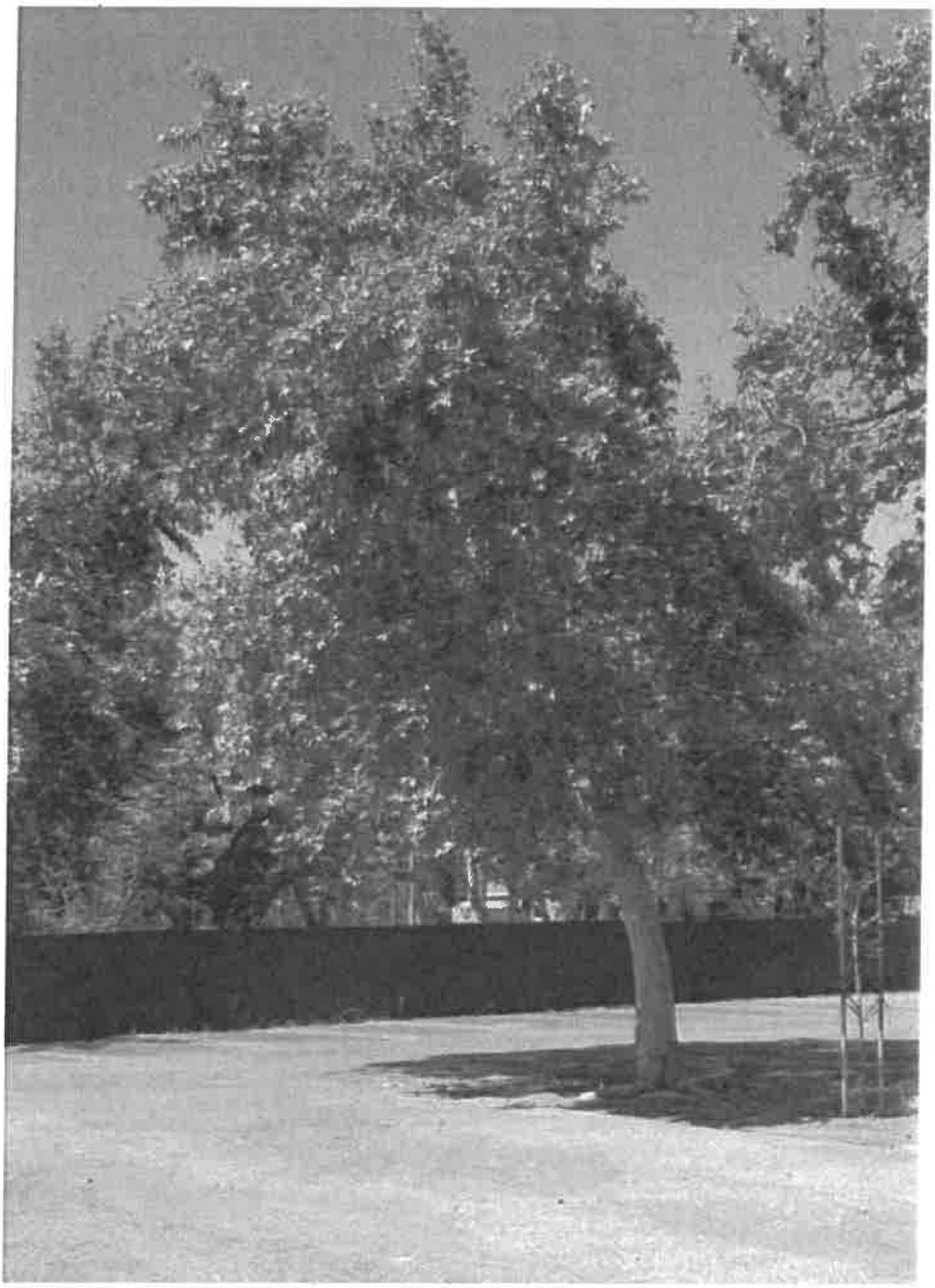
Tree Number	Species	Height	DBH	Spread	Condition	Suggested Treatment	Rating	Other
18	Platanus racemosa	32'	18"	18'	Good	Remove	Good	
39	Platanus racemosa	40'	18"	40'	Poor	Remove	Poor	
40	Platanus racemosa	40'	15"	25'	Good	Relocate	Good	
41	Platanus racemosa	40'	15"	25'	Good	Relocate	Good	
42	Platanus racemosa	38'	15"	20'	Good	Relocate	Good	

19. Proposed protected trees remaining

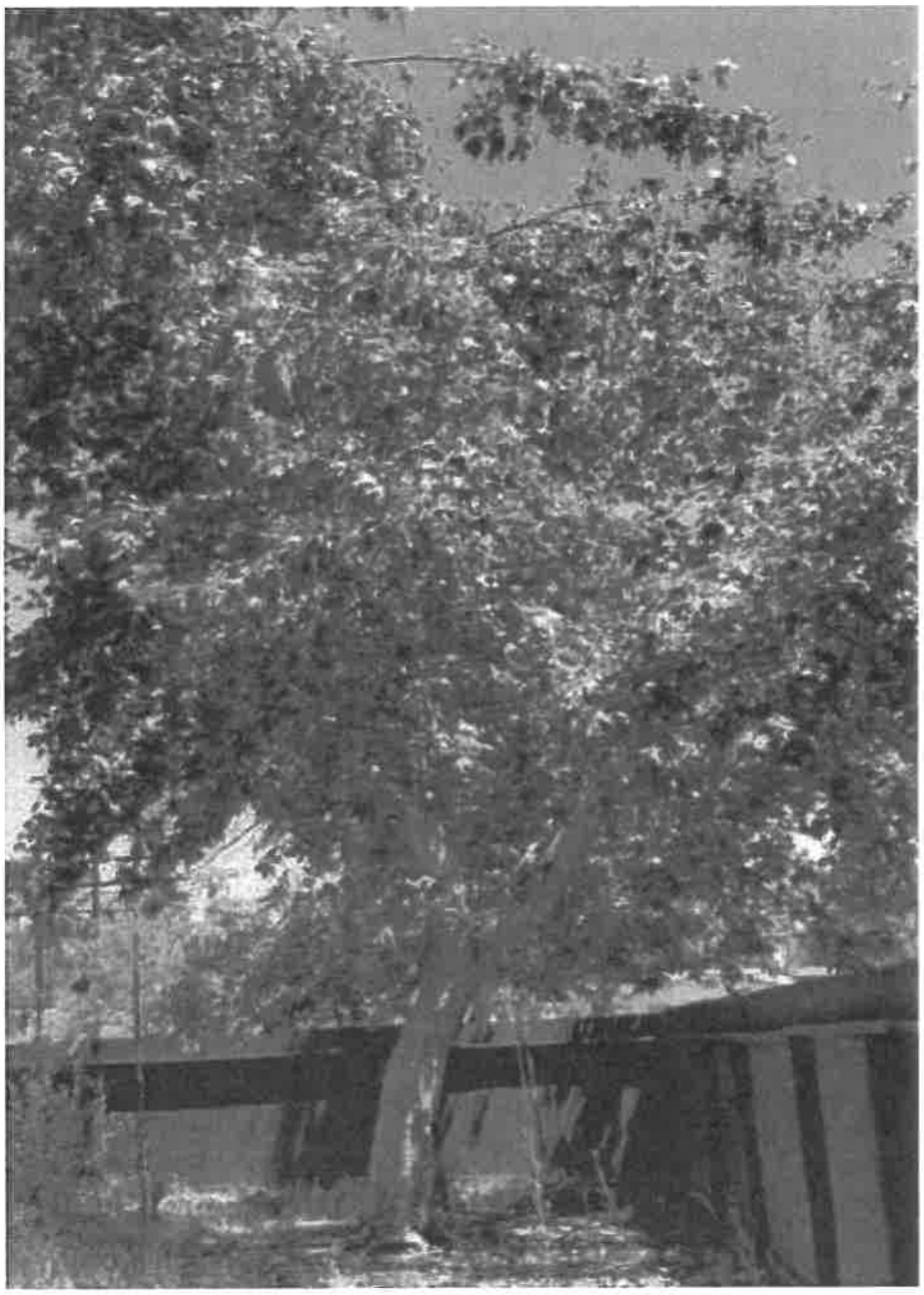
Tree Number	Species	Height	DBH	Spread	Condition	Suggested Treatment	Rating	Other
none								

20. Color Photos of protected Trees

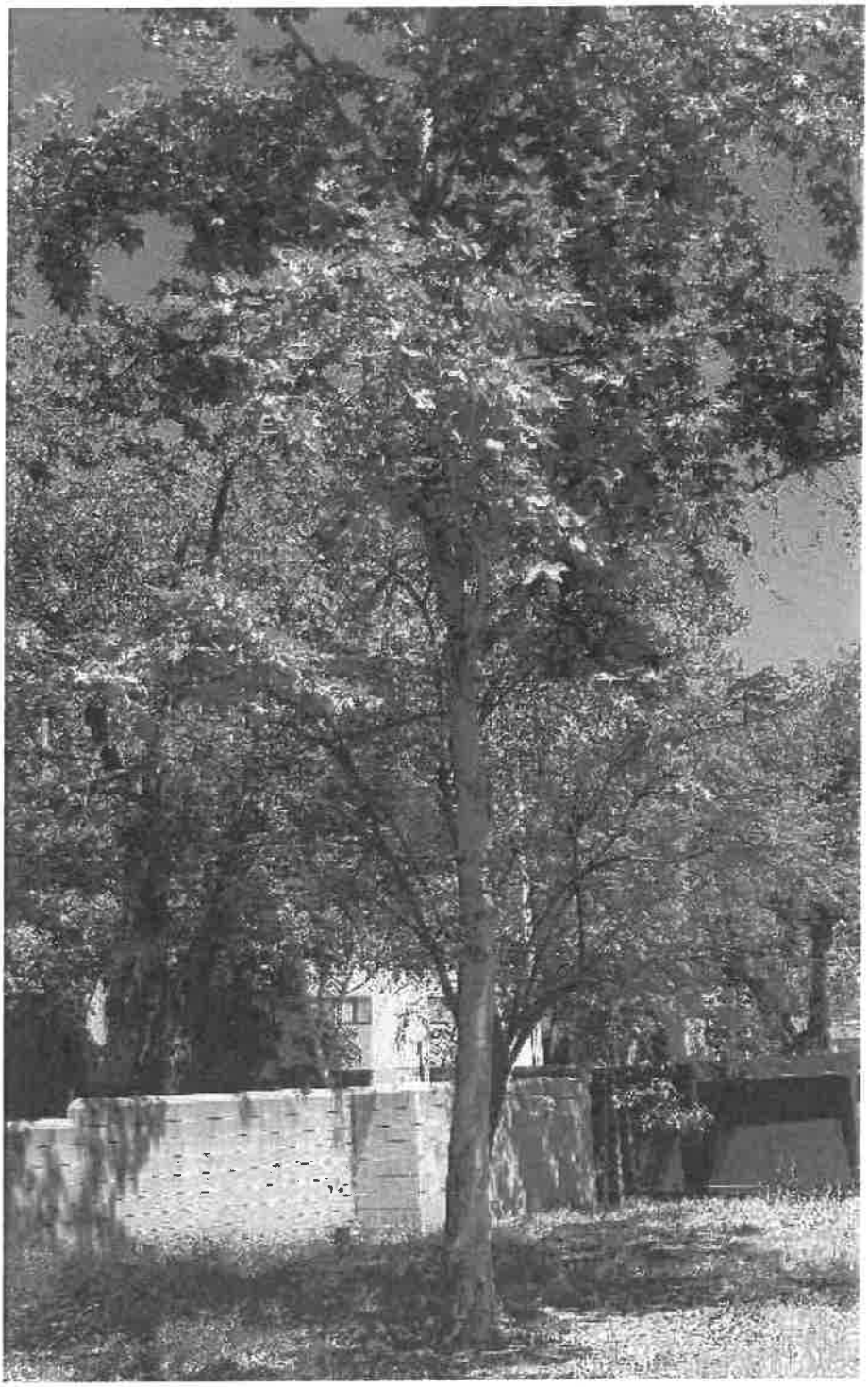
Tree no. 18. Platanus racemosa



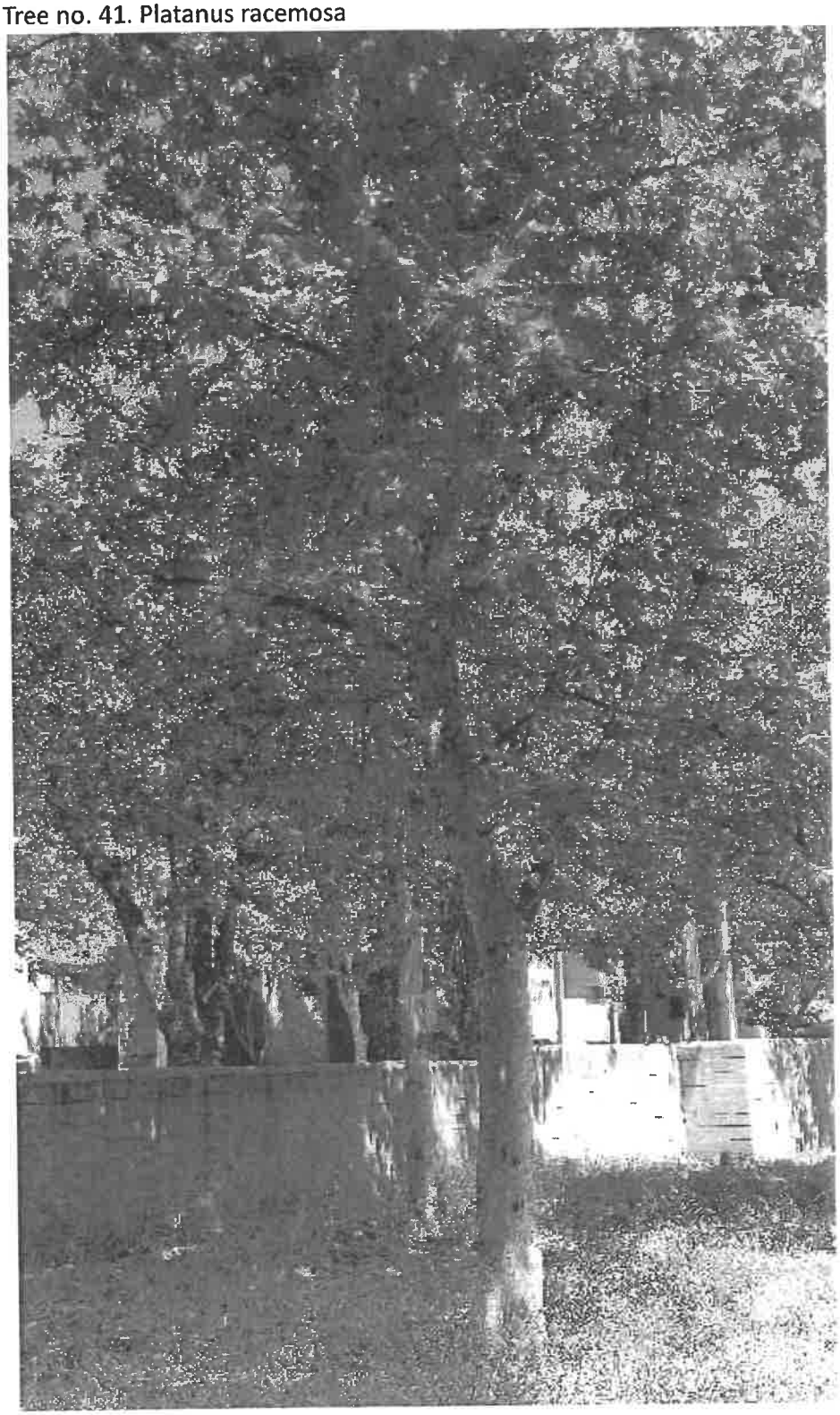
Tree no. 39. Platanus racemosa



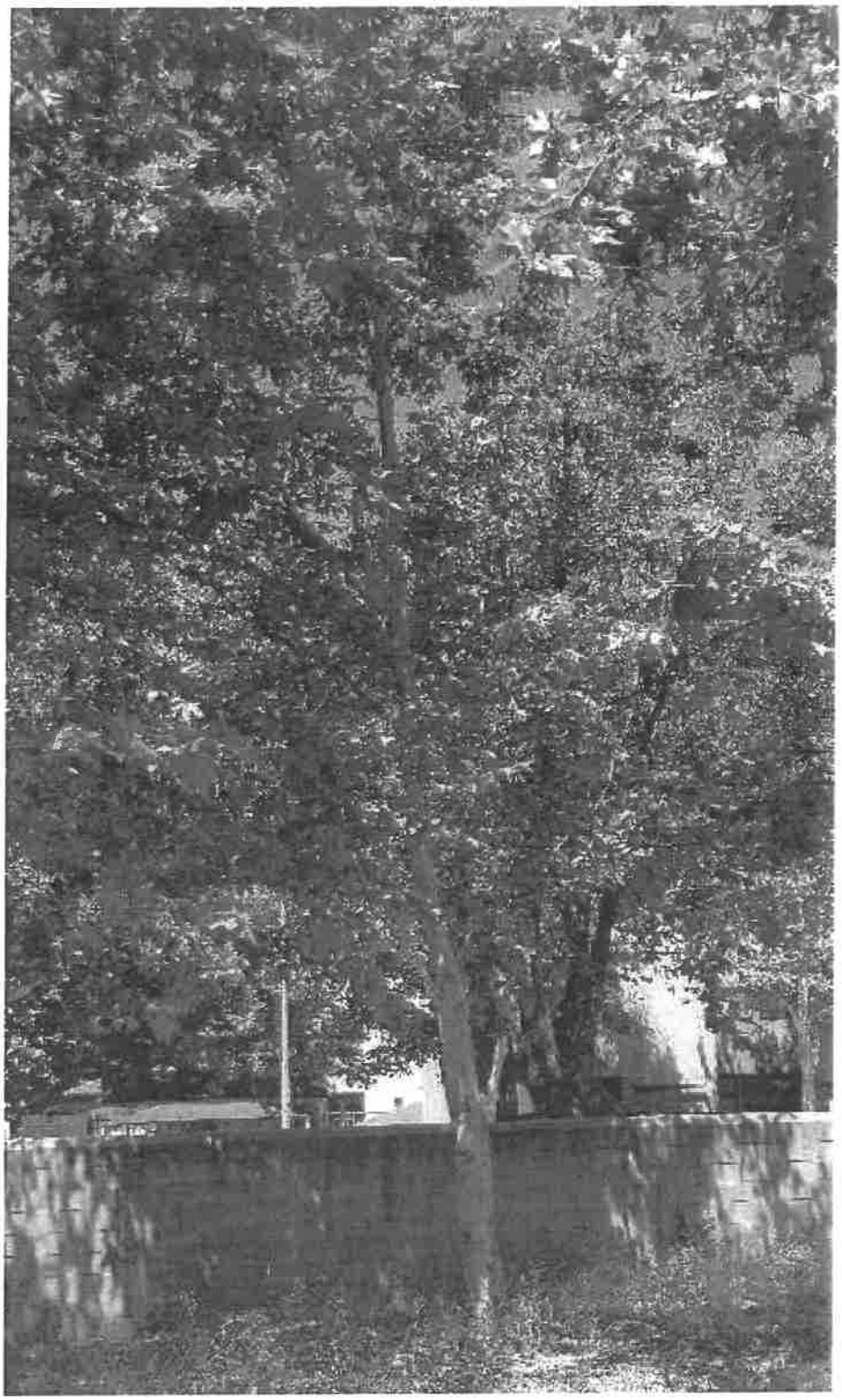
Tree no. 40. Platanus racemosa



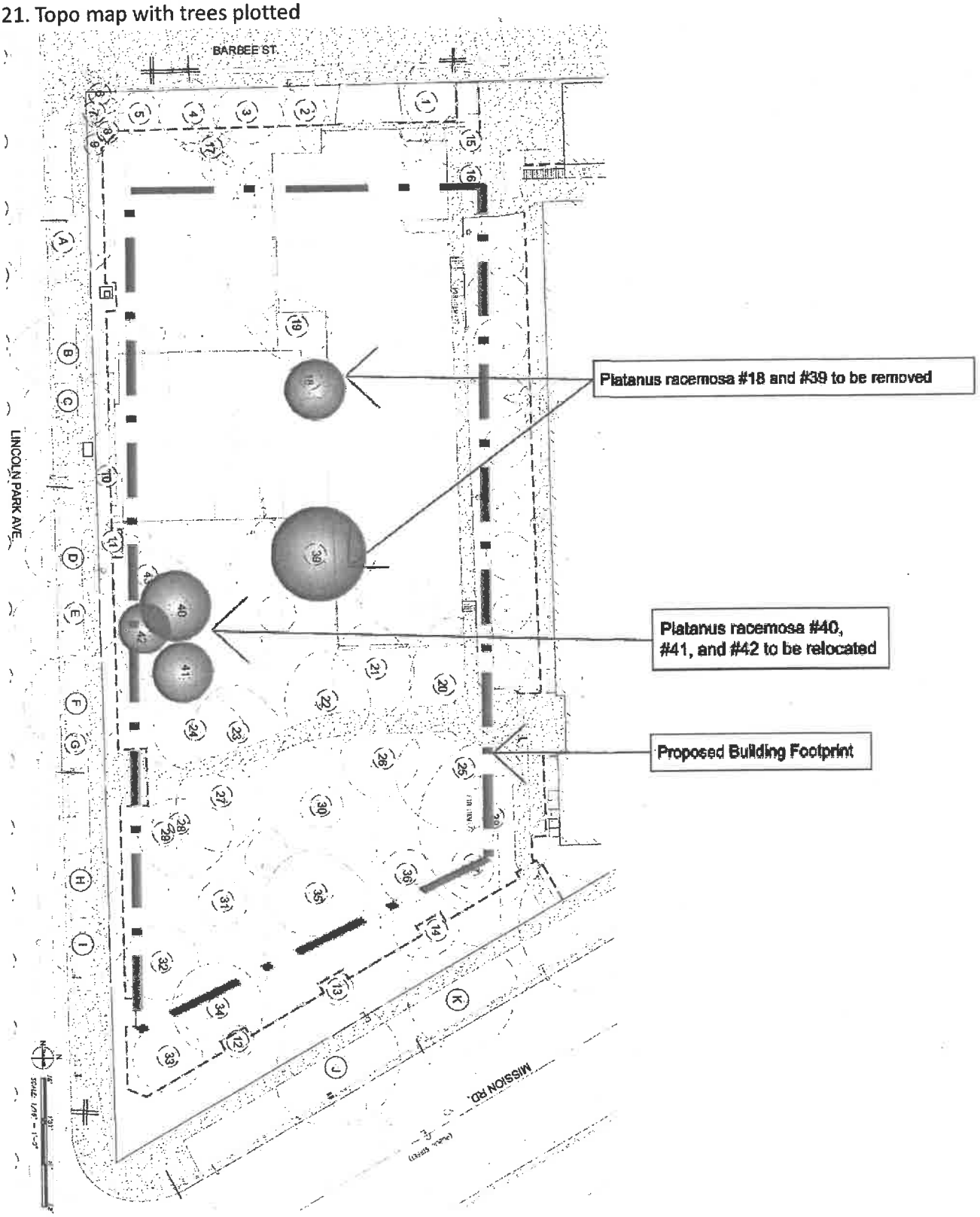
Tree no. 41. Platanus racemosa



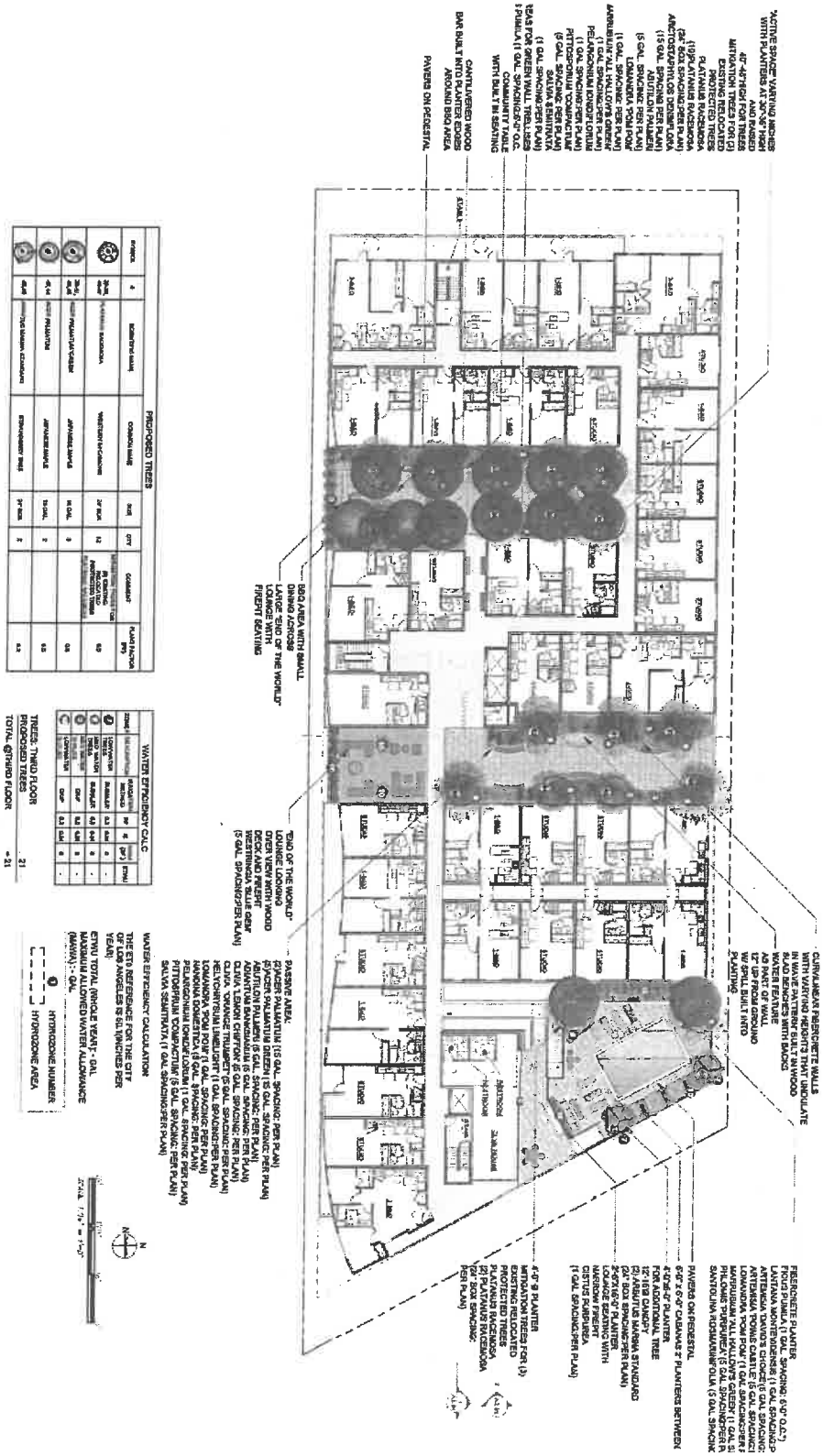
Tree no. 42. Platanus racemosa



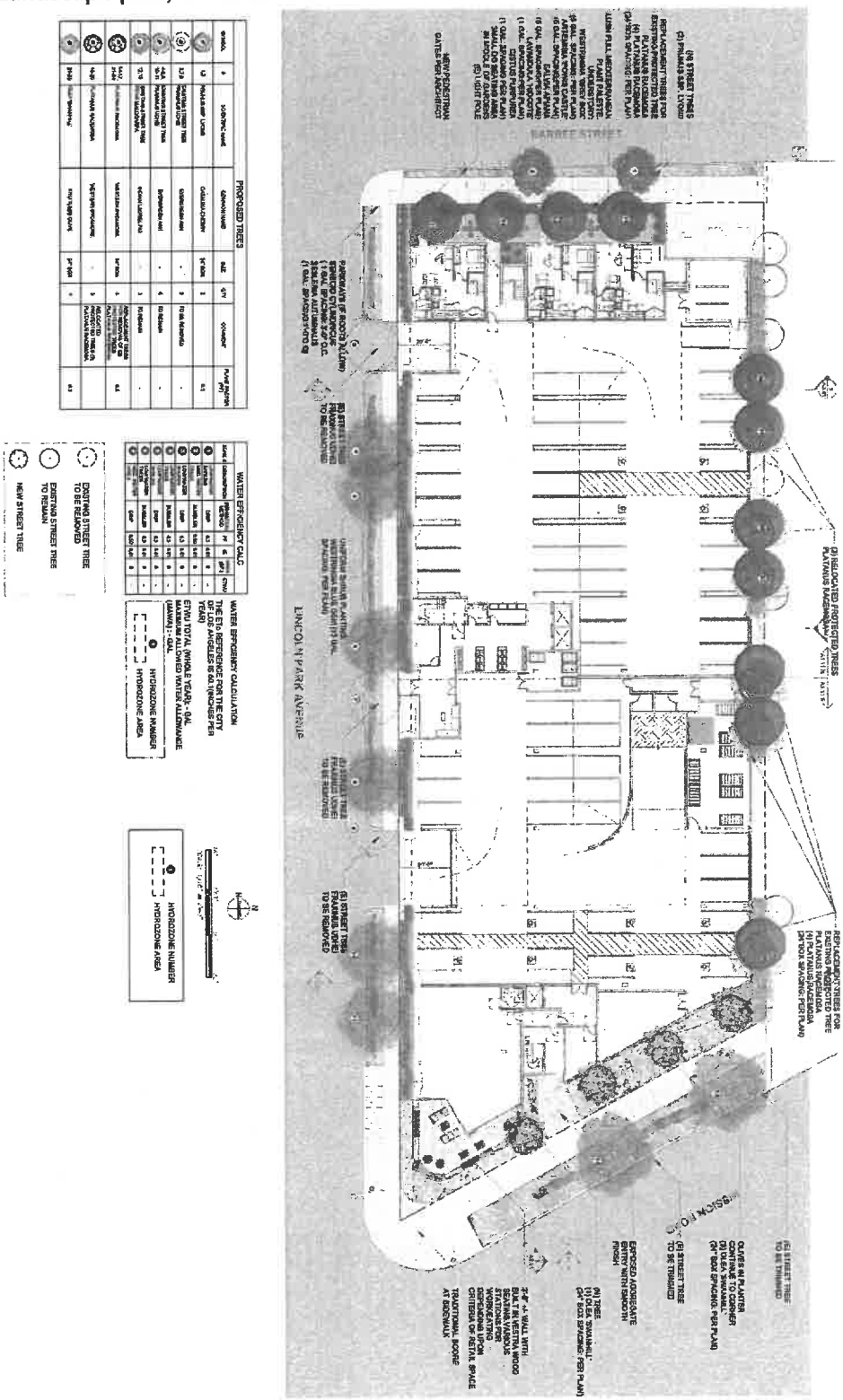
21. Topo map with trees plotted



22. Landscape Plan, Third floor



Landscape plan, Ground floor



23. Current Licenses and certificates

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

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

7/15/21
7/15/21

CUT HERE

CUT HERE

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

CUT HERE

IMPORTANT

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. 6086 — Landscape Architect — EXPIRATION 09/30/23

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

Signature _____ RECEIPT NO. 11982001

CERTIFICATE NO.	EXPIRATION DATE	RECEIPT NO.
6086	09/30/23	11982001

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

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

ANAB
ACCREDITED
PERSONNEL CERTIFICATION BODY
#0647
ISA Certified Arborist

24. Other information

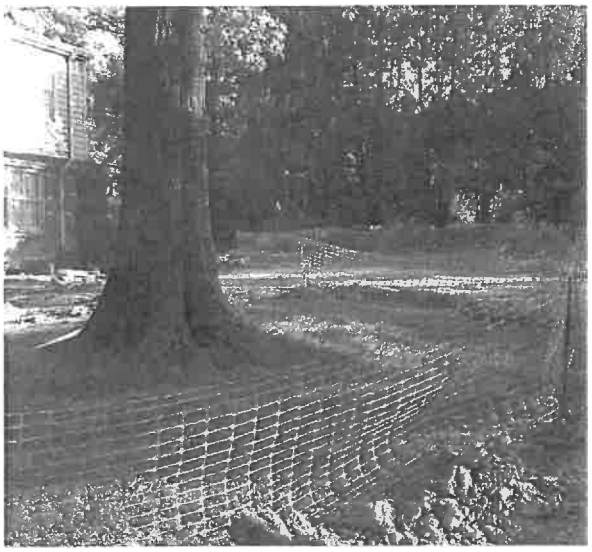
N/A

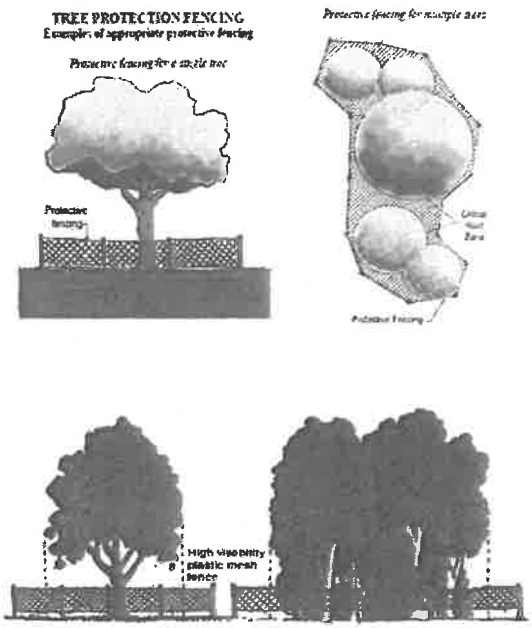
25. Arborist's opinion whether naturally occurring
It is the arborist's opinion that the protected trees have been planted by nursery stock.

26. Pictures of Protective fencing
None of the protected trees will be preserved in place, and therefore do not have protective fencing. If needed, refer to the following guidelines:

Protective tree fencing for all categories of Protected Trees

Fenced enclosures shall be erected around trees to be protected. This will achieve three primary goals, (1) to keep crowns and branching structure clear from contact by equipment, materials, and activities; (2) to preserve roots and soil condition in an intact and non-compacted state and; (3) to identify the Tree Protection Zone in which no soil disturbance is permitted and activities are restricted, unless otherwise approved by the Arborist.





Tree Photo Not Taken From Current Site.
For Illustration Purposes Only.

All trees to be preserved shall be protected with Type 1 fencing. The fences shall enclose the entire area under the canopy dripline or Tree Protection Zone, if specified by the Arborist. If fencing must be located on paving or concrete that will not be demolished, an appropriate grade level concrete base may support the posts. Tree fences shall be erected before demolition, grading, or construction begins and remain until final inspection of the project.
A 'Warning" sign shall be prominently displayed on each protective fence.
The sign shall be a minimum of 8.5 inches x 11 inches and clearly state the following:

TREE PROTECTION ZONE
This Fence Shall Not be Removed

27. Reason for Removal:
The removal of the protected trees would not result in an undesirable, irreversible soil erosion through diversion or increased flow of surface waters that cannot be mitigated to the satisfaction of the City's Chief Forester, and the physical condition or location of the tree or shrub is such that its continued presence in its existing location prevents the reasonable development of the property. **The trees are within the footprint of the proposed structure, and would not survive impacts of construction due to disease, insect infestations, and trunk damage.**

Received
9/13/22

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.

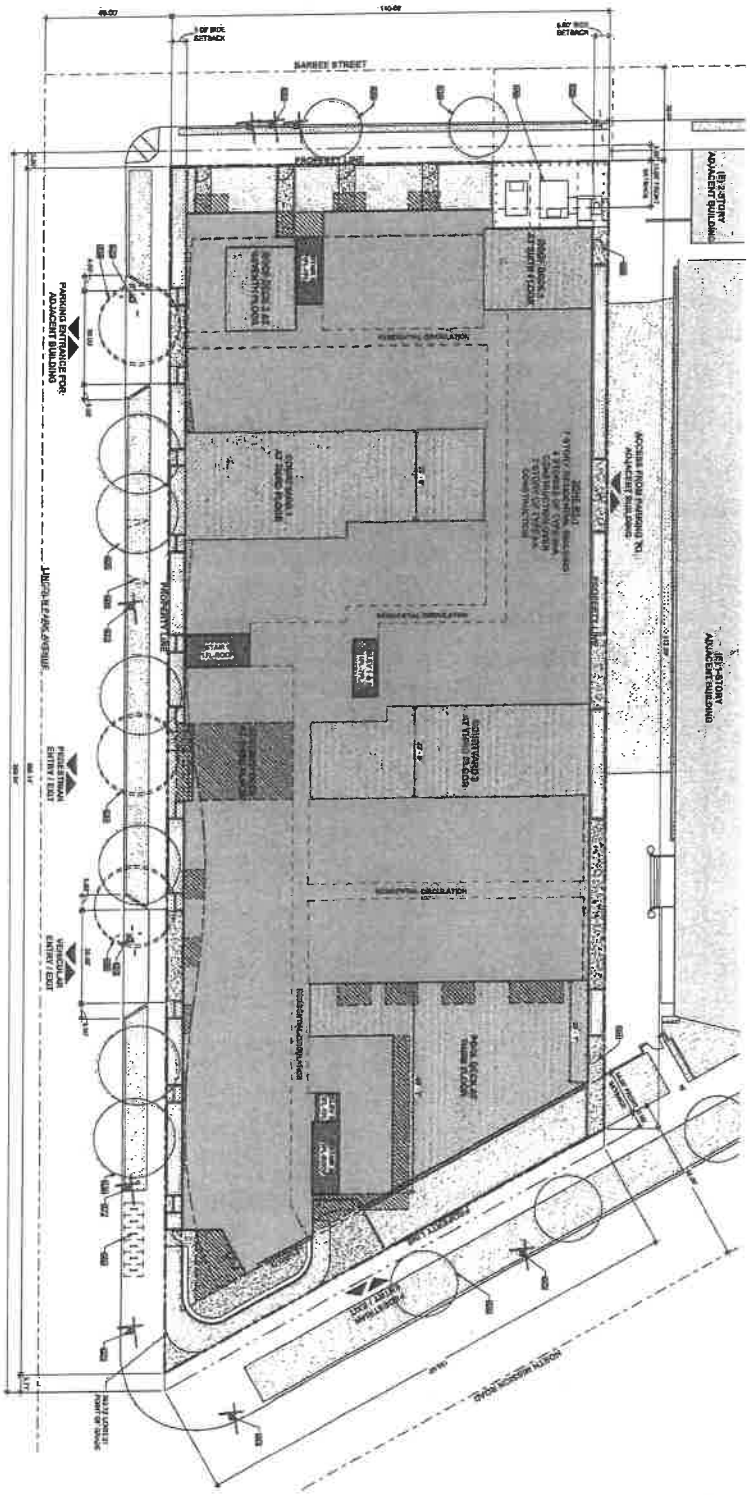
If you have any questions, please contact Russell Hasan at (213) 972-7024.

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.

Attachment A



NORTH

FIGURE 2

7/21/2022

FN: FN: JC2B102_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

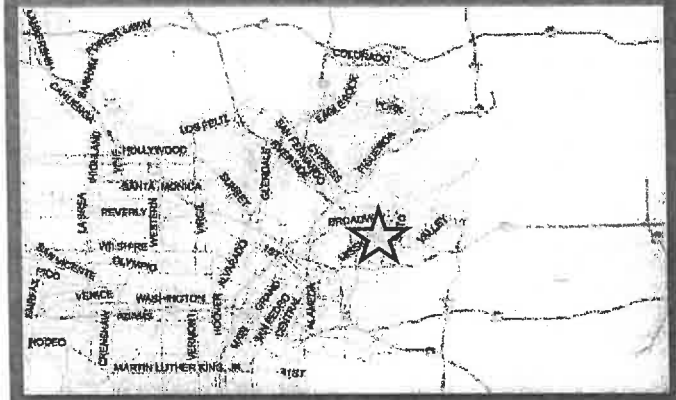
Project Screening Criteria: Is this project required to conduct a vehicle miles traveled analysis?

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

7/21/

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

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%			-13.6%		
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

			Future (2025) Conditions				
		Peak	Without Project		With Project		
No.	Intersection	Hour	Delay[1]	LOS[2]	Delay[1]	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.

ENV-2022-6190

Jesi Harris, LUZ Entitlement Services

Mission and Lincoln Apartment Project

Class 32 Categorical Exemption

City of Los Angeles
PLANNING DEPARTMENT

ENV-2022-5805-CE

Mission and Lincoln Apartment Project
2036 Lincoln Park Avenue, Los Angeles, CA 90031
CLASS 32 CATEGORICAL EXEMPTION ENVIRONMENTAL CHECKLIST

PREPARED FOR: The City of Los Angeles Planning Department
201 N. Figueroa St, CA 90012

APPLICANT: Lincoln Park Holdings, LLC

PREPARED BY: LUZ Entitlement Services, LLC
1008 N. Stanley Ave, Los Angeles, CA 90046

August 2022

Table of Contents

Appendices

City of Los Angeles
Class 32 Categorical Exemption
Infill Development Projects

Mission and Lincoln Apartments

Actions Requested: Density Bonus (LAMC 12.22. A.25. and 12.24. U.26.)
Site Plan Review (LAMC 16.05)

Project Location:

3601 - 3615 E. Mission Rd, Los Angeles, CA 90031
2010 - 2036 N. Lincoln Park Ave, Los Angeles, CA 90031
3609 E. Mission Rd, Los Angeles, CA 90031
3615 E. Mission Rd, Los Angeles, CA 90031
2016 N. Lincoln Park Ave, Los Angeles, CA 90031
2020 N. Lincoln Park Ave, Los Angeles, CA 90031
2026 N. Lincoln Park Ave, Los Angeles, CA 90031
2030 N. Lincoln Park Ave, Los Angeles, CA 90031
2036 N. Lincoln Park Ave, Los Angeles, CA 90031

Project Applicant:

Name: Shay Yadin
Company: Lincoln Park Holdings, LLC
Address: 100 S. Citrus Ave, Los Angeles, CA 90036
Email: sy@brennercapital.com
Phone: 917-285-3438

General Plan Designation: Medium Residential

Zoning: R3-1 Zone

Assessment of 3601 E Mission Road Project Eligibility for a Categorical Exemption as a Class 32 In-Fill Development

California Environmental Quality Act Class 32 Categorical Exemption Evaluation

This assessment evaluates whether the proposed project located in the City of Los Angeles (City) at 3601 E Mission Road, 3609 E Mission Road, 3615 E Mission Road, 2016 N Lincoln, 2020 N Lincoln, 2026 N Lincoln, 2030 N Lincoln, and 2036 N Lincoln (henceforth referred to as "the project at 3601 Mission Road") qualifies for a Class 32 Categorical Exemption under the California Environmental Quality Act (CEQA) as an eligible infill development.

CEQA defines categorical exemptions for various types of projects the Secretary of the Resources Agency of the State of California has determined would not have a significant effect on the environment and, therefore, are not subject to further environmental review under CEQA. The Class 32 exemption (Section 15332 of the State CEQA Guidelines) is intended to promote infill development within urbanized areas. The class consists of environmentally benign infill projects consistent with local general plan and zoning requirements.

Pursuant to Section 15332 of the State CEQA Guidelines, for a project to be eligible for a Categorical Exemption as Class 32 In-fill Development, a project must meet the following conditions, or criteria:

Criteria

(a) The project is consistent with the applicable general plan designation and all applicable general plan policies as well as with applicable zoning designation and regulations.

(b) The proposed development occurs within city limits on a project site of no more than five (5) acres substantially surrounded by urban uses.

(c) The project site has no value as habitat for endangered, rare or threatened species.

(d) Approval of the project would not result in any significant effects relating to traffic, noise, air quality, or water quality.

(e) The site can be adequately served by all required utilities and public services.

In addition, projects seeking this Categorical Exemption cannot fall under certain specified exceptions, as follows.

Exceptions

(a) The project and successive projects of the same type in the same place will result in cumulative impacts.

(b) There are unusual circumstances creating the reasonable possibility of significant effects.

(c) The project may result in damage to scenic resources, including, but not limited to, trees, historic buildings, rock outcroppings, or similar resources, within an officially designated scenic highway.

(d) The project is located on a site that the Department of Toxic Substances Control and the Secretary of the Environmental Protection have identified, pursuant to Government code section 65962.5, as being affected by hazardous wastes or clean-up problems.

(e) The project may cause a substantial adverse change in the significance of an historical resource.

The justification for use of a Class 32 Categorical Exemption as an infill project in compliance with CEQA and the City's Class 32 Requirements is provided below in the following format: I. Project Description, II. Evaluation of Class 32 Exemption Criteria, III. Consideration of Exemptions, and IV. Conclusion.

I. PROJECT DESCRIPTION

The subject property consists of one (1) whole existing parcel containing eight (8) lots totaling 50,656.5 square feet of lot area. The parcel is currently developed with a 42-stall automobile parking lot which serves the adjacent parcel, currently developed with a residential care facility. Project plans include replacing the surface parking lot on the subject site with a seven-story, 184-unit apartment building and two levels of at- and above-grade parking facilities containing a total of 145 parking spaces, 103 of which are devoted to the on-site residential uses and 42 of which are dedicated to the adjacent medical facility use. The project site does not include the parcel to the east currently developed with a residential care facility. The project site is surrounded by urban development, consisting of multi-family residential and commercial land uses.

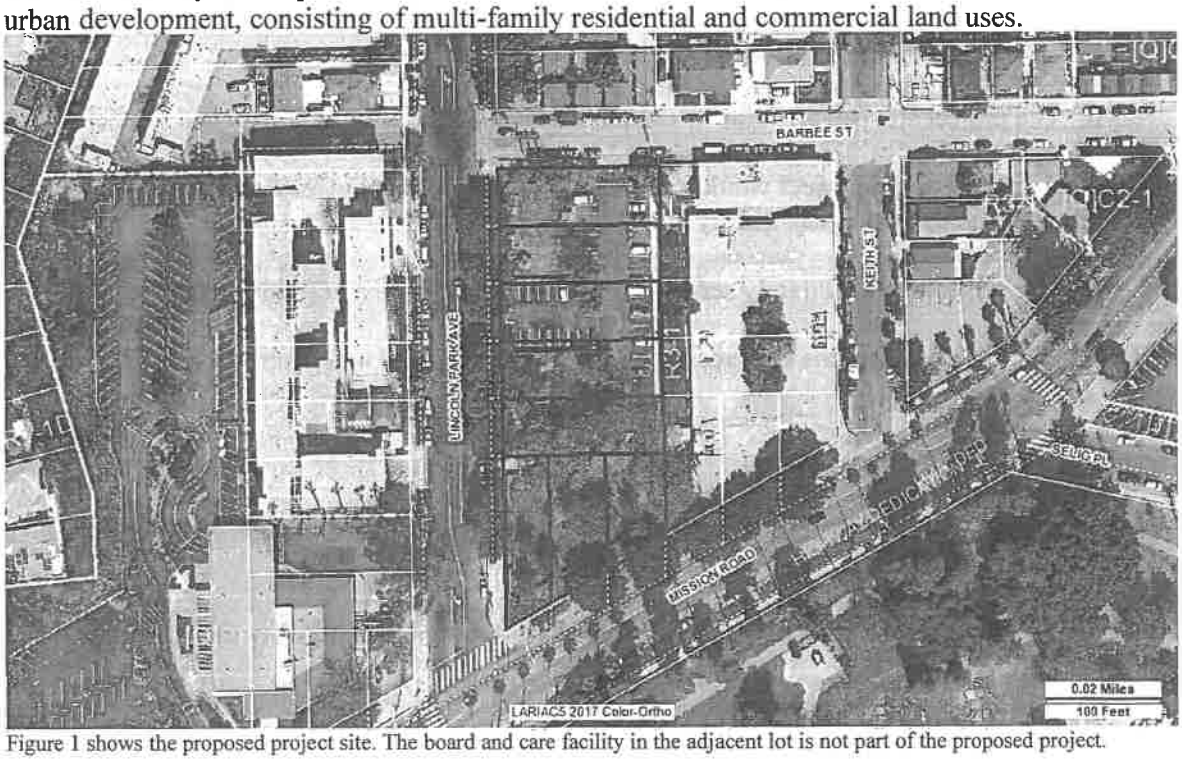


Figure 1 shows the proposed project site. The board and care facility in the adjacent lot is not part of the proposed project.

Assessment of 3601 E Mission Road Project Eligibility for a Categorical Exemption as a Class 32 In-Fill Development

II. EVALUATION OF CLASS 32 EXEMPTION CRITERIA

The following subsections provide discussion and analysis of the project's consistency with the criteria listed in Section 15332 of the State CEQA Guidelines, for a project to be eligible for a Categorical Exemption as a Class 32 In-fill Development project.

Written justification that the proposed Project meets the following criteria:

(a) The project is consistent with the applicable general plan designation and all applicable general plan policies as well as with applicable zoning designation and regulations.

The proposed residential project is consistent with the subject property's existing General Plan designation, as specified in the Northeast Los Angeles Community Plan, a component of the City's General Plan, which designates the site for "Medium Residential." The site zoning is R3-1. The project would therefore not require a General Plan Amendment or Zoning Change. Multiple dwelling units are consistent with R3 uses as outlined in the Los Angeles Municipal Code (LAMC) Section 12.10. Under the existing zoning of R3-1, the minimum lot area per dwelling unit is 800 sf. Therefore, the 50,656.5 square foot lot would allow sixty-four (64) units on the project site. The project is providing a 73 percent affordable housing set-aside for Very Low Income households, which would allow for an additional one hundred and twenty-two (122) units per the LAMC 12.21 A 25 and LAMC 12.24 U 26 for a combined total of 186 allowable units. The project is, therefore, within the parameters of the density allowed for projects in the R3 zone with its rate and depth of affordability.

Additionally, the project's on- and off-menu incentives and waivers of development standards allow for a 21 percent increase in floor area ratio, a 41-foot height increase, parking and open space design adjustments, and yard reductions, therefore, the project's requests for increases in the building envelope are consistent with the project's intended zoning regulations based upon what's allowable in the R3 zone for Density Bonus projects. The construction of a 184-unit apartment building would be consistent with the General Plan designation and zoning.

Therefore, the project would be consistent with all applicable general plan designation, general plan policies and applicable zoning designation and regulations.

(b) The proposed development occurs within city limits on a project site of no more than five acres substantially surrounded by urban uses.

The project site is located within the city limits of the City of Los Angeles. The project site consists of approximately 50,656.5 square feet of land, or 1.16 acres, and is surrounded by existing urban uses, including single- and multi-family residential uses to the north, multi-family and public facility uses to the west, a commercial medical use to the east and a public park of approximately 41 acres to the south. Therefore, the project is consistent with this condition.

(c) The project site has no value as habitat for endangered, rare or threatened species.

The project site is located within a highly urbanized portion of the City of Los Angeles. The surrounding urban landscape including the project site has been developed for decades. The

project site is currently developed with a surface parking lot and hardscape landscaping. The subject property 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.

The project site does contain five (5) protected Western sycamore (*Platanus racemosa*) trees, which are considered protected tree species by Los Angeles Tree Protection Ordinance (see Protected Tree Report, Appendix A). All 5 of the Western sycamore trees will be impacted by construction and operations activities. Three (3) of the 5 Western sycamore trees are eligible for relocation and will be moved to other locations on the project site. Impacts imposed by the building's construction process will require the removal of two (2) Western sycamore trees are not eligible for relocation due to pre-existing poor conditions of the trees, according to a Protected Tree Report prepared by Urban Planning & Landscape Architecture (UPLA) however these trees are not included on the California Natural Diversity Database of endangered, rare, or threatened tree species. The database lists plant taxa that have been officially classified as Endangered, Threatened, or Rare by the California Fish & Game Commission (FGC; state listed) or by the U.S. Secretary of the Interior or the U.S. Secretary of Commerce (federally listed). This list also includes taxa that are official candidates for state or federal listing, or have been officially proposed for federal listing, as well as taxa that were once listed but have since been delisted.

Therefore, the project site has no substantive value as a habitat for endangered, rare, or threatened species.

(d) Approval of the project would not result in any significant effects relating to traffic, noise, air quality, or water quality.

Transportation Effects

The project would have a significant impact if the project would conflict or be inconsistent with CEQA Guidelines Section 15064.3(b)(1), relating to Vehicle Miles Traveled (VMT). CEQA Guidelines Section 15064.3(b)(1) applies to land use projects and states, "Vehicle miles traveled exceeding an applicable threshold of significance may indicate a significant impact. Generally, projects within one-half mile of either an existing major transit stop or a stop along an existing high-quality transit corridor should be presumed to cause a less than significant transportation impact. Projects that decrease vehicle miles traveled in the project area compared to existing conditions should be presumed to have a less than significant transportation impact." Both of the following City of Los Angeles Transportation Assessment Guidelines (TAG) screening criteria must be met in order to require further analysis of a land use project's VMT contribution: the land use project would both generate a net increase of 250 or more daily vehicle trips and the project would generate a net increase in daily VMT.

In order to determine if both criteria are triggered by the project, a basic run of the City of Los Angeles VMT Calculator was performed (see Appendix B). The VMT Calculator run determined that the project's one hundred eighty-four (184) new multi-family residences would generate 734

average daily trips (ADT), and 5,281 daily VMT. The proposed project would remove and replace the existing forty-two (42) commercial parking spaces, which currently do not generate any ADT or daily VMT. As such, the VMT generated by the project warrants further analysis of the project's VMT contribution.

The project will implement several mitigation measures to minimize its transportation impacts including reduced on-site parking supply, unbundled parking, and infrastructure to encourage the use of less impactful, alternative modes.

The project's unit mix consists of 86 studio units, 73 one-bedroom units, 21 two-bedroom units, and four three-bedroom units. Based on the regulations contained in LAMC 12.21 A.4., the project is required to provide 246 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. may 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 127 bicycle parking spaces – 115 long term spaces and 12 short term spaces. Therefore, the project is permitted to replace 31 required automobile parking spaces with bicycle parking spaces resulting in an automobile parking requirement of 215 spaces.

Through the requests permitted by its density bonus and pursuant to LAMC 12.22 A.25, the project is proposing 103 residential automobile parking spaces, a reduction of 112 spaces. Reducing the project's parking supply reduces the project's anticipated transportation impacts.

In addition to providing ample bicycle parking and reducing the parking supply, the project will also implement unbundled parking as a method of distributing the available residential automobile parking. Unbundled parking is the practice of selling or leasing parking spaces separate from the purchase or lease of the commercial or residential use. The unbundled parking spaces will only be available to the building's residents Each unbundled parking space will cost residents $85. This method is projected to further reduce the project's transportation impacts.

The Transportation Assessment prepared by KOA, a transportation engineering and mobility planning firm, reports in detail how the project's transportation impacts will be less than significant despite daily VMT and ADT impacts.

Air Quality Effects

Based upon criteria established by the LA City Planning Department and the South Coast Air Quality Management District for screening the air quality impacts of new projects, if the proposed project has less than 80 residential units or less than 75,000 square feet of non-residential use and involves less than 20,000 cubic yards of soil export, it will not likely exceed the SCAQMD construction or operational thresholds, and therefore will not require an Air Quality Assessment.

The proposed project includes 184 new residential units. It does not include any floor area devoted to non-residential uses and will involve approximately 5,550 cubic yards of soil export. Based on the number of residential units proposed, the project's construction air quality effects are further evaluated below.

Assessment of 3601 E Mission Road Project Eligibility for a Categorical Exemption as a Class 32 In-Fill Development

Regulatory Setting

SCAQMD is the agency principally responsible for comprehensive air pollution control in the South Coast Air Basin (SCAB). SCAB includes portions of Los Angeles, Riverside, and San Bernardino counties and all of Orange County. Specifically, the SCAQMD is responsible for monitoring air quality and planning, implementing, and enforcing programs designed to attain and maintain State and Federal ambient air quality standards in the SCAQMD.

The SCAQMD has developed significance thresholds for regulated pollutants, as summarized in Table I, SCAQMD Air Quality Significance Thresholds. The SCAQMD's CEQA Air Quality Significance Thresholds (April 2019) indicate that any projects in the SCAB with daily emissions that exceed any of the indicated thresholds should be considered as having an individually and cumulatively significant air quality impact.

Mass Daily Thresholds		
Pollutant	**Construction**	**Operation**
NOx	100 lbs/day	55 lbs/day
VOC	75 lbs/day	55 lbs/day
PM_{10}	150 lbs/day	150 lbs/day
$PM_{2.5}$	55 lbs/day	55 lbs/day
SO_x	150 lbs/day	150 lbs/day
CO	550 lbs/day	550 lbs/day

Table I – SCAQMD Daily Mass Significance Thresholds

Evaluation of Project Significance

The analysis estimated emissions using the CalEEMod (Version 2020.4.0) software, a statewide land use emissions computer model designed to provide a uniform platform for government agencies, land use planners, and environmental professionals to quantify potential criteria pollutant emissions from a variety of land use projects. The SCAQMD developed CalEEMod in collaboration with the air districts of California.28 Regional data (e.g., emission factors, trip lengths, meteorology, source inventory, etc.) from the various California air districts accounts for local requirements and conditions. The model is an accurate and comprehensive tool for quantifying air quality impacts from land use projects throughout California and recommended for use in CEQA documents by the SCAQMD.

The analysis forecasts daily regional emissions during construction by assuming a conservative estimate of construction activities (i.e., assuming all construction occurs at the earliest feasible date) and applying the mobile source and fugitive dust emissions factors. The analysis adjusts the input values used to be project-specific for the construction schedule and, uses CalEEMod defaults for the construction equipment that the Project would use. The CalEEMod program uses the EMFAC2017 computer program to calculate the emission rates specific for Los Angeles County for construction-related employee vehicle trips and the OFFROAD2011 computer program to calculate emission rates for heavy truck operations. EMFAC2017 and

OFFROAD2011 are computer programs generated by California Air Resources Board (CARB) that calculates composite emission rates for vehicles. The program reports emission rates in either grams per trip and grams per mile, or grams per running hour. The analysis uses daily truck trips and CalEEMod default trip length data to assess roadway emissions from truck exhaust. The maximum daily emissions are estimated values for the worst-case day and do not represent the emissions that would occur for every day of project construction. The analysis then compares maximum daily emissions to the SCAQMD daily regional numeric indicators. The table below summarizes the estimated emissions from the proposed project using the assumptions that construction will begin in July 2023 and continue for 236 cumulative days, not including non-active days such as weekends and holidays. Detailed construction equipment lists, construction scheduling, and emission calculations are available in the CalEEMod Output provided in Appendix C of this document.

Maximum Mass Daily Emissions for Proposed Project				
Pollutant	**Construction**	**Exceeds Threshold?**	**Operation**	**Exceeds Threshold?**
NOx	4.28 lbs/day	No	3.90 lbs/day	No
VOC	4.24 lbs/day	No	11.04 lbs/day	No
PM_{10}	0.74 lbs/day	No	7.80 lbs/day	No
$PM_{2.5}$	0.35 lbs/day	No	2.89 lbs/day	No
SO_x	.01 lbs/day	No	.081 lbs/day	No
CO	5.48 lbs/day	No	44.71 lbs/day	No
Table II – Project Daily Mass Emissions				

Noise Effects

Noise is typically defined as a sound that is loud, unpleasant, unexpected, or otherwise undesirable and is described in terms of a sound's amplitude (loudness), frequency (pitch), or duration (time). The ambient noise environment is comprised of stationary and mobile noise sources. Sound dissipates exponentially with distance from the noise source. This phenomenon is known as "spreading loss." For a single point source, sound levels decrease by approximately 6 dB for each doubling of distance from the source. This drop-off rate is appropriate for noise generated by onsite operations from stationary equipment or activity at a project site.

Everyday sounds normally range from 30 dB (very quiet) to 100 dB (very loud). The A-weighted decibel scale relates noise to human sensitivity. The "A-weighted decibel", abbreviated dBA, is the measurement used for common noise levels. Table III, Typical Noise Levels, provides examples of various noises and their typical A-weighted noise level.

Table XXX: Typical Noise Levels		
Common Outdoor Noise Source	Noise Level (dBA)	Common Indoor Noise Source
Thunder	110	Rock Band
Jet Fly-Over at 100 Feet	105	
Chainsaw	100	Large Cocktail Party
Gas Lawnmower at 3 Feet	95	
Subway at 20 feet	90	Hand Dryer
	85	Food Blender at 3 Feet
Diesel Truck Traveling at 50 MPH at 50 Feet	80	Garbage Disposal at 3 Feet
	75	
Gas Lawnmower at 100 Feet	70	Vacuum Cleaner at 10 Feet
	65	Normal Speech at 3 Feet
Heavy Traffic at 300 Feet	60	Air conditioner, window unit
	55	
Crickets	50	Dishwasher in Next Room
	45	
Light Rainfall	40	Quiet Office
Ambient Wilderness Sounds	35	Quiet Residence
Leaf Falling	30	Whisper
	25	
	20	
	15	Low Whisper
	10	Normal Breathing
	5	
	0	

Table III- Typical Noise Levels
Source: *Noise Navigator™ Sound Level Database*. Univ. of Michigan, Dept. of Environmental Health Science, Ann Arbor, MI

Although human perception of sound is somewhat subjective, it is widely accepted that the average healthy ear (1) can barely perceive an increase or decrease of 3 dBA; (2) can perceive a change of 3 dBA in outdoor environments; and (3) can notice that an increase of 10 dBA sounds twice as loud.

Noise, or sound over a period of time, can be measured using a number of methods. The two most common methods are the community noise equivalent (CNEL) and the equivalent sound level (Leq). dBA Leq is the term for measurement of the average noise levels over a period of minutes or hours. The CNEL scale represents the average of 24-hourly noise measurements and adjusts or penalizes the dBA during certain sensitive time periods to account for increased noise sensitivity during the evening and nighttime periods. The evening time period (7:00 PM to 10:00 PM) penalizes noises by 5 dBA, while nighttime (10:00 PM to 7:00 AM) noises are penalized by 10 dBA.

Regulatory Setting

State of California

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Title 24 of the California Code of Regulations, also known as the California Building Standards Code, establishes building standards applicable to all occupancies throughout the state. Section 1207.11.2 requires that the design of residential structures, other than detached single-family dwellings, prevent the intrusion of exterior noise so that the interior noise attributable to exterior sources shall not exceed 45 dBA CNEL in any habitable room. Section 1207.12 states, "if interior allowable noise levels are met by requiring that windows be inoperable or closed, the design for the structure must also specify a ventilation or air-conditioning system to provide a habitable interior requirement. The ventilation system must not compromise the dwelling unit or guest room noise reduction."

City of Los Angeles

On February 3, 1999, the City Council of the City of Los Angeles adopted its Noise Element as a component of the City's General Plan. The Noise Element applies to the city as a whole and addresses noise mitigation regulations, strategies, and programs by setting forth noise management goals, objectives, and policies.

The city's comprehensive noise ordinance (LAMC Section 111 et seq.) establishes sound measurement and criteria, minimum ambient noise levels for different land use zoning classifications, sound emission levels for specific uses (radios, television sets, vehicle repairs and amplified equipment, etc.), hours of operation for certain uses (construction activity, rubbish collection, etc.), standards for determining noise deemed a disturbance of the peace, and legal remedies for violations. Its ambient noise standards are consistent with current state and federal noise standards. They are correlated with land use zoning classifications in order to guide the measurement of intrusive noise that results in intermittent (periodic) or extended impacts on a geographically specific site. The intent is to maintain identified ambient noise levels and to limit, mitigate, or eliminate intrusive noise that exceeds the ambient noise levels within the zones specified. The standards guide building construction and equipment installation, equipment maintenance and nuisance noise enforcement.

The most basic noise management measure is traditional zoning that separates agricultural, residential, commercial and industrial uses. Another is the front yard set back that serves to distance homes from adjacent street noise. Side and rear yards also serve as noise buffers. Through zone change and subdivision processes, site or use specific conditions can be imposed to assure compatibility of land use and to protect users of a site from impacts from adjacent uses.

The city's building code guides building construction. The insulation provisions are intended to mitigate interior noise from outside sources, as well as sound between structural units. The provisions vary according to the intended use of the building, e.g., residential, commercial, industrial. The regulations are intended to achieve a maximum interior sound level equal to or less than the ambient noise level standard for a particular zone, as set forth in the city's noise ordinance. In addition, LAMC Section 91.1206.14.2 regulates the performance standards of building materials in regard to acceptable interior noise levels, declaring that buildings shall be designed such that interior noise levels attributable to exterior sources shall not exceed 45 db in any habitable room. The noise metric shall be either the day-night average sound level (Ldn) or the community noise equivalent level (CNEL), consistent with the noise element of the local general plan.

Assessment of 3601 E Mission Road Project Eligibility for a Categorical Exemption as a Class 32 In-Fill Development

LAMC Section 112.05 pertains to the maximum noise levels of powered equipment and powered hand tools. Specifically, it reads:

> Between the hours of 7:00 a.m. and 10:00 p.m., in any residential zone of the City or within 500 feet thereof, no person shall operate or cause to be operated any powered equipment or powered hand tool that produces a maximum noise level exceeding the following noise limits at a distance of 50 feet therefrom:
>
> (a) 75dB(A) for construction, industrial, and agricultural machinery including crawler-tractors, dozers, rotary drills and augers, loaders, power shovels, cranes, derricks, motor graders, paving machines, off-highway trucks, ditchers, trenchers, compactors, scrapers, wagons, pavement breakers, compressors and pneumatic or other powered equipment;
>
> (b) 75dB(A) for powered equipment of 20 HP or less intended for infrequent use in residential areas, including chain saws, log chippers and powered hand tools;
>
> (c) 65dB(A) for powered equipment intended for repetitive use in residential areas, including lawn mowers, backpack blowers, small lawn and garden tools and riding tractors;
>
> The noise limits for particular equipment listed above in (a), (b) and (c) shall be deemed to be superseded and replaced by noise limits for such equipment from and after their establishment by final regulations adopted by the Federal Environmental Protection Agency and published in the Federal Register.
>
> Said noise limitations shall not apply where compliance therewith is technically infeasible. The burden of proving that compliance is technically infeasible shall be upon the person or persons charged with a violation of this section. Technical infeasibility shall mean that said noise limitations cannot be complied with despite the use of mufflers, shields, sound barriers and/or other noise reduction device or techniques during the operation of the equipment.

In addition to the above, LAMC Section 41.40. details when construction and excavation activities are prohibited, containing the provisions below:

> No person shall, between the hours of 9:00 P.M. and 7:00 A.M. of the following day, perform any construction or repair work of any kind upon, or any excavating for, any building or structure, where any of the foregoing entails the use of any power driven drill, riveting machine excavator or any other machine, tool, device or equipment which makes loud noises to the disturbance of persons occupying sleeping quarters in any dwelling hotel or apartment or other place of residence. In addition, the operation, repair or servicing of construction equipment and the job-site delivering of construction materials in such areas shall be prohibited during the hours herein specified. Any person who knowingly and willfully violates the foregoing provision shall be deemed guilty of a misdemeanor punishable as elsewhere provided in this Code.
>
> No person, other than an individual homeowner engaged in the repair or construction of his single-family dwelling shall perform any construction or repair work of any kind upon, or any earth grading for, any building or structure located on land developed with

> residential buildings under the provisions of Chapter I of this Code, or perform such work within 500 feet of land so occupied, before 8:00 a.m. or after 6:00 p.m. on any Saturday or national holiday nor at any time on any Sunday. In addition, the operation, repair or servicing of construction equipment and the job-site delivering of construction materials in such areas shall be prohibited on Saturdays and on Sundays during the hours herein specified.

LAMC Section 112.02 pertains to permittable noise levels of air conditioning, refrigeration, heating, pumping, and filtering equipment, containing the provisions below:

> It shall be unlawful for any person, within any zone of the city to operate any air conditioning, refrigeration or heating equipment for any residence or other structure or to operate any pumping, filtering or heating equipment for any pool or reservoir in such manner as to create any noise which would cause the noise level on the premises of any other occupied property or if a condominium, apartment house, duplex, or attached business, within any adjoining unit.to exceed the ambient noise level by more than five (5) decibels.

Existing Conditions

The City's Noise Element defines the following land uses as noise-sensitive receptors: single-family and multi-unit dwellings, long-term care facilities (including convalescent and retirement facilities), dormitories, motels, hotels, transient lodgings and other residential uses; houses of worship; hospitals; libraries; schools; auditoriums; concert halls; outdoor theaters; nature and wildlife preserves, and parks.

A residential neighborhood with single- and multi-family uses sits just north of the project site, just across Barbee Street. Other sensitive land uses that may be affected by project noise include: Amistad Preschool directly west of the site (across Lincoln Park Avenue), the 41-acre Lincoln Park just south of the project site (across Mission Road), and a 78-bed board and care facility on the parcel adjacent to the project site to the east (the facility will be vacant during the project construction period).

To identify existing noise conditions, four short-term (10-minute) noise levels were measured in the vicinity of the project site. Figure 2, Noise Measurement Location Map depicts the locations of the noise measurements. The project team consultant conducted the noise survey on August 5, 2022, between 2:03 PM and 4:08 PM. The consultant calibrated and operated the sound measurement instrument according to the manufacturer's written specifications. At the measurement sites, the consultant placed the microphone at a height of approximately five feet above grade. As shown on Figure 2, Noise Measurement Location Map, the Consultant took the noise measurements near the closest noise-sensitive land uses: to the north, north of Barbee Street (NM1); to the east, adjacent to the eastern boundary of the project site (NM2); to the west, west of Lincoln Park Avenue (NM3); and to the south, in a central location of Lincoln Park (NM4). Table IV, Existing Ambient Noise Levels, provides a summary of the ambient noise data. Ambient average noise levels (L_{eq}) were between 54.2 and 62.6 dBA L_{eq}. The dominant noise sources were from vehicles traveling along the adjacent roadways and parking area, car doors closing, residential ambiance (music playing, conversation, etc.), the freight train that runs along Valley Boulevard, ambulances, and helicopters and other aircraft. The freight train was

observed to run approximately once every hour and a half for about eight (8) minutes. From 4:00 PM until 4:08 PM, the train emitted sounds from its bells, whistles, and physical movement mechanisms that reached an L_{max} of 83.9 from a distance of 700 feet.

Figure 2 – Noise Measurement Locations

NOISE MEASUREMENT LOCATION	LOCATION	PRIMARY NOISE SOURCES	LEQ	LMAX	LMIN
NM1	Single- and multi-family residential uses	• Barbee Street and Lincoln Park Ave traffic • Residential ambience (music)	55.5	72.6	42.8
NM2	Board and care facility	• Mission Road traffic • Vehicles in adjacent parking lot • Ambient conversation Valley Blvd freight train	62.6	81.3	43.9
NM3	Amistad Pre-school	• Lincoln Park Ave traffic • Ambient conversation	57	74.1	48.1

		• Valley Blvd freight train			
NM4	Lincoln Park	• Mission Road traffic • Ambient conversation • Valley Blvd traffic and freight train • Skateboards and other park facility users • Helicopters and other aircraft	54.2	77.0	41.3
TABLE IV - EXISTING AMBIENT NOISE LEVELS					

Project Noise Impacts

Construction Noise Impacts

The Applicant expects construction of the Project to last approximately 18 months and require the use of heavy equipment. The Applicant anticipates that the construction phases for the Project would include demolition, site preparation, grading, building construction, paving, and architectural coating. During each construction phase there would be a different mix of equipment operating and noise levels would vary based on the amount of equipment in operation and the location of each activity.

Construction activities and associated noise would be temporary and be restricted to daytime hours pursuant to Los Angeles Municipal Code (LAMC) Section 41.40. The maximum noise level of construction equipment is regulated by LAMC Section 112.05 to 75 dB at 50 feet from the source; however, the LAMC indicates such restrictions do not apply where technically infeasible despite the use of mufflers, shields, sound barriers and/or other noise reduction device or techniques during the operation of the equipment. The table below is based on the L_{max} noise levels of construction equipment provided in the Federal Highway Administration Construction Noise Handbook, Construction Noise Levels – Regulatory Compliance which provides construction equipment noise levels with the use of mufflers and sound barriers required by LAMC Section 112.05. The number of each equipment type needed for the construction of the proposed project is indicated in the third column of the table.

Phase	**Equipment**	**#**	**Type**	**L_{max} at 50 ft (dBA)**	**LAMC Sec. 112.05 Compliance**	**Reduced L_{max} at 50 ft (dBA)**
Demolition	Concrete Industrial Saws	1	Stationary	90	Barrier	70
	Rubber Tired Dozers	1	Mobile	82	Muffler	67
	Tractors/Loaders/Backhoes	3	Mobile	80	Muffler	65
Site Preparation	Graders	1	Mobile	85	Muffler	75
	Rubber Tired Dozers	1	Mobile	82	Muffler	67
	Tractors/Loaders/Backhoes	1	Mobile	80	Muffler	65
Grading	Graders	1	Mobile	85	Muffler	75

	Rubber Tired Dozers	1	Mobile	82	Muffler	67
	Tractors/Loaders/Backhoes	2	Mobile	78	Muffler	65
Building Construction	Cranes	1	Mobile	81	Muffler	66
	Forklifts	1	Mobile	75	None	75
	Generator Sets	1	Stationary	81	Muffler	66
	Tractors/Loaders/Backhoes	1	Mobile	80	Muffler	65
	Welders	3	Stationary	74	None	74
Paving	Cement and Mortar Mixers	1	Mobile	79	Muffler	64
	Pavers	1	Mobile	77	Muffler	62
	Paving Equipment	1	Mobile	77	Muffler	62
	Rollers	1	Mobile	80	Muffler	65
	Tractors/Loaders/Backhoes	1	Mobile	78	Muffler	65
Architectural Coating	Air Compressors	1	Stationary	78	Barrier	58

Table V - Construction Noise Levels

As shown in the final column of Table V, regulatory compliance with LAMC Section 112.05 standards, requiring mufflers, shields, sound barriers and/or other noise reduction device or techniques during the operation of the equipment would reduce the construction noise levels to less than 75 dBA at 50 feet through industrial-grade mufflers on mobile equipment and barriers or enclosures formed by sound transmission obscuring products around stationary equipment. Mufflers and sound transmission obscuring products, like barriers or enclosures, are available from a variety of manufacturers. Therefore, construction related temporary noise level increases would be less than significant with regulatory compliance measures incorporated.

Operational Noise Impacts

Pursuant to LAMC Section 112.02, the project would be considered to exceed operational noise ordinance standards if it would increase the ambient noise level on another property by more than 5 dBA.

This project does not propose to develop commercial, industrial, manufacturing, or institutional facilities that are associated with loud stationary noise sources. The project would introduce new stationary noise sources in the form of Heating, Ventilation, and Air Conditioning (HVAC) units. It is assumed that the project would include 200 rooftop HVAC units, one unit to maintain the temperature of each of its one hundred eighty-four (184) dwelling units, lobby, leasing office, business center, meeting room, the elevator lobby, fitness center, clubhouse, mezzanine, and all seven (7) of its corridors. Based on noise levels for HVAC units similar to those expected to be used in the project, each HVAC unit would produce a noise level of 66 dBA Leq at 3.3 ft.

This analysis assumes all 200 roof-mounted HVAC units are in simultaneous use as a "worst-case" scenario although actual HVAC use would depend on weather conditions and tenant occupancy. Addition of the reference noise levels for the 200 HVAC units would result in a composite reference noise level of 89 dBA at 3.3 feet, a value that is used to calculate noise levels at greater distances. Of the nearby sensitive land uses, the property which would experience the greatest level of noise from HVAC operation would be the board and care facility on the adjacent parcel to the east at 2010 Lincoln Park Avenue, approximately 75 feet of horizontal distance and 30 feet of vertical distance from the nearest portion of the project rooftop area in which HVAC units could potentially be placed. At this distance, a diagonal distance of approximately 81 feet, the sound pressure levels would be reduced by about 27.8 dBA to 61.2 dBA based on the equation for distance attenuation of a point source. In addition, the parapet and roofline would decrease noise levels by a further 10 dBA based on the Federal Transit Administration (FTA) methodology for calculating barrier insertion loss for a final noise level of 51.2 dBA.

Based on the Noise Measurement samples collected by the consultant, pre-existing ambient noise levels from just outside of the board and care facility reach an L_{MAX} of 81.3 and have an L_{EQ} of 62.6. Based on the formula for the addition of decibels, the addition of 51.2 dBA from the 200 proposed HVAC units to the ambient daytime noise level would result in an increase of 0.3 dBA above the presumed daytime ambient noise level of 62.6 dBA. All other property boundaries would experience lower levels of HVAC noise. Therefore, operational HVAC noise would not exceed the ambient noise level by more than 5 dBA in compliance with LAMC Section 112.02. In addition, noise levels would be further reduced by building materials used at the receptor site, as mandated by LAMC Section 91.1206.14.2. Table VI below shows the project's presumed operational impacts to the nearest sensitive receptor sites.

Noise Measurement Location[1]	Location	Existing L_{EQ}[2]	Distance from HVAC Units	Projected Noise Level Increase[4]
NM1	Single- and multi-family residential uses	55.5 dBA	114 feet	4.6 dBA
NM2	Board and care facility	62.6 dBA	81 feet	0.3 dBA
NM3	Amistad Pre-school	57 dBA	130 feet	1.8 dBA
NM4	Lincoln Park	54.2 dBA	760 feet[3]	.02 dBA

Table V1 – Operational Noise Level Impacts
Notes: 1. Figure 2 – Noise Measurement Location Map; 2. Based on samples collected by Consultant August 5, 2022, between 2:03PM and 4:08PM.; 3. Central park location chosen to model existing and projected impacts to park users based on distribution of park infrastructure and users at time of sampling. 4. Based on projected resulting noise levels from adding operational use of HVAC units to the existing ambient noise levels.

Furthermore, according to Chapter 2 (page 2-5) of the City of Los Angeles Noise Element: "It has been estimated that standard insulation, efficiently sealing windows and other energy conservation measures reduce exterior-to-interior noise by approximately 15 decibels. Such a reduction generally is adequate to reduce interior noise from outside sources, including street noise, to an acceptable level. Building setbacks and orientation also reduce noise impacts." As such, the resultant noise impacts from the operational use of the proposed project's rooftop XX HVAC units on the indoor sensitive uses, namely the board and care facility, daycare, and single-

and multi-family homes, will be reduced by the receptor site's use of appropriate building materials.

Project-Specific Traffic Noise Impacts

Generally, it takes a doubling of traffic volumes to increase traffic noise levels by 3 dBA, which is the level at which changes are barely perceptible to the human ear. The major sources of traffic noise in the project vicinity are Mission Road and Lincoln Park Avenue. Based on City of Los Angeles VMT Calculator, the project would generate a net increase of 734 ADT. A traffic volume increase of 734 ADT on either Mission Road or Lincoln Park Avenue would far less than double traffic volumes and would therefore result in a noise level increase far below 3 dBA. As such, the additional traffic generated by the project would not be expected to result in a significant noise impact.

Water Quality Effects

The proposed infill development would introduce new residential land uses to a parcel currently developed with surface parking facilities. Existing utility lines would provide water supplies and wastewater treatment services. 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. The project does not propose on-site groundwater extraction to serve future uses and does not propose on-site wastewater treatment. The proposed 184 residential units and two-level of subterranean parking would not be anticipated to generate, store, or dispose of substantial quantities of hazardous materials that could affect water quality.

Stormwater runoff currently leaves the site by sheet flow and drains south to Mission Road and west to Lincoln Park Avenue where it is conveyed to culverts at the intersection of Lincoln Park Avenue and Mission Road or one (1) of two (2) existing catch basins located southwest of the project site at the intersection of Mission Road and Thomas Street. During the construction phase (including site preparation and grading), City Ordinance No. 178,132 would require the preparation of a Stormwater Pollution Prevention Plan (SWPPP) to minimize erosion and sediment from leaving the site via storm water runoff through the implementations of Best Management Practices (BMPs), such as silt fencing and/or sandbags to reduce the velocity of runoff leaving the site and filter storm water to reduce erosion or siltation offsite. During operations, stormwater runoff generated by the proposed buildings and hardscape surfaces would be required comply with the City Low Impact Development (LID) Ordinance No. 181899 to manage the quality of stormwater runoff to reduce offsite runoff and improve water quality through infiltration, evapotranspiration, retention for onsite use, or a biofiltration system, which will be included in the final design plans to be reviewed during plan check. Runoff generated by hardscape surfaces would also be required to comply with City Ordinance No. 172,176 and No. 173,494 which specify Stormwater and Urban Runoff Pollution Control requirements including the application of BMPs. Compliance with these applicable regulations would ensure the project would not have a significant adverse effect relating to water quality.

Construction Water Quality Impacts

During construction, the project site would contain a variety of construction materials such as adhesives, cleaning agents, landscaping, plumbing, painting, heat/cooling, masonry materials, floor and wall coverings, and demolition debris. Spills of construction materials can be a source of stormwater pollution and/or soil contamination. All hazardous materials are to be stored, labeled and used in accordance with the U.S. Occupational Safety and Health Administration regulations. These regulations for routine handling and storing of hazardous materials effectively control the potential stormwater pollution caused by these materials.

Earth moving activities would involve preparation of the project site for project construction. Soil erosion is the process by which soil particles are removed from the land surface, by wind, water and/or gravity. Soil particles removed by stormwater runoff can have negative impacts on downstream conditions through increased sedimentation as well as spread of contaminants found in the exposed soil of the Project Site. Grading activities can greatly increase erosion processes. Two general strategies are typically required to prevent construction silt from entering drainage courses. First, the amount of exposed soil is typically limited and erosion control procedures are implemented for those areas that must be exposed. Common methods for controlling fugitive dust emissions, such as covering truck loads and street sweeping, are also effective in controlling stormwater quality. Second, the construction area would be secured to control off-site migration of pollutants. Erosion control devices, including temporary diversion dikes/berms, drainage swales, and siltation basins, are typically required around construction areas to ensure that sediment is trapped and properly removed.

The Project's proposed construction activities would be required to comply with the State's General Construction National Pollutant Discharge Elimination System (NPDES) Permit and the development of a construction Storm Water Pollution Prevention Plan (SWPPP) because the project site is greater than one acre in size. The Project SWPPP would identify potential pollutant sources that may affect the quality of discharge associated with construction activity, identify non-storm water discharges, and provide design features to effectively prohibit the entry of pollutants into the public storm drain system during construction.

When properly designed and implemented, BMPs would ensure that construction of the Project would not result in degradation of surface water quality through increased sedimentation or spread of soil contaminants. Accordingly, required compliance with the City of Los Angeles grading permit regulations and implementation of BMPs would ensure that Project construction would not create a significant impact by degrading surface water quality, or by causing a violation of applicable water quality standards. Furthermore, 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 1990's. Based on current groundwater basin management practices, it is unlikely that groundwater levels will ever exceed the historic high levels. Based on the depth of proposed construction, static groundwater is generally not anticipated to be encountered during construction. Therefore, as the project site would not result in any significant effects related to construction surface water quality, the Project meets this condition for water quality.

Operational Water Quality Impacts

Operation of the Project would introduce sources of potential water pollution that are typical of residential developments. Anticipated and potential pollutants generated by the project are sediment, nutrients, pesticides for landscaping, metals, pathogens, oil and grease and cleaning solvents. The Project's proposed residential land uses do not represent the type of use that would otherwise degrade water quality (e.g., an industrial land use that could adversely affect water quality). Furthermore, operation of the Project would not result in discharges that would cause regulatory standards to be violated. Project site BMPs have been designed to prevent storm water pollution that includes stormwater drainage through Low Impact Development planters at each landscaped level – in the ground floor yards and on roof decks planned for the third, sixth, and seventh floors. Therefore, as the project site would not result in any significant effects related to operational surface water quality, the Project meets this condition for water quality.

(e) The site can be adequately served by all required utilities and public services.

The project site is located in an urbanized area of the City's Northeast Los Angeles Community Plan Area and is surrounded by parcels already developed with single- and multi-family uses served by existing utility and public service providers. The proposed project would be served by the same utility and public service providers that serve the adjacent site and surrounding vicinity under existing conditions, including:

- Los Angeles Fire Department Station 1
- Los Angeles Police Department Central Bureau
- City of Los Angeles Department of Public Works
- City of Los Angeles Department of Recreation and Parks

Utilities: Electricity

California Public Utilities Code (PUC) Section 9621 requires publicly owned utilities (POUs) with an annual electrical demand exceeding 700 gigawatt hours (GWh) to develop integrated resource plans (IRPs). IRPs are electricity system planning documents that describe how utilities plan to meet their energy and capacity resource needs between 2018 and 2030, while achieving policy goals and mandates, meeting physical and operational constraints, and fulfilling other priorities such as reducing effects on customer rates. Each IRP filing must include data and supporting information sufficient to demonstrate the utility is meeting these goals and targets. PUC Section 9621 requires the governing board of a POU to adopt an IRP and a process for updating it at least once every five years by January 1, 2019

The California Energy Commission's (CEC) Publicly Owned Utility Integrated Resource Plan Submission and Review Guidelines require those utilities to file an IRP with data and supporting information sufficient to demonstrate that they meet these requirements and the various targets and planning goals from 2018 to 2030. The Energy Commission must review the IRPs to ensure consistency with the requirements of PUC Section 9621 The Los Angeles Department of Water and Power's (LADWP) 2017 Power Integrated Resource Plan, submitted on April 30, 2019, outlines the utility's strategy for procuring future resources that meet the requirements of PUC Section 9621.

Senate Bill 350 (De León, Chapter 547, Statutes of 2015) (SB 350) requires filing POUs to adopt an IRP that ensures system and local reliability and addresses resource adequacy requirements.19 Staff reviewed the LADWP's capacity reporting table and discussion and finds that LADWP has planned for sufficient resources to maintain a reliable electric system. In addition, LADWP's selected portfolio of resources contains sufficient capacity to meet anticipated resource adequacy requirements in 2030. Staff finds that the IRP is consistent with the reliability requirements in PUC Section 9621(b)(3) and resource adequacy requirements in PUC Section 9621(d)(1)(E).

LADWP is its own balancing authority and as such is responsible for operating its electricity system in real time. This is done by finely balancing power system demand and supply while ensuring reliability.20 This includes controlling generation and transmission of electricity within its control area, as well as between balancing authorities. The Western Electricity Coordinating Council (WECC) establishes operating standards that all balancing authorities must meet to ensure reliability. State law also requires POUs to meet WECC's most recently approved planning reserve and reliability criteria and "prudently plan for and procure resources that are adequate to meet its planning reserve margin and peak demand and operating reserves, sufficient to provide reliable service to its customers."

North American Electric Reliability Corporation (NERC) operating standards prescribe the amount of contingency and replacement reserves that a balancing authority must have in case of a generation or transmission outage. To comply with NERC operating standards, LADWP must carry additional generating capacity above its instantaneous load. LADWP plans for a 15 percent reserve margin based on a 1-in-10 peak demand, which typically occurs on hot summer afternoons.22 In addition to contingency reserve, LADWP plans for additional outages by carrying replacement reserves to cover unplanned outages of older generating units. LADWP also conducts an annual 10-year transmission assessment plan to maintain grid reliability and identify necessary improvements needed to avoid potential overloads on key segments of its transmission system.23 LADWP's IRP filing demonstrates that the utility is planning appropriately to ensure reliable supplies for its customers.

LADWP continues to be in compliance with all applicable Federal Energy Regulatory Commission (FERC), North American Electric Reliability Corporation (NERC) and Western Electric Coordinating Council (WECC) standards regarding bulk power system reliability.

Utilities: Water

LADWP's Water System is the nation's second largest municipal water utility and serves a population of 3.9 million people within 473 square miles. The Water System supplies approximately 191 billion gallons of water annually and an average of 524 million gallons per day for the 674,000 residential and business water service connections. 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.

Utilities: Sanitation

The site is served by LA Sanitation which maintains solid waste management facilities for the City of LA. The project site is situated 2.0 miles from LA Sanitation's North Central Collection Yard which will serve the project assuring timely and thorough collection of solid waste materials.

The proposed project would add one hundred eighty-four (184) new dwelling units to the site, consistent with existing planning and zoning (as described in Section II.a), on which utilities and public service agencies base their service and facility planning. The project would be served by existing public service providers and is consistent with existing planning and zoning. As described in Section III.a., below, the project's one hundred eighty-four (184) new apartment units would provide housing for an estimated 552 persons. The City projects its future population for the year 2040 to increase by 763,900, accommodating growth, such as the project's added population, that utilities and public service agencies use for planning purposes. As the increase in units would be within the projected City growth, the project would be adequately served by required utilities and public services.

III. CONSIDERATION OF EXCEPTIONS

Section 15300.2 of the CEQA Statutes and Guidelines provides a list of exceptions for consideration of a project as categorically exempt. The exemptions that apply to the project are listed and discussed below:

(a) Cumulative Impact. All exemptions for these classes are inapplicable when the cumulative impact of successive projects of the same type in the same place, over time is significant.

Cumulative impacts are two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts (State CEQA Guidelines Section 15355). Cumulative impacts may be analyzed by considering a list of past, present, and probable future projects producing related or cumulative impacts (State CEQA Guidelines Section 15130[b][1][A]). As shown, the project would not result in any project-specific significant impacts and would not have any impacts that are individually limited but cumulatively considerable.

This project proposes an infill development of residential uses within an urban setting surrounded by existing residential and commercial uses. The project's environmental effects regarding traffic, noise, and air quality would be less than significant, as discussed above. According to the Southern California Association of Governments (SCAG) 2016-2040 Regional Transportation Plan/Sustainable Communities Strategy (2016 RTP/SCS or Plan) Demographics & Growth Forecast, the population of the City of Los Angeles in 2012 was 3,845,500 with 1,325,500 households. Based on this data, the City's average household size is approximately three (3) persons per dwelling unit, and therefore, the project's 184 new apartment units would provide housing for an estimated 552 persons, which would represent an increase of 0.0014 percent in the City's population totals for the year 2012.

SCAG projects the City's future population and housing supply for the year 2040 in the 2016 RTP/SCS to increase by 763,900 and 364,800, respectively, over the 2012 estimates. As such,

the project's net increase of 552 persons and 184 residential units on the site would represent less than 0.07 percent increase of the projected increases of population and 0.05 percent of the projected City increases of housing over that time period. The project's net increases of a small fraction of one percent of the projected growth in housing and population for the City would have a less than cumulatively considerable contribution to projected growth and any associated population related impacts such as increases in demand for municipal services that would arise from other foreseeable development. In addition, the project site is located within an urbanized area, is already developed with existing residential uses, and would not have any significant impacts, as evaluated in this Categorical Exemption analysis. Therefore, the proposed development of a 184-unit apartment building and removal of a 42-stall parking lot on the project site would not be expected to result in a considerable cumulative contribution to impacts involving other past, present, or future projects in the area.
Only one project, a 178-room student housing building and a 200-guest room hotel known as the USC Health Sciences Campus, has been proposed and/or constructed within the past two years within a ¼ mile distance of the proposed project site. Because construction of the USC Health Sciences Campus structures has already been completed, its construction impacts are not expected to overlap with that of the proposed project, which are detailed supra. Operational impacts of the USC Health Sciences Campus were analyzed pursuant to existing City regulations and policies. The project was required to submit formal review and analysis of expected project impacts from construction and operations and determined to have less than significant impacts or impacts that could be mitigated through the implementation of project-specific mitigation measures.

Long-term, or cumulative, effects are determined through a consistency check with the 2020-2045 RTP/SCS. The 2020-2045 RTP/SCS is the regional plan that demonstrates compliance with air quality conformity requirements and greenhouse gas (GHG) reduction targets. As such, projects that are consistent with this plan in terms of development, location, density, and intensity, are part of the regional solution for meeting air pollution and GHG goals. Projects deemed consistent would have a less than significant cumulative impact on VMT.

Similar to the Project, all future projects in the State are subject to review for consistency with applicable State, regional and local plans, policies, or regulations for the reduction of GHGs. Therefore, based on the discussion above, and consistent with State CEQA Guidelines Section 15064(h)(3), the Project's generation of GHG emissions would not be cumulatively considerable because the Project would not conflict with an applicable plan, policy, or regulation for the purposes of reducing the emissions of GHGs. Therefore, the Project's contribution to cumulative impacts to GHGs would not be cumulative considerable, and cumulative impacts would be less than significant.

With respect to operational impacts, development of the Project in combination with related projects would result in the further infilling in an already developed area. The existing City storm drain system would continue to serve the Project Site and the surrounding area. Runoff from the Project Site and the adjacent land uses is directed into the adjacent streets, where it flows to the drainage system. It is likely that most, if not all, related projects would also drain to the surrounding street system or otherwise retain stormwater on-site as all projects would comply with existing stormwater/LID requirements, which would ensure impacts are less than significant.

Development of the Project in combination with related projects would cumulatively increase the demand for fire and police protection services. Over time, the Los Angeles Fire Department (LAFD) and Los Angeles Police Department (LAPD) would continue to monitor population growth and land development throughout the City and identify additional resource needs including staffing, equipment, vehicles, other special apparatuses, and possibly station expansions or new station construction that may become necessary to achieve the desired level of service. The City's regular budgeting efforts identify LAFD's and LAPD's resource needs and allocate funding according to the priorities at the time. Any new or expanded fire or police services or facilities would be funded via existing mechanisms (e.g., property and sales taxes, government funding, and developer fees) to which the Project and cumulative growth would contribute. Moreover, LAFD and LAPD would review all of the cumulative development in order to ensure adequate fire flow capabilities and adequate emergency access. Compliance with LAFD, City Building Code, Fire Code requirements related to fire safety, access, and fire flow, and the implementation of safety and security features according to LAPD recommendations would ensure that cumulative impacts to fire and police protection services would be less than significant.

Development of related projects would occur in accordance with adopted plans and regulations. Most of related projects would be compatible with the zoning and land use designations of each related project site and its existing surrounding uses. In addition, it is reasonable to assume that related projects under consideration in the surrounding area would implement and support local and regional planning goals and policies. Therefore, cumulative land use impacts would be less than significant.

(b) Significant Effect. A categorical exemption shall not be used for an activity where there is a reasonable possibility that the activity will have a significant effect on the environment due to unusual circumstances.

The construction and operation of the proposed seven-story apartment building with one hundred eighty-four units surrounded by existing residential, commercial, and municipal uses would not have a significant effect on the environment due to unusual circumstances. As discussed in Section II, the project would not have a significant effect on the environment, and there are no unusual site conditions or issues that would warrant further environmental analysis.

(c) Scenic Highways. A categorical exemption shall not be used for a project which may result in damage to scenic resources, including but not limited to, trees, historic buildings, rock outcroppings, or similar resources, within a highway officially designated as a state scenic highway.

There are no designated state scenic highways located within the project vicinity. According to the Mobility Plan 2035, an Element of the City's General Plan, the project is located approximately 20 feet from a Boulevard II, Mission Road. However, the project would not result in damage to scenic resources as the site is located in an urbanized area and is infill development. Therefore, the project would not impact resources located within an officially designated state scenic highway.

(d) Hazardous Waste Sites. A categorical exemption shall not be used for a project located on a site which is included on any list compiled pursuant to Section 65962.5 of the Government Code.

The project is not located within a site which is included in any list compiled pursuant to Section 65962.5 of the Government Code, commonly referred to as the Cortese List. The site is not listed on the California Department of Toxic Substances Control maintained EnviroStor online data management system for tracking cleanup, permitting, enforcement, and investigation efforts at hazardous waste facilities and sites with known or suspected contamination issues and is not listed on the State Water Resources Control Board GeoTracker online data management system for tracking sites that require cleanup, such as Leaking Underground Storage Tanks (LUSTs). Therefore, the project is not identified as a hazardous waste site and would not be in conflict with this exception for a Class 32 In-Fill Development Categorical Exemption.

(e) Historical Resources. A categorical exemption shall not be used for a project which may cause a substantial adverse change in the significance of a historical resource.

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.

IV. CONCLUSION

Based on the above information and above documentation, this analysis shows that development of the proposed 3601 Mission Road Project would be consistent with the criteria for a Class 32 Categorical Exemption under CEQA Statute Section 15332.

Appendix A

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: 08-22-2022
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

		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
	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:
There are 5 protected Sycamore trees on site. The developer intends to remove 2 of the protected trees and relocate 3 protected trees. It is not feasible to protect the trees in place due to grading requirements for the new structure. Existing drainage structures are in place at the curb.

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.

Trees #40, #41, and #42 are recommended for relocation. Tree # 18 and #39 are not recommended for relocation due to poor condition.

13. Recommendations:
Remove protected trees that are not suitable for relocation. Relocate existing sycamore trees in good condition on site.

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

15. Mitigation:
4:1 replacement of protected trees to be removed or relocated. These trees should be chosen by and located by the Landscape architect. Relocate protected trees that are suitable for transplant on site.

Clean-cut and treat any roots encountered during trenching that measure 1" diameter or larger. Protect and preserve by tunneling around all roots larger than 1" diameter.

Construction waste-water, i.e., paint products cleaning fluids, thinner, concrete or concrete run-off, plastering materials, etc., should not be allowed to drain within the driplines of any of the trees to remain.

It is the client/owner's responsibility to notify the Project Arborist to schedule any recommended monitoring of the trees on this site. Monitoring of on-site trees or newly-planted "mitigation" trees is no guarantee of tree survival or long-term tree health.

16. Protected Tree Construction Impact Guidelines:

A. Control of Diseases and Pests
California native Oaks, Western sycamores, Southern California black walnut, and California bay tree are susceptible to numerous, indigenous insect pests and should be monitored regularly for possible damaging infestations.

B. Protective Fencing During Grading or Construction, **if needed**
Equipment damage to the limbs, trunks, and roots must be avoided. Protected trees should be given as much space as possible free from vehicle compaction and construction encroachments. Protective fencing is recommended to help prevent construction encroachments within the dripline of any native Protected Tree listed to remain. Fencing must be in place before construction begins (refer to "Mitigation Measures"). Fencing should be installed as close to the dripline as possible. The fencing is to remain in place until the project has been completed. The Project Arborist should inspect the trees and fencing at the completion of the project prior to dismantling the fencing. **There are no protected trees to remain for this project.**

C. Methods and Frequency of Pruning
California native Oak, Western sycamore trees, Southern California black walnut, California bay tree will grow beyond their ability to support themselves and may fail at a main crotch or limb attachment if not pruned for weight reduction. Oaks, and sycamores, black walnuts and bay trees in a residential or public setting must be maintained for public safety as well as tree longevity. Corrective pruning, thinning, raising, and deadwood removal should be accomplished every 3 - 5 years by Certified Tree Workers or Certified Arborists. Large oaks and sycamores, black walnuts and bay trees should be inspected on an annual basis for health and structural integrity. Installing support cables can help to prevent main crotch failures. These trees should be diligently maintained to help prevent limb or main crotch failures. All pruning should be performed in accordance with ANSI. A-300 Pruning Standards.

D. Frequency of Watering
California native Oaks, Southern California black walnut, Western sycamores and California bay tree and native plants have the inherent ability to survive through the cyclical droughts of our region and generally do not require supplemental irrigation. Oaks in residential settings are susceptible to serious problems from overwatering. Care should be taken to avoid placing any sprinkler devices within watering distance to the trunks of any oak. Grass or ground covers must not be planted next to the trunks. Residential oaks would benefit from a deepwatering during the months of June and/or November during years of drought conditions. A twelve-hour, slow application with a "soaker-hose" is an effective method of deep-watering.

E. Grading Restrictions Near the Driplines
Care must be taken to limit grade changes near the trunk areas. If possible, the grade should not be lowered or raised around oaks during construction activities. Note: even a 2" raise of grade at the root collar could result in an Oak Root Fungus infection. The soil level must be lowered if the root flare or collar is not visible. Trenching within the dripline should be avoided if possible. If trenching for utilities is required in this critical zone, the work should be monitored by a Certified Arborist and roots should be tunneled-around and protected.

F. Transplanting guidelines:
Refer to ANSI A300 (Part 6)-2012 Planting and Transplanting. Tree Care Industry Association, Inc. <www.tcia.org>

Transplant during dormant period (December-March). The soil will need to be corrected for nutrients and for structure to reduce compaction and improve drainage. General soil preparation on a square foot basis: Broadcast the following uniformly; rates are per 1,000 square feet for a 6-inch lift. Incorporate them homogeneously 6" deep.

Agricultural gypsum - 20 pounds
Organic soil amendment (composts, manures, mushroom composts, straw, alfalfa, peat mosses etc.) - about 4 cubic yards, sufficient for 3% to 5% soil organic matter on a dry weight basis

If time allows, prune roots in the dormant period prior to transplanting to help prevent shock. Do not prune branches prior to transplanting. Allow one growing season (6 months) and prune branches in the following dormant period, and consult with certified arborist for pruning. Carefully inspect the root systems of each tree prior to transplanting. Use only hand-digging tools in the root zones of trees. Consult with the arborist before pruning any root greater than 2" diameter.

To determine the required size of the root ball, measure the stem caliper (stem diameter six inches above the ground). The root ball to be transplanted should be 10 to 12 inches for each inch of stem caliper. For example, if the stem cali- per is 3 inches, then the root ball should be 30 to 36 inches in diameter.

Dig a hole for balled plants 50 percent wider than the soil ball. The hole should be just deep enough that the root system is at the same depth it was before it was dug.

Replant the trees immediately after digging them up to prevent the fibrous roots from drying. Stake/Guy all trees for two years after transplanting. Place 2 to 3 inches of mulch over the soil, pulling it away from the trunk of the plant.

17.Matrix summarizing observations (protected trees)

Total number of protected trees on map: 5
Total Number of Declining or dead protected trees: 1
Total number of protected trees to be impacted by construction within dripline: 5
Total number of protected trees not dead, not removed or impacted: 0

18.Proposed protected tree removals

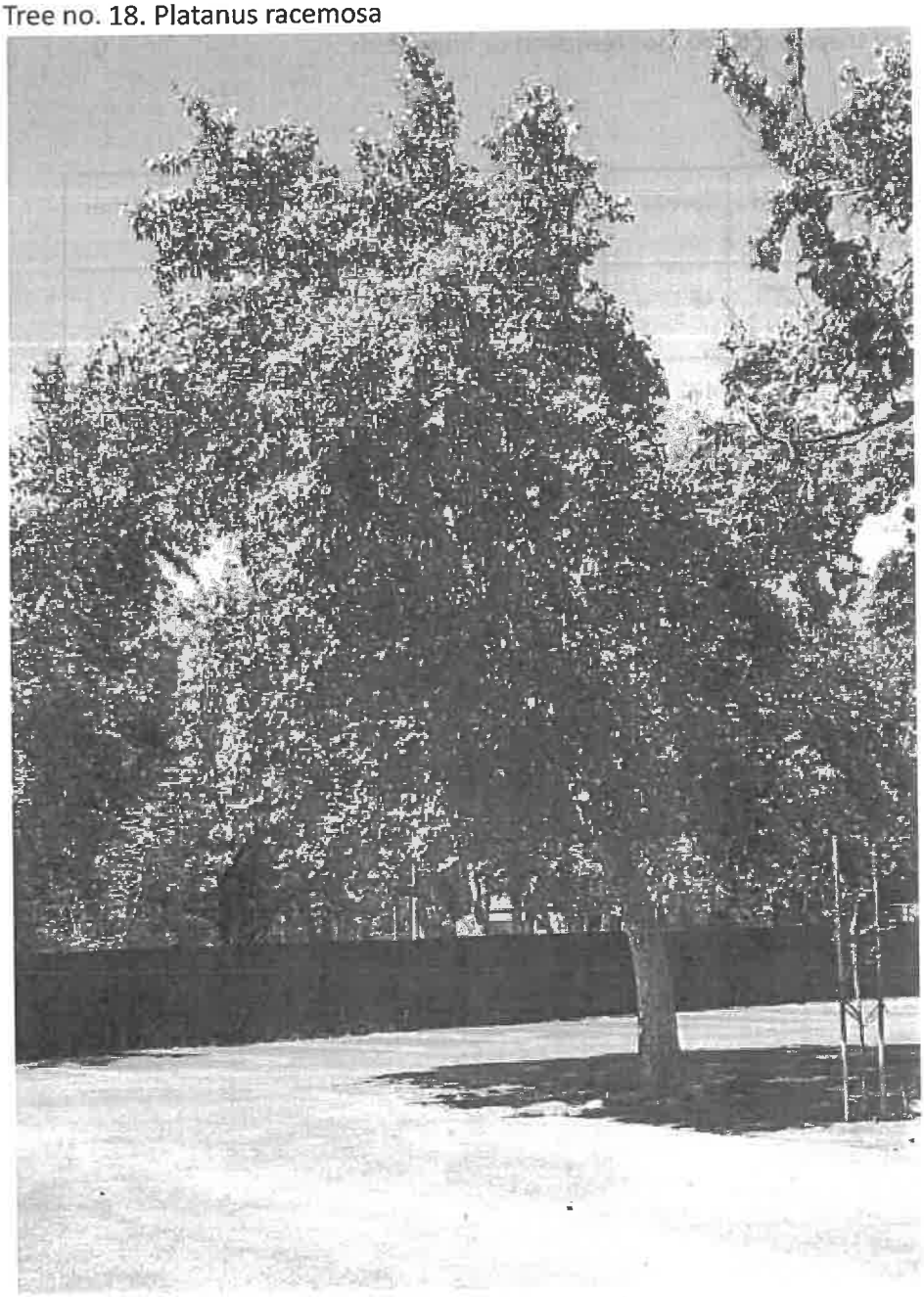
Tree Number	Species	Height	DBH	Spread	Condition	Suggested Treatment	Rating	Other
18	Platanus racemosa	32'	18"	18'	Good	Remove	Good	
39	Platanus racemosa	40'	18"	40'	Poor	Remove	Poor	
40	Platanus racemosa	40'	15"	25'	Good	Relocate	Good	
41	Platanus racemosa	40'	15"	25'	Good	Relocate	Good	
42	Platanus racemosa	38'	15"	20'	Good	Relocate	Good	

19. Proposed protected trees remaining

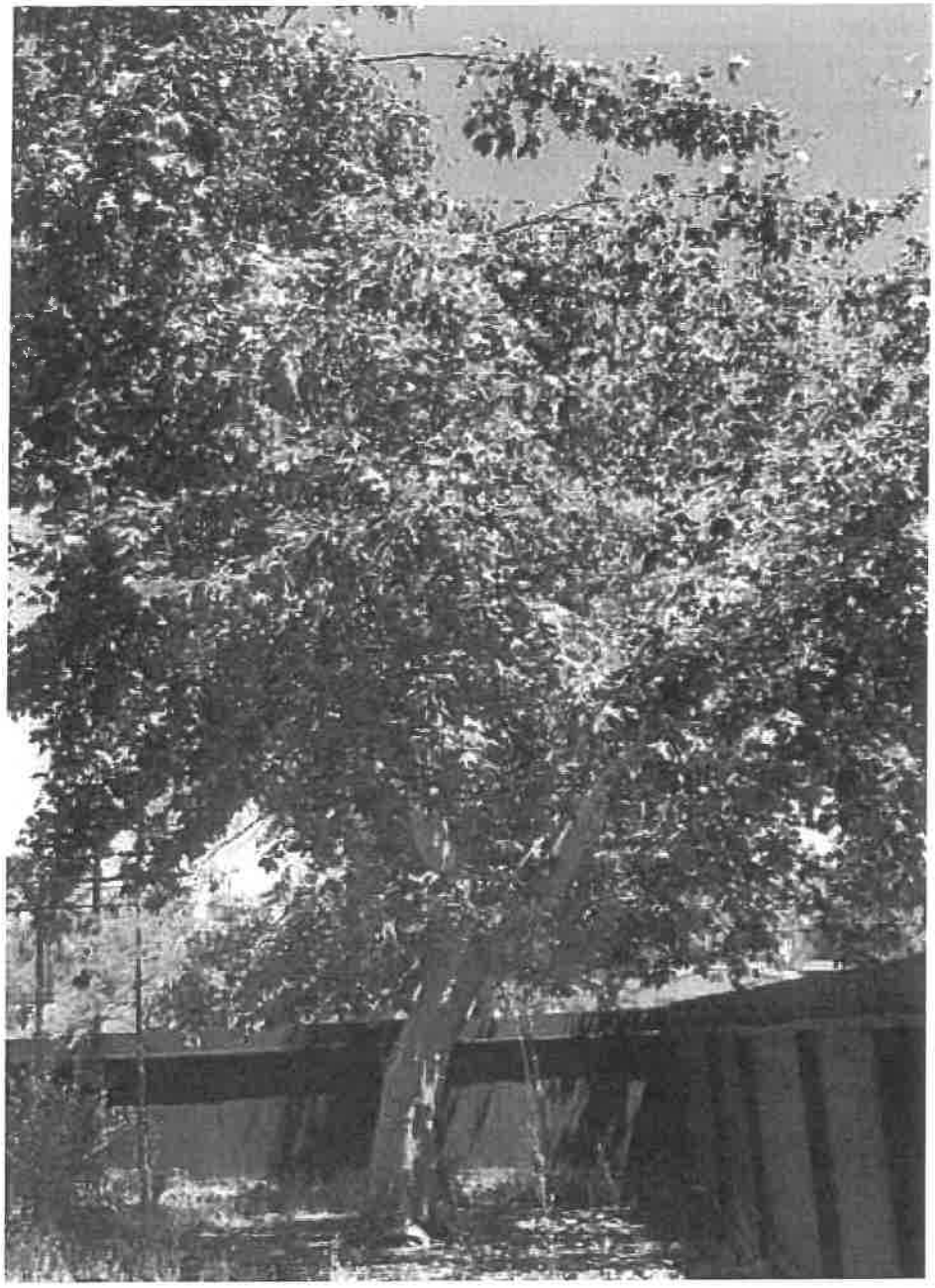
Tree Number	Species	Height	DBH	Spread	Condition	Suggested Treatment	Rating	Other
none								

20. Color Photos of protected Trees

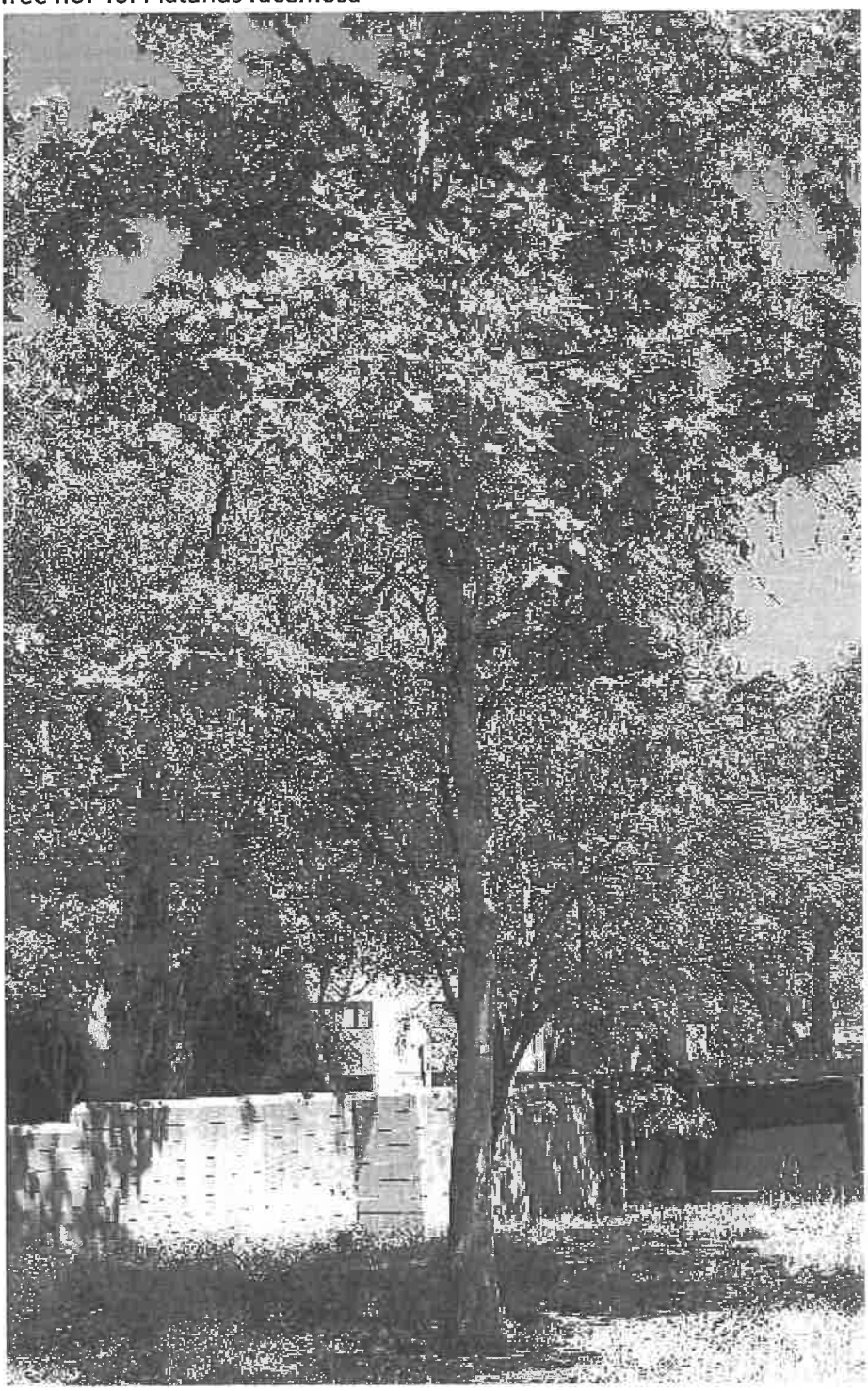
Tree no. 18. Platanus racemosa



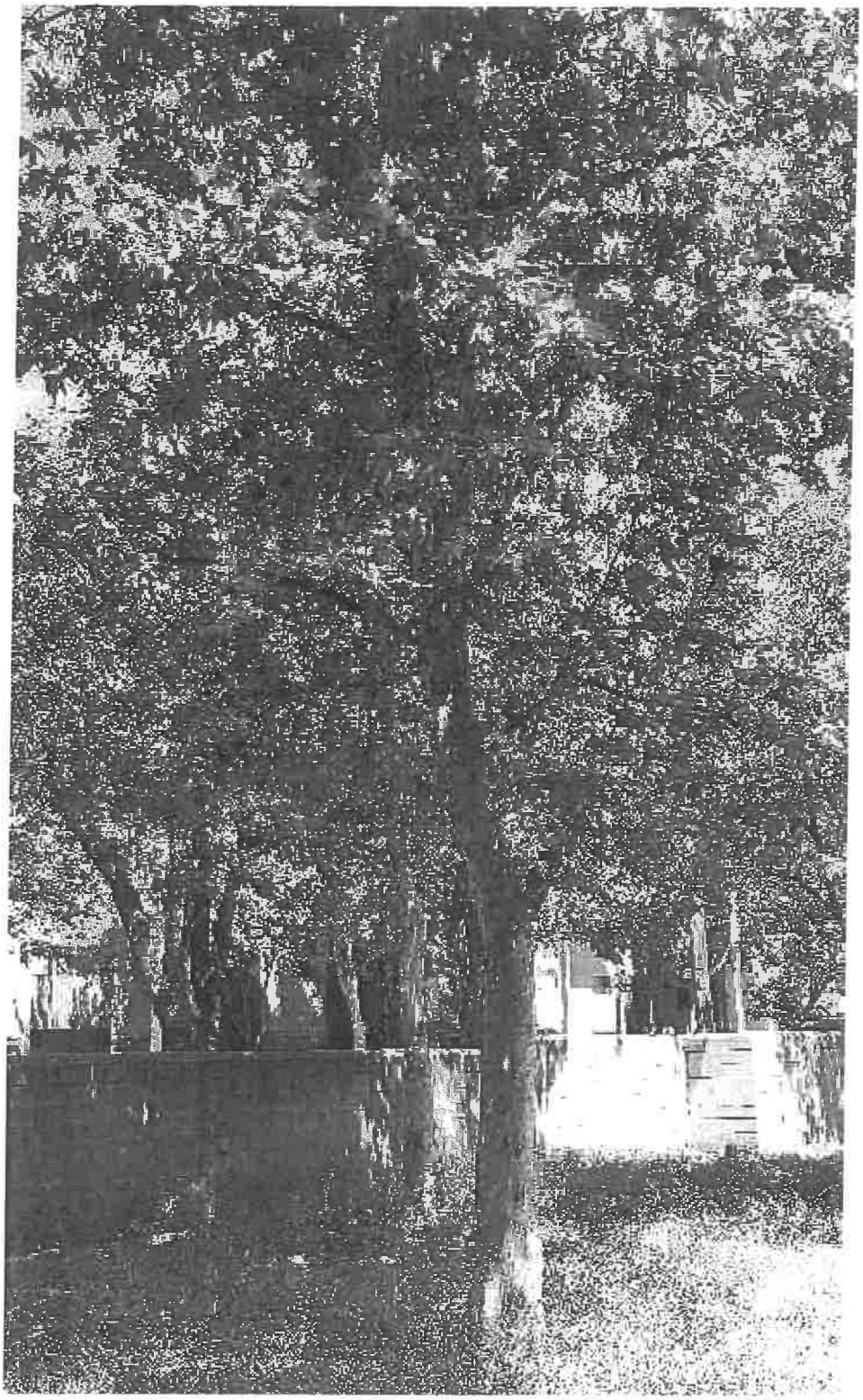
Tree no. 39. Platanus racemosa



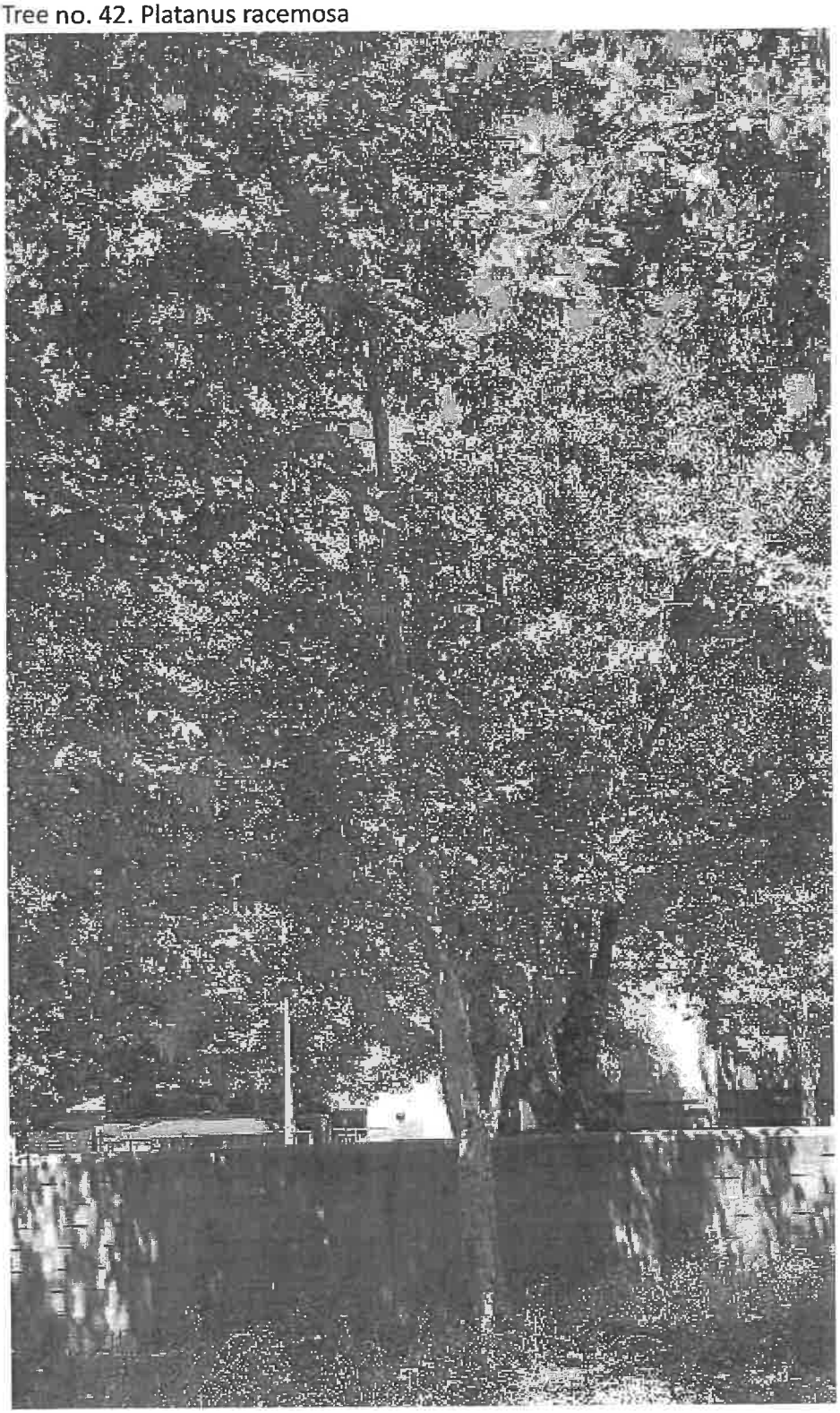
Tree no. 40. Platanus racemosa



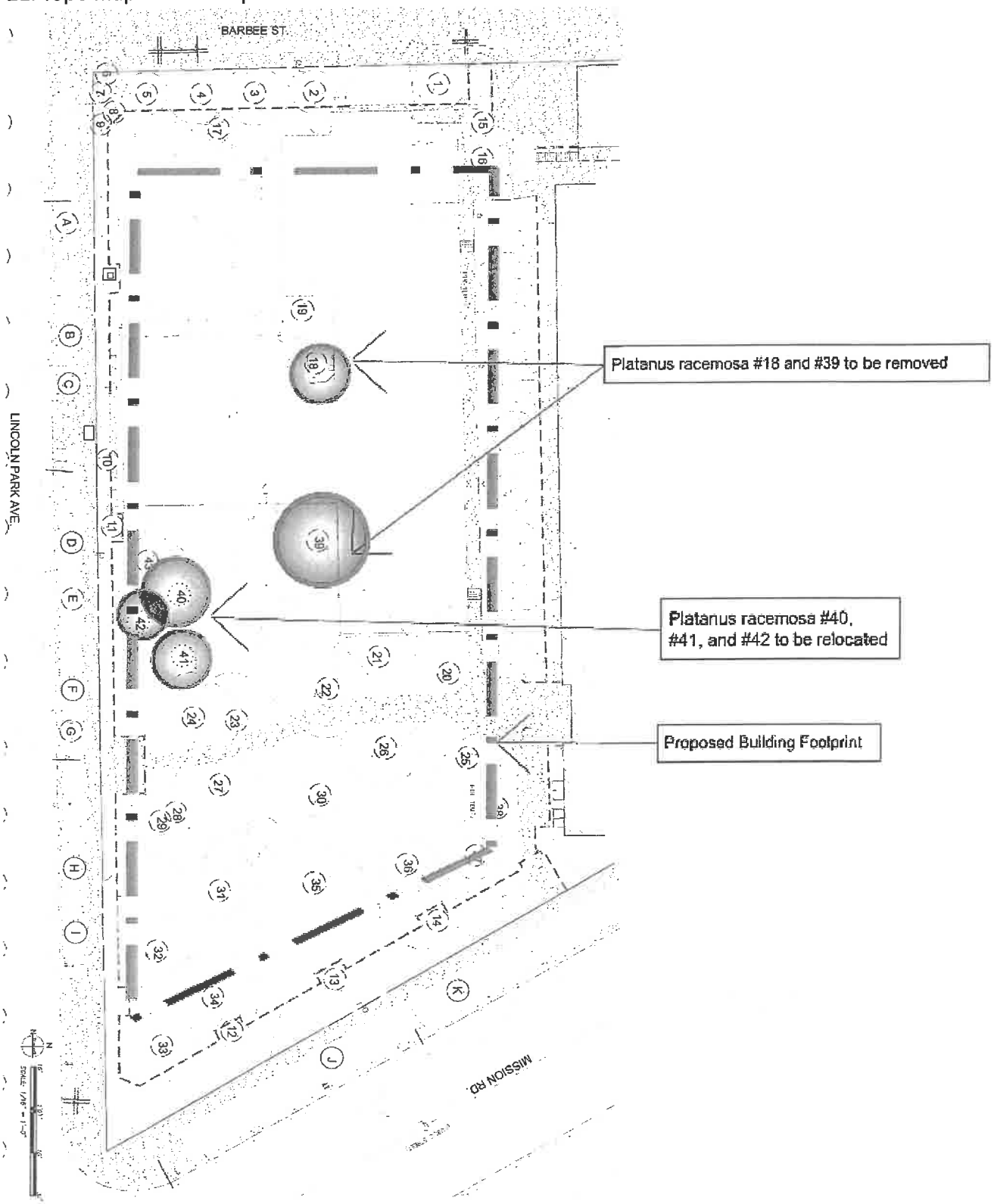
Tree no. 41. Platanus racemosa



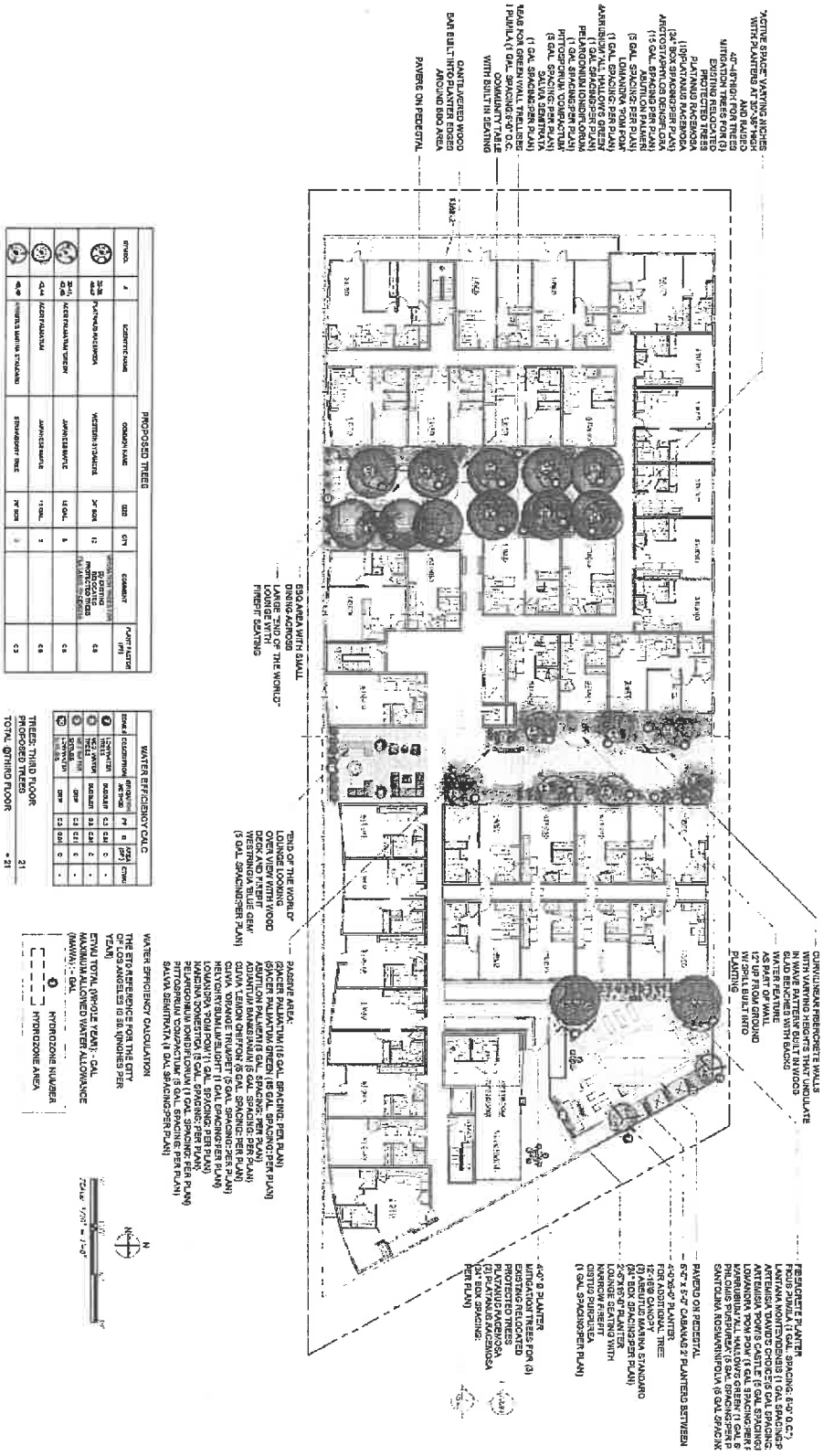
Tree no. 42. Platanus racemosa



21. Topo map with trees plotted



22. Landscape Plan, Third floor



PROPOSED TREES

SYMBOL	#	SCIENTIFIC NAME	COMMON NAME	SIZE	QTY	COMMENT	PLANT FACTOR (PF)
	3	PLATANUS RACEMOSA	WESTERN SYCAMORE	24" BOX	3	MITIGATION TREES FOR (3) EXISTING RELOCATED PROTECTED TREES	0.5
	5	ACER PALMATUM 'OREGON'	JAPANESE MAPLE	15 GAL	5		0.5
	4	ACER PALMATUM	JAPANESE MAPLE	15 GAL	2		0.5
	4	PISTACIA LENTISCUS STANDARD	STRAWBERRY TREE	24" BOX	3		0.3

WATER EFFICIENCY CALC

SYMBOL	#	DESCRIPTION	IRRIGATION METHOD	PF	IE	ETAW (PF/IE)
		CONTAINER TREES	BUBBLER	0.5	0.81	0
		CONTAINER TREES	BUBBLER	0.5	0.81	0
		SOD OR HYDROSEED LAWN(S)	SPRAY	0.8	0.81	0
		SHRUB AREA	DRIP	0.5	0.81	0

TREES: THIRD FLOOR 21
PROPOSED TREES - 21
TOTAL @THIRD FLOOR

WATER EFFICIENCY CALCULATION

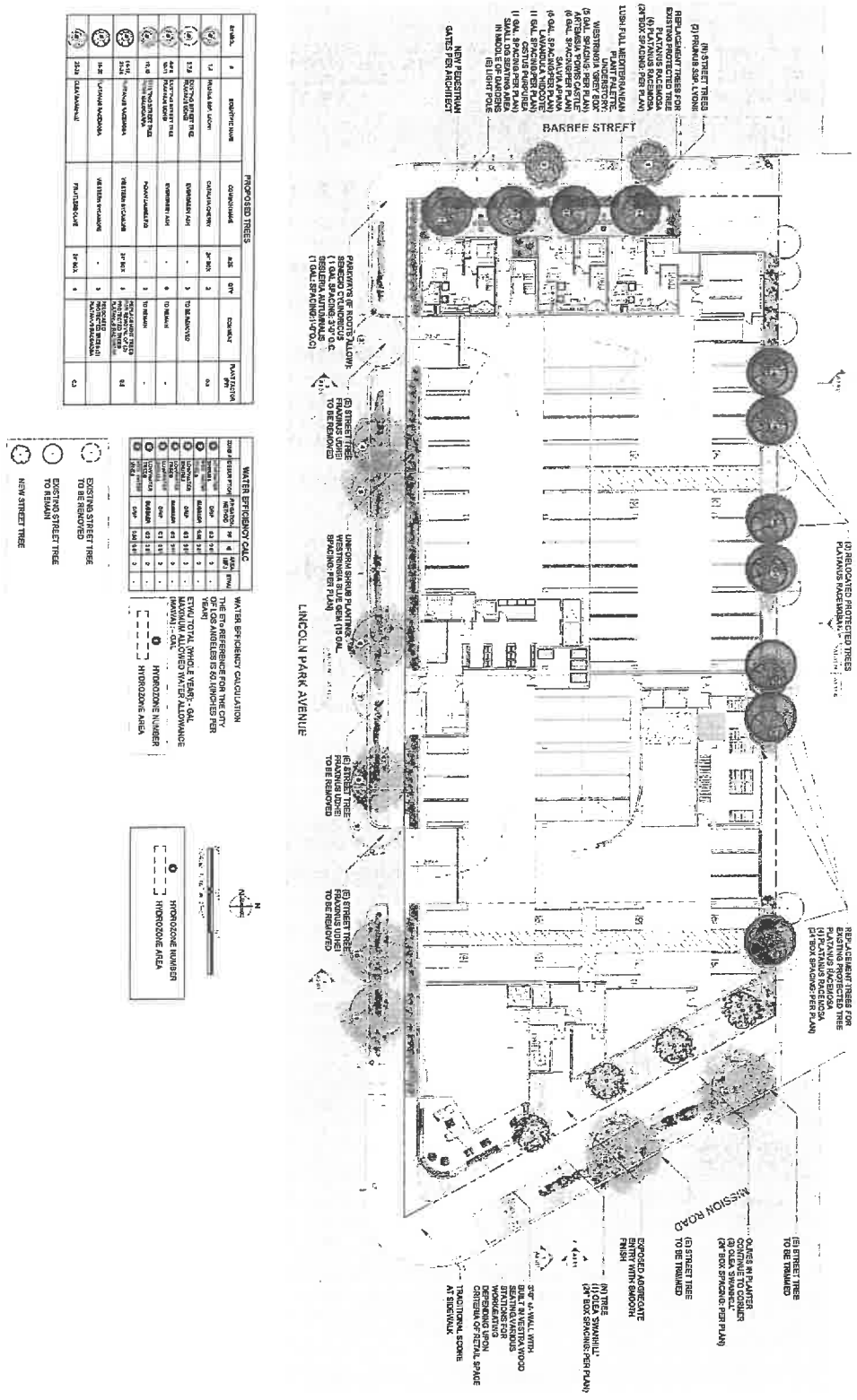
THE ETO REFERENCE FOR THE CITY OF LOS ANGELES IS 39.1(INCHES PER YEAR)

ETAW) TOTAL ANNUAL YEARLY - GAL
MAXIMUM ALLOWED WATER ALLOWANCE (MAWA) - GAL

HYDROZONE NUMBER

HYDROZONE AREA

Landscape plan, Ground floor



23. Current Licenses and certificates

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

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

7/15/21
7/15/21

CUT HERE

CUT HERE

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

CUT HERE

IMPORTANT

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.

CERTIFICATE NO. 6086 — Landscape Architect
EXPIRATION 09/30/23

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

STEPHANIE ANNE REED

Signature _____ RECEIPT NO. 11962001

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
ACCREDITED
ISO/IEC 17024
PERSONNEL CERTIFICATION BODY
#0847
ISA Certified Arborist

24. Other information

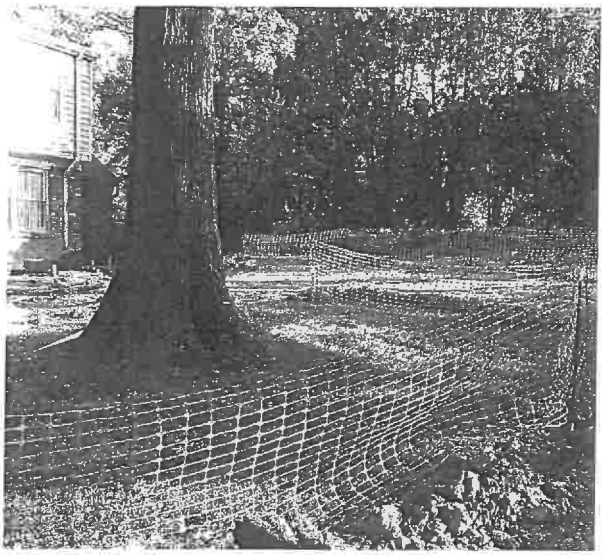
N/A

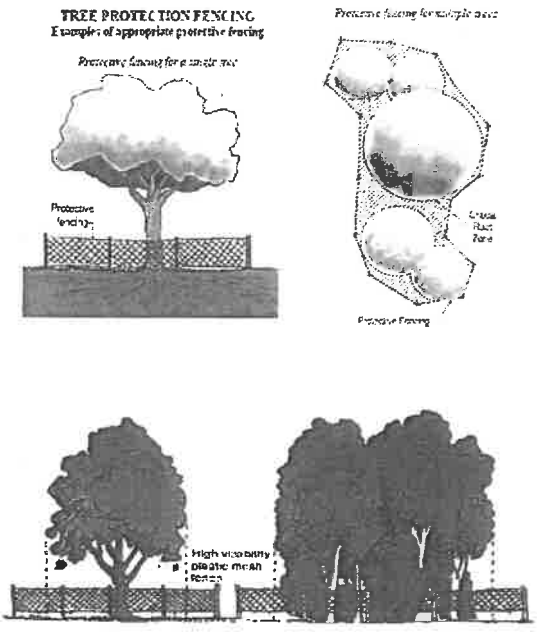
25. Arborist's opinion whether naturally occurring
It is the arborist's opinion that the protected trees have been planted by nursery stock.

26. Pictures of Protective fencing
None of the protected trees will be preserved in place, and therefore do not have protective fencing. If needed, refer to the following guidelines:

Protective tree fencing for all categories of Protected Trees

Fenced enclosures shall be erected around trees to be protected. This will achieve three primary goals, (1) to keep crowns and branching structure clear from contact by equipment, materials, and activities; (2) to preserve roots and soil condition in an intact and non-compacted state and; (3) to identify the Tree Protection Zone in which no soil disturbance is permitted and activities are restricted, unless otherwise approved by the Arborist.





Tree Photo Not Taken From Current Site.
For Illustration Purposes Only.

All trees to be preserved shall be protected with Type 1 fencing. The fences shall enclose the entire area under the canopy dripline or Tree Protection Zone, if specified by the Arborist. If fencing must be located on paving or concrete that will not be demolished, an appropriate grade level concrete base may support the posts. Tree fences shall be erected before demolition, grading, or construction begins and remain until final inspection of the project.
A 'Warning" sign shall be prominently displayed on each protective fence.
The sign shall be a minimum of 8.5 inches x 11 inches and clearly state the following:

TREE PROTECTION ZONE
This Fence Shall Not be Removed

27. Reason for Removal:
The removal of the protected trees would not result in an undesirable, irreversible soil erosion through diversion or increased flow of surface waters that cannot be mitigated to the satisfaction of the City's Chief Forester, and the physical condition or location of the tree or shrub is such that its continued presence in its existing location prevents the reasonable development of the property. **The trees are within the footprint of the proposed structure, and would not survive impacts of construction due to disease, insect infestations, and trunk damage.**

Appendix B

CITY OF LOS ANGELES VMT CALCULATOR Version 1.3

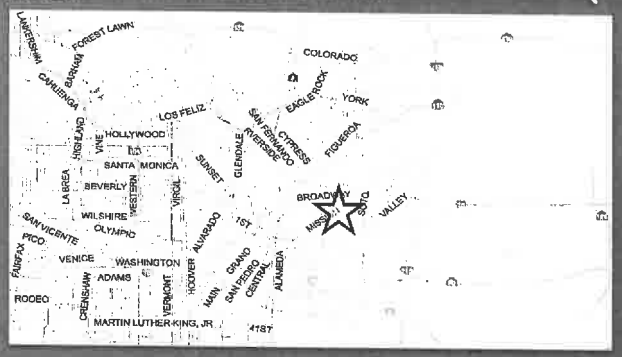
Project Screening Criteria: Is this project required to conduct a vehicle miles traveled analysis?

Project Information

Project:

Scenario:

Address:



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
		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
		DU
Housing | Multi-Family	137	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	892 Daily Vehicle Trips
0 Daily VMT	6,412 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	892 Net Daily Trips
The net increase in daily VMT ≤ 0	6,412 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

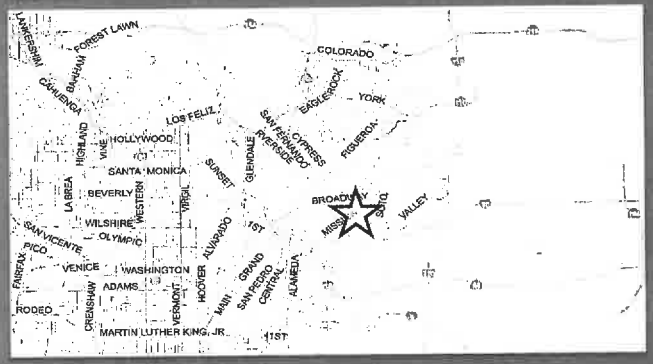
CITY OF LOS ANGELES VMT CALCULATOR Version 1.3

Project Information

Project: 3601 Mission Apartment Project

Scenario:

Address: 3601 N MISSION ROAD, 90031



Proposed Project Land Use Type	Value	Unit
Housing | Multi-Family	137	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
- B Transit
- C Education & Encouragement
- D Commute Trip Reductions
- E Shared Mobility
- F Bicycle Infrastructure
  - Implement/Improve On-street Bicycle Facility — Select Proposed Prj or Mitigation to include this strategy — ☐ Proposed Prj ☐ Mitigation
  - Include Bike Parking Per LAMC — Select Proposed Prj or Mitigation to include this strategy — ☑ Proposed Prj ☐ Mitigation
  - Include Secure Bike Parking and Showers — Select Proposed Prj or Mitigation to include this strategy — ☐ Proposed Prj ☐ Mitigation
- G Neighborhood Enhancement

Analysis Results

Proposed Project	With Mitigation
734 Daily Vehicle Trips	**734** Daily Vehicle Trips
5,281 Daily VMT	**5,281** Daily VMT
5.7 Household VMT per Capita	**5.7** 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

8/17/22

CITY OF LOS ANGELES VMT CALCULATOR

Report 1: Project & Analysis Overview

Date: August 16, 2022
Project Name: 3601 Mission Apartment Project
Project Scenario:
Project Address: 3601 N MISSION ROAD, 90031

Project Information			
Land Use Type		**Value**	**Units**
Housing	*Single Family*	*0*	*DU*
	Multi Family	137	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 Superstore	*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*
	University	*0*	*Students*

School	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: August 16, 2022
Project Name: 3601 Mission Apartment Project
Project Scenario:
Project Address: 3601 N MISSION ROAD, 90031

Analysis Results			
Total Employees: 0			
Total Population: 456			
Proposed Project		***With Mitigation***	
734	**Daily Vehicle Trips**	**734**	**Daily Vehicle Trips**
5,281	**Daily VMT**	**5,281**	**Daily VMT**
5.7	**Household VMT per Capita**	**5.7**	**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)	215	215
		Actual parking provision (spaces)	103	103
	Unbundle parking	Monthly cost for parking ($)	$85	$85
	Parking cash-out	*Employees eligible (%)*	*0%*	*0%*
	Price workplace parking	*Daily parking charge ($)*	*$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 Program	*Employees participating (%)*	*0%*	*0%*
		Type of program	*0*	*0*
	Employer sponsored vanpool or shuttle	*Degree of implementation (low, medium, high)*	*0*	*0*
		Employees eligible (%)	*0%*	*0%*
		Employer size (small, medium, large)	*0*	*0*
	Ride-share program	*Employees eligible (%)*	*0%*	*0%*
Shared Mobility	*Car share*	*Car share project setting (Urban, Suburban, All Other)*	*0*	*0*
	Bike share	*Within 600 feet of existing bike share station - OR- implementing new bike share station (Yes/No)*	*0*	*0*
	School carpool program	*Level of implementation (Low, Medium, High)*	*0*	*0*

(cont. on following page)

TDM Strategy Inputs, Cont.				
Strategy Type		**Description**	**Proposed Project**	**Mitigations**
Bicycle Infrastructure	*Implement/Improve on-street bicycle facility*	*Provide bicycle facility along site (Yes/No)*	*0*	*0*
	Include Bike parking per LAMC	Meets City Bike Parking Code (Yes/No)	Yes	Yes
	Include secure bike parking and showers	*Includes indoor bike parking/lockers, showers, & repair station (Yes/No)*	*0*	*0*
Neighborhood Enhancement	*Traffic calming improvements*	*Streets with traffic calming improvements (%)*	*0%*	*0%*
		Intersections with traffic calming improvements (%)	*0%*	*0%*
	Pedestrian network improvements	*Included (within project and connecting off-site/within project only)*	*0*	*0*

CITY OF LOS ANGELES VMT CALCULATOR

Report 3: TDM Outputs

Date: August 16, 2022
Project Name: 3601 Mission Apartment Project
Project Scenario:
Project Address: 3601 N MISSION ROAD, 90031

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*	
		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%
	Unbundle parking	10%	10%	0%	0%	10%	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%
	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%
	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%
	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%
	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*	
		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%*
	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	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*
Neighborhood Enhancement	Traffic calming improvements	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*
	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	*22%*	*22%*	*13%*	*13%*	*22%*	*22%*	*13%*	*13%*	*13%*	*13%*	*13%*	*13%*
MAX. TDM EFFECT	*22%*	*22%*	*13%*	*13%*	*22%*	*22%*	*13%*	*13%*	*13%*	*13%*	*13%*	*13%*

= 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.

Source
TDM Strategy Appendix, Parking sections 1 - 5
TDM Strategy Appendix, Transit sections 1 - 3
TDM Strategy Appendix, Education & Encouragement sections 1 - 2
TDM Strategy Appendix, Commute Trip Reductions sections 1 - 4
TDM Strategy Appendix, Shared Mobility sections 1 - 3

Source
TDM Strategy Appendix, Bicycle Infrastructure sections 1 - 3
TDM Strategy Appendix, Neighborhood Enhancement sections 1 - 3

CITY OF LOS ANGELES VMT CALCULATOR

Report 4: MXD Methodology

Date: August 16, 2022
Project Name: 3601 Mission Apartment Project
Project Scenario:
Project Address: 3601 N MISSION ROAD, 90031

MXD Methodology - Project Without TDM

	Unadjusted Trips	MXD Adjustment	MXD Trips	Average Trip Length	Unadjusted VMT
Home Based Work Production	163	-23.3%	125	9.4	1,532
Home Based Other Production	450	-23.1%	346	6.2	2,790
Non-Home Based Other Production	210	-1.9%	206	8.0	1,680
Home-Based Work Attraction	0	0.0%	0	13.0	0
Home-Based Other Attraction	214	-22.4%	166	6.1	1,305
Non-Home Based Other Attraction	51	-3.9%	49	8.8	449

MXD Methodology with TDM Measures

	Proposed Project			*Project with Mitigation Me*	
	TDM Adjustment	Project Trips	Project VMT	TDM Adjustment	Mitigated Trips
Home Based Work Production	-21.9%	98	917	-21.9%	98
Home Based Other Production	-21.9%	270	1,675	-21.9%	270
Non-Home Based Other Production	-13.0%	179	1,433	-13.0%	179
Home-Based Work Attraction	-13.0%	0	0	-13.0%	0
Home-Based Other Attraction	-13.0%	144	881	-13.0%	144
Non-Home Based Other Attraction	-13.0%	43	375	-13.0%	43

MXD VMT Methodology Per Capita & Per Employee

Total Population: 456
Total Employees: 0
APC: East Los Angeles

	Proposed Project	*Project with Mitigation Mec*
Total Home Based Production VMT	**2,592**	**2,592**
Total Home Based Work Attraction VMT	**0**	**0**
Total Home Based VMT Per Capita	**5.7**	**5.7**
Total Work Based VMT Per Employee	**N/A**	**N/A**

MXD VMT
1,175
2,145
1,648
0
1,013
431

asures

Mitigated VMT
917
1,675
1,433
0
881
375

ısures

Appendix C

Mission and Lincoln Apartments - Los Angeles-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Mission and Lincoln Apartments

Los Angeles-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Apartments Mid Rise	184.00	Dwelling Unit	1.16	217,885.00	526

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	33
Climate Zone	12			**Operational Year**	2025
Utility Company	Los Angeles Department of Water & Power				
CO2 Intensity (lb/MWhr)	691.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - known lot area

Construction Phase - No structure demolition is occurring; only concrete and asphault removal

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	20.00	10.00
tblLandUse	LandUseSquareFeet	184,000.00	217,885.00
tblLandUse	LotAcreage	4.84	1.16

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

Mission and Lincoln Apartments - Los Angeles-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2023	0.1136	0.7813	0.9998	2.1800e-003	0.1032	0.0325	0.1357	0.0320	0.0312	0.0632	0.0000	189.6986	189.6986	0.0226	4.3	191.5456
2024	0.7742	0.6199	0.8751	1.9200e-003	0.0776	0.0240	0.1016	0.0208	0.0230	0.0438	0.0000	166.8857	166.8857	0.0184	3.8	168.4948
Maximum	**0.7742**	**0.7813**	**0.9998**	**2.1800e-003**	**0.1032**	**0.0325**	**0.1357**	**0.0320**	**0.0312**	**0.0632**	**0.0000**	**189.6986**	**189.6986**	**0.0226**	**4.3**	**191.5456**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2023	0.1136	0.7813	0.9998	2.1800e-003	0.1032	0.0325	0.1357	0.0320	0.0312	0.0632	0.0000	189.6984	189.6984	0.0226	4.3	191.5454
2024	0.7742	0.6199	0.8751	1.9200e-003	0.0776	0.0239	0.1016	0.0208	0.0230	0.0438	0.0000	166.8855	166.8855	0.0184	3.8	168.4947
Maximum	**0.7742**	**0.7813**	**0.9998**	**2.1800e-003**	**0.1032**	**0.0325**	**0.1357**	**0.0320**	**0.0312**	**0.0632**	**0.0000**	**189.6984**	**189.6984**	**0.0226**	**4.3**	**191.5454**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)

Mission and Lincoln Apartments - Los Angeles-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

1	7-1-2023	9-30-2023	0.4170	0.4170
2	10-1-2023	12-31-2023	0.4876	0.4876
3	1-1-2024	3-31-2024	0.4558	0.4558
4	4-1-2024	6-30-2024	0.9360	0.9360
		Highest	0.9360	0.9360

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.5151	0.0696	3.0654	3.0800e-003		0.1862	0.1862		0.1862	0.1862	19.5443	40.6570	60.2013	0.0613	1.3	62.1280
Energy	0.0107	0.0912	0.0388	5.8000e-004		7.3700e-003	7.3700e-003		7.3700e-003	7.3700e-003	0.0000	328.0062	328.0062	0.0126	3.2	329.2821
Mobile	0.4899	0.5520	5.0561	0.0112	1.2217	8.1400e-003	1.2299	0.3260	7.5600e-003	0.3335	0.0000	1,033.8228	1,033.8228	0.0709	0.0	1,048.9185
Waste						0.0000	0.0000		0.0000	0.0000	17.1812	0.0000	17.1812	1.0154	0.0	42.5656
Water						0.0000	0.0000		0.0000	0.0000	3.8034	75.3518	79.1552	0.3942	9.6	91.8895
Total	**2.0157**	**0.7127**	**8.1603**	**0.0148**	**1.2217**	**0.2017**	**1.4235**	**0.3260**	**0.2011**	**0.5271**	**40.5288**	**1,477.8379**	**1,518.3667**	**1.5544**	**0.0**	**1,574.7836**

Mitigated Operational

Mission and Lincoln Apartments - Los Angeles-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	tons/yr										MT/yr					
Area	1.5151	0.0696	3.0654	3.0800e-003		0.1862	0.1862		0.1862	0.1862	19.5443	40.6570	60.2013	0.0613	1.3	62.1280
Energy	0.0107	0.0912	0.0388	5.8000e-004		7.3700e-003	7.3700e-003		7.3700e-003	7.3700e-003	0.0000	328.0062	328.0062	0.0126	3.2	329.2821
Mobile	0.4899	0.5520	5.0561	0.0112	1.2217	8.1400e-003	1.2299	0.3260	7.5600e-003	0.3335	0.0000	1,033.8228	1,033.8228	0.0709	0.0	1,048.9185
Waste						0.0000	0.0000		0.0000	0.0000	17.1812	0.0000	17.1812	1.0154	0.0	42.5656
Water						0.0000	0.0000		0.0000	0.0000	3.8034	75.3518	79.1552	0.3942	9.6	91.8895
Total	**2.0157**	**0.7127**	**8.1603**	**0.0148**	**1.2217**	**0.2017**	**1.4235**	**0.3260**	**0.2011**	**0.5271**	**40.5288**	**1,477.8379**	**1,518.3667**	**1.5544**	**0.0**	**1,574.7836**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	7/1/2023	7/14/2023	5	10	
2	Site Preparation	Site Preparation	7/29/2023	8/1/2023	5	2	
3	Grading	Grading	8/2/2023	8/7/2023	5	4	
4	Building Construction	Building Construction	8/8/2023	5/13/2024	5	200	
5	Paving	Paving	5/14/2024	5/27/2024	5	10	
6	Architectural Coating	Architectural Coating	5/28/2024	6/10/2024	5	10	

Acres of Grading (Site Preparation Phase): 1.88

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Acres of Grading (Grading Phase): 4

Acres of Paving: 0

Residential Indoor: 441,217; Residential Outdoor: 147,072; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Rubber Tired Dozers	1	8.00	247	0.40
Demolition	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Site Preparation	Graders	1	8.00	187	0.41
Site Preparation	Rubber Tired Dozers	1	7.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	2	7.00	97	0.37
Building Construction	Cranes	1	6.00	231	0.29
Building Construction	Forklifts	1	6.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Building Construction	Welders	3	8.00	46	0.45
Paving	Cement and Mortar Mixers	1	6.00	9	0.56
Paving	Pavers	1	6.00	130	0.42
Paving	Paving Equipment	1	8.00	132	0.36
Paving	Rollers	1	7.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	5	13.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	3	8.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	7	132.00	20.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	5	13.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	26.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	7.3600e-003	0.0716	0.0673	1.2000e-004		3.3800e-003	3.3800e-003		3.1600e-003	3.1600e-003	0.0000	10.5433	10.5433	2.6700e-003	0.0	10.6101
Total	**7.3600e-003**	**0.0716**	**0.0673**	**1.2000e-004**		**3.3800e-003**	**3.3800e-003**		**3.1600e-003**	**3.1600e-003**	**0.0000**	**10.5433**	**10.5433**	**2.6700e-003**	**0.0**	**10.6101**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0	0.0000
Worker	2.1000e-004	1.6000e-004	2.2100e-003	1.0000e-005	7.1000e-004	0.0000	7.2000e-004	1.9000e-004	0.0000	1.9000e-004	0.0000	0.5670	0.5670	2.0000e-005	1.0	0.5717
Total	**2.1000e-004**	**1.6000e-004**	**2.2100e-003**	**1.0000e-005**	**7.1000e-004**	**0.0000**	**7.2000e-004**	**1.9000e-004**	**0.0000**	**1.9000e-004**	**0.0000**	**0.5670**	**0.5670**	**2.0000e-005**	**1.0**	**0.5717**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	7.3600e-003	0.0716	0.0673	1.2000e-004		3.3800e-003	3.3800e-003		3.1600e-003	3.1600e-003	0.0000	10.5433	10.5433	2.6700e-003	0.0	10.6101
Total	**7.3600e-003**	**0.0716**	**0.0673**	**1.2000e-004**		**3.3800e-003**	**3.3800e-003**		**3.1600e-003**	**3.1600e-003**	**0.0000**	**10.5433**	**10.5433**	**2.6700e-003**	**0.0**	**10.6101**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0	0.0000
Worker	2.1000e-004	1.6000e-004	2.2100e-003	1.0000e-005	7.1000e-004	0.0000	7.2000e-004	1.9000e-004	0.0000	1.9000e-004	0.0000	0.5670	0.5670	2.0000e-005	1.0	0.5717
Total	**2.1000e-004**	**1.6000e-004**	**2.2100e-003**	**1.0000e-005**	**7.1000e-004**	**0.0000**	**7.2000e-004**	**1.9000e-004**	**0.0000**	**1.9000e-004**	**0.0000**	**0.5670**	**0.5670**	**2.0000e-005**	**1.0**	**0.5717**

3.3 Site Preparation - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					6.2700e-003	0.0000	6.2700e-003	3.0000e-003	0.0000	3.0000e-003	0.0000	0.0000	0.0000	0.0000	0.0	0.0000
Off-Road	1.1300e-003	0.0124	6.6400e-003	2.0000e-005		5.1000e-004	5.1000e-004		4.7000e-004	4.7000e-004	0.0000	1.5114	1.5114	4.9000e-004	0.0	1.5236
Total	**1.1300e-003**	**0.0124**	**6.6400e-003**	**2.0000e-005**	**6.2700e-003**	**5.1000e-004**	**6.7800e-003**	**3.0000e-003**	**4.7000e-004**	**3.4700e-003**	**0.0000**	**1.5114**	**1.5114**	**4.9000e-004**	**0.0**	**1.5236**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0	0.0000
Worker	3.0000e-005	2.0000e-005	2.7000e-004	0.0000	9.0000e-005	0.0000	9.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0698	0.0698	0.0000	0.0	0.0704
Total	**3.0000e-005**	**2.0000e-005**	**2.7000e-004**	**0.0000**	**9.0000e-005**	**0.0000**	**9.0000e-005**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**0.0698**	**0.0698**	**0.0000**	**0.0**	**0.0704**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					6.2700e-003	0.0000	6.2700e-003	3.0000e-003	0.0000	3.0000e-003	0.0000	0.0000	0.0000	0.0000	0.0	0.0000
Off-Road	1.1300e-003	0.0124	6.6400e-003	2.0000e-005		5.1000e-004	5.1000e-004		4.7000e-004	4.7000e-004	0.0000	1.5114	1.5114	4.9000e-004	0.0	1.5236
Total	**1.1300e-003**	**0.0124**	**6.6400e-003**	**2.0000e-005**	**6.2700e-003**	**5.1000e-004**	**6.7800e-003**	**3.0000e-003**	**4.7000e-004**	**3.4700e-003**	**0.0000**	**1.5114**	**1.5114**	**4.9000e-004**	**0.0**	**1.5236**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0	0.0000
Worker	3.0000e-005	2.0000e-005	2.7000e-004	0.0000	9.0000e-005	0.0000	9.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0698	0.0698	0.0000	0.0	0.0704
Total	**3.0000e-005**	**2.0000e-005**	**2.7000e-004**	**0.0000**	**9.0000e-005**	**0.0000**	**9.0000e-005**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**0.0698**	**0.0698**	**0.0000**	**0.0**	**0.0704**

3.4 Grading - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0142	0.0000	0.0142	6.8500e-003	0.0000	6.8500e-003	0.0000	0.0000	0.0000	0.0000	0.0	0.0000
Off-Road	2.6700e-003	0.0289	0.0174	4.0000e-005		1.2100e-003	1.2100e-003		1.1100e-003	1.1100e-003	0.0000	3.6208	3.6208	1.1700e-003	0.0	3.6501
Total	**2.6700e-003**	**0.0289**	**0.0174**	**4.0000e-005**	**0.0142**	**1.2100e-003**	**0.0154**	**6.8500e-003**	**1.1100e-003**	**7.9600e-003**	**0.0000**	**3.6208**	**3.6208**	**1.1700e-003**	**0.0**	**3.6501**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0	0.0000
Worker	6.0000e-005	5.0000e-005	6.8000e-004	0.0000	2.2000e-004	0.0000	2.2000e-004	6.0000e-005	0.0000	6.0000e-005	0.0000	0.1745	0.1745	0.0000	0.0	0.1759
Total	**6.0000e-005**	**5.0000e-005**	**6.8000e-004**	**0.0000**	**2.2000e-004**	**0.0000**	**2.2000e-004**	**6.0000e-005**	**0.0000**	**6.0000e-005**	**0.0000**	**0.1745**	**0.1745**	**0.0000**	**0.0**	**0.1759**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0142	0.0000	0.0142	6.8500e-003	0.0000	6.8500e-003	0.0000	0.0000	0.0000	0.0000	0.0	0.0000
Off-Road	2.6700e-003	0.0289	0.0174	4.0000e-005		1.2100e-003	1.2100e-003		1.1100e-003	1.1100e-003	0.0000	3.6208	3.6208	1.1700e-003	0.0	3.6501
Total	**2.6700e-003**	**0.0289**	**0.0174**	**4.0000e-005**	**0.0142**	**1.2100e-003**	**0.0154**	**6.8500e-003**	**1.1100e-003**	**7.9600e-003**	**0.0000**	**3.6208**	**3.6208**	**1.1700e-003**	**0.0**	**3.6501**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2	CO2e
Category	tons/yr										MT/yr					

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0	0.0000
Worker	6.0000e-005	5.0000e-005	6.8000e-004	0.0000	2.2000e-004	0.0000	2.2000e-004	6.0000e-005	0.0000	6.0000e-005	0.0000	0.1745	0.1745	0.0000	0.0	0.1759
Total	**6.0000e-005**	**5.0000e-005**	**6.8000e-004**	**0.0000**	**2.2000e-004**	**0.0000**	**2.2000e-004**	**6.0000e-005**	**0.0000**	**6.0000e-005**	**0.0000**	**0.1745**	**0.1745**	**0.0000**	**0.0**	**0.1759**

3.5 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0792	0.6089	0.6558	1.1500e-003		0.0268	0.0268		0.0258	0.0258	0.0000	94.4315	94.4315	0.0160	0.0	94.8324
Total	**0.0792**	**0.6089**	**0.6558**	**1.1500e-003**		**0.0268**	**0.0268**		**0.0258**	**0.0258**	**0.0000**	**94.4315**	**94.4315**	**0.0160**	**0.0**	**94.8324**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0	0.0000

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Vendor	1.1700e-003	0.0419	0.0157	1.9000e-004	6.5500e-003	2.0000e-004	6.7600e-003	1.8900e-003	1.9000e-004	2.0800e-003	0.0000	18.9095	18.9095	6.3000e-004	2.7	19.7363
Worker	0.0218	0.0173	0.2339	6.5000e-004	0.0752	4.6000e-004	0.0757	0.0200	4.2000e-004	0.0204	0.0000	59.8708	59.8708	1.5900e-003	1.5	60.3751
Total	**0.0230**	**0.0592**	**0.2496**	**8.4000e-004**	**0.0818**	**6.6000e-004**	**0.0824**	**0.0219**	**6.1000e-004**	**0.0225**	**0.0000**	**78.7803**	**78.7803**	**2.2200e-003**	**4.2**	**80.1113**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0792	0.6089	0.6558	1.1500e-003		0.0268	0.0268		0.0258	0.0258	0.0000	94.4314	94.4314	0.0160	0.0	94.8323
Total	**0.0792**	**0.6089**	**0.6558**	**1.1500e-003**		**0.0268**	**0.0268**		**0.0258**	**0.0258**	**0.0000**	**94.4314**	**94.4314**	**0.0160**	**0.0**	**94.8323**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0	0.0000
Vendor	1.1700e-003	0.0419	0.0157	1.9000e-004	6.5500e-003	2.0000e-004	6.7600e-003	1.8900e-003	1.9000e-004	2.0800e-003	0.0000	18.9095	18.9095	6.3000e-004	2.7	19.7363

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Worker	0.0218	0.0173	0.2339	6.5000e-004	0.0752	4.6000e-004	0.0757	0.0200	4.2000e-004	0.0204	0.0000	59.8708	59.8708	1.5900e-003	1.5	60.3751
Total	**0.0230**	**0.0592**	**0.2496**	**8.4000e-004**	**0.0818**	**6.6000e-004**	**0.0824**	**0.0219**	**6.1000e-004**	**0.0225**	**0.0000**	**78.7803**	**78.7803**	**2.2200e-003**	**4.2**	**80.1113**

3.5 Building Construction - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0682	0.5311	0.6008	1.0600e-003		0.0216	0.0216		0.0209	0.0209	0.0000	87.1734	87.1734	0.0145	0.0	87.5363
Total	**0.0682**	**0.5311**	**0.6008**	**1.0600e-003**		**0.0216**	**0.0216**		**0.0209**	**0.0209**	**0.0000**	**87.1734**	**87.1734**	**0.0145**	**0.0**	**87.5363**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0	0.0000
Vendor	1.0500e-003	0.0388	0.0142	1.8000e-004	6.0500e-003	1.9000e-004	6.2400e-003	1.7500e-003	1.8000e-004	1.9300e-003	0.0000	17.1931	17.1931	5.9000e-004	2.4	17.9458
Worker	0.0188	0.0142	0.2007	5.9000e-004	0.0694	4.1000e-004	0.0698	0.0184	3.8000e-004	0.0188	0.0000	53.7028	53.7028	1.3300e-003	1.3	54.1345

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Total	**0.0198**	**0.0530**	**0.2149**	**7.7000e-004**	**0.0755**	**6.0000e-004**	**0.0761**	**0.0202**	**5.6000e-004**	**0.0208**	**0.0000**	**70.8958**	**70.8958**	**1.9200e-003**	**3.8**	**72.0803**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0682	0.5311	0.6008	1.0600e-003		0.0216	0.0216		0.0209	0.0209	0.0000	87.1733	87.1733	0.0145	0.0	87.5362
Total	**0.0682**	**0.5311**	**0.6008**	**1.0600e-003**		**0.0216**	**0.0216**		**0.0209**	**0.0209**	**0.0000**	**87.1733**	**87.1733**	**0.0145**	**0.0**	**87.5362**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0	0.0000
Vendor	1.0500e-003	0.0388	0.0142	1.8000e-004	6.0500e-003	1.9000e-004	6.2400e-003	1.7500e-003	1.8000e-004	1.9300e-003	0.0000	17.1931	17.1931	5.9000e-004	2.4	17.9458
Worker	0.0188	0.0142	0.2007	5.9000e-004	0.0694	4.1000e-004	0.0698	0.0184	3.8000e-004	0.0188	0.0000	53.7028	53.7028	1.3300e-003	1.3	54.1345
Total	**0.0198**	**0.0530**	**0.2149**	**7.7000e-004**	**0.0755**	**6.0000e-004**	**0.0761**	**0.0202**	**5.6000e-004**	**0.0208**	**0.0000**	**70.8958**	**70.8958**	**1.9200e-003**	**3.8**	**72.0803**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.6 Paving - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	3.0900e-003	0.0293	0.0441	7.0000e-005		1.4100e-003	1.4100e-003		1.3000e-003	1.3000e-003	0.0000	5.8870	5.8870	1.8700e-003	0.0	5.9337
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0	0.0000
Total	**3.0900e-003**	**0.0293**	**0.0441**	**7.0000e-005**		**1.4100e-003**	**1.4100e-003**		**1.3000e-003**	**1.3000e-003**	**0.0000**	**5.8870**	**5.8870**	**1.8700e-003**	**0.0**	**5.9337**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0	0.0000
Worker	1.9000e-004	1.5000e-004	2.0600e-003	1.0000e-005	7.1000e-004	0.0000	7.2000e-004	1.9000e-004	0.0000	1.9000e-004	0.0000	0.5509	0.5509	1.0000e-005	1.0	0.5554
Total	**1.9000e-004**	**1.5000e-004**	**2.0600e-003**	**1.0000e-005**	**7.1000e-004**	**0.0000**	**7.2000e-004**	**1.9000e-004**	**0.0000**	**1.9000e-004**	**0.0000**	**0.5509**	**0.5509**	**1.0000e-005**	**1.0**	**0.5554**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2	CO2e
Category	tons/yr										MT/yr					
Off-Road	3.0900e-003	0.0293	0.0441	7.0000e-005		1.4100e-003	1.4100e-003		1.3000e-003	1.3000e-003	0.0000	5.8870	5.8870	1.8700e-003	0.0	5.9337
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0	0.0000
Total	**3.0900e-003**	**0.0293**	**0.0441**	**7.0000e-005**		**1.4100e-003**	**1.4100e-003**		**1.3000e-003**	**1.3000e-003**	**0.0000**	**5.8870**	**5.8870**	**1.8700e-003**	**0.0**	**5.9337**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0	0.0000
Worker	1.9000e-004	1.5000e-004	2.0600e-003	1.0000e-005	7.1000e-004	0.0000	7.2000e-004	1.9000e-004	0.0000	1.9000e-004	0.0000	0.5509	0.5509	1.0000e-005	1.0	0.5554
Total	**1.9000e-004**	**1.5000e-004**	**2.0600e-003**	**1.0000e-005**	**7.1000e-004**	**0.0000**	**7.2000e-004**	**1.9000e-004**	**0.0000**	**1.9000e-004**	**0.0000**	**0.5509**	**0.5509**	**1.0000e-005**	**1.0**	**0.5554**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.7 Architectural Coating - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.6817					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0	0.0000
Off-Road	9.0000e-004	6.0900e-003	9.0500e-003	1.0000e-005		3.0000e-004	3.0000e-004		3.0000e-004	3.0000e-004	0.0000	1.2766	1.2766	7.0000e-005	0.0	1.2784
Total	**0.6826**	**6.0900e-003**	**9.0500e-003**	**1.0000e-005**		**3.0000e-004**	**3.0000e-004**		**3.0000e-004**	**3.0000e-004**	**0.0000**	**1.2766**	**1.2766**	**7.0000e-005**	**0.0**	**1.2784**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0	0.0000
Worker	3.8000e-004	2.9000e-004	4.1200e-003	1.0000e-005	1.4200e-003	1.0000e-005	1.4300e-003	3.8000e-004	1.0000e-005	3.9000e-004	0.0000	1.1019	1.1019	3.0000e-005	3.0	1.1107
Total	**3.8000e-004**	**2.9000e-004**	**4.1200e-003**	**1.0000e-005**	**1.4200e-003**	**1.0000e-005**	**1.4300e-003**	**3.8000e-004**	**1.0000e-005**	**3.9000e-004**	**0.0000**	**1.1019**	**1.1019**	**3.0000e-005**	**3.0**	**1.1107**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.6817					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0	0.0000
Off-Road	9.0000e-004	6.0900e-003	9.0500e-003	1.0000e-005		3.0000e-004	3.0000e-004		3.0000e-004	3.0000e-004	0.0000	1.2766	1.2766	7.0000e-005	0.0	1.2784
Total	**0.6826**	**6.0900e-003**	**9.0500e-003**	**1.0000e-005**		**3.0000e-004**	**3.0000e-004**		**3.0000e-004**	**3.0000e-004**	**0.0000**	**1.2766**	**1.2766**	**7.0000e-005**	**0.0**	**1.2784**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0	0.0000
Worker	3.8000e-004	2.9000e-004	4.1200e-003	1.0000e-005	1.4200e-003	1.0000e-005	1.4300e-003	3.8000e-004	1.0000e-005	3.9000e-004	0.0000	1.1019	1.1019	3.0000e-005	3.0	1.1107
Total	**3.8000e-004**	**2.9000e-004**	**4.1200e-003**	**1.0000e-005**	**1.4200e-003**	**1.0000e-005**	**1.4300e-003**	**3.8000e-004**	**1.0000e-005**	**3.9000e-004**	**0.0000**	**1.1019**	**1.1019**	**3.0000e-005**	**3.0**	**1.1107**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.4899	0.5520	5.0561	0.0112	1.2217	8.1400e-003	1.2299	0.3260	7.5600e-003	0.3335	0.0000	1,033.8228	1,033.8228	0.0709	0.044	1,048.9185
Unmitigated	0.4899	0.5520	5.0561	0.0112	1.2217	8.1400e-003	1.2299	0.3260	7.5600e-003	0.3335	0.0000	1,033.8228	1,033.8228	0.0709	0.044	1,048.9185

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Mid Rise	1,000.96	903.44	752.56	3,251,567	3,251,567
Total	1,000.96	903.44	752.56	3,251,567	3,251,567

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Mid Rise	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3

4.4 Fleet Mix

Mission and Lincoln Apartments - Los Angeles-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Mid Rise	0.540171	0.064547	0.189075	0.126673	0.023412	0.006384	0.010926	0.008089	0.000929	0.000597	0.0251	0.000706	0.00

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	222.3798	222.3798	0.0106	1.29	223.0280
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	222.3798	222.3798	0.0106	1.29	223.0280
NaturalGas Mitigated	0.0107	0.0912	0.0388	5.8000e-004		7.3700e-003	7.3700e-003		7.3700e-003	7.3700e-003	0.0000	105.6264	105.6264	2.0200e-003	1.94	106.2541
NaturalGas Unmitigated	0.0107	0.0912	0.0388	5.8000e-004		7.3700e-003	7.3700e-003		7.3700e-003	7.3700e-003	0.0000	105.6264	105.6264	2.0200e-003	1.94	106.2541

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Mid Rise	1.97936e+006	0.0107	0.0912	0.0388	5.8000e-004		7.3700e-003	7.3700e-003		7.3700e-003	7.3700e-003	0.0000	105.6264	105.6264	2.020	1.9400e-003	106.2541
Total		**0.0107**	**0.0912**	**0.0388**	**5.8000e-004**		**7.3700e-003**	**7.3700e-003**		**7.3700e-003**	**7.3700e-003**	**0.0000**	**105.6264**	**105.6264**	**2.020**	**1.9400e-003**	**106.2541**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Mid Rise	1.97936e+006	0.0107	0.0912	0.0388	5.8000e-004		7.3700e-003	7.3700e-003		7.3700e-003	7.3700e-003	0.0000	105.6264	105.6264	2.020	1.9400e-003	106.2541
Total		**0.0107**	**0.0912**	**0.0388**	**5.8000e-004**		**7.3700e-003**	**7.3700e-003**		**7.3700e-003**	**7.3700e-003**	**0.0000**	**105.6264**	**105.6264**	**2.020**	**1.9400e-003**	**106.2541**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Mid Rise	708494	222.3798	0.0106	1.2900e-003	223.0280

Mission and Lincoln Apartments - Los Angeles-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Total		**222.3798**	**0.0106**	**1.2900e-003**	**223.0280**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Mid Rise	708494	222.3798	0.0106	1.2900e-003	223.0280
Total		**222.3798**	**0.0106**	**1.2900e-003**	**223.0280**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2	CO2e
Category	tons/yr										MT/yr					
Mitigated	1.5151	0.0696	3.0654	3.0800e-003		0.1862	0.1862		0.1862	0.1862	19.5443	40.6570	60.2013	0.0613	1.3	62.1280

Mission and Lincoln Apartments - Los Angeles-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Unmitigated	1.5151	0.0696	3.0654	3.0800e-003		0.1862	0.1862		0.1862	0.1862	19.5443	40.6570	60.2013	0.0613	1.3	62.1280

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0682					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0	0.0000
Consumer Products	0.7873					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0	0.0000
Hearth	0.6027	0.0477	1.1697	2.9800e-003		0.1757	0.1757		0.1757	0.1757	19.5443	37.5575	57.1018	0.0583	1.3	58.9542
Landscaping	0.0569	0.0218	1.8957	1.0000e-004		0.0105	0.0105		0.0105	0.0105	0.0000	3.0996	3.0996	2.9700e-003	0.0	3.1738
Total	**1.5151**	**0.0696**	**3.0654**	**3.0800e-003**		**0.1862**	**0.1862**		**0.1862**	**0.1862**	**19.5443**	**40.6570**	**60.2013**	**0.0613**	**1.3**	**62.1280**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0682					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0	0.0000

Mission and Lincoln Apartments - Los Angeles-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Consumer Products	0.7873					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0	0.0000
Hearth	0.6027	0.0477	1.1697	2.9800e-003		0.1757	0.1757		0.1757	0.1757	19.5443	37.5575	57.1018	0.0583	1.3	58.9542
Landscaping	0.0569	0.0218	1.8957	1.0000e-004		0.0105	0.0105		0.0105	0.0105	0.0000	3.0996	3.0996	2.9700e-003	0.0	3.1738
Total	**1.5151**	**0.0696**	**3.0654**	**3.0800e-003**		**0.1862**	**0.1862**		**0.1862**	**0.1862**	**19.5443**	**40.6570**	**60.2013**	**0.0613**	**1.3**	**62.1280**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	79.1552	0.3942	9.6600e-003	91.8895
Unmitigated	79.1552	0.3942	9.6600e-003	91.8895

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e

Mission and Lincoln Apartments - Los Angeles-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Land Use	Mgal	MT/yr			
Apartments Mid Rise	11.9883 / 7.55787	79.1552	0.3942	9.6600e-003	91.8895
Total		**79.1552**	**0.3942**	**9.6600e-003**	**91.8895**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Mid Rise	11.9883 / 7.55787	79.1552	0.3942	9.6600e-003	91.8895
Total		**79.1552**	**0.3942**	**9.6600e-003**	**91.8895**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	MT/yr			
Mitigated	17.1812	1.0154	0.0000	42.5656
Unmitigated	17.1812	1.0154	0.0000	42.5656

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	84.64	17.1812	1.0154	0.0000	42.5656
Total		**17.1812**	**1.0154**	**0.0000**	**42.5656**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	84.64	17.1812	1.0154	0.0000	42.5656
Total		**17.1812**	**1.0154**	**0.0000**	**42.5656**

Mission and Lincoln Apartments - Los Angeles-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

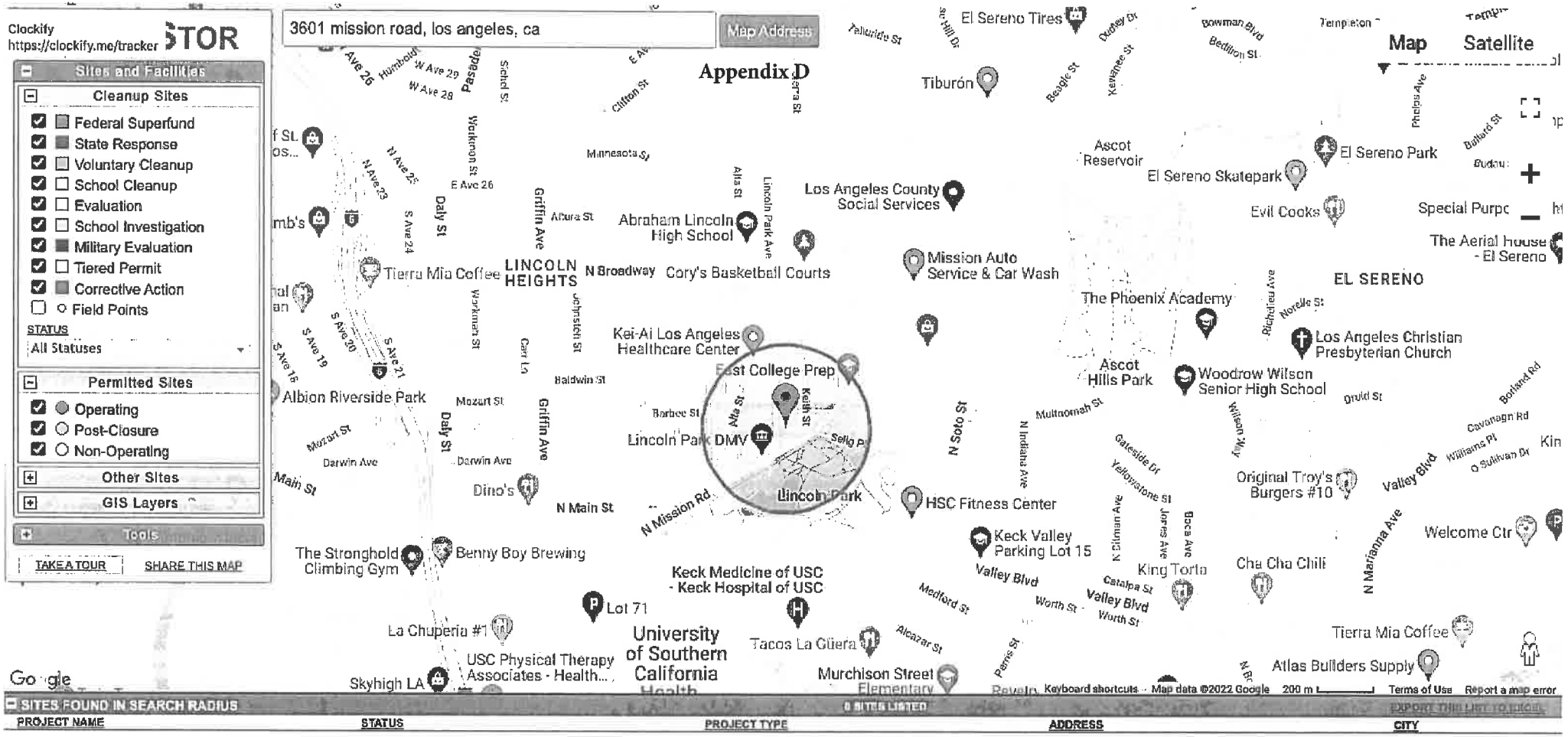
Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation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Sites and Facilities
Cleanup Sites
Federal Superfund
State Response
Voluntary Cleanup
School Cleanup
Evaluation
School Investigation
Military Evaluation
Tiered Permit
Corrective Action
Field Points
STATUS
All Statuses
Permitted Sites
Operating
Post-Closure
Non-Operating
Other Sites
GIS Layers
Tools
TAKE A TOUR
SHARE THIS MAP
3601 mission road, los angeles, ca
Map Address
Appendix D
Map
Satellite
El Sereno Tires
Tiburón
Ascot Reservoir
El Sereno Park
El Sereno Skatepark
Evil Cooks
Special Purpc
The Aerial House - El Sereno
Los Angeles County Social Services
Abraham Lincoln High School
Cory's Basketball Courts
Mission Auto Service & Car Wash
LINCOLN HEIGHTS
EL SERENO
The Phoenix Academy
Los Angeles Christian Presbyterian Church
Kei-Ai Los Angeles Healthcare Center
East College Prep
Ascot Hills Park
Woodrow Wilson Senior High School
Albion Riverside Park
Lincoln Park DMV
Lincoln Park
HSC Fitness Center
Original Troy's Burgers #10
Welcome Ctr
Dino's
Keck Valley Parking Lot 15
King Torta
Cha Cha Chili
The Stronghold Climbing Gym
Benny Boy Brewing
Keck Medicine of USC - Keck Hospital of USC
Lot 71
La Chuperia #1
University of Southern California
Tacos La Güera
Murchison Street Elementary
Tierra Mia Coffee
Atlas Builders Supply
USC Physical Therapy Associates - Health...
Skyhigh LA
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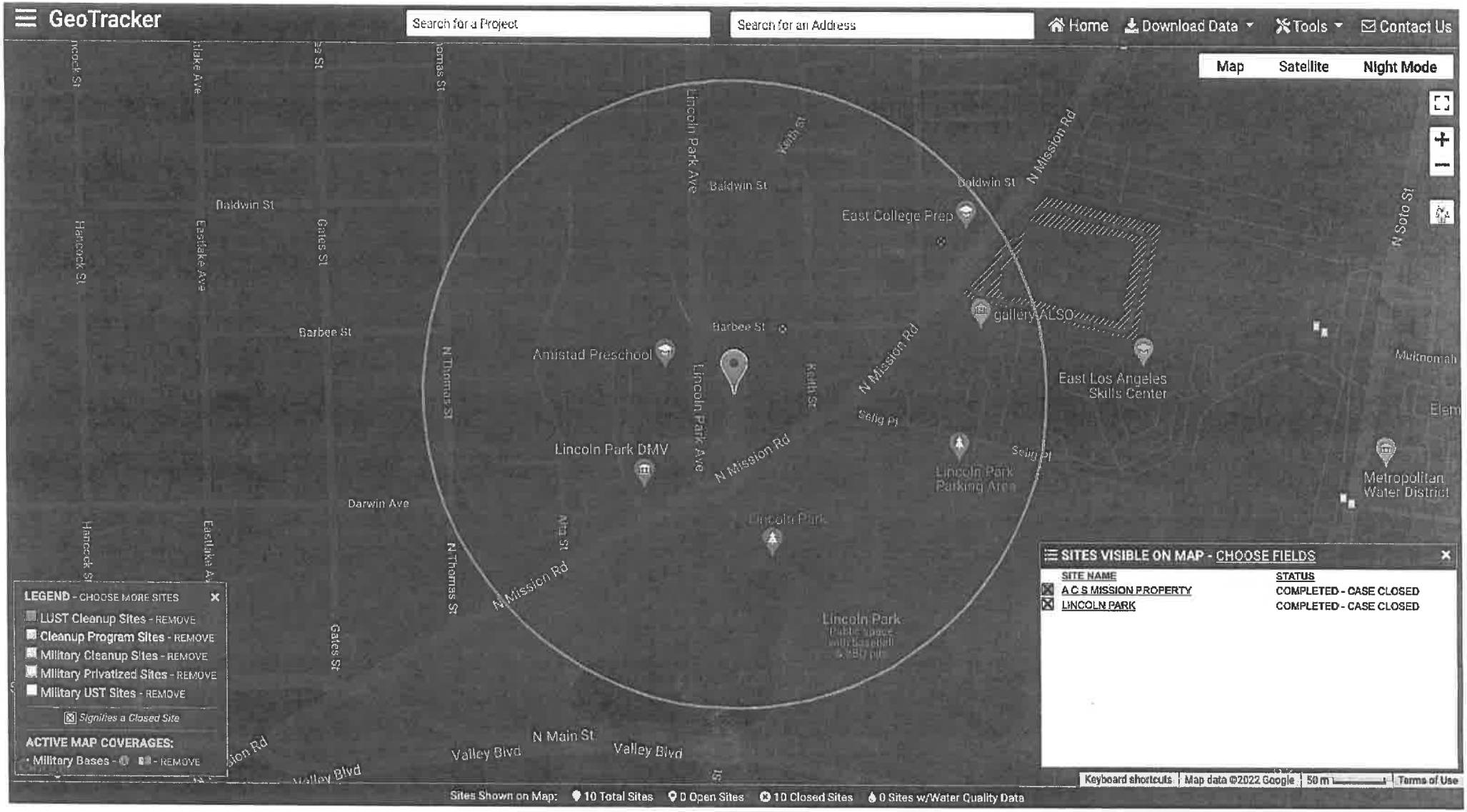
EXPORT THIS LIST TO EXCEL
PROJECT NAME
STATUS
PROJECT TYPE
ADDRESS
CITY


GeoTracker
Search for a Project
Search for an Address
Home
Download Data
Tools
Contact Us
Map
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Night Mode
Baldwin St
Barbee St
Darwin Ave
Valley Blvd
N Main St
N Mission Rd
Selig Pl
Lincoln Park Ave
N Thomas St
Keith St
Gates St
Eastlake Ave
Hancock St
N Soto St
Amistad Preschool
East College Prep
gallery ALSO
East Los Angeles Skills Center
Lincoln Park DMV
Lincoln Park Parking Area
Lincoln Park
Metropolitan Water District
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
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Terms of Use
Sites Shown on Map: 10 Total Sites 0 Open Sites 10 Closed Sites 0 Sites w/Water Quality Data