EVERETT STREET TERRACES PROJECT
FINAL MITIGATED NEGATIVE DECLARATION
MOORPARK, CALIFORNIA

Prepared for:

CITY OF MOORPARK
799 Moorpark Avenue
Moorpark, California 93021

Prepared by:

CHAMBERS GROUP, INC.
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July 2022

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SECTION 1.0 – INTRODUCTION

1.1 DRAFT INITIAL STUDY / MITIGATED NEGATIVE DECLARATION

On May 18, 2022, the City of Moorpark distributed the Draft Initial Study/Mitigated Negative Declaration (IS/MND) for the Everett Street Terraces Project to public agencies and the general public. In accordance with the California Environmental Quality Act (CEQA) Section 21091 and State CEQA Guidelines Section 15073, a 30-day public review period for the Draft IS/MND was provided from May 18, 2022 to June 17, 2022. **The Planning Commission will review the Initial Study/Mitigated Negative Declaration for adoption on July 26, 2022, at its regularly scheduled Planning Commission meeting located 799 Moorpark Avenue.**

1.2 AVAILABILITY OF THE NOI AND IS/MND

The NOI and the IS/MND were available for review at the following locations:

- Development and Community Services Building, City Hall, 799 Moorpark Avenue, Moorpark California, 93021
- Moorpark Library, 699 Moorpark Avenue, Moorpark California, 93021
- http://www.moorparkca.gov/568/Environmental-Documents

SECTION 2.0 – PROJECT DESCRIPTION AND ENVIRONMENTAL SETTING

2.1 PROJECT BACKGROUND

Newton and Associates (Applicant) proposes the construction of a 3-story, 60-unit residential condominium complex on an approximately 2.44-acre property located at the northern intersection of Everett Street and Walnut Canyon Road (Project, Proposed Project) in the City of Moorpark (City), Ventura County (County), California.

The City is the lead agency for the Proposed Project. This Initial Study has been prepared in accordance with CEQA (Public Resources Code §21000 et seq.) and the State CEQA Guidelines (Title 14, California Code of Regulations [CCR], §15000 et seq.) and has determined that preparation of a Mitigated Negative Declaration would be appropriate under CEQA.

2.2 PROJECT LOCATION AND SITE CHARACTERISTICS

2.2.1 Location

The Project site is located at the northeast corner of Everett Street and Walnut Canyon Road (Assessor's Parcel Number (APN) 512-0-061-310, 512-0-061-320, 512-0-061-050, 512-0-061-060, 512-0-061-210), as shown in Figure 1, below. Walnut Canyon Road becomes Moorpark Avenue as it passes south of Everett Street, and the Project site is bounded by Wicks Road to the north and Walnut Canyon Road to the west. The Project site is approximately 0.6 mile north of Los Angeles Avenue, which becomes California State Route (SR) 118 going east, and approximately one-mile west of State Route 23/Moorpark Freeway. The Project site is approximately 45 miles east of the Pacific Ocean. Existing residences are located north, south, east, and west of the Project site, with one commercial building north of Charles Street (dental office) and a public facility (City Hall) west of Walnut Canyon Road.

2.2.2 General Plan Designation and Zoning

The Project site's General Plan designation is High Density Residential (H), which allows the development of seven dwelling units per acre (DUAC). The Proposed Project will include a General Plan Amendment to change the current land use designation to Very High Density Residential and to update the Downtown Specific Plan to allow higher density of up to 30 DUAC. The surrounding General Plan designations are Rural High Density Residential (RH), Medium Low Density (ML), Medium Density Residential (M), and Very High Density Residential (VH) to the north of the Project; VH, M, Public/Institutional (PUB), Office (O), and M to the south; M designation to the east; and PUB, VH, and Specific Plan SP9 to the west. The Project site is zoned Residential Planned Development (RPD); and surrounding zoning designations are RPD, Rural Exclusive (RE), One-Family Residential (R-1), Commercial Office (CO) and Institutional (I).

2.2.3 Surrounding Land Uses and Project Setting

Table 1 provides the surrounding zoning and land uses immediately adjacent to the Project site.

Table 1: General Plan / Zoning/ Existing Land Use

Direction	General Plan	Zoning / Specific Plan	Existing Land Use
Project Site	High Density Residential (H)	Residential Planned Development (RPD)	Currently Vacant
North	Rural High Density Residential (RH), Medium Low Density (ML), Medium Density Residential (M), and Very High Density Residential (VH)	Rural Exclusive (RE), One-Family Residential (R-1), and RPD	Wicks Road and Single-Family Residences
South	VH, M, Public/Institutional (PUB), Office (O), and M	Institutional (I), Commercial Office (CO), R-1, and RPD	City Hall, Multi-Family Apartments
East	M	R-1	Single-Family Residences
West	Specific Plan (SP9)	RPD, RE, and I	City Hall, Single-Family Residence, and Vacant

The Project site is a sloped piece of land that has an elevation difference of 48 feet from north to south. The Project site currently includes multiple retaining walls along the slopes of the hillside. Although a portion of the site was previous occupied by six single-family homes, these homes were previously removed, and none of the structures remain. In addition, the site contains several mature trees including Peruvian pepper trees, Texas privet trees, and tipu trees, among others.

Vehicular access to the Project site is currently provided via multiple points on Everett Street and Walnut Canyon Road. One driveway is currently provided on the east side of Walnut Canyon Road for emergency access and trash pickup. One driveway is provided on the north side of Everett Street. All existing driveways currently accommodate left-turn and right-turn ingress and egress turning movements. Walnut Canyon Road terminates at the intersection with Everett Street, and Moorpark Avenue continues south past the Everett Street intersection. The Project site is approximately 1,400 feet northwest from the Moorpark Amtrak Station along East High Street.

2.3 PROJECT DESCRIPTION

The Proposed Project requests to develop a 60-unit condominium property on the 2.44-acre vacant property. The proposed units will consist of two- and three-bedroom units, two to three stories in height. The two-bedroom units will range from approximately 1,081 square feet to 1,167 square feet, and the three-bedroom units will range from approximately 1,497 square feet to 1,586 square feet. The onsite

amenities will include an outdoor playground, a changing room, swimming pool and spa, outdoor barbeque grill, outdoor and covered parking, a lobby, an office, and private garages. The Proposed Project will be serviced by Ventura County Water and Sanitation Department, Southern California Edison, Southern California Gas Company, and Time Warner Cable.

The Proposed Project will include General Plan Amendment No. 2005-02 to change the Land Use Designation to Very High and update the Downtown Specific Plan to allow higher RPD of up to 30 DUAC. The Proposed Project also includes Zone Change No. 2005-02, Residential Planned Development No. 2005-02, Tentative Tract Map No. 5739, and Development Agreement No. 2005-02.

2.3.1 Construction

Construction of the Project will occur in a single phase, and is expected to begin in spring 2023 and last until fall 2024. Construction activities of the Proposed Project will be scheduled in compliance with the City's Municipal Code Title 17 for the provisions of operating and permitting the use of tools and equipment during construction, drilling, repair, or alterations.

Construction activities occurring on site will include tree removal, grading, excavation, and recompaction throughout the site. Approximate earthwork quantities will be 13,711 cubic yards of cut and 12,536 cubic yards of fill, with a net of 1,174 cubic yards. Easements will be required from the City, Calleguas Municipal Water District, and Ventura County Waterworks District for the construction of the retaining wall and water lines. In addition to contractor vehicles, heavy equipment will be used on site which will include excavators, backhoe, cranes, bulldozer, graders, compactors, and dump trucks. All equipment will be staged within the Project site.

2.3.2 Operations

The proposed condominiums will be available for purchase beginning Fall of 2024. The swimming pool, spa, playground, and outdoor grill areas are proposed for access by owners and their guests daily. Maintenance within the residential property will be coordinated by the Home Owner's Association (HOA) and will include ongoing landscaping, as well as improvements to public spaces.

Figure 1 - Project Vicinity Map

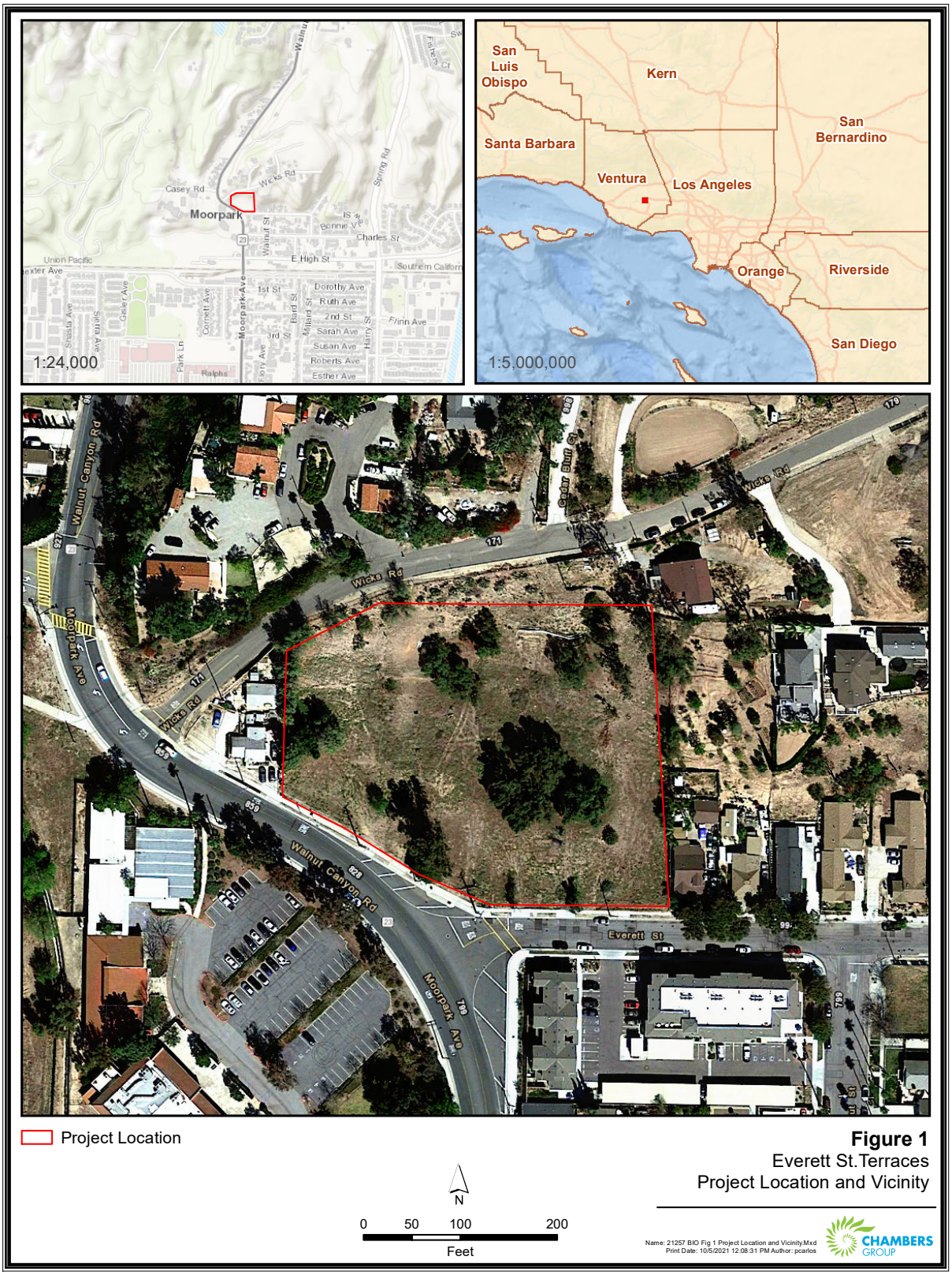


Figure 2A: Project Site Plan – Level 1

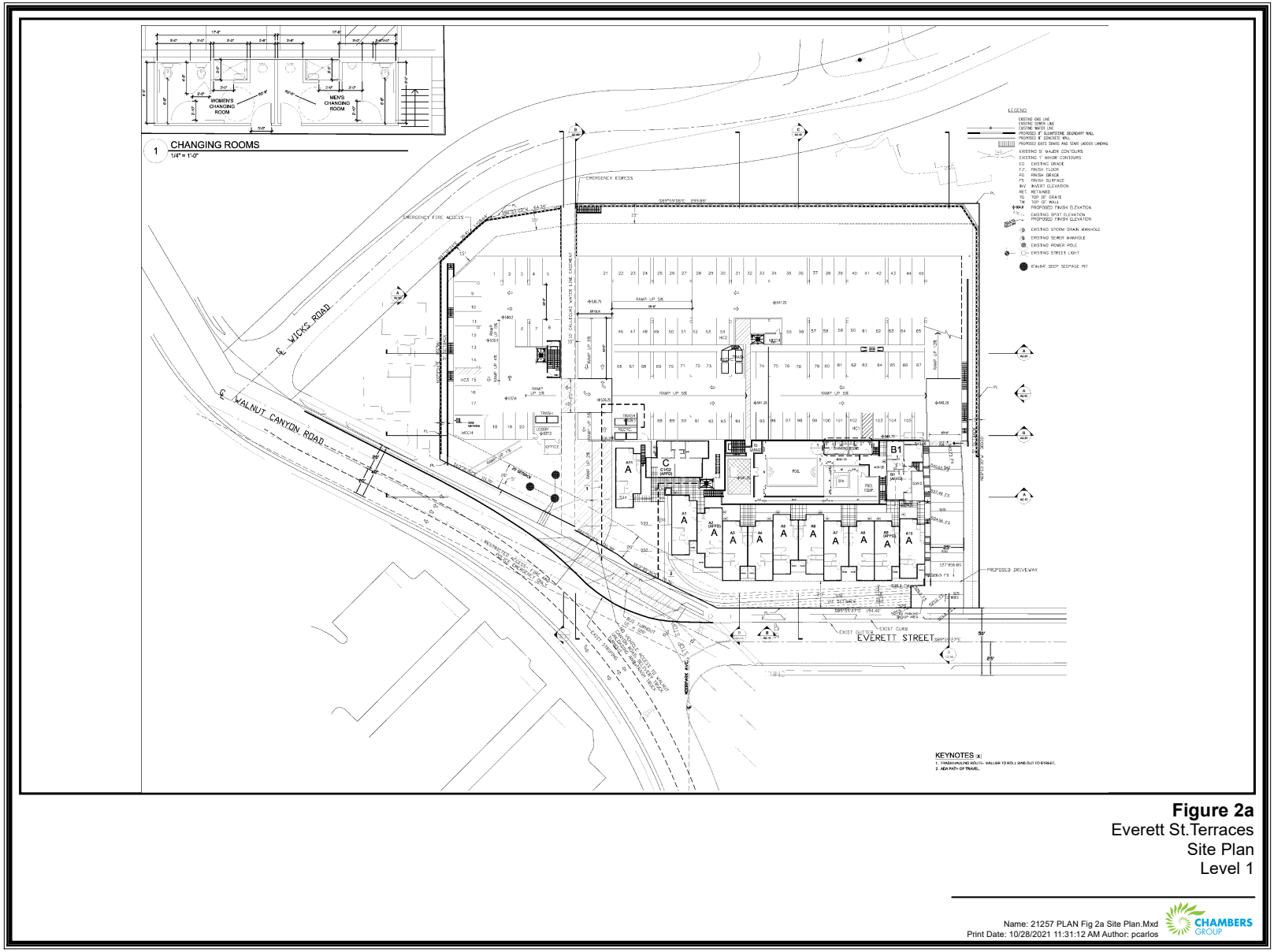


Figure 2B: Project Site Plan – Level 2

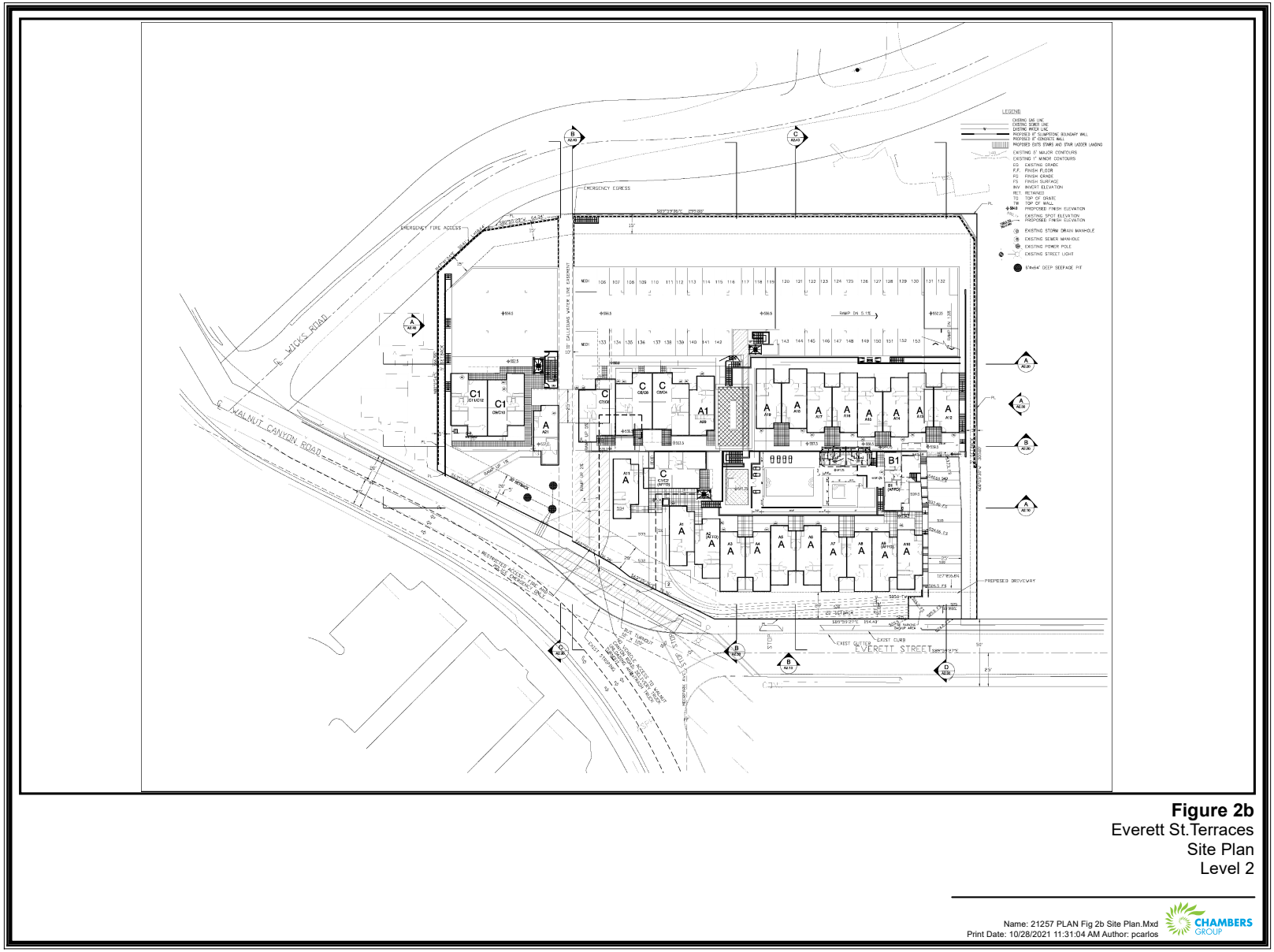


Figure 2C: Project Site Plan – Level 3

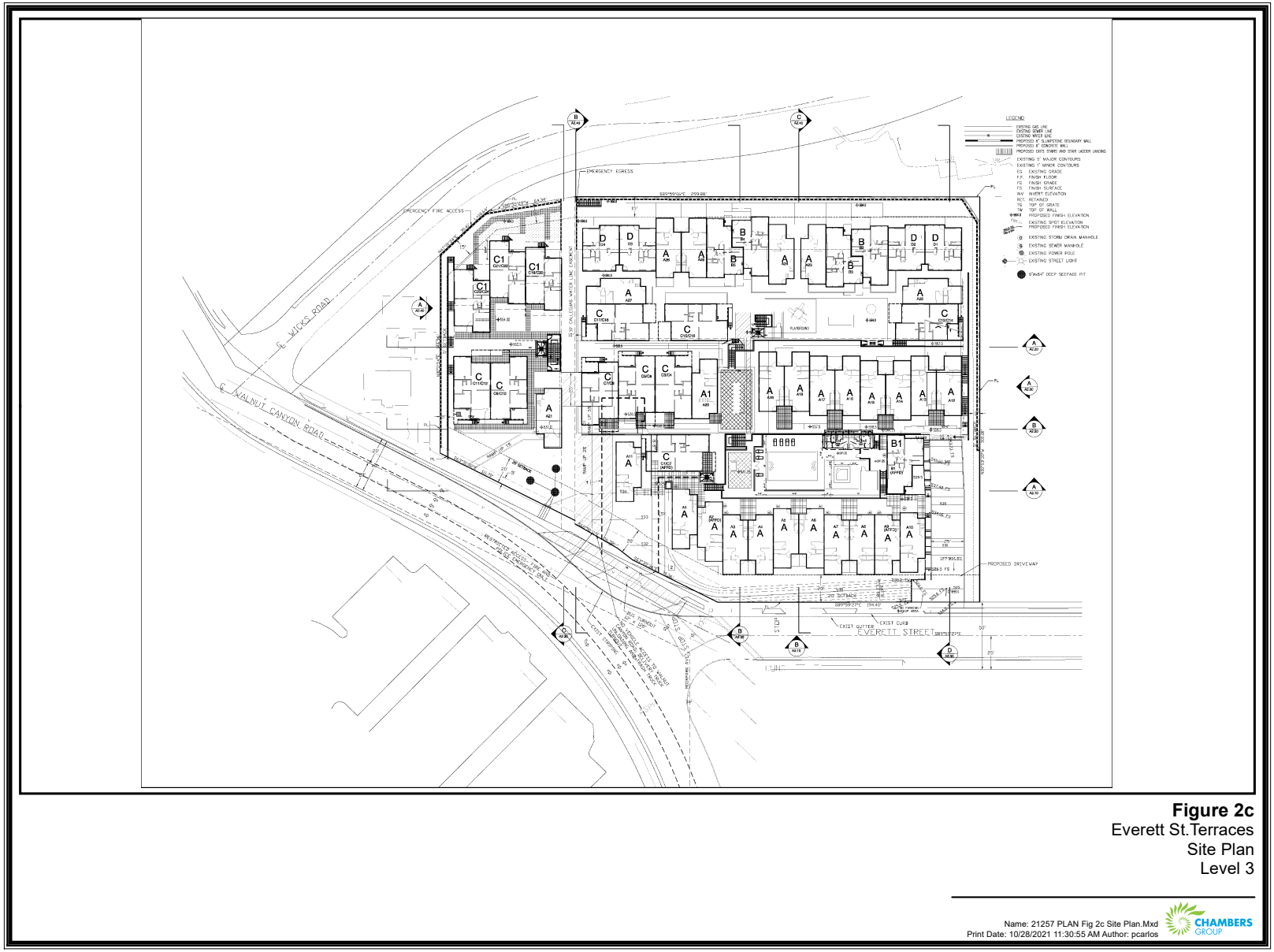
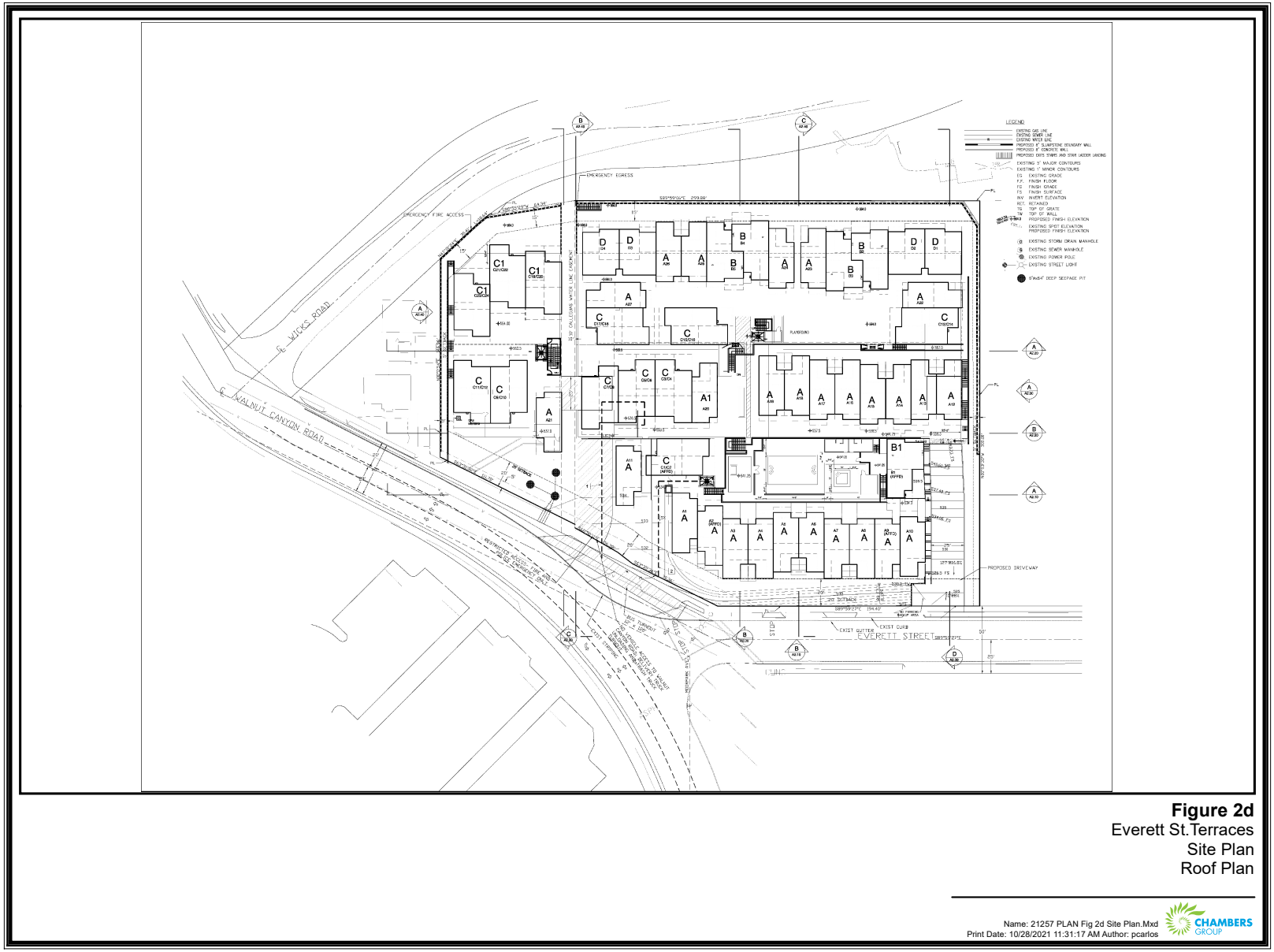


Figure 2D: Project Site Plan – Roof Plan



2.4 Required Permits And Approvals

As required by the California Environmental Quality Act (CEQA) Guidelines, this section provides, to the extent the information is known, a list of permits and other approvals required to implement the Project.

The following approvals and permits may be required for the Project:

- General Plan Amendment No. 2005-02
- Zoning Change No. 2005-02
- Residential Planned Development Permit No. 2005-02
- Tentative Tract Map No. 5739
- Development Agreement No. 2005-02
- City of Moorpark easement
- City grading and building permits
- Calleguas Municipal Water District easement
- Ventura County Waterworks District easement

SECTION 3.0 – FINDINGS

An Initial Study has been prepared to assess the Proposed Project's potential impacts on the environment and the significance of those impacts and was incorporated in the Draft MND. Based on this Initial Study, it has been determined that the Proposed Project would not have any significant impacts on the environment once all proposed mitigation measures have been implemented. This conclusion is supported by the following findings:

- No potential was found for adverse impacts on Agriculture and Forestry Resources and Mineral Resources associated with the Proposed Project.

- Potential adverse impacts resulting from the Proposed Project were found to be less than significant in the following areas: Aesthetics, Air Quality, Energy, Greenhouse Gas Emissions, Hazards and Hazardous Materials, Hydrology and Water Quality, Noise, Land Use and Planning, Population and Housing, Public Services, Recreation, Transportation, Utilities and Service Systems, Wildfire.

- Full implementation of the proposed mitigation measures included in this MND would reduce potential project-related adverse impact on Biological Resources, Cultural Resources, Geology and Soils and Tribal Cultural Resources to a less than significant level.

SECTION 4.0 – MITIGATION MEASURES

The following mitigation measures and project conditions have been incorporated into the scope of work for the Proposed Project and will be fully implemented by the City of Moorpark to avoid or minimize adverse environmental impacts identified in this MND. These mitigation measures will be included in the Mitigation Monitoring and Reporting Program (MMRP) prepared for this project.

MM BIO-1: If construction is unavoidable during February 1 through September 15, A nesting bird pre-construction surveys will be conducted by a Qualified Biologist and submitted to the City three days prior to demolition and/or vegetation removal activities during nesting bird season (February 15 through August 31) within 250 500 feet of the Project site for passerines, and 500 feet for raptors, and/or listed species, where feasible. Should nesting birds be found, an exclusionary buffer will be established by a Qualified Biologist. The buffer may be up to 500 feet in diameter depending on the species of nesting bird found. This buffer will be clearly marked in the field by construction personnel under guidance of the Qualified Biologist, and construction or clearing will not be conducted within this zone until the Qualified Biologist determines that the young have fledged or the nest is no longer active. Nesting bird habitat within the Project site will be resurveyed during bird breeding season if a lapse in construction activities lasts longer than seven days. The nesting bird surveys will be conducted at appropriate nesting times and concentrate on potential roosting or perch sites.

MM BIO-2: To avoid impacts to biological resources, a qualified biological monitor will be on site prior to ground-disturbing and habitat-disturbing activities to move out of harm's way any special status species or other wildlife of low mobility that would be killed or injured by Project-related construction activities. Salvaged wildlife will be removed and placed onto adjacent and suitable areas out of harm's way. In addition, grubbing and grading will be done to avoid islands of habitat where wildlife may take refuge, and will be done from the center outward, to the extent practicable.

Mitigation Measure CUL-1: Prior to issuance of grading permits, the applicant shall be required to obtain the services of a qualified project archaeologist to remain on-call for the duration of the proposed ground disturbing construction activity. The archeologist selected must be approved in writing by the Community Development Director. Prior to construction commencing, all construction personnel associated with earth moving equipment, drilling, grading, or excavating, shall be provided with basic training. The training shall be completed by the applicant retained project archaeologist and shall include written notification of the restrictions regarding disturbance and/or removal of any portion of archaeological deposits and the procedures to follow should a potential resource be identified during construction activity. The construction contractor, or its designee, shall be responsible for implementation of this measure. A tribal monitor shall be provided an opportunity to attend the pre-construction briefing, if requested. The project archaeologist shall be on-call and available to contact in the event of any unanticipated discovery of archaeological or historical resources during the proposed construction activity. If any archeological or historical resources are uncovered during grading or excavation operations, all grading or excavation shall immediately cease in the immediate area, a 50-foot buffer area around the discovery shall be cordoned off, and the discovery must be left untouched. The applicant, in consultation with the project archeologist, shall assure the preservation of the resource and immediately contact the Community Development Director by phone, in writing by email or hand delivered correspondence informing the Director of the find. In the absence of the Director, the applicant shall so inform the City Manager. Additionally, all consulting (local?) Native American Tribal groups that requested notification of any unanticipated discovery of archaeological resources on the Project will be notified appropriately. The applicant retained project archeologist shall provide an assessment regarding the sensitivity of the

discovery and, if avoidance is not feasible, recommend the appropriate treatment and/or recovery procedures for discovery. The applicant shall pay for all costs associated with the investigation and, if required, the treatment and/or recovery of the discovery.

Mitigation Measure CUL-2: At the completion of all ground-disturbing activities, the project archaeologist shall prepare an Archaeological Resources Monitoring Report summarizing all monitoring efforts and observations, as performed, and any and all prehistoric or historic archaeological finds as well as providing follow-up reports of any finds to the South-Central Coastal Information Center (SCCIC), as required.
Mitigation Measure GEO-1: Once specific building types and foundation loads and locations are known for the Project site, the Applicant shall contract a State-registered geologist and a State-registered professional engineer to sample soil in order to prepare Project-specific recommendations regarding building foundations.
Once the severity of these soil characteristics are determined, then appropriate measures contained within the geotechnical report will be incorporated into the design of the project. Feasible techniques to mitigate any defined liquefaction, settlement, and expansive soils could include, but would not be limited to, (1) in-situ densification; (2) vibro replacement; (3) compaction grouting or chemical stabilization; or (4) deep foundations and self-supporting structural slabs, (5) over-excavation and replacement with properly compacted fill, (6) use of caissons, and/or (7) design of foundation systems with appropriate thickness and reinforcing.

Mitigation Measure PALEO-1: Prior to issuance of a Zoning Clearance for a grading permit, the applicant shall be required to obtain the services of a qualified project paleontologist to remain on-call for the duration of the proposed ground disturbing construction activity. The paleontologist selected must be approved in writing by the Community Development Director. Upon approval or request by the Community Development Director, a paleontological mitigation plan (PMP) outlining procedures for paleontological data recovery shall be prepared for the Proposed Project and submitted to the Community Development Director for review and approval. The development and implementation of the PMP shall include consultations with the Applicant's engineering geologist as well as a requirement that the curation of all specimens recovered under any scenario shall be through the Los Angeles County Museum of Natural History (LACMNH). All specimens become the property of the City of Moorpark unless the City chooses otherwise. If the City accepts ownership, the curation location may be revised. The PMP shall include developing a multilevel ranking system, or Potential Fossil Yield Classification (PFYC), as a tool to demonstrate the potential yield of fossils within a given stratigraphic unit. The PMP shall outline the monitoring and salvage protocols to address paleontological resources encountered during ground disturbing activities. As well as the appropriate recording, collection, and processing protocols to appropriately address any resources discovered. The cost of data recovery is limited to the discovery of a reasonable sample of available material. The interpretation of reasonableness rests with the Community Development Director.

Mitigation Measure PALEO-2: At the completion of all ground-disturbing activities, the project paleontologist shall prepare a final paleontological mitigation report summarizing all monitoring efforts and observations, as performed in line with the PMP, and all paleontological resources encountered, if any. As well as providing follow-up reports of any specific discovery, if necessary.

Mitigation Measure TCR-1: Due to the potential that archeological resources may be present on the Project site, the City of Moorpark shall require a note on any plans that require ground disturbing excavation that there is a potential for exposing buried cultural resources, including prehistoric Native American artifacts. Construction personnel associated with earth moving equipment, drilling, grading, and

excavating, shall be provided with basic training conducted by a qualified archaeologist, to be retained and compensated by the development team, with the approval of the City of Moorpark. Issues that shall be included in the basic training will be geared toward training the applicable construction crews in the identification of archaeological deposits, further described below. Training will include written notification of the restrictions regarding disturbance and/or removal of any portion of archaeological deposits and the procedures to follow should a resource be identified. The construction contractor, or its designee, shall be responsible for implementation of this measure. A Native American monitor shall be provided an opportunity to attend the pre-construction briefing if requested.

A Native American monitor from a consulting Tribe under AB 52 monitor and a qualified archeologist, to be compensated by the development team, shall be available on an "on-call" basis during ground disturbing construction in native soil to review, identify and evaluate cultural resources that may be inadvertently exposed during construction.

If archaeological remains or tribal cultural resources are uncovered, all construction activities within a 100-foot radius shall be halted immediately until a qualified archaeologist, in consultation with the Native American monitor, shall evaluate whether the resource requires further study. The City shall require that the applicant include a standard inadvertent discovery clause in every construction contract to inform contractors of this requirement. If any previously undiscovered resources are found during construction the City of Moorpark Community Development Department shall be contacted, and the resource shall be evaluated for significance in terms of CEQA criteria by a qualified archaeologist. Prehistoric archaeological site indicators include but are not limited to: obsidian and chert flakes and chipped stone tools; grinding and mashing implements (e.g., slabs and handstones, and mortars and pestles); bedrock outcrops and boulders with mortar cups; and locally darkened midden soils. Midden soils may contain a combination of any of the previously listed items with the possible addition of bone and shell remains, and fire-affected stones. Historic period site indicators generally include but are not limited to: fragments of glass, ceramic, and metal objects; milled and split lumber; and structure and feature remains such as building foundations and discrete trash deposits (e.g., wells, privy pits, dumps). If City and the qualified archaeologist determine the resource to be significant under CEQA, they shall determine whether preservation in place is feasible. Such preservation in place is the preferred mitigation. Contingency funding and a time allotment sufficient for recovering an archeological sample or to employ an avoidance measure may be required. If such preservation is infeasible, the qualified archaeologist shall prepare and implement a formal Archaeological Monitoring Plan (AMP) which will include a research design and archaeological data recovery plan for the resource. Development and implementation of the AMP will be determined by the City of Moorpark and treatment of any significant cultural resources shall be undertaken with the approval of the project applicant, and the City. The archaeologist shall also conduct appropriate technical analyses, prepare a comprehensive written report and file it with the appropriate information center (California Historical Resources Information System [CHRIS]), and provide for the permanent curation of the recovered materials. The City of Moorpark and/or development team shall, in good faith, consult with the Fernandeño Tataviam Band of Mission Indians and consulting Tribes on the disposition and treatment of any recovered materials. A Monitoring Closure Report shall be filed with the City of Moorpark at the conclusion of ground disturbing construction if archaeological resources were encountered and/or recovered. After the find has been appropriately mitigated (as defined by State CEQA Guidelines Section 15126.4(b)), work in the area may resume.

Mitigation Measure TCR-2: If human remains or funerary objects are unearthed during any activities associated with the project, State Health and Safety Code Section 7050.5 requires that no further disturbance shall occur within a 100-foot buffer of the find until the County coroner has made the

necessary findings as to origin and disposition pursuant to Public Resources Code Section 5097.98. If the remains are determined to be of Native American descent, the coroner has 24 hours to notify the Native American Heritage Commission (NAHC), the Fernandeño Tataviam Band of Mission Indians, and consulting Tribes. The NAHC will then contact the deceased Native American's most likely descendant, who will then serve as consultant on how to proceed with the remains (i.e., avoid, rebury).

SECTION 5.0 – CIRCULATION

On May 18, 2022, the City of Moorpark circulated a Notice of Intent to Adopt a Mitigated Negative Declaration and Initial Study to responsible agencies, trustee agencies, interest groups, and the general public. In accordance with the California Environmental Quality Act (CEQA) Section 21091 and State CEQA Guidelines Section 15073, a 30-day public review period for the Final IS/MND was provided from May 18, 2022 to June 17, 2022. Copies of the Initial Study, Mitigated Negative Declaration and supporting materials were made available for review at the Development and Community Services Building, City Hall, 799 Moorpark Avenue, Moorpark, California, 93021 and Moorpark Library, 699 Moorpark Avenue, Moorpark California, 93021, and online at www.moorparkca.gov/568/Environmental-Documents.

During the 30-day comment period, the following comments were received from the following agencies.

Comment Letter No.	Commenting Agency	Date of Comment
1	Caltrans	June 14, 2022
2	Ventura County Air Pollution Control District	June 15, 2022
3	County of Ventura Resource Management Agency	May 26, 2022
4	Ventura County Public Works, Water Resources Division	May 26, 2022
5	California Department of Fish & Wildlife	June 17, 2022

SECTION 6.0 – RESPONSE TO COMMENTS

CEQA Guidelines Section 15204 (b) outlines parameters for submitting comments and reminds persons and public agencies that the focus of review and comment of negative declarations should be, "on the proposed finding that the project will not have a significant effect on the environment. If persons and public agencies believe that the project may have a significant effect, they should: (1) Identify the specific effect; (2) Explain why they believe the effect would occur, and; (3) Explain why they believe the effect would be significant."

CEQA Guidelines Section 15204 (c) further advises, "Reviewers should explain the basis for their comments, and should submit data or references offering facts, reasonable assumptions based on facts, or expert opinion supported by facts in support of the comments. Pursuant to Section 15064, an effect shall not be considered significant in the absence of substantial evidence." Section 15204 (d) also states, "Each responsible agency and trustee agency shall focus its comments on environmental information germane to that agency's statutory responsibility." Section 15204 (e) states, "This section shall not be used to restrict the ability of reviewers to comment on the general adequacy of a document or of the lead agency to reject comments not focused as recommended by this section."

In accordance with Public Resources Code 21092.5 (b) of the CEQA Guidelines, the lead agency shall notify any public agency which comments on a negative declaration of the public hearing or hearings, if any, on the project for which the negative declaration was prepared. If notice to the commenting public agency is provided pursuant to Section 21092, the notice shall satisfy the requirement of this subdivision.

Comment Letter #1 – Caltrans

Comment Letter #1

STATE OF CALIFORNIA—CALIFORNIA STATE TRANSPORTATION AGENCY GAVIN NEWSOM, Governor

DEPARTMENT OF TRANSPORTATION
DISTRICT 7
100 S. MAIN STREET, MS 16
LOS ANGELES, CA 90012
PHONE (213) 269-1124
FAX (213) 897-1337
TTY 711
www.dot.ca.gov

Making Conservation
a California Way of Life

June 14, 2022

Shanna Farley
City of Moorpark
799 Moorpark Avenue
Moorpark, CA 93021

RE: Everett Street Terraces Project
SCH # 2022050391
Vic. LA-23/PM 13.52
GTS # VEN-2022-00489-MND

Dear Shanna Farley:

Comment 1-1

Thank you for including the California Department of Transportation (Caltrans) in the environmental review process for the above referenced environmental document. The Project consists of a request to allow the construction of a 60-unit condominium property on the 2.44-acre vacant property.

The mission of Caltrans is to provide a safe and reliable transportation network that serves all people and respects the environment. Senate Bill 743 (2013) has codified into CEQA law and mandated that CEQA review of transportation impacts of proposed development be modified by using Vehicle Miles Traveled (VMT) as the primary metric in identifying transportation impacts for all future development projects. You may reference the Governor's Office of Planning and Research (OPR) for more information:

http://opr.ca.gov/ceqa/updates/guidelines/

As a reminder, VMT is the standard transportation analysis metric in CEQA for land use projects after July 1, 2020, which is the statewide implementation date.

Caltrans is aware of challenges that the region faces in identifying viable solutions to alleviating congestion on State and Local facilities. With limited room to expand vehicular capacity, all future developments should incorporate multi-modal and complete streets transportation elements that will actively promote alternatives to car use and better manage existing parking assets. Prioritizing and allocating space to efficient modes of travel such as bicycling and public transit can allow streets to transport more people in a fixed amount of right-of-way.

"Provide a safe and reliable transportation network that serves all people and respects the environment"

Comment 1-1 continued

Caltrans supports the implementation of complete streets and pedestrian safety measures such as road diets and other traffic calming measures. Please note the Federal Highway Administration (FHWA) recognizes the road diet treatment as a proven safety countermeasure, and the cost of a road diet can be significantly reduced if implemented in tandem with routine street resurfacing. Overall, the environmental report should ensure all modes are served well by planning and development activities. This includes reducing single occupancy vehicle trips, ensuring safety, reducing vehicle miles traveled, supporting accessibility, and reducing greenhouse gas emissions.

Comment 1-2

The daily VMT per capita for the Project was determined to be 19.58 miles per capita, with the Citywide average daily VMT per capita noted at 20.54. This calculation did not consider the VMT-reducing effects associated with the Project's location within a half-mile walking distance of the Moorpark Metrolink Station, which is considered to be a Major Transit Stop. As noted in the OPR Guidance, "certain projects (including residential, retail, and office projects, as well as projects that are a mix of these uses) proposed within ½ mile of an existing major transit stop or an existing stop along a high quality transit corridor will have a less than significant impact on VMT. Therefore, Caltrans concurs that the impacts regarding Project VMT would therefore be less than significant at this time.

Given the above finding of less than significant Project VMT impact, the identification of mitigation measures is not required at this time. However, a post-development VMT analysis with all mitigation measures should be prepared for monitoring purpose and for future project thresholds in the area. Additional mitigation measure should be implemented when the post-development VMT analysis discloses any traffic significant impact.

Comment 1-3

Since the project site is next to SR-23, please be reminded that any work performed within the State Right-of-way will require an Encroachment Permit from Caltrans. Any modifications to State facilities must meet all mandatory design standard and specifications.

Comment 1-4

Storm water run-off is a sensitive issue for Los Angeles and Ventura counties. Please be mindful that projects should be designed to discharge clean run-off water. Additionally, discharge of storm water run-off is not permitted onto State highway facilities without any storm water management plan.

Comment 1-5

As a reminder, any transportation of heavy construction equipment and/or materials which requires use of oversized-transport vehicles on State highways will need a Caltrans transportation permit. We recommend large size truck trips be limited to off-peak commute periods.

Comment 1-5 continued

If you have any questions, please feel free to contact Mr. Alan Lin the project coordinator at (213) 269-1124 and refer to GTS # VEN-2022-00489-MND.

Sincerely,

Miya Edmonson

MIYA EDMONSON
LDR/CEQA Branch Chief

email: State Clearinghouse

RESPONSE TO COMMENT LETTER 1 – CALTRANS

Response to Comment 1-1:

This comment provides a summary of the Project description and Caltrans policies, including a reminder that VMT is the standard transportation analysis metric in CEQA. These comments are noted.

Response to Comment 1-2:

The comment summarizes the VMT analysis conducted for the Project and concurs that impacts regarding VMT would be less than significant. No further response is required.

Response to Comment 1-3:

The comment notes that any work performed within the State Right-of-Way will require an Encroachment Permit from Caltrans. As noted in Section 1.4 Permits and Agreements, the Project will not be required to obtain a Caltrans Encroachment Permit.

Response to Comment 1-4:

The comment notes that storm water run-off is an issue for Los Angeles and Ventura Counties. The Project should discharge clean run-off water and no storm water run-off is allowed on State highway facilities without stormwater management plans.

Response to Comment 1-5:

The comment provides a reminder that any transportation of heavy construction equipment and/or materials which requires use of oversized-transport vehicles on State highways will need a Caltrans transportation permit. In addition, Caltrans notes that large size truck trips are recommended to be limited to off-peak commute periods. This comment is noted, and the applicant will comply with all Caltrans policies and permits required.

Comment Letter #2 – Ventura County Air Pollution Control District

Comment Letter #2

Ventura County
Air Pollution
Control District

4567 Telephone Rd
Ventura, California 93003

tel 805/303-4005
fax 805/456-7797
www.vcapcd.org

Ali Reza Ghasemi, PE
Air Pollution Control Officer

VENTURA COUNTY
AIR POLLUTION CONTROL DISTRICT
Memorandum

TO: Shanna Farley, Principal Planner, City of Moorpark DATE: June 15, 2022

FROM: Nicole Collazo, Air Quality Specialist, Planning Division

SUBJECT: Draft Mitigated Negative Declaration for the Everett Street Terraces Project (RMA 22-012)

Comment 2-1

Air Pollution Control District (APCD) staff have reviewed the subject mitigated negative declaration (MND) of the Everett Street Terraces project (project). The project proposes to construct a 3-story, 60-unit residential condominium complex. The project is located at the northern intersection of Everett Street and Walnut Canyon Road. The Lead Agency is the City of Moorpark.

GENERAL COMMENTS

Air Quality Section

Comment 2-2

Item 1) Page 20. Table 4. We note that the reactive organic compounds (ROC/VOC) emissions estimated for the architectural coatings phase of the construction may be an overestimation, as the default setting used in CalEEMod Version 2020.4.0 for architectural coatings is 100 g/L ROC maximum. APCD recently amended Rule 74.2, *Architectural Coatings*, in July 2021, to lower the maximum ROC content of flat architectural coatings to 50 g/L. This will not impact the significance determination for regional air quality impacts.

Comment 2-3

Item 2) Page 22. Construction-related TAC Emissions. We recommend an emission reduction measure for off-road construction equipment to be at a minimum Tier 3 EPA rating for diesel engines and revise this section of the MND accordingly along with developing a standard condition of approval to make the measure enforceable.

Comment 2-4

The construction schedule is expected to last well over 6 months (~1.5 years). The exposure of toxics, such as diesel particulate matter and nitrous oxides, from daily use of construction equipment to any sensitive receptors residing nearby the construction site (Moorpark City Library, Walnut Canyon School, Boys and Girls Club, Chaparral Middle School, residences), may have a health impact, with emphasis on infants age 0-2 years of age which have higher breathing rates and are more susceptible to exposure of air pollutants.

Thank you for the opportunity to comment on the project's MND. If you have any questions, you may contact me at nicole@vcapcd.org.

RESPONSE TO COMMENT LETTER 2– Ventura County Air Pollution Control District

Response to Comment 2-1:

This comment provides a summary of the Project description; no further response is required.

Response to Comment 2-2:

The comment notes that the estimated emissions for reactive organic compounds (ROC/VOC) for the architectural coating phase may be an overestimation; however, that his would not impact the significance determination of the regional air quality impacts. The City notes the potential over estimation in emissions; the worst-case scenario is provided and impacts are still less than significant.

Response to Comment 2-3:

The comment recommends an emission reduction measure for off-road construction equipment to be at a minimum Tier 3 EPA rating for diesel engines. This standard condition has been included below in Section 7.0 Revisions to the Draft MND, below.

Response to Comment 2-4:

The comment notes that, due to the construction schedule, sensitive receptors may have a health impact. As noted in Section 4.3, Air Quality, under Construction-Related TAC Emissions, "CCR Title 13, Article 4.8, Chapter 9, Section 2449 regulates emissions from off-road diesel equipment in California. This regulation limits idling of equipment to no more than five minutes and requires equipment operators to label each piece of equipment and provide annual reports to CARB of their fleet's usage and emissions. This regulation also requires systematic upgrading of the emission Tier level of each fleet; currently, no commercial operator is allowed to purchase Tier 0 or Tier 1 equipment; and by January 2023 no commercial operator is allowed to purchase Tier 2 equipment. In addition to the purchase restrictions, equipment operators need to meet fleet average emissions targets that become more stringent each year between years 2014 and 2023.Therefore, with compliance with CARB and APCD measures, as well as the added Condition of Approval noted in Comment 2-3, impacts to sensitive receptors are considered less than significant.

Comment Letter #3 – County of Ventura Resources Management Agency

Comment Letter #3

COUNTY of VENTURA

RESOURCE MANAGEMENT AGENCY
CHARLES R. GENKEL
Environmental Health Director

May 26, 2022

City of Moorpark, Community Development Department
ATTN: Shanna Farley, Principal Planner
799 Moorpark Avenue
Moorpark, CA 93021

The City of Moorpark Everett Street Terraces Project, Environmental Document Review – Draft Mitigated Negative Declaration, (RMA REF # 22-012)

Ventura County Environmental Health Division (Division) staff reviewed the information submitted for the subject project.

The Division provides the following comments:

Comment 3-1

1. The proposed residential development includes construction of a community recreation area with swimming pool and spa. The builder/applicant shall submit plans for the public swimming pool and spa to the Community Services Section of this Division and obtain plan approval prior to beginning any construction of the swimming pool, spa, and auxiliary structures.

Comment 3-2

2. A Permit to Operate from this Division would also be required prior to use inauguration of the swimming pool and spa.

Comment 3-3

Contact the Division's Community Services Section for information on public swimming pool plan review and permitting requirements. Information on public swimming pool construction and operational requirements may be found here:

https://vcrma.org/recreational-health-public-pools-and-spas

If you have any questions, please contact me at (805) 654-2830 or Ashley.Kennedy@ventura.org.

Ashley Kennedy, R.E.H.S.
Land Use Section
Environmental Health Division

SGN:\Admin\TECH SERVICES\FINALED Letters\Land Use\SR0020059 ODR RMA Ref 22-012 Everett Street Terraces Project - 05 26 2022.docx

HALL OF ADMINISTRATION #1730
805-654-2813 • FAX 805-654-2480 • 800 South Victoria Avenue, Ventura, CA 93009 • vcrma.org

RESPONSE TO COMMENT LETTER 3 – County of Ventura Resources Management Agency

Response to Comment 3-1:

The Applicant will submit plans for the swimming pool and spa to the County Services Section of the Ventura County Resources Management Agency, and will obtain plan approval prior to the beginning construction of the swimming pool, spa, and auxiliary structures.

Response to Comment 3-2:

The Applicant will also obtain a Permit to Operate from the Ventura County Resources Management Agency prior to use of the swimming pool and spa.

Response to Comment 3-3:

The comment provides contact information for the Community Services Section and encourages the City and/or Applicant to reach out with any questions on plan review and permitting requirements. The City appreciates this information and will pass this along to the Applicant for reference.

Comment Letter #4 – Ventura County Public Works Watershed Protection

Comment Letter #4

PUBLIC VENTURA COUNTY WORKS

WATERSHED PROTECTION

MEMORANDUM

DATE: May 26, 2022

TO: Anthony Ciuffetelli, Planner, Planning Division

FROM: James Maxwell, Groundwater Specialist, Water Resources Division

SUBJECT: RMA 22-012 – Everett Street Terraces Project

The Ventura County Public Works Agency – Watershed Protection, Water Resources Division, Groundwater Resources Section (GRS) reviewed the *Draft Initial Study Mitigated Negative Declaration for the Everett Street Terraces Project* (Draft) submitted by the City of Moorpark.

Comment 4-1

PROJECT DESCRIPTION

The proposed development (Project) is in the City of Moorpark, at the northern intersection of Everett Street and Walnut Canyon Road, on Assessor's Parcel Numbers (APNs) 512-0-061-310, -320, -050, -060, and -210. The 2.4-acre site currently consists of formerly developed and undeveloped land. The Project is proposing the construction of a 3-story, 60-unit residential condominium complex.

ENVIRONMENTAL IMPACT ANALYSIS

Comment 4-2

The Site overlies the Las Posas Valley Basin, a Department of Water Resources (DWR) designated high priority basin identified as Basin No. 4-019. The Las Posas Valley Basin is hydrogeologically connected to the Oxnard Subbasin and the Pleasant Valley Basin, both critically-overdrafted. The proposed project is located within the Fox Canyon Groundwater Management Agency (FCGMA) boundaries. The FCGMA regulates groundwater extraction allocations for well owners and operators within its boundaries.

County records do not show any groundwater wells located within the Project parcels. Wells discovered during grading and construction activities and not classified as "destroyed" and that will not be used by the Project or considered as "active" status will need to be permitted for destruction per the County per Ventura County Ordinance No. 4468 (Well Ordinance). No new groundwater extraction wells are proposed by the Project.

Comment 4-3

Ventura County Waterworks District No. 1 (VCWWD-1) will provide domestic water service to the Project. The VCWWD-1 water supply consists primarily of imported State Water Project (SWP) water from Calleguas Municipal Water District (CMWD) and groundwater extracted from VCWWD-1 wells in the East Las Posas Management Area. Using the *2020 Urban Water Management Plan for Ventura County Waterworks District No. 1*, the Project's annual residential water consumption was calculated to be

Project Review RMA 22-012
May 26, 2022
Page 2 of 2

Comment 4-3 continued

approximately 41 acre-feet per year (AFY), which is 1.9% of the FCGMA groundwater allocation to VCWWD-1 in 2020. The Draft identifies the Groundwater Sustainability Plan (GSP) for the Las Posas Valley Basin as the 2007 *Update to the Fox Canyon Groundwater Management Agency Groundwater Management Plan*. The Draft should be revised to include and reference the 2019 DWR-accepted *Groundwater Sustainability Plan for the Las Posas Valley Basin*.

Comment 4-4

Wastewater service in VCWWD-1 consists of wastewater flows conveyed to the Moorpark Water Reclamation Facility (MWRF). The MWRF receives an average of 2.0 million gallons per day (mgd) or 2,206-AFY and designed to treat 5 mgd. The MWRF has an available surplus capacity of 3.0 mgd or 3,360-AFY. The Project residential operations would generate approximately 30.8-AFY of wastewater.

The Project would increase the amount of onsite runoff, due to an increase in impervious surface area of 56.3%. Ventura County Guidelines for stormwater management require that the first ¾-inch of stormwater be infiltrated into the soil. Catch basins will be installed and a storm drain system will convey runoff to an underground biofiltration system. The *Hydrology Analysis for Everett Street Condominiums* dated May 2021 and prepared by Homes Enterprises, Inc. was included in Appendix I of the Draft.

ITEMS TO BE ADDRESSED

The following items need to be reviewed, revised and/or updated:

Comment 4-5

1. Provide a Will Serve Letter from VCWWD-1 confirming that the District can provide the required water for the Project, at full build-out.

Comment 4-6

2. Revise the Draft to incorporate and/or reference the 2019 DWR-accepted GSP for the Las Posas Valley Basin.

Comment 4-7

3. Provide an assessment of the annual loss of water recharging the underlying aquifers from the proposed new impervious surfaces. Discuss how the infiltration mitigations reduce losses and/or facilitate percolation of surface water to groundwater.

Comment 4-8

4. If groundwater wells are encountered during grading or construction, the well(s) will need to be permitted with the County for destruction or returned to "active" status, per the County Well Ordinance.

RESPONSE TO COMMENT LETTER 4 – Ventura County Public Works Watershed Protection

Response to Comment 4-1:

This comment notes Ventura County Public Works Agency – Watershed Protection, Water Resources Division, Groundwater Resources Section (GRS) review of the Draft IS/MND for the Project, and provides a summary of the Project description. No further response is required.

Response to Comment 4-2:

The City appreciates the summary of the hydrology provided in the comment. Any groundwater wells discovered during grading and construction activities would not be used by the Project. In addition, no groundwater extraction wells are proposed by the Project.

Response to Comment 4-3:

Please refer to Section 7.0, below, where the Hydrology & Water Quality discussion has been updated to reference the DWR-accepted Groundwater Sustainability Plan for the Las Posas Valley Basin.

Response to Comment 4-4:

This comment summarizes the wastewater that will be generated and the Hydrology Analysis included as Appendix I to the Draft IS/MND, and states the capacity for the Moorpark Water Reclamation Facility. No further response is required.

Response to Comment 4-5:

The Applicant will obtain a Will Serve letter from VCWWD1 prior to permitting of any construction, as a condition of approval.

Response to Comment 4-6:

As noted in Comment 4-3, above, revisions to the Draft MND have been made in Section 7.0.

Response to Comment 4-7:

As noted in Section 4.10 of the Draft MND there should be no annual loss of water recharging. As noted in the discussion, "Once developed, the Project will increase the imperviousness on the site from 20 percent to 76.3 percent (Appendix I). Ventura County Guidelines for stormwater management require that the first 3/4 inch of stormwater be infiltrated back into the soil, if possible and, if not, be cleaned prior to leaving the property. Landscaping of the Project site would help reduce offsite flows and reduce runoff volumes and rates. Additionally, catch basins will be installed throughout the site; and an onsite storm drain system will convey runoff to one of two proposed underground biofiltration systems located on site. The biofilters are designed to outlet via a pipe which will connect the City/County/State storm drain system in Everett Street and Walnut Canyon Road (Appendix I). With implementation of these design features, Project operations would not substantially degrade surface or groundwater quality. Impacts

would be less than significant. Therefore, the Project will not divert groundwater from the aquifer or impact the groundwater basin's integrity.

Response to Comment 4-7:

As noted in Response to Comment 4-2, any groundwater wells discovered during grading and construction activities would not be used by the Project

Comment Letter #5 – California Department of Fish & Wildlife

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Comment Letter #5

State of California – Natural Resources Agency
DEPARTMENT OF FISH AND WILDLIFE
South Coast Region
3883 Ruffin Road
San Diego, CA 92123
(858) 467-4201
www.wildlife.ca.gov

GAVIN NEWSOM, Governor
CHARLTON H. BONHAM, Director

June 17, 2022

Ms. Shanna Farley
City of Moorpark
799 Moorpark Avenue
Moorpark, CA 93021
SFarley@moorparkca.gov

Subject: Everett Street Terraces Project, Mitigated Negative Declaration, SCH No. 2022050391; City of Moorpark, Ventura County

Dear Ms. Farley:

The California Department of Fish and Wildlife (CDFW) has reviewed the City of Moorpark's (City) Mitigated Negative Declaration (MND) for the Everett Street Terraces Project (Project). The City, as Lead Agency, prepared a MND pursuant to the California Environmental Quality Act (CEQA; Pub. Resources Code, § 21000 et. seq.) with the purpose of informing decision-makers and the public regarding potential environmental effects related to the Project. Thank you for the opportunity to provide comments and recommendations regarding those activities involved in the Project that may affect California fish and wildlife or be subject to Fish and Game Code.

CDFW's Role

Comment 5-1

CDFW is California's Trustee Agency for fish and wildlife resources and holds those resources in trust for the people of the state [Fish & Game Code, §§ 711.7, subdivision (a) & 1802; Pub. Resources Code, § 21070; California Environmental Quality Act (CEQA) Guidelines, [§ 15386, subdivision (a)]. CDFW, in its trustee capacity, has jurisdiction over the conservation, protection, and management of fish, wildlife, native plants, and habitat necessary for biologically sustainable populations of those species (Id., § 1802). CDFW is also directed to provide biological expertise during public agency environmental review efforts, focusing specifically on projects and related activities that have the potential to adversely affect state fish and wildlife resources.

CDFW is also submitting comments as a Responsible Agency under CEQA (Public Resources Code, § 21069; CEQA Guidelines, § 15381). CDFW expects that it may need to exercise regulatory authority as provided by the Fish and Game Code, including lake and streambed alteration regulatory authority (Fish & Game Code, § 1600 *et seq.*). To the extent implementation of the Project as proposed may result in "take" of any species protected under the California Endangered Species Act (CESA; Fish & Game Code, § 2050 *et seq.*), or CESA-listed rare plant pursuant to the Native Plant Protection Act (NPPA; Fish & Game Code, §1900 *et seq.*), CDFW recommends the Project proponent obtain appropriate authorization under the Fish and Game Code.

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Project Description and Summary

Objective: The proposed Project will provide residential housing units at the Everette Street Terraces Development (Project). The Project includes the following activities:

Structures and Amenities
The Project includes the construction of a 60-unit condominium property along 2.44 acres. Units will differ in square footage based on unit type. Amenity structures include an outdoor playground area, lobby, office, private garages, swimming pool, and shared outdoor recreation area.

Exterior Lighting
The MND states that all lighting would be constructed in compliance with the lighting regulations set forth in the City's Zoning Code. This includes using shielded lamps directed away from adjacent properties and streets; not exceeding 7 foot-candles on 95 percent or more of the grid points, light poles not exceeding 25 feet in height, and curbed planters around all light poles.

Comment 5-2

Grading and Construction
Construction activities for the Proposed Project are anticipated to start in spring 2023 and be completed by fall 2024. The construction activities would include site preparation and grading of the project site, building construction, paving, and application of architectural coatings. The Project will also require the removal of 53 trees.

Landscape Improvements
Landscaping pallets were not specified in the MND, CDFW recommends the Project use native drought tolerant plant species. Likewise, CDFW recommends the Project avoids the use of herbicides and insecticides in their landscaping plans.

Location: The Project site is located at the northeast corner of Everett Street and Walnut Canyon Road in the City of Moorpark within Ventura County. Existing residences are located north, south, east, and west of the Project site, with one commercial building north of Charles Street and a public facility west of Walnut Canyon Road. A portion of the site was previously occupied by six single-family homes which were previously removed, and none of the structures remain. In addition, the site contains several mature trees including, but no limited to; Peruvian pepper trees (*Schinus molle*), Texas privet trees (*Ligustrum japonicum*), and tipu trees (*Tipuana tipu*).

Comments and Recommendations

Comment 5-3

CDFW offers the comments and recommendations below to assist the City in adequately identifying, avoiding, and/or mitigating significant, or potentially significant, direct and indirect impacts on fish and wildlife biological resources based on the planned activities of this proposed Project. CDFW recommends the measures below be included in a science-based monitoring program with adaptive management strategies as part of the Project's CEQA mitigation, monitoring and reporting program (Public Resources Code, § 21081.6 and CEQA Guidelines, § 15097). Additional comments or other suggestions may also be included to improve the document.

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Specific Comments

Comment #1: Survey Protocols for Special-Status Wildlife

Issue: Surveys are needed to confirm/deny presence of special-status wildlife.

Specific Impacts: No protocol surveys have been conducted for special-status wildlife. Ground clearing, and construction activities could lead to the direct mortality of a listed species or Species of Special Concern (SSC). The loss of occupied habitat could yield a loss of foraging potential, nesting sites, roosting sites, or refugia and would constitute a significant impact if absent of appropriate mitigation.

Why impacts would occur: The proposed Project may impact special status species. Within the MND Appendix B, page 1 it states, "formal biological reconnaissance-level survey was not conducted; however, a biologist has visited the site to verify present conditions…." As such, we recommend including special-status protocol survey language such as avoidance, minimization and/or mitigation measure(s). A lack of protocol surveys will likely lead to impacts to a variety of sensitive species. Protocol surveys are necessary to identify listed species and supporting habitat necessary for their survival. Protocol surveys facilitate CDFW's ability to provide appropriate avoidance, minimization, and mitigation measures.

Comment 5-4

Evidence impact would be significant: Ground clearing and construction activities could lead to the direct mortality of a listed species or species of special concern. The loss of occupied habitat could yield a loss of foraging potential, nesting sites, roosting sites, or refugia and would constitute a significant impact absent appropriate mitigation. CDFW considers impacts to CESA-listed and SSC a significant direct and cumulative adverse effect without implementing appropriate avoidance and/or mitigation measures.

The following mitigation measures are suggested by CDFW for impacts to special status nesting birds

Mitigation Measure #1: CDFW acknowledges the efforts of the Project in including mitigation measures to protect special status passerine species. To further protect nesting passerine birds that may occur on-site, CDFW recommends that no construction should occur from February 1 through September 15. These dates slightly differ from the nesting ranges provided within BO-1 of the MND. If construction is unavoidable during February 1 through September 15, surveys should be conducted for nesting bird activity within 7 days prior to Project activities. Surveys should be conducted by a qualified biologist to determine presence of active bird nests of special status bird species. Surveys will occur in the construction zone and within 500 feet of the site. This survey buffer also differs from the 250-foot buffer provided for passerine birds within the MND. The nesting bird surveys should be conducted at appropriate nesting times and concentrate on potential roosting or perch sites.

Comment 5-5

Mitigation Measure #2: If any nests of passerine birds are observed, these nests should be designated an ecologically sensitive area and protected (while occupied) by a minimum 300-foot radius during project construction. If active nests are found, all construction must be postponed or halted until the biologist determined the nest is vacated, juveniles have fledged, and no evidence of a second nesting attempt is observed. The biologist should serve as a construction

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Comment 5-5 continued

monitor during periods of construction occur near the active nest areas to ensure that no inadvertent impacts occur.

The following mitigation measures are suggested by CDFW for impacts to raptors

Mitigation Measure #1: In addition to the mitigation measures included within the MND in BIO-1, CDFW recommends the following language be included within the environmental document. To protect nesting birds of prey that may occur on-site, CDFW recommends that the final environmental document include a measure that no construction should occur from January 1 through September 15. If construction is unavoidable during January 1 through September 15, a qualified biologist should complete surveys for nesting bird activity the orders *Falconiformes* and *Strigiformes* (raptors and owls) within a 500-foot radius of the construction site. The nesting bird surveys should be conducted at appropriate nesting times and concentrate on potential roosting or perch sites. If any nests of birds of prey are observed, these nests should be designated an ecologically sensitive area and protected (while occupied) by a minimum 500-foot radius during project construction. Pursuant to FGC Sections 3503 and 3503.5, it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird or bird-of-prey.

Comment 5-6

Mitigation Measure #2: CDFW cannot authorize the take of any fully protected species as defined by state law. State fully protected species may not be taken or possessed at any time and no licenses or permits may be issued for its take except for collecting those species for necessary scientific research and relocation of the bird species for protection of livestock (Fish & G. Code, §§ 3511, 4700, 5050, 5515). CDFW has advised the Permittee that take of any species designated as fully protected under the Fish and Game Code is prohibited. CDFW recognizes that certain fully-protected species are documented to occur on, or in, the vicinity of the Project area, or that such species have some potential to occur on, or in, the vicinity of Project, due to the presence of suitable habitat.

The following mitigation measures are suggested by CDFW for impacts to special status reptiles:

Mitigation Measure #1: The MND states that the following special status reptiles have potential to occur in and around the Project site: California legless lizard (*Anniella spp*.), California glossy snake (*Arizona elegans occidentalis*), and the coastal whiptail (*Aspidoscelis tigirs stejnegeri*). All of which are SSC. To disclose and mitigate impacts to special-status reptiles within the MND, CDFW recommends focused surveys for species with potential to occur within a Project(s) area. Additional surveys will more reliably determine what species are present so CDFW can make informed recommendations as to avoidance, minimization, and mitigation measures. Surveys should typically be scheduled during the summer months (June and July) when these animals are most likely to be encountered. To achieve 100 percent visual coverage, CDFW recommends surveys be conducted with parallel transects at approximately 20 feet apart and walked on-site in appropriate habitat suitable for each species. Suitable habitat consists of areas of sandy, loose, and moist soils, typically under the sparse vegetation of scrub, chaparral, and within the duff of oak woodlands.

Comment 5-7

Mitigation Measure #2: Prior to any Project activities, a relocation plan (Plan) should be developed by a qualified biologist familiar with the respective reptile in consultation with CDFW. The Plan should include, but not be limited to, the timing and location of the surveys that will be

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Comment 5-7 continued

conducted for the species, identify the locations where more intensive survey efforts will be conducted (based on high habitat suitability); identify the habitat and conditions in any proposed relocation site(s); the methods that will be utilized for trapping and relocating the individuals; and the City coordinate with CDFW and/or the U.S. Fish and Wildlife Service (USFWS) prior to any ground disturbing activities within potentially occupied habitat.

Recommendation #1: CDFW recommends a qualified biologist is on site during all ground disturbing activities to salvage any reptiles or fossorial species.

Comment #2: Impacts to Sensitive Plant Communities and Special-Status Plant Species

Issue: It is unclear if the project will impact sensitive plants and sensitive plant communities.

Specific impact: Due to the lack of protocol surveys it is unclear if special-status plants and/or communities will be impacted. Without protocol surveys the Project may result in a significant impact to special-status plants/communities. Mitigation measures and ratios for ranked sensitive vegetation communities including S4 and S5 should be provided for the proposed Project impacts if present. Development of the area and thinning of vegetation for fuel modification will result in the loss of resources. Rare plants within 1,000 meters from these activities are considered impacted.

Comment 5-8

Why impact would occur: A general survey was done in 2018, but mainly functioned to address the current overall conditions of the site. No botanical surveys were conducted in the area and absence was determined based only on literature and a 5-mile CNDDB review. Presence/absence determinations of rare plants in the Project area, specifically areas that would be impacted due to Project implementation, should be determined based on recent surveys. Likewise, CDFW is unable to determine if the Project may impact sensitive vegetation communities without MCV names identified for the vegetation communities potentially affected by the Project. Thus, CDFW is unable to recommend appropriate avoidance, minimization and/or mitigation measures without proper classification.

Evidence impact would be significant: Inadequate avoidance, minimization, and mitigation measures for impacts to these CEQA locally sensitive vegetation communities will result in the Project continuing to have a substantial adverse direct, indirect, and cumulative effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by CDFW or USFWS.

Impacts to special-status plant species should be considered significant under CEQA unless they are clearly mitigated below a level of significance. Inadequate avoidance, minimization, and mitigation measures for impacts to these sensitive plant species will result in a Project(s) continuing to have a substantial adverse direct, indirect, and cumulative effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by CDFW or U.S. Fish & Wildlife Service (USFWS). CDFW considers plant communities, alliances, and associations with a statewide ranking of S1, S2, S3, and S4 as sensitive and declining at the local and regional level (Sawyer et al. 2008). An S3 ranking indicates there are 21-80 occurrences of this community in existence in California, S2 has 6-20 occurrences, and S1 has less than 6

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occurrences. The Project may have direct or indirect effects to these sensitive species. Mitigation measures and replacement ratios should be provided for ranked vegetation communities if present.

Take of CESA-listed rare plants may only be permitted through an incidental take permit (ITP) or other authorization issued by pursuant to California Code of Regulations, Title 14, section, 786.9 subdivision (b). CDFW is concerned the loss of CESA-listed rare plants may occur if appropriate avoidance, minimization, and/or mitigation for these species is not adopted.

Recommended Potentially Feasible Mitigation Measure(s)

Comment 5-8 continued

Mitigation Measure #1: CDFW recommends surveying the project footprint and fuel modification area to produce a plant communities map. Vegetation surveys should be conducted following systematic field techniques outlined by CDFW's *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities* (CDFW 2018). To determine the rarity ranking of vegetation communities on a specific Project site(s), CDFW utilizes vegetation descriptions found in the *Manual of California Vegetation* (MCV). The MCV alliance/association community names should be provided as CDFW only tracks rare natural communities using this classification system (found online at http://vegetation.cnps.org/). CDFW recommends the environmental document provide measures to fully mitigate the loss of individual Endangered Species Act (ESA)- and CESA-listed plants and habitat.

1. The MND should provide a detailed map (1:24,000 or larger) showing which plants or populations will be impacted and provide a table that clearly documents the number of plants and acres of supporting habitat impacted, and plant composition (e.g., density, cover, abundance) within impacted habitat (e.g., species list separated by vegetation class; density, cover, abundance of each species).

2. The MND should provide species-specific measures for on-site mitigation. Each species-specific mitigation plan should adopt an ecosystem-based approach and be of sufficient detail and resolution to describe the following at a minimum: 1) identify the impact and level of impact (e.g., acres or individual plants/habitat impacted); 2) location of on-site mitigation and adequacy of the location(s) to serve as mitigation; 3) assessment of appropriate reference sites; 4) scientific [genus and species (subspecies/variety if applicable)] of plants being used for restoration; 5) location(s) of propagule source; 6) species-specific planting methods (i.e., container or seed); 7) measurable goals and success criteria for establishing self-sustaining populations (e.g., percent survival rate, absolute cover); 8) long-term monitoring, and; 9) adaptive management techniques.

Additionally, considerations should be made regarding timing of these field surveys to ensure accuracy in determining what plants exist on site. Adequate information about special status plants and natural communities present in a project area will enable reviewing agencies and the public to effectively assess potential impacts to special status plants or natural communities and will guide the development of minimization and mitigation measures (CDFWa 2018).

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Comment 5-8 continued

Mitigation Measure #2: If rare or sensitive plants are found on or near the footprint of the Project, the MND should provide species-specific measures to fully avoid impacts to all ESA- and CESA-listed plants. This may include flagging all plants and/or perimeter of populations; no work buffers around plants and/or populations (e.g., flagged perimeter plus 50 feet); restrictions on ground disturbing activities within protected areas; relocation of staging and other material piling areas away from protected areas; restrictions on herbicide use and/or type of herbicide and/or application method within 100 feet of sensitive plants; and worker education and training.

Mitigation Measure #3: If rare or sensitive plants/communities are impacted on or near the footprint of the Project, CDFW recommends the MND provide measures to fully mitigate the loss of individual ESA- and CESA-listed plants and habitat. The Project proponent should mitigate at a ratio sufficient to achieve a no-net loss for impacts to special status plant species and their associated habitat. This should be for the number of plants replaced to number impacted, including acres of habitat created to acres of habitat impacted.

Mitigation Measure #4: All revegetation/restoration areas that will serve as mitigation should include preparation of a restoration plan (Plan), to be approved by CDFW prior to any ground disturbance. The restoration plan should include restoration and monitoring methods; annual success criteria; contingency actions should success criteria not be met; long-term management and maintenance goals; and a funding mechanism for long-term management. Areas proposed as mitigation should have a recorded conservation easement and be dedicated to an entity which has been approved to hold/manage lands (AB 1094; Government Code, §§ 65965-65968). The Plan should provide species-specific measures for on-site mitigation. Each species-specific mitigation plan should adopt an ecosystem-based approach and be of sufficient detail and resolution to describe the following at a minimum: 1) identify the impact and level of impact (e.g., acres or individual plants/habitat impacted); 2) location of on-site mitigation and adequacy of the location(s) to serve as mitigation; 3) assessment of appropriate reference sites; 4) scientific [Genus and species (subspecies/variety if applicable)] of plants being used for restoration; 5) location(s) of propagule source; 6) species-specific planting methods (i.e., container or seed); 7) measurable goals and success criteria for establishing self-sustaining populations (e.g. percent survival rate, absolute cover); 8) long-term monitoring, and; 9) adaptive management techniques.

Mitigation Measure #5: Success criteria should be based on the specific composition of the vegetation communities being impacted. Success should not be determined until the site has been irrigation-free for at least 5 years and the metrics for success have remained stable (no negative trend for richness/diversity/abundance/cover and no positive trend for invasive/non-native cover for each vegetation layer) for at least 5 years. In the revegetation plan, the success criteria should be compared against an appropriate reference site, with the same vegetation alliance, with as good or better-quality habitat. The success criteria should include percent cover (both basal and vegetative), species diversity, density, abundance, and any other measures of success deemed appropriate by CDFW. Success criteria should be separated into vegetative layers (tree, shrub, grass, and forb) for each alliance being mitigated, and each layer should be compared to the success criteria of the reference site, as well as the alliance criteria in MCV ensuring one species or layer does not disproportionally dominate a site but conditions mimic the reference site and meets the alliance membership requirements.

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Comment 5-8 continued

CDFW does not recommend topsoil salvage or transplantation as viable mitigation options. Several studies have documented topsoil salvage had no effect on the recolonization of the target plant species (Hinshaw 1998). Based on the scientific literature available, relying on topsoil salvage alone to mitigate impacts to CEQA-rare plant species does not appear to provide any value to mitigate impacts to the plant.

Comment #3: Spreading Invasive Pests and Diseases

Issue: CDFW is concerned that the MND does not describe procedures for disposal of removed trees which may be infested with invasive pests and disease.

Specific impacts: The Project proposes to remove an unspecified amount of vegetation. Improper disposal of vegetation may result in the spread of tree insect pests and disease into areas not currently exposed to these stressors. This could result in expediting the loss of oaks and other trees in California which support a high biological diversity including special status species. The environmental document should address the presence or absence of goldspotted oak borer (*Agrilus auroguttatus*), Polyphagus shot-hole borer (*Euwallacea* sp.), and thousand canker fungus (*Geosmithia morbida*) in on-site trees and, if present, describe how any effected trees would be disposed of as part of the Project.

Comment 5-9

Why impacts would occur: The Project may remove tree species that could host insect pests and diseases. Trees will be removed and presumably hauled to off-site locations for disposal thereby potentially exposing off-site oak and other tree species to infestation and disease.

Evidence impact would be significant: The Project may have a substantial adverse effect on any sensitive natural communities identified in local or regional plans, policies, and regulations or by the CDFW or USFWS. The Project may result in a substantial adverse effect, either directly or through habitat modifications, on species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by CDFW or USFWS that are dependent on habitats susceptible to insect and disease pathogens.

Mitigation Measure #1: CDFW recommends the City/Applicant work with the certified arborist to identify all trees and species for removal from the Project site and inspect those trees for contagious tree diseases including but not limited to: thousand canker fungus (https://thousandcankers.com/), Polyphagous shot hole borer (https://ucanr.edu/sites/eskalenlab/?file=index.html), and goldspotted oak borer (http://ipm.ucanr.edu/PMG/PESTNOTES/pn74163.html). A summary report documenting inspection methods, number and species of trees inspected, results, and conclusions, including negative findings, should be submitted to CDFW for review and included as an appendix in final environmental documents. The summary report should also include photographic documentation of entry/exit holes and evidence of pests/disease.

Mitigation Measure #2: If invasive pests and/or diseases are detected, the City/Applicant should provide an infectious tree disease management plan and describe how it will be implemented to avoid significant impacts under CEQA. To avoid the spread of infectious tree diseases, diseased trees should not be transported from the Project site without first being treated using best available management practices relevant for each tree disease observed. A

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Comment 5-9 continued

management plan should be submitted to CDFW for review and included as an appendix in the final environmental document.

Comment #4: Impacts to Non-Game Mammals and Wildlife

Issue: Wildlife may still move through the Project site during the daytime or nighttime. CDFW is concerned that any wildlife potentially moving through or seeking temporary refuge on the Project site may be directly impacted during Project activities and construction. Any final fence, or other design features, design should allow for wildlife movement.

Specific impacts: Project activities and construction equipment may directly impact wildlife and birds moving through or seeking temporary refuge on site. This could result in wildlife and bird mortality. Furthermore, depending on the final fencing design, the Project may cumulatively restrict wildlife movement opportunity.

Why impacts would occur: Direct impacts to wildlife may occur from: ground disturbing activities (e.g., staging, access, excavation, grading); wildlife being trapped or entangled in construction materials and erection of restrictive fencing; and wildlife could be trampled by heavy equipment operating in the Project site.

Evidence impact would be significant: Mammals occurring naturally in California are considered non-game mammals and are afforded protection by State law from take and/or harassment (Fish & Game Code, § 4150; Cal. Code of Regs, § 251.1).

Comment 5-10

Recommended Potentially Feasible Mitigation Measure(s): CDFW recommends the following four mitigation measures to avoid and minimize direct impacts to wildlife during Project construction and activities.

Mitigation Measure #1: If fencing is proposed for use during construction or during the life of the Project, fences should be constructed with materials that are not harmful to wildlife. Prohibited materials include, but are not limited to, spikes, glass, razor, or barbed wire. Fencing should also be minimized so as not to restrict free wildlife movement through habitat areas. CDFW recommends the City consider permeable fencing as part of its mitigation for Project-related impacts. Wildlife impermeable fencing is fencing that prevents or creates a barrier for the passage of wildlife from one side to the other. Los Angeles County's Significant Ecological Areas Ordinance Implementation Guide (https://planning.lacounty.gov/site/sea/wp-content/uploads/2020/02/SEA-IG-2-6-20.pdf) offers additional information on permeable fencing as well as design standards. CDFW recommends reviewing those design standards.

Mitigation Measure #2: To avoid direct mortality, a qualified biological monitor should be on site prior to and during ground and habitat disturbing activities to move out of harm's way special status species or other wildlife of low mobility that would be injured or killed by grubbing or Project-related construction activities. Salvaged wildlife of low mobility should be removed and placed onto adjacent and suitable (i.e., species appropriate) habitat out of harm's way.

It should be noted that the temporary relocation of on-site wildlife does not constitute effective mitigation for the purposes of offsetting Program impacts associated with habitat loss.

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Comment 5-10 continued

Mitigation Measure #3: Grubbing and grading should be done to avoid islands of habitat where wildlife may take refuge and later be killed by heavy equipment. Grubbing and grading should be done from the center of the Project site, working outward towards adjacent habitat off site where wildlife may safely escape.

Additional Recommendations

Comment 5-11

Fuel Modification. If the Project includes fuel modification, CDFW recommends that the final environmental include avoidance and mitigation measures for any fuel modification activities conducted within and adjacent to the Project area. A weed management plan should be developed for all areas adjacent to open space that will be subject to fuel modification disturbance. CDFW also recommends that any irrigation proposed in fuel modification zones allow for the introduction of invasive Argentine ants.

Comment 5-12

Mitigation and Monitoring Reporting Plan. Per Public Resources Code section 21081.6(a)(1), CDFW has provided the City with a summary of our suggested mitigation measures and recommendations in the form of an attached Draft Mitigation and Monitoring Reporting Plan. A final MMRP should reflect results following additional plant and wildlife surveys and the Project's final on and/or off-site mitigation plans.

Comment 5-13

Filing Fees

The Project, as proposed, would have an impact on fish and/or wildlife, and assessment of filing fees is necessary. Fees are payable upon filing of the Notice of Determination by the County and serve to help defray the cost of environmental review by CDFW. Payment of the fee is required for the underlying Project approval to be operative, vested, and final (Cal. Code Regs., tit. 14, § 753.5; Fish & G. Code, § 711.4; Pub. Resources Code, § 21089).

Comment 5-14

Conclusion

We appreciate the opportunity to comment on the Project to assist the City in adequately analyzing and minimizing/mitigating impacts to biological resources. CDFW requests an opportunity to review and comment on any response that the City has to our comments and to receive notification of any forthcoming hearing date(s) for the Project [CEQA Guidelines, § 15073(e)]. If you have any questions or comments regarding this letter, please contact Angela Castanon, Environmental Scientist, at Angela.Castanon@wildlife.ca.gov.

Sincerely,

DocuSigned by:
B6E58CFE24724F5...

Erinn Wilson-Olgin
Environmental Program Manager I
South Coast Region

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ec: CDFW
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Cindy Hailey, San Diego – Cindy.Hailey@wildlife.ca.gov
CEQA Program Coordinator, Sacramento – CEQACommentLetters@wildlife.ca.gov
State Clearinghouse, Office of Planning and Research – State.Clearinghouse@opr.ca.gov

References

[CDFW] California Department of Fish and Wildlife. 2018. Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities. Available from: https://nrm.dfg.ca.go

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[UCCE] UC California Cooperative Extension. 2022. Eskalen's Lab. Available from: https://ucanr.edu/sites/eskalenlab/?file=index.html

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State of California – Natural Resources Agency
DEPARTMENT OF FISH AND WILDLIFE
South Coast Region
3883 Ruffin Road
San Diego, CA 92123
(858) 467-4201
www.wildlife.ca.gov

GAVIN NEWSOM, Governor
CHARLTON H. BONHAM, Director

Attachment A: Draft Mitigation and Monitoring Reporting Plan

CDFW recommends the following language to be incorporated into a future environmental document for the Project. A final MMRP should reflect results following additional plant and wildlife surveys and the Project's final on and/or off-site mitigation plans.

Biological Resources (BIO)			
Mitigation Measure (MM) or Recommendation (REC)		**Timing**	**Responsible Party**
MM-BIO-1-Impacts to Nesting Birds	CDFW acknowledges the efforts of the Project in including mitigation measures to protect special-status passerine species. To further protect nesting passerine birds that may occur on-site, CDFW recommends that no construction should occur from February 1 through September 15. These dates slightly differ from the nesting ranges provided within BO-1 of the MND. If construction is unavoidable during February 1 through September 15, surveys should be conducted for nesting bird activity within 7 days prior to Project activities. Surveys should be conducted by a qualified biologist to determine presence of active bird nests of special status bird species. Surveys will occur in the construction zone and within 500 feet of the site. This survey buffer also differs from the 250-foot buffer provided for passerine birds within the MND. The nesting bird surveys should be conducted at appropriate nesting times and concentrate on potential roosting or perch sites.	Prior to Project construction and activities	City of Moorpark/ Applicant
MM-BIO-2-Impacts to Nesting Birds	If any nests of passerine birds are observed, these nests should be designated an ecologically sensitive area and protected (while occupied) by a minimum 300-foot radius during project construction. If active nests are found, all construction must be postponed or halted until the biologist determined the nest is	Prior to/ During Project construction and activities	City of Moorpark/ Applicant

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	vacated, juveniles have fledged, and no evidence of a second nesting attempt is observed. The biologist should serve as a construction monitor during periods of construction occur near the active nest areas to ensure that no inadvertent impacts occur.		
MM-BIO-3- Impacts to Nesting Birds	In addition to the mitigation measures included within the MND in BIO-1, CDFW recommends the following language be included in the environmental document. To protect nesting birds of prey that may occur on-site, CDFW recommends that the final environmental document include a measure that no construction should occur from January 1 through September 15. If construction is unavoidable during January 1 through September 15, a qualified biologist should complete surveys for nesting bird activity the orders *Falconiformes* and *Strigiformes* (raptors and owls) within a 500-foot radius of the construction site. The nesting bird surveys should be conducted at appropriate nesting times and concentrate on potential roosting or perch sites. If any nests of birds of prey are observed, these nests should be designated an ecologically sensitive area and protected (while occupied) by a minimum 500-foot radius during project construction. Pursuant to FGC Sections 3503 and 3503.5, it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird or bird-of-prey.	Prior to/ During Project construction and activities	City of Moorpark/ Applicant
MM-BIO-4- Impacts to Nesting Birds	CDFW cannot authorize the take of any fully protected species as defined by state law. State fully protected species may not be taken or possessed at any time and no licenses or permits may be issued for its take except for collecting those species for necessary scientific research and relocation of the bird species for protection of livestock (Fish & G. Code, §§ 3511, 4700, 5050, 5515). CDFW has advised the Permittee that take of any species designated as fully protected under the Fish and Game Code is prohibited. CDFW recognizes that certain fully-protected species are documented to occur on, or in, the vicinity of the Project area, or that such species have some potential to occur on, or in, the vicinity of Project, due to the presence of suitable habitat.	Prior to Project construction and activities	City of Moorpark/ Applicant

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MM-BIO-5-Impacts to Reptiles	The MND states that the following special status reptiles have potential to occur in and around the Project site: California legless lizard (*Anniella spp.*), California glossy snake (*Arizona elegans occidentalis*), and the coastal whiptail (*Aspidoscelis tigirs stejnegeri*). All of which are SSC. To disclose impacts to special-status reptiles within the MND, CDFW recommends focused surveys for species with potential to occur within a Project(s) area. Additional surveys will more reliably determine what species are present so CDFW can make informed recommendations as to avoidance, minimization, and mitigation measures. Surveys should typically be scheduled during the summer months (June and July) when these animals are most likely to be encountered. To achieve 100 percent visual coverage, CDFW recommends surveys be conducted with parallel transects at approximately 20 feet apart and walked on-site in appropriate habitat suitable for each species. Suitable habitat consists of areas of sandy, loose, and moist soils, typically under the sparse vegetation of scrub, chaparral, and within the duff of oak woodlands.	Prior to Project construction and activities	City of Moorpark/ Applicant
MM-BIO-6-Impacts to Reptiles	Prior to any Project activities, a relocation plan (Plan) should be developed by a qualified biologist familiar with the respective reptile in consultation with CDFW. The Plan should include, but not be limited to, the timing and location of the surveys that will be conducted for the species, identify the locations where more intensive survey efforts will be conducted (based on high habitat suitability); identify the habitat and conditions in any proposed relocation site(s); the methods that will be utilized for trapping and relocating the individuals; and the City coordinate with CDFW and/or the USFWS prior to any ground disturbing activities within potentially occupied habitat.	Prior to Project construction and activities	City of Moorpark/ Applicant
MM-BIO-7-Impacts to Special Status	CDFW recommends surveying the project footprint and fuel modification area to produce a plant communities map. Vegetation surveys should be conducted following systematic field techniques outlined by CDFW's *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive*	Prior to Project construction and activities	City of Moorpark/ Applicant

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Plants and Communities	*Natural Communities* (CDFWa 2018). To determine the rarity ranking of vegetation communities on a specific Project site(s), CDFW utilizes vegetation descriptions found in the MCV. The MCV alliance/association community names should be provided as CDFW only tracks rare natural communities using this classification system (found online at http://vegetation.cnps.org/). CDFW recommends the environmental document provide measures to fully mitigate the loss of individual ESA- and CESA-listed plants and habitat. 1. The MND should provide a detailed map (1:24,000 or larger) showing which plants or populations will be impacted and provide a table that clearly documents the number of plants and acres of supporting habitat impacted, and plant composition (e.g., density, cover, abundance) within impacted habitat (e.g., species list separated by vegetation class; density, cover, abundance of each species). 2. The MND should provide species-specific measures for on-site mitigation. Each species-specific mitigation plan should adopt an ecosystem-based approach and be of sufficient detail and resolution to describe the following at a minimum: 1) identify the impact and level of impact (e.g., acres or individual plants/habitat impacted); 2) location of on-site mitigation and adequacy of the location(s) to serve as mitigation; 3) assessment of appropriate reference sites; 4) scientific [genus and species (subspecies/variety if applicable)] of plants being used for restoration; 5) location(s) of propagule source; 6) species-specific planting methods (i.e., container or seed); 7) measurable goals and success criteria for establishing self-sustaining populations		

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	(e.g., percent survival rate, absolute cover); 8) long-term monitoring, and; 9) adaptive management techniques. Additionally, considerations should be made regarding timing of these field surveys to ensure accuracy in determining what plants exist on site. Adequate information about special status plants and natural communities present in a project area will enable reviewing agencies and the public to effectively assess potential impacts to special status plants or natural communities and will guide the development of minimization and mitigation measures (CDFWa 2018).		
MM-BIO-8- Impacts to Special Status Plants and Communities	If rare or sensitive plants are found on or near the footprint of the Project, the MND should provide species-specific measures to fully avoid impacts to all ESA- and CESA-listed plants. This may include flagging all plants and/or perimeter of populations; no work buffers around plants and/or populations (e.g., flagged perimeter plus 50 feet); restrictions on ground disturbing activities within protected areas; relocation of staging and other material piling areas away from protected areas; restrictions on herbicide use and/or type of herbicide and/or application method within 100 feet of sensitive plants; and worker education and training.	Prior to Project construction and activities	City of Moorpark/ Applicant
MM-BIO-9- Impacts to Special Status Plants and Communities	If rare or sensitive plants/communities are impacted on or near the footprint of the Project, CDFW recommends the MND provide measures to fully mitigate the loss of individual ESA- and CESA-listed plants and habitat. The Project proponent should mitigate at a ratio sufficient to achieve a no-net loss for impacts to special status plant species and their associated habitat. This should be for the number of plants replaced to number impacted, including acres of habitat created to acres of habitat impacted.	Prior to Project construction and activities	City of Moorpark/ Applicant
MM-BIO-10- Impacts to Special Status Plants and Communities	All revegetation/restoration areas that will serve as mitigation should include preparation of a restoration plan (Plan), to be approved by CDFW prior to any ground disturbance. The restoration plan should include restoration and monitoring methods; annual success criteria; contingency actions should	Prior/During/ After Project construction and activities	City of Moorpark/ Applicant

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	success criteria not be met; long-term management and maintenance goals; and a funding mechanism for long-term management. Areas proposed as mitigation should have a recorded conservation easement and be dedicated to an entity which has been approved to hold/manage lands (AB 1094; Government Code, §§ 65965-65968). The Plan should provide species-specific measures for on-site mitigation. Each species-specific mitigation plan should adopt an ecosystem-based approach and be of sufficient detail and resolution to describe the following at a minimum: 1) identify the impact and level of impact (e.g., acres or individual plants/habitat impacted); 2) location of on-site mitigation and adequacy of the location(s) to serve as mitigation; 3) assessment of appropriate reference sites; 4) scientific [Genus and species (subspecies/variety if applicable)] of plants being used for restoration; 5) location(s) of propagule source; 6) species-specific planting methods (i.e., container or seed); 7) measurable goals and success criteria for establishing self-sustaining populations (e.g. percent survival rate, absolute cover); 8) long-term monitoring, and; 9) adaptive management techniques.		
MM-BIO-11-Impacts to Special Status Plants and Communities	Success criteria should be based on the specific composition of the vegetation communities being impacted. Success should not be determined until the site has been irrigation-free for at least 5 years and the metrics for success have remained stable (no negative trend for richness/diversity/abundance/cover and no positive trend for invasive/non-native cover for each vegetation layer) for at least 5 years. In the revegetation plan, the success criteria should be compared against an appropriate reference site, with the same vegetation alliance, with as good or better-quality habitat. The success criteria should include percent cover (both basal and vegetative), species diversity, density, abundance, and any other measures of success deemed appropriate by CDFW. Success criteria should be separated into vegetative layers (tree, shrub, grass, and forb) for each alliance being mitigated, and each	Prior/During/ After Project construction and activities	City of Moorpark/ Applicant

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	layer should be compared to the success criteria of the reference site, as well as the alliance criteria in MCV ensuring one species or layer does not disproportionally dominate a site but conditions mimic the reference site and meets the alliance membership requirements. CDFW does not recommend topsoil salvage or transplantation as viable mitigation options. Several studies have documented topsoil salvage had no effect on the recolonization of the target plant species (Hinshaw 1998). Based on the scientific literature available, relying on topsoil salvage alone to mitigate impacts to CEQA-rare plant species does not appear to provide any value to mitigate impacts to the plant.		
MM-BIO-12-Pests and Diseases	CDFW recommends the City/Applicant work with the certified arborist to identify all trees and species for removal from the Project site and inspect those trees for contagious tree diseases including but not limited to: thousand canker fungus (https://thousandcankers.com/), Polyphagous shot hole borer (https://ucanr.edu/sites/eskalenlab/?file=index.html), and goldspotted oak borer (http://ipm.ucanr.edu/PMG/PESTNOTES/pn74163.html). A summary report documenting inspection methods, number and species of trees inspected, results, and conclusions, including negative findings, should be submitted to CDFW for review and included as an appendix in final environmental documents. The summary report should also include photographic documentation of entry/exit holes and evidence of pests/disease.	Prior to Project construction and activities	City of Moorpark/ Applicant
MM-BIO-13-Pests and Diseases	If invasive pests and/or diseases are detected, the City/Applicant should provide an infectious tree disease management plan and describe how it will be implemented to avoid significant impacts under CEQA. To avoid the spread of infectious tree diseases, diseased trees should not be transported from the Project site without first being treated using best available management practices relevant for each tree disease observed. A management	Prior to Project construction and activities	City of Moorpark/ Applicant

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	plan should be submitted to CDFW for review and included as an appendix in the final environmental document.		
MM-BIO-14- Impacts to Non-Game Mammals and Wildlife	If fencing is proposed for use during construction or during the life of the Project, fences should be constructed with materials that are not harmful to wildlife. Prohibited materials include, but are not limited to, spikes, glass, razor, or barbed wire. Fencing should also be minimized so as not to restrict free wildlife movement through habitat areas. Los Angeles County's Significant Ecological Areas Ordinance Implementation Guide (https://planning.lacounty.gov/site/sea/wp-content/uploads/2020/02/SEA-IG-2-6-20.pdf) offers additional information on permeable fencing as well as design standards. CDFW recommends reviewing those design standards.	Prior to Project construction and activities	City of Moorpark/ Applicant
MM-BIO-15- Impacts to Non-Game Mammals and Wildlife	To avoid direct mortality, a qualified biological monitor should be on site prior to and during ground and habitat disturbing activities to move out of harm's way special status species or other wildlife of low mobility that would be injured or killed by grubbing or Project-related construction activities. Salvaged wildlife of low mobility should be removed and placed onto adjacent and suitable (i.e., species appropriate) habitat out of harm's way. It should be noted that the temporary relocation of on-site wildlife does not constitute effective mitigation for the purposes of offsetting Program impacts associated with habitat loss.	Prior to Project construction and activities	City of Moorpark/ Applicant
MM-BIO-16- Impacts to Non-Game Mammals and Wildlife	Grubbing and grading should be done to avoid islands of habitat where wildlife may take refuge and later be killed by heavy equipment. Grubbing and grading should be done from the center of the Project site, working outward towards adjacent habitat off site where wildlife may safely escape.	Prior to Project construction and activities	City of Moorpark/ Applicant

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REC-1- Out of Harm's Way	CDFW recommends a qualified biologist is on site during all ground disturbing activities to salvage any reptiles or fossorial species.	Prior to/ During construction and activities	City of Moorpark/ Applicant
REC-2- Fuel Modification	If the Project includes fuel modification, CDFW recommends that the final environmental include avoidance and mitigation measures for any fuel modification activities conducted within and adjacent to the Project area. A weed management plan should be developed for all areas adjacent to open space that will be subject to fuel modification disturbance. CDFW also recommends that any irrigation proposed in fuel modification zones drain back into the development and not onto natural habitat land as perennial sources of water allow for the introduction of invasive Argentine ants.	Prior to/ During construction and activities	City of Moorpark/ Applicant
REC-3- Mitigation and Monitoring Reporting Plan	Per Public Resources Code section 21081.6(a)(1), CDFW has provided the City with a summary of our suggested mitigation measures and recommendations in the form of an attached Draft Mitigation and Monitoring Reporting Plan. A final MMRP should reflect results following additional plant and wildlife surveys and the Project's final on and/or off-site mitigation plans.	Prior to Project construction and activities	City of Moorpark/ Applicant

RESPONSE TO COMMENT LETTER 5 – California Department of Fish & Wildlife

Response to Comment 5-1:

This comment noted that the California Department of Fish and Wildlife (CDFW) has reviewed the Proposed Project and associated Mitigated Negative Declaration. The commenter accurately notes that they are a Trustee Agency per CEQA Guidelines Section 15386 subdivision (a). The commenter also notes that they are submitting comments as a Responsible Agency; however, per CEQA Guidelines Section 15381, a responsible agency is a public agency with discretionary approval authority over a portion of a CEQA project (e.g., required permits). The commenter also notes that CDFW's regulatory authority is derived from the potential need for a lake and streambed alteration agreement or take permit; however, neither will be required for the Project. As the proposed Project requires no permits, there are no responsible agencies.

Response to Comment 5-2:

The comment summarizes the Proposed Project's activities and location. Under Landscape Improvements, the comment recommends use of native drought tolerant plant species; and recommends avoiding the use of herbicides and insecticides. The landscape plan drafted for the Project does include a plant palette consisting of drought tolerant plans species, which will be located in terraced planters. Due to the nature of the site, and the steep slopes, no open landscaping will be present onsite. The Planning Commission and City Council will consider these comments during their review of the Project.

Response to Comment 5-3:

The comment notes that CDFW is offering comments and recommendations regarding potential impacts to fish, wildlife, and biological resources. The City's responses to the specific recommended mitigation measures are included in the comments below.

Response to Comment 5-4:

The comment provides comments on survey protocols for special status species, since no surveys were conducted for special status wildlife. Although no specific surveys were completed, a general site visit was conducted and the desktop survey was conducted to determine potential for special status wildlife on the Project site. As noted in Appendix B, it was determined that eleven of the special status wildlife species are considered absent due to absence of suitable habitat, and four species have low potential for occurrence at the site due to poor quickly habitat within the site. Due to City brush clearing requirements, the Project site is routinely cleared of weeds prior to fire season. In addition, with the prior development of the site with single family homes, the site is disturbed and contains no native habitat.

Response to Comment 5-5:

The comment provides two suggested mitigation measures related to potential impacts to special status nesting birds. The timing of the nesting bird mitigation measure has been updated to match the language provided in Mitigation Measure #1 under Comment 5-5. The revised language can be found in Section 7.0 Revisions to the Draft Mitigated Negative Declaration, below. In addition, language from Mitigation Measure #2 under Comment 5-5 has been incorporated into MM BIO-1, as seen in Section 7.0, below.

Response to Comment 5-6:

The comment provides two suggested mitigation measures related to potential impacts to raptors. Language from Mitigation Measure #1 in Comment 5-6 has been incorporated into MM BIO-1, as seen in Section 7.0, below. However, Mitigation Measure #2 provided is not a mitigation measure under CEQA, and is Fish and Game Code, therefore, has not been added to the MND.

Response to Comment 5-7:

The comment provides recommendations regarding mitigation measures for potential impacts to special status reptiles. The mitigation notes that suitable habitat consists of areas of sandy, loose, and moist soils, typically under the sparse vegetation of scrub, chaparral, and within the duff of oak woodlands. As noted in Appendix B, no sandy or loose soils occur on the site, and no scrub, chaparral, or oak woodlands are present on the site. As noted in Appendix F, the soils found onsite included artificial fill, alluvium with clayed sand and silt, and Saugus Formation bedrock consisting of coarse sandstone. In addition, due to the previous development of houses on the site and the subsequent demolition, most of the site would consist of compacted ground; thus there is very low potential for special status reptiles to be present onsite. Since surveys aren't warranted, a relocation plan would not be required. In addition, Recommendation #1 would not be required; since no suitable habitat is present, having a qualified biologist on site during all ground disturbing activities is not warranted.

Response to Comment 5-8:

The comment provides recommended mitigation for potential impacts to sensitive plant communities and special status plant species, since CDFW feels it is unclear whether the Project will impact sensitive plants and animals. As noted in Appendix B, "of the nine plant species that resulted from the database search, all are considered Absent from the Project site…due to lack of suitable soil conditions or because they grow outside the elevation range." Based on lack of suitable conditions and elevation ranges, there is no potential for any of the sensitive plant species to occur. Therefore, protocol surveys would not be warranted. Based on City requirements, routine weeding and clearing of the site is completed to reduce wildfire impacts. In addition, the Ventura County Fire Department's Fire Hazard Reduction Program outlines requirements for vegetation clearance that have been followed for the Project site.

Response to Comment 5-9:

The comment outlines concerns regarding the spread of invasive pests and diseases, particularly with procedures for disposal of removed trees which may be infested. All trees, branches, shrubs, and any other woody material that are cut and cleared from the Project site would be chipped on-site and then loaded it into covered dump trucks to be hauled to an appropriate landfill for final disposal; therefore, the Project would not result in significant impacts associated with invasive pests and diseases. This clarification has been added to Section 7.0, below. Therefore the Project will not result in impacts regarding invasive pests and diseases.

Response to Comment 5-10:

The comment expresses concerns retarding movement of wildlife through the Project site and suggests that any final fences or design features should allow for wildlife movement. The Project site is not located

within mapped wildlife corridors, and no native trees are present. In addition, the site is surrounded by development on all sides. Therefore, Mitigation Measure #1 under Comment 5-10, would not be warranted.

In order to avoid potential impacts to any special status species or wildlife, Mitigation Measure #2 and Mitigation Measure #3 under Comment 5-10 have been incorporated into MM BIO-2 in Section 7.0, below.

Response to Comment 5-11:

he comment provides recommendations for avoidance and mitigation for activities related to fuel modification. No fuel modification is proposed for this Project, and no further response in necessary.

Response to Comment 5-12:
The comment notes that CDFW has provided their suggested mitigation measures and recommendations in the form of a MMRP; and suggests that their MMRP be included in the Project's final MMRP. The mitigation measures that have been revised or added as a result of the CDFW comment letter are noted in Section 7.0 below, as well as in the attached MMRP. None of the information provided by CDFW reveals that new avoidable significant effects would occur as a result of the Project; therefore, the mitigation measures provided include replacement of mitigation measures with more effective mitigation or are mitigation measures/conditions not necessarily required per CEQA, but are being added in response to CDFW comments. Per CEQA Section 15073.5, the new information "clarifies, amplifies, or makes insignificant modifications to the negative declaration." In addition, "the new project revisions are added in response to written … comments on the project's effects identified in the proposed negative declaration which are not new avoidable significant effects." Therefore, recirculation of the MND is not required.

Response to Comment 5-13:

The comment notes that the Project would require filing fees. The CDFW filing fees will be paid at the timing of the filing of the NOD.

Response to Comment 5-14:

The comment requests an opportunity to review and comment on any response the City has to the comments. This Final MND that includes responses to comments received during the public review period will be provided to CDFW prior to the City Council Meeting for review.

SECTION 7.0 – REVISIONS TO THE DRAFT MITIGATED NEGATIVE DECLARATION

This errata section identifies changes made to the Draft MND to correct or clarify the information contained in the document. Changes made to the Draft MND are identified here in ~~strikeout~~ text to indicate deletions and ***bold italics*** to signify additions.

Section 1.3, Project Description

Construction

Construction of the Project will occur in a single phase, and is expected to begin in spring 2023 and last until fall 2024. Construction activities of the Proposed Project will be scheduled in compliance with the City's Municipal Code Title 17 for the provisions of operating and permitting the use of tools and equipment during construction, drilling, repair, or alterations.

Construction activities occurring on site will include tree removal, grading, excavation, and recompaction throughout the site. ***All trees, branches, shrubs, and any other woody material that are cut and cleared from the Project site would be chipped on-site and then loaded it into covered dump trucks to be hauled to an appropriate landfill for final disposal.*** Approximate earthwork quantities will be 13,711 cubic yards of cut and 12,536 cubic yards of fill, with a net of 1,174 cubic yards. Easements will be required from the City, Calleguas Municipal Water District, and Ventura County Waterworks District for the construction of the retaining wall and water lines. In addition to contractor vehicles, heavy equipment will be used on site which will include excavators, backhoe, cranes, bulldozer, graders, compactors, and dump trucks. All equipment will be staged within the Project site.

Section 4.3 Air Quality, c)

Construction-Related TAC Emissions

Construction of the Proposed Project would generate TAC emissions from the onsite operation of diesel-powered equipment in the form of diesel particulate matter (DPM). Given the relatively limited number of heavy-duty construction equipment, the varying distances to the nearby sensitive receptors that construction equipment would operate, and the short-term construction schedule, the Proposed Project would not result in a long-term (i.e., 70 years) substantial source of toxic air contaminant emissions and corresponding individual cancer risk. In addition, CCR Title 13, Article 4.8, Chapter 9, Section 2449 regulates emissions from off-road diesel equipment in California. This regulation limits idling of equipment to no more than five minutes and requires equipment operators to label each piece of equipment and provide annual reports to CARB of their fleet's usage and emissions. This regulation also requires systematic upgrading of the emission Tier level of each fleet; currently, no commercial operator is allowed to purchase Tier 0 or Tier 1 equipment; and by January 2023 no commercial operator is allowed to purchase Tier 2 equipment. In addition to the purchase restrictions, equipment operators need to meet fleet average emissions targets that become more stringent each year between years 2014 and 2023. Therefore, less-than-significant short-term toxic air contaminant impacts would occur during construction of the Proposed Project. ***In addition, Condition of Approval (CA) -1 is included below that will be implemented to further reduce emissions from the Proposed Project.***

CA-1: The City will require that the off-road construction equipment used for the Project to be at a minimum Tier 3 EPA rating for diesel engines.

Section 4.4, Biological Resources, a)

To minimize potential impacts to nesting birds protected under the Migratory Bird Treaty Act (MBTA), construction activities should take place outside nesting season (February 1 to August 31) to the greatest extent practicable. If construction activities occur during nesting season, preconstruction surveys and biological monitoring should be conducted if an active nest is found within the work area, as noted in mitigation measure (MM) BIO-1. With implementation of MM BIO-1, impacts to special status species will be less than significant.

MM BIO-1: ***If construction is unavoidable during February 1 through September 15,*** ~~A~~ nesting bird pre-construction survey***s*** will be conducted by a Qualified Biologist and submitted to the City three days prior to demolition and/or vegetation removal activities during nesting bird season ~~(February 15 through August 31)~~ within ~~250~~ ***500*** feet of the Project site for passerines***,*** ~~and 500 feet for~~ raptors***,*** and/or listed species, where feasible. Should nesting birds be found, an exclusionary buffer will be established by a Qualified Biologist. The buffer may be up to 500 feet in diameter depending on the species of nesting bird found. This buffer will be clearly marked in the field by construction personnel under guidance of the Qualified Biologist, and construction or clearing will not be conducted within this zone until the Qualified Biologist determines that the young have fledged or the nest is no longer active. Nesting bird habitat within the Project site will be resurveyed during bird breeding season if a lapse in construction activities lasts longer than seven days. ***The nesting bird surveys will be conducted at appropriate nesting times and concentrate on potential roosting or perch sites.***

In addition, to minimize impacts to special status species and wildlife during ground-disturbing activities, MM BIO-2 has been included:

MM BIO-2: To avoid impacts to biological resources, a qualified biological monitor will be on site prior to ground-disturbing and habitat-disturbing activities to move out of harm's way any special status species or other wildlife of low mobility that would be killed or injured by Project-related construction activities. Salvaged wildlife will be removed and placed onto adjacent and suitable areas out of harm's way. In addition, grubbing and grading will be done to avoid islands of habitat where wildlife may take refuge, and will be done from the center outward, to the extent practicable.

Section 4.10, Hydrology & Water Quality

e) Would the project conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

Less Than Significant Impact. The Project site is located within the Los Angeles Coastal Watershed and is thus subject to the Los Angeles Regional Water Quality Control Board's (LARWQCB's) Basin Plan.

The LARWQCB Basin Plan contains the Region's water quality regulations and programs to implement the regulations (LARWQCB 2014). The Project site is also located within the boundaries of FCGMA's Groundwater Sustainability Plan (GSP) for the Las Posas Valley Basin ~~(FCGMA 2007)~~. ~~The GSP projects future water demands based on historic water availability and demand, as well as buildout of the General Plan.~~ ***The Las Posas Valley Basin Groundwater Sustainability Plan (FCGMA 2022) sets a long-term horizon for groundwater sustainability agencies to achieve their basin's sustainability goals. The sustainability goal for the Basin is "to maintain a sufficient volume of groundwater in storage in each management area so that there is no significant and unreasonable net decline is groundwater elevation or storage over wet and dry climatic cycles."***

SECTION 8.0 – MITIGATED NEGATIVE DECLARATION

This document, along with the Draft Initial Study/Mitigated Negative Declaration; Mitigation Monitoring and Reporting Program; and the Notice of Determination, constitute the Final Mitigated Negative Declaration for the Everett Street Terraces Project in the City of Moorpark.

Pursuant to Section 21082.1 of the California Environmental Quality Act, the City of Moorpark has independently reviewed and analyzed the Initial Study and Mitigated Negative Declaration for the Proposed Project and finds that these documents reflect the independent judgment of the City. The City of Moorpark, as lead agency, also confirms that the project mitigation measures detailed in these documents are feasible and will be implemented as stated in the MND and MMRP.

Signature	Date
Printed Name	Title

APPENDIX A – AIR QUALITY MODEL RUN OUTPUTS

Everett Street Terraces - Ventura County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Everett Street Terraces

Ventura County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Enclosed Parking with Elevator	156.00	Space	1.40	28,080.00	0
Recreational Swimming Pool	5.00	1000sqft	0.11	5,000.00	0
Condo/Townhouse High Rise	60.00	Dwelling Unit	0.94	71,423.00	184

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.6	**Precipitation Freq (Days)**	31
Climate Zone	8			**Operational Year**	2024
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	390.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - 60 condos 71,423 sqft. 156 parking spaces 28,080 sqft. 5.0 TSF Rec Swim Pool (Common Area) (Lobby 225 sqft+Office 137 sqft+Change Rooms 330 sqft) Lot Size 2.438 acres

Construction Phase - Site Prep extended to 10 days and Grading extended to 40 days. Paving and Architectural Coating would occur concurrently over 50 days

Grading - Export of 1,174 cu yds of dirt

Vehicle Trips - Daily Trip Rate set to match TIA

Mobile Land Use Mitigation - Improve Ped Network Onsite and Connecting Offsite. 250 feet (0.05 mile) from Civic Center Bus Stop

Energy Mitigation - Solar PV System = 3.6 kW System. 8 hr per day. 1.2 DC to AC conversion. Total 24 kWh per day = 8,760 kWhr per year

Water Mitigation - Install Low-Flow fixtures and Use Water-Efficient Irrigation Systems

Everett Street Terraces - Ventura County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	10.00	50.00
tblConstructionPhase	NumDays	6.00	40.00
tblConstructionPhase	NumDays	10.00	50.00
tblConstructionPhase	NumDays	3.00	10.00
tblGrading	MaterialExported	0.00	1,174.00
tblLandUse	LandUseSquareFeet	62,400.00	28,080.00
tblLandUse	LandUseSquareFeet	60,000.00	71,423.00
tblVehicleTrips	ST_TR	4.91	5.82
tblVehicleTrips	ST_TR	9.10	0.00
tblVehicleTrips	SU_TR	4.09	5.82
tblVehicleTrips	SU_TR	13.60	0.00
tblVehicleTrips	WD_TR	5.44	5.82
tblVehicleTrips	WD_TR	28.82	0.00

2.0 Emissions Summary

Everett Street Terraces - Ventura County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated 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	lb/day										lb/day					
2023	1.8896	14.9264	15.8395	0.0313	7.2330	0.6189	7.8411	3.4647	0.5930	4.0242	0.0000	2,939.5575	2,939.5575	0.7698	0.0468	2,964.8648
2024	15.9023	13.3669	15.6252	0.0311	0.5494	0.5432	1.0926	0.1476	0.5201	0.6677	0.0000	2,926.6332	2,926.6332	0.5629	0.0455	2,951.3788
Maximum	**15.9023**	**14.9264**	**15.8395**	**0.0313**	**7.2330**	**0.6189**	**7.8411**	**3.4647**	**0.5930**	**4.0242**	**0.0000**	**2,939.5575**	**2,939.5575**	**0.7698**	**0.0468**	**2,964.8648**

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	lb/day										lb/day					
2023	1.8896	14.9264	15.8395	0.0313	7.2330	0.6189	7.8411	3.4647	0.5930	4.0242	0.0000	2,939.5575	2,939.5575	0.7698	0.0468	2,964.8648
2024	15.9023	13.3669	15.6252	0.0311	0.5494	0.5432	1.0926	0.1476	0.5201	0.6677	0.0000	2,926.6332	2,926.6332	0.5629	0.0455	2,951.3788
Maximum	**15.9023**	**14.9264**	**15.8395**	**0.0313**	**7.2330**	**0.6189**	**7.8411**	**3.4647**	**0.5930**	**4.0242**	**0.0000**	**2,939.5575**	**2,939.5575**	**0.7698**	**0.0468**	**2,964.8648**

Everett Street Terraces - Ventura County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule 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	N20	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

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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	lb/day										lb/day					
Area	1.9064	0.0572	4.9644	2.6000e-004		0.0275	0.0275		0.0275	0.0275	0.0000	8.9484	8.9484	8.6400e-003	0.0000	9.1645
Energy	0.0198	0.1689	0.0719	1.0800e-003		0.0137	0.0137		0.0137	0.0137		215.6252	215.6252	4.1300e-003	3.9500e-003	216.9066
Mobile	1.0199	1.0801	8.9264	0.0189	2.0337	0.0147	2.0485	0.5422	0.0138	0.5559		1,957.9440	1,957.9440	0.1246	0.0857	1,986.6114
Total	**2.9461**	**1.3061**	**13.9627**	**0.0203**	**2.0337**	**0.0559**	**2.0896**	**0.5422**	**0.0549**	**0.5970**	**0.0000**	**2,182.5176**	**2,182.5176**	**0.1374**	**0.0897**	**2,212.6824**

Mitigated 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	lb/day										lb/day					
Area	1.9064	0.0572	4.9644	2.6000e-004		0.0275	0.0275		0.0275	0.0275	0.0000	8.9484	8.9484	8.6400e-003	0.0000	9.1645
Energy	0.0198	0.1689	0.0719	1.0800e-003		0.0137	0.0137		0.0137	0.0137		215.6252	215.6252	4.1300e-003	3.9500e-003	216.9066
Mobile	0.9051	0.8681	7.1376	0.0144	1.5364	0.0115	1.5479	0.4096	0.0107	0.4203		1,491.1439	1,491.1439	0.1039	0.0696	1,514.4796
Total	**2.8312**	**1.0941**	**12.1739**	**0.0158**	**1.5364**	**0.0526**	**1.5890**	**0.4096**	**0.0518**	**0.4614**	**0.0000**	**1,715.7174**	**1,715.7174**	**0.1167**	**0.0735**	**1,740.5506**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule 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	N20	CO2e
Percent Reduction	3.90	16.23	12.81	22.26	24.46	5.85	23.96	24.46	5.56	22.72	0.00	21.39	21.39	15.08	18.01	21.34

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	4/29/2023	5/12/2023	5	10	
2	Grading	Grading	5/13/2023	7/8/2023	5	40	
3	Building Construction	Building Construction	7/9/2023	5/10/2024	5	220	
4	Paving	Paving	5/11/2024	7/21/2024	5	50	
5	Architectural Coating	Architectural Coating	5/11/2024	7/21/2024	5	50	

Acres of Grading (Site Preparation Phase): 15

Acres of Grading (Grading Phase): 40

Acres of Paving: 1.4

Residential Indoor: 144,632; Residential Outdoor: 48,211; Non-Residential Indoor: 1,038; Non-Residential Outdoor: 346; Striped Parking Area: 1,685 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
	Air Compressors	1	6.00	78	0.48
	Cement and Mortar Mixers	1	8.00	9	0.56
	Cranes	1	8.00	231	0.29
	Forklifts	2	7.00	89	0.20
	Generator Sets	1	8.00	84	0.74
	Graders	1	8.00	187	0.41

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	Graders	1	8.00	187	0.41
	Pavers	1	8.00	130	0.42
	Paving Equipment	1	8.00	132	0.36
	Rollers	2	8.00	80	0.38
	Rubber Tired Dozers	1	8.00	247	0.40
	Scrapers	1	8.00	367	0.48
	Tractors/Loaders/Backhoes	1	6.00	97	0.37
	Tractors/Loaders/Backhoes	2	7.00	97	0.37
	Tractors/Loaders/Backhoes	1	8.00	97	0.37
	Tractors/Loaders/Backhoes	1	7.00	97	0.37
	Welders	3	8.00	46	0.45
Site Preparation	Graders	1	8.00	187	0.41
Site Preparation	Scrapers	1	8.00	367	0.48
Site Preparation	Tractors/Loaders/Backhoes	1	7.00	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	8.00	231	0.29
Building Construction	Forklifts	2	7.00	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	8.00	9	0.56
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	1	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

Everett Street Terraces - Ventura County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Trips and VMT

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
Site Preparation	3	8.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	0.00	147.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	8	57.00	12.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	11.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 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	lb/day										lb/day					
Fugitive Dust					1.5908	0.0000	1.5908	0.1718	0.0000	0.1718			0.0000			0.0000
Off-Road	1.3027	14.2802	9.7820	0.0245		0.5419	0.5419		0.4985	0.4985		2,374.8634	2,374.8634	0.7681		2,394.0654
Total	**1.3027**	**14.2802**	**9.7820**	**0.0245**	**1.5908**	**0.5419**	**2.1326**	**0.1718**	**0.4985**	**0.6703**		**2,374.8634**	**2,374.8634**	**0.7681**		**2,394.0654**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Site Preparation - 2023

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	lb/day										lb/day					
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	0.0000
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	0.0000
Worker	0.0230	0.0142	0.2054	5.6000e-004	0.0657	3.6000e-004	0.0661	0.0174	3.3000e-004	0.0178		57.3879	57.3879	1.6800e-003	1.5000e-003	57.8766
Total	**0.0230**	**0.0142**	**0.2054**	**5.6000e-004**	**0.0657**	**3.6000e-004**	**0.0661**	**0.0174**	**3.3000e-004**	**0.0178**		**57.3879**	**57.3879**	**1.6800e-003**	**1.5000e-003**	**57.8766**

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	lb/day										lb/day					
Fugitive Dust					1.5908	0.0000	1.5908	0.1718	0.0000	0.1718			0.0000			0.0000
Off-Road	1.3027	14.2802	9.7820	0.0245		0.5419	0.5419		0.4985	0.4985	0.0000	2,374.8634	2,374.8634	0.7681		2,394.0654
Total	**1.3027**	**14.2802**	**9.7820**	**0.0245**	**1.5908**	**0.5419**	**2.1326**	**0.1718**	**0.4985**	**0.6703**	**0.0000**	**2,374.8634**	**2,374.8634**	**0.7681**		**2,394.0654**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Site Preparation - 2023

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	lb/day										lb/day					
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	0.0000
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	0.0000
Worker	0.0230	0.0142	0.2054	5.6000e-004	0.0657	3.6000e-004	0.0661	0.0174	3.3000e-004	0.0178		57.3879	57.3879	1.6800e-003	1.5000e-003	57.8766
Total	**0.0230**	**0.0142**	**0.2054**	**5.6000e-004**	**0.0657**	**3.6000e-004**	**0.0661**	**0.0174**	**3.3000e-004**	**0.0178**		**57.3879**	**57.3879**	**1.6800e-003**	**1.5000e-003**	**57.8766**

3.3 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	lb/day										lb/day					
Fugitive Dust					7.0867	0.0000	7.0867	3.4254	0.0000	3.4254			0.0000			0.0000
Off-Road	1.3330	14.4676	8.7038	0.0206		0.6044	0.6044		0.5560	0.5560		1,995.6147	1,995.6147	0.6454		2,011.7503
Total	**1.3330**	**14.4676**	**8.7038**	**0.0206**	**7.0867**	**0.6044**	**7.6911**	**3.4254**	**0.5560**	**3.9814**		**1,995.6147**	**1,995.6147**	**0.6454**		**2,011.7503**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 Grading - 2023

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	lb/day										lb/day					
Hauling	7.4200e-003	0.4410	0.1255	2.0700e-003	0.0642	3.2500e-003	0.0674	0.0176	3.1000e-003	0.0207		230.0164	230.0164	0.0157	0.0366	241.3259
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	0.0000
Worker	0.0288	0.0178	0.2568	7.0000e-004	0.0822	4.5000e-004	0.0826	0.0218	4.1000e-004	0.0222		71.7349	71.7349	2.1000e-003	1.8700e-003	72.3458
Total	**0.0362**	**0.4587**	**0.3823**	**2.7700e-003**	**0.1463**	**3.7000e-003**	**0.1500**	**0.0394**	**3.5100e-003**	**0.0429**		**301.7513**	**301.7513**	**0.0178**	**0.0385**	**313.6717**

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	lb/day										lb/day					
Fugitive Dust					7.0867	0.0000	7.0867	3.4254	0.0000	3.4254			0.0000			0.0000
Off-Road	1.3330	14.4676	8.7038	0.0206		0.6044	0.6044		0.5560	0.5560	0.0000	1,995.6147	1,995.6147	0.6454		2,011.7503
Total	**1.3330**	**14.4676**	**8.7038**	**0.0206**	**7.0867**	**0.6044**	**7.6911**	**3.4254**	**0.5560**	**3.9814**	**0.0000**	**1,995.6147**	**1,995.6147**	**0.6454**		**2,011.7503**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 Grading - 2023

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	lb/day										lb/day					
Hauling	7.4200e-003	0.4410	0.1255	2.0700e-003	0.0642	3.2500e-003	0.0674	0.0176	3.1000e-003	0.0207		230.0164	230.0164	0.0157	0.0366	241.3259
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	0.0000
Worker	0.0288	0.0178	0.2568	7.0000e-004	0.0822	4.5000e-004	0.0826	0.0218	4.1000e-004	0.0222		71.7349	71.7349	2.1000e-003	1.8700e-003	72.3458
Total	**0.0362**	**0.4587**	**0.3823**	**2.7700e-003**	**0.1463**	**3.7000e-003**	**0.1500**	**0.0394**	**3.5100e-003**	**0.0429**		**301.7513**	**301.7513**	**0.0178**	**0.0385**	**313.6717**

3.4 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	lb/day										lb/day					
Off-Road	1.7136	13.6239	14.2145	0.0250		0.6136	0.6136		0.5880	0.5880		2,289.5233	2,289.5233	0.4330		2,300.3479
Total	**1.7136**	**13.6239**	**14.2145**	**0.0250**		**0.6136**	**0.6136**		**0.5880**	**0.5880**		**2,289.5233**	**2,289.5233**	**0.4330**		**2,300.3479**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Building Construction - 2023

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	lb/day										lb/day					
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	0.0000
Vendor	0.0119	0.4547	0.1615	2.2200e-003	0.0812	2.7000e-003	0.0839	0.0234	2.5800e-003	0.0260		241.1456	241.1456	9.9200e-003	0.0361	252.1460
Worker	0.1640	0.1014	1.4635	4.0000e-003	0.4682	2.5400e-003	0.4708	0.1242	2.3400e-003	0.1265		408.8887	408.8887	0.0120	0.0107	412.3710
Total	**0.1759**	**0.5560**	**1.6251**	**6.2200e-003**	**0.5494**	**5.2400e-003**	**0.5547**	**0.1476**	**4.9200e-003**	**0.1525**		**650.0342**	**650.0342**	**0.0219**	**0.0468**	**664.5170**

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	lb/day										lb/day					
Off-Road	1.7136	13.6239	14.2145	0.0250		0.6136	0.6136		0.5880	0.5880	0.0000	2,289.5233	2,289.5233	0.4330		2,300.3479
Total	**1.7136**	**13.6239**	**14.2145**	**0.0250**		**0.6136**	**0.6136**		**0.5880**	**0.5880**	**0.0000**	**2,289.5233**	**2,289.5233**	**0.4330**		**2,300.3479**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Building Construction - 2023

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	lb/day										lb/day					
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	0.0000
Vendor	0.0119	0.4547	0.1615	2.2200e-003	0.0812	2.7000e-003	0.0839	0.0234	2.5800e-003	0.0260		241.1456	241.1456	9.9200e-003	0.0361	252.1460
Worker	0.1640	0.1014	1.4635	4.0000e-003	0.4682	2.5400e-003	0.4708	0.1242	2.3400e-003	0.1265		408.8887	408.8887	0.0120	0.0107	412.3710
Total	**0.1759**	**0.5560**	**1.6251**	**6.2200e-003**	**0.5494**	**5.2400e-003**	**0.5547**	**0.1476**	**4.9200e-003**	**0.1525**		**650.0342**	**650.0342**	**0.0219**	**0.0468**	**664.5170**

3.4 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	lb/day										lb/day					
Off-Road	1.5971	12.8235	14.1002	0.0250		0.5381	0.5381		0.5153	0.5153		2,289.6541	2,289.6541	0.4265		2,300.3154
Total	**1.5971**	**12.8235**	**14.1002**	**0.0250**		**0.5381**	**0.5381**		**0.5153**	**0.5153**		**2,289.6541**	**2,289.6541**	**0.4265**		**2,300.3154**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Building Construction - 2024

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	lb/day										lb/day					
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	0.0000
Vendor	0.0116	0.4525	0.1607	2.1900e-003	0.0812	2.7100e-003	0.0839	0.0234	2.5900e-003	0.0260		237.5041	237.5041	0.0102	0.0355	248.3461
Worker	0.1532	0.0910	1.3643	3.8700e-003	0.4682	2.4300e-003	0.4707	0.1242	2.2400e-003	0.1264		399.4750	399.4750	0.0109	9.9600e-003	402.7173
Total	**0.1649**	**0.5435**	**1.5251**	**6.0600e-003**	**0.5494**	**5.1400e-003**	**0.5546**	**0.1476**	**4.8300e-003**	**0.1524**		**636.9791**	**636.9791**	**0.0211**	**0.0455**	**651.0634**

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	lb/day										lb/day					
Off-Road	1.5971	12.8235	14.1002	0.0250		0.5381	0.5381		0.5153	0.5153	0.0000	2,289.6541	2,289.6541	0.4265		2,300.3154
Total	**1.5971**	**12.8235**	**14.1002**	**0.0250**		**0.5381**	**0.5381**		**0.5153**	**0.5153**	**0.0000**	**2,289.6541**	**2,289.6541**	**0.4265**		**2,300.3154**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Building Construction - 2024

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	lb/day										lb/day					
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	0.0000
Vendor	0.0116	0.4525	0.1607	2.1900e-003	0.0812	2.7100e-003	0.0839	0.0234	2.5900e-003	0.0260		237.5041	237.5041	0.0102	0.0355	248.3461
Worker	0.1532	0.0910	1.3643	3.8700e-003	0.4682	2.4300e-003	0.4707	0.1242	2.2400e-003	0.1264		399.4750	399.4750	0.0109	9.9600e-003	402.7173
Total	**0.1649**	**0.5435**	**1.5251**	**6.0600e-003**	**0.5494**	**5.1400e-003**	**0.5546**	**0.1476**	**4.8300e-003**	**0.1524**		**636.9791**	**636.9791**	**0.0211**	**0.0455**	**651.0634**

3.5 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	lb/day										lb/day					
Off-Road	0.8425	8.1030	11.7069	0.0179		0.3957	0.3957		0.3652	0.3652		1,710.2024	1,710.2024	0.5420		1,723.7529
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.8425**	**8.1030**	**11.7069**	**0.0179**		**0.3957**	**0.3957**		**0.3652**	**0.3652**		**1,710.2024**	**1,710.2024**	**0.5420**		**1,723.7529**

Everett Street Terraces - Ventura County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Paving - 2024

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	lb/day										lb/day					
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	0.0000
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	0.0000
Worker	0.0403	0.0239	0.3590	1.0200e-003	0.1232	6.4000e-004	0.1239	0.0327	5.9000e-004	0.0333		105.1250	105.1250	2.8800e-003	2.6200e-003	105.9782
Total	**0.0403**	**0.0239**	**0.3590**	**1.0200e-003**	**0.1232**	**6.4000e-004**	**0.1239**	**0.0327**	**5.9000e-004**	**0.0333**		**105.1250**	**105.1250**	**2.8800e-003**	**2.6200e-003**	**105.9782**

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	lb/day										lb/day					
Off-Road	0.8425	8.1030	11.7069	0.0179		0.3957	0.3957		0.3652	0.3652	0.0000	1,710.2024	1,710.2024	0.5420		1,723.7529
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.8425**	**8.1030**	**11.7069**	**0.0179**		**0.3957**	**0.3957**		**0.3652**	**0.3652**	**0.0000**	**1,710.2024**	**1,710.2024**	**0.5420**		**1,723.7529**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Paving - 2024

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	lb/day										lb/day					
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	0.0000
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	0.0000
Worker	0.0403	0.0239	0.3590	1.0200e-003	0.1232	6.4000e-004	0.1239	0.0327	5.9000e-004	0.0333		105.1250	105.1250	2.8800e-003	2.6200e-003	105.9782
Total	**0.0403**	**0.0239**	**0.3590**	**1.0200e-003**	**0.1232**	**6.4000e-004**	**0.1239**	**0.0327**	**5.9000e-004**	**0.0333**		**105.1250**	**105.1250**	**2.8800e-003**	**2.6200e-003**	**105.9782**

3.6 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	lb/day										lb/day					
Archit. Coating	14.8092					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609		281.4481	281.4481	0.0159		281.8443
Total	**14.9900**	**1.2188**	**1.8101**	**2.9700e-003**		**0.0609**	**0.0609**		**0.0609**	**0.0609**		**281.4481**	**281.4481**	**0.0159**		**281.8443**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.6 Architectural Coating - 2024

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	lb/day										lb/day					
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	0.0000
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	0.0000
Worker	0.0296	0.0176	0.2633	7.5000e-004	0.0904	4.7000e-004	0.0908	0.0240	4.3000e-004	0.0244		77.0917	77.0917	2.1100e-003	1.9200e-003	77.7174
Total	**0.0296**	**0.0176**	**0.2633**	**7.5000e-004**	**0.0904**	**4.7000e-004**	**0.0908**	**0.0240**	**4.3000e-004**	**0.0244**		**77.0917**	**77.0917**	**2.1100e-003**	**1.9200e-003**	**77.7174**

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	lb/day										lb/day					
Archit. Coating	14.8092					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609	0.0000	281.4481	281.4481	0.0159		281.8443
Total	**14.9900**	**1.2188**	**1.8101**	**2.9700e-003**		**0.0609**	**0.0609**		**0.0609**	**0.0609**	**0.0000**	**281.4481**	**281.4481**	**0.0159**		**281.8443**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.6 Architectural Coating - 2024

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	lb/day										lb/day					
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	0.0000
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	0.0000
Worker	0.0296	0.0176	0.2633	7.5000e-004	0.0904	4.7000e-004	0.0908	0.0240	4.3000e-004	0.0244		77.0917	77.0917	2.1100e-003	1.9200e-003	77.7174
Total	**0.0296**	**0.0176**	**0.2633**	**7.5000e-004**	**0.0904**	**4.7000e-004**	**0.0908**	**0.0240**	**4.3000e-004**	**0.0244**		**77.0917**	**77.0917**	**2.1100e-003**	**1.9200e-003**	**77.7174**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Increase Transit Accessibility

Improve Pedestrian Network

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule 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
Category	lb/day										lb/day					
Mitigated	0.9051	0.8681	7.1376	0.0144	1.5364	0.0115	1.5479	0.4096	0.0107	0.4203		1,491.1439	1,491.1439	0.1039	0.0696	1,514.4796
Unmitigated	1.0199	1.0801	8.9264	0.0189	2.0337	0.0147	2.0485	0.5422	0.0138	0.5559		1,957.9440	1,957.9440	0.1246	0.0857	1,986.6114

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Condo/Townhouse High Rise	349.20	349.20	349.20	964,865	728,900
Enclosed Parking with Elevator	0.00	0.00	0.00		
Recreational Swimming Pool	0.00	0.00	0.00		
Total	349.20	349.20	349.20	964,865	728,900

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	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
Condo/Townhouse High Rise	10.80	7.30	7.50	32.90	18.00	49.10	86	11	3
Enclosed Parking with Elevator	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Recreational Swimming Pool	9.50	7.30	7.30	33.00	48.00	19.00	52	39	9

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Condo/Townhouse High Rise	0.548670	0.058343	0.171689	0.130773	0.027316	0.007545	0.011806	0.006161	0.000681	0.000392	0.029028	0.000637	0.006958
Enclosed Parking with Elevator	0.548670	0.058343	0.171689	0.130773	0.027316	0.007545	0.011806	0.006161	0.000681	0.000392	0.029028	0.000637	0.006958

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Recreational Swimming Pool	0.548670	0.058343	0.171689	0.130773	0.027316	0.007545	0.011806	0.006161	0.000681	0.000392	0.029028	0.000637	0.006958

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Kilowatt Hours of Renewable Electricity Generated

	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	lb/day										lb/day					
NaturalGas Mitigated	0.0198	0.1689	0.0719	1.0800e-003		0.0137	0.0137		0.0137	0.0137		215.6252	215.6252	4.1300e-003	3.9500e-003	216.9066
NaturalGas Unmitigated	0.0198	0.1689	0.0719	1.0800e-003		0.0137	0.0137		0.0137	0.0137		215.6252	215.6252	4.1300e-003	3.9500e-003	216.9066

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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
Land Use	kBTU/yr	lb/day										lb/day					
Condo/Townhouse High Rise	1832.81	0.0198	0.1689	0.0719	1.0800e-003		0.0137	0.0137		0.0137	0.0137		215.6252	215.6252	4.1300e-003	3.9500e-003	216.9066
Enclosed Parking with Elevator	0	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
Recreational Swimming Pool	0	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
Total		**0.0198**	**0.1689**	**0.0719**	**1.0800e-003**		**0.0137**	**0.0137**		**0.0137**	**0.0137**		**215.6252**	**215.6252**	**4.1300e-003**	**3.9500e-003**	**216.9066**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

5.2 Energy by Land Use - NaturalGas

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	lb/day										lb/day					
Condo/Townhouse High Rise	1.83281	0.0198	0.1689	0.0719	1.0800e-003		0.0137	0.0137		0.0137	0.0137		215.6252	215.6252	4.1300e-003	3.9500e-003	216.9066
Enclosed Parking with Elevator	0	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
Recreational Swimming Pool	0	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
Total		**0.0198**	**0.1689**	**0.0719**	**1.0800e-003**		**0.0137**	**0.0137**		**0.0137**	**0.0137**		**215.6252**	**215.6252**	**4.1300e-003**	**3.9500e-003**	**216.9066**

6.0 Area Detail

6.1 Mitigation Measures Area

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule 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
Category	lb/day										lb/day					
Mitigated	1.9064	0.0572	4.9644	2.6000e-004		0.0275	0.0275		0.0275	0.0275	0.0000	8.9484	8.9484	8.6400e-003	0.0000	9.1645
Unmitigated	1.9064	0.0572	4.9644	2.6000e-004		0.0275	0.0275		0.0275	0.0275	0.0000	8.9484	8.9484	8.6400e-003	0.0000	9.1645

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	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.2029					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.5532					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	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
Landscaping	0.1503	0.0572	4.9644	2.6000e-004		0.0275	0.0275		0.0275	0.0275		8.9484	8.9484	8.6400e-003		9.1645
Total	**1.9064**	**0.0572**	**4.9644**	**2.6000e-004**		**0.0275**	**0.0275**		**0.0275**	**0.0275**	**0.0000**	**8.9484**	**8.9484**	**8.6400e-003**	**0.0000**	**9.1645**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

6.2 Area by SubCategory

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	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.2029					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.5532					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	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
Landscaping	0.1503	0.0572	4.9644	2.6000e-004		0.0275	0.0275		0.0275	0.0275		8.9484	8.9484	8.6400e-003		9.1645
Total	**1.9064**	**0.0572**	**4.9644**	**2.6000e-004**		**0.0275**	**0.0275**		**0.0275**	**0.0275**	**0.0000**	**8.9484**	**8.9484**	**8.6400e-003**	**0.0000**	**9.1645**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

Use Water Efficient Irrigation System

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

8.0 Waste Detail

8.1 Mitigation Measures Waste

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

Everett Street Terraces - Ventura County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Everett Street Terraces

Ventura County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Enclosed Parking with Elevator	156.00	Space	1.40	28,080.00	0
Recreational Swimming Pool	5.00	1000sqft	0.11	5,000.00	0
Condo/Townhouse High Rise	60.00	Dwelling Unit	0.94	71,423.00	184

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.6	**Precipitation Freq (Days)**	31
Climate Zone	8			**Operational Year**	2024
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	390.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - 60 condos 71,423 sqft. 156 parking spaces 28,080 sqft. 5.0 TSF Rec Swim Pool (Common Area) (Lobby 225 sqft+Office 137 sqft+Change Rooms 330 sqft) Lot Size 2.438 acres

Construction Phase - Site Prep extended to 10 days and Grading extended to 40 days. Paving and Architectural Coating would occur concurrently over 50 days

Grading - Export of 1,174 cu yds of dirt

Vehicle Trips - Daily Trip Rate set to match TIA

Mobile Land Use Mitigation - Improve Ped Network Onsite and Connecting Offsite. 250 feet (0.05 mile) from Civic Center Bus Stop

Energy Mitigation - Solar PV System = 3.6 kW System. 8 hr per day. 1.2 DC to AC conversion. Total 24 kWh per day = 8,760 kWhr per year

Water Mitigation - Install Low-Flow fixtures and Use Water-Efficient Irrigation Systems

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	10.00	50.00
tblConstructionPhase	NumDays	6.00	40.00
tblConstructionPhase	NumDays	10.00	50.00
tblConstructionPhase	NumDays	3.00	10.00
tblGrading	MaterialExported	0.00	1,174.00
tblLandUse	LandUseSquareFeet	62,400.00	28,080.00
tblLandUse	LandUseSquareFeet	60,000.00	71,423.00
tblVehicleTrips	ST_TR	4.91	5.82
tblVehicleTrips	ST_TR	9.10	0.00
tblVehicleTrips	SU_TR	4.09	5.82
tblVehicleTrips	SU_TR	13.60	0.00
tblVehicleTrips	WD_TR	5.44	5.82
tblVehicleTrips	WD_TR	28.82	0.00

2.0 Emissions Summary

Everett Street Terraces - Ventura County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated 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	lb/day										lb/day					
2023	1.9022	14.9481	15.8178	0.0311	7.2330	0.6189	7.8411	3.4647	0.5930	4.0243	0.0000	2,922.2090	2,922.2090	0.7699	0.0480	2,947.9214
2024	15.9081	13.4025	15.6079	0.0309	0.5494	0.5432	1.0927	0.1476	0.5201	0.6677	0.0000	2,909.7284	2,909.7284	0.5633	0.0467	2,934.8519
Maximum	**15.9081**	**14.9481**	**15.8178**	**0.0311**	**7.2330**	**0.6189**	**7.8411**	**3.4647**	**0.5930**	**4.0243**	**0.0000**	**2,922.2090**	**2,922.2090**	**0.7699**	**0.0480**	**2,947.9214**

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	lb/day										lb/day					
2023	1.9022	14.9481	15.8178	0.0311	7.2330	0.6189	7.8411	3.4647	0.5930	4.0243	0.0000	2,922.2090	2,922.2090	0.7699	0.0480	2,947.9214
2024	15.9081	13.4025	15.6079	0.0309	0.5494	0.5432	1.0927	0.1476	0.5201	0.6677	0.0000	2,909.7284	2,909.7284	0.5633	0.0467	2,934.8519
Maximum	**15.9081**	**14.9481**	**15.8178**	**0.0311**	**7.2330**	**0.6189**	**7.8411**	**3.4647**	**0.5930**	**4.0243**	**0.0000**	**2,922.2090**	**2,922.2090**	**0.7699**	**0.0480**	**2,947.9214**

Everett Street Terraces - Ventura County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule 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	N20	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

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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	lb/day										lb/day					
Area	1.9064	0.0572	4.9644	2.6000e-004		0.0275	0.0275		0.0275	0.0275	0.0000	8.9484	8.9484	8.6400e-003	0.0000	9.1645
Energy	0.0198	0.1689	0.0719	1.0800e-003		0.0137	0.0137		0.0137	0.0137		215.6252	215.6252	4.1300e-003	3.9500e-003	216.9066
Mobile	0.9932	1.1930	9.4542	0.0183	2.0337	0.0147	2.0485	0.5422	0.0138	0.5559		1,892.2609	1,892.2609	0.1350	0.0918	1,922.9967
Total	**2.9193**	**1.4190**	**14.4905**	**0.0196**	**2.0337**	**0.0559**	**2.0896**	**0.5422**	**0.0549**	**0.5971**	**0.0000**	**2,116.8344**	**2,116.8344**	**0.1478**	**0.0958**	**2,149.0677**

Mitigated 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	lb/day										lb/day					
Area	1.9064	0.0572	4.9644	2.6000e-004		0.0275	0.0275		0.0275	0.0275	0.0000	8.9484	8.9484	8.6400e-003	0.0000	9.1645
Energy	0.0198	0.1689	0.0719	1.0800e-003		0.0137	0.0137		0.0137	0.0137		215.6252	215.6252	4.1300e-003	3.9500e-003	216.9066
Mobile	0.8729	0.9601	7.6667	0.0139	1.5364	0.0115	1.5479	0.4096	0.0107	0.4203		1,441.8019	1,441.8019	0.1140	0.0747	1,466.9090
Total	**2.7991**	**1.1861**	**12.7029**	**0.0153**	**1.5364**	**0.0526**	**1.5890**	**0.4096**	**0.0518**	**0.4614**	**0.0000**	**1,666.3755**	**1,666.3755**	**0.1267**	**0.0786**	**1,692.9801**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule 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	N20	CO2e
Percent Reduction	4.12	16.41	12.34	22.17	24.46	5.83	23.96	24.46	5.57	22.72	0.00	21.28	21.28	14.26	17.88	21.22

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	4/29/2023	5/12/2023	5	10	
2	Grading	Grading	5/13/2023	7/8/2023	5	40	
3	Building Construction	Building Construction	7/9/2023	5/10/2024	5	220	
4	Paving	Paving	5/11/2024	7/21/2024	5	50	
5	Architectural Coating	Architectural Coating	5/11/2024	7/21/2024	5	50	

Acres of Grading (Site Preparation Phase): 15

Acres of Grading (Grading Phase): 40

Acres of Paving: 1.4

Residential Indoor: 144,632; Residential Outdoor: 48,211; Non-Residential Indoor: 1,038; Non-Residential Outdoor: 346; Striped Parking Area: 1,685 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
	Air Compressors	1	6.00	78	0.48
	Cement and Mortar Mixers	1	8.00	9	0.56
	Cranes	1	8.00	231	0.29
	Forklifts	2	7.00	89	0.20
	Generator Sets	1	8.00	84	0.74
	Graders	1	8.00	187	0.41

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	Graders	1	8.00	187	0.41
	Pavers	1	8.00	130	0.42
	Paving Equipment	1	8.00	132	0.36
	Rollers	2	8.00	80	0.38
	Rubber Tired Dozers	1	8.00	247	0.40
	Scrapers	1	8.00	367	0.48
	Tractors/Loaders/Backhoes	1	6.00	97	0.37
	Tractors/Loaders/Backhoes	2	7.00	97	0.37
	Tractors/Loaders/Backhoes	1	8.00	97	0.37
	Tractors/Loaders/Backhoes	1	7.00	97	0.37
	Welders	3	8.00	46	0.45
Site Preparation	Graders	1	8.00	187	0.41
Site Preparation	Scrapers	1	8.00	367	0.48
Site Preparation	Tractors/Loaders/Backhoes	1	7.00	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	8.00	231	0.29
Building Construction	Forklifts	2	7.00	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	8.00	9	0.56
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	1	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Trips and VMT

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
Site Preparation	3	8.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	0.00	147.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	8	57.00	12.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	11.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 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	lb/day										lb/day					
Fugitive Dust					1.5908	0.0000	1.5908	0.1718	0.0000	0.1718			0.0000			0.0000
Off-Road	1.3027	14.2802	9.7820	0.0245		0.5419	0.5419		0.4985	0.4985		2,374.8634	2,374.8634	0.7681		2,394.0654
Total	**1.3027**	**14.2802**	**9.7820**	**0.0245**	**1.5908**	**0.5419**	**2.1326**	**0.1718**	**0.4985**	**0.6703**		**2,374.8634**	**2,374.8634**	**0.7681**		**2,394.0654**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Site Preparation - 2023

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	lb/day										lb/day					
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	0.0000
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	0.0000
Worker	0.0249	0.0167	0.2016	5.4000e-004	0.0657	3.6000e-004	0.0661	0.0174	3.3000e-004	0.0178		54.9045	54.9045	1.8300e-003	1.6700e-003	55.4470
Total	**0.0249**	**0.0167**	**0.2016**	**5.4000e-004**	**0.0657**	**3.6000e-004**	**0.0661**	**0.0174**	**3.3000e-004**	**0.0178**		**54.9045**	**54.9045**	**1.8300e-003**	**1.6700e-003**	**55.4470**

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	lb/day										lb/day					
Fugitive Dust					1.5908	0.0000	1.5908	0.1718	0.0000	0.1718			0.0000			0.0000
Off-Road	1.3027	14.2802	9.7820	0.0245		0.5419	0.5419		0.4985	0.4985	0.0000	2,374.8634	2,374.8634	0.7681		2,394.0654
Total	**1.3027**	**14.2802**	**9.7820**	**0.0245**	**1.5908**	**0.5419**	**2.1326**	**0.1718**	**0.4985**	**0.6703**	**0.0000**	**2,374.8634**	**2,374.8634**	**0.7681**		**2,394.0654**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Site Preparation - 2023

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	lb/day										lb/day					
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	0.0000
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	0.0000
Worker	0.0249	0.0167	0.2016	5.4000e-004	0.0657	3.6000e-004	0.0661	0.0174	3.3000e-004	0.0178		54.9045	54.9045	1.8300e-003	1.6700e-003	55.4470
Total	**0.0249**	**0.0167**	**0.2016**	**5.4000e-004**	**0.0657**	**3.6000e-004**	**0.0661**	**0.0174**	**3.3000e-004**	**0.0178**		**54.9045**	**54.9045**	**1.8300e-003**	**1.6700e-003**	**55.4470**

3.3 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	lb/day										lb/day					
Fugitive Dust					7.0867	0.0000	7.0867	3.4254	0.0000	3.4254			0.0000			0.0000
Off-Road	1.3330	14.4676	8.7038	0.0206		0.6044	0.6044		0.5560	0.5560		1,995.6147	1,995.6147	0.6454		2,011.7503
Total	**1.3330**	**14.4676**	**8.7038**	**0.0206**	**7.0867**	**0.6044**	**7.6911**	**3.4254**	**0.5560**	**3.9814**		**1,995.6147**	**1,995.6147**	**0.6454**		**2,011.7503**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 Grading - 2023

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	lb/day										lb/day					
Hauling	6.9500e-003	0.4597	0.1272	2.0700e-003	0.0642	3.2500e-003	0.0674	0.0176	3.1100e-003	0.0207		230.2264	230.2264	0.0156	0.0367	241.5454
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	0.0000
Worker	0.0311	0.0208	0.2521	6.7000e-004	0.0822	4.5000e-004	0.0826	0.0218	4.1000e-004	0.0222		68.6307	68.6307	2.2900e-003	2.0800e-003	69.3087
Total	**0.0380**	**0.4805**	**0.3793**	**2.7400e-003**	**0.1463**	**3.7000e-003**	**0.1500**	**0.0394**	**3.5200e-003**	**0.0429**		**298.8570**	**298.8570**	**0.0179**	**0.0388**	**310.8541**

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	lb/day										lb/day					
Fugitive Dust					7.0867	0.0000	7.0867	3.4254	0.0000	3.4254			0.0000			0.0000
Off-Road	1.3330	14.4676	8.7038	0.0206		0.6044	0.6044		0.5560	0.5560	0.0000	1,995.6147	1,995.6147	0.6454		2,011.7503
Total	**1.3330**	**14.4676**	**8.7038**	**0.0206**	**7.0867**	**0.6044**	**7.6911**	**3.4254**	**0.5560**	**3.9814**	**0.0000**	**1,995.6147**	**1,995.6147**	**0.6454**		**2,011.7503**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 Grading - 2023

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	lb/day										lb/day					
Hauling	6.9500e-003	0.4597	0.1272	2.0700e-003	0.0642	3.2500e-003	0.0674	0.0176	3.1100e-003	0.0207		230.2264	230.2264	0.0156	0.0367	241.5454
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	0.0000
Worker	0.0311	0.0208	0.2521	6.7000e-004	0.0822	4.5000e-004	0.0826	0.0218	4.1000e-004	0.0222		68.6307	68.6307	2.2900e-003	2.0800e-003	69.3087
Total	**0.0380**	**0.4805**	**0.3793**	**2.7400e-003**	**0.1463**	**3.7000e-003**	**0.1500**	**0.0394**	**3.5200e-003**	**0.0429**		**298.8570**	**298.8570**	**0.0179**	**0.0388**	**310.8541**

3.4 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	lb/day										lb/day					
Off-Road	1.7136	13.6239	14.2145	0.0250		0.6136	0.6136		0.5880	0.5880		2,289.5233	2,289.5233	0.4330		2,300.3479
Total	**1.7136**	**13.6239**	**14.2145**	**0.0250**		**0.6136**	**0.6136**		**0.5880**	**0.5880**		**2,289.5233**	**2,289.5233**	**0.4330**		**2,300.3479**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Building Construction - 2023

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	lb/day										lb/day					
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	0.0000
Vendor	0.0115	0.4747	0.1667	2.2300e-003	0.0812	2.7200e-003	0.0839	0.0234	2.6000e-003	0.0260		241.4908	241.4908	9.8800e-003	0.0362	252.5140
Worker	0.1771	0.1187	1.4367	3.8200e-003	0.4682	2.5400e-003	0.4708	0.1242	2.3400e-003	0.1265		391.1948	391.1948	0.0131	0.0119	395.0596
Total	**0.1886**	**0.5934**	**1.6034**	**6.0500e-003**	**0.5494**	**5.2600e-003**	**0.5547**	**0.1476**	**4.9400e-003**	**0.1525**		**632.6857**	**632.6857**	**0.0230**	**0.0480**	**647.5736**

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	lb/day										lb/day					
Off-Road	1.7136	13.6239	14.2145	0.0250		0.6136	0.6136		0.5880	0.5880	0.0000	2,289.5233	2,289.5233	0.4330		2,300.3479
Total	**1.7136**	**13.6239**	**14.2145**	**0.0250**		**0.6136**	**0.6136**		**0.5880**	**0.5880**	**0.0000**	**2,289.5233**	**2,289.5233**	**0.4330**		**2,300.3479**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Building Construction - 2023

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	lb/day										lb/day					
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	0.0000
Vendor	0.0115	0.4747	0.1667	2.2300e-003	0.0812	2.7200e-003	0.0839	0.0234	2.6000e-003	0.0260		241.4908	241.4908	9.8800e-003	0.0362	252.5140
Worker	0.1771	0.1187	1.4367	3.8200e-003	0.4682	2.5400e-003	0.4708	0.1242	2.3400e-003	0.1265		391.1948	391.1948	0.0131	0.0119	395.0596
Total	**0.1886**	**0.5934**	**1.6034**	**6.0500e-003**	**0.5494**	**5.2600e-003**	**0.5547**	**0.1476**	**4.9400e-003**	**0.1525**		**632.6857**	**632.6857**	**0.0230**	**0.0480**	**647.5736**

3.4 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	lb/day										lb/day					
Off-Road	1.5971	12.8235	14.1002	0.0250		0.5381	0.5381		0.5153	0.5153		2,289.6541	2,289.6541	0.4265		2,300.3154
Total	**1.5971**	**12.8235**	**14.1002**	**0.0250**		**0.5381**	**0.5381**		**0.5153**	**0.5153**		**2,289.6541**	**2,289.6541**	**0.4265**		**2,300.3154**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Building Construction - 2024

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	lb/day										lb/day					
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	0.0000
Vendor	0.0112	0.4725	0.1658	2.1900e-003	0.0812	2.7300e-003	0.0839	0.0234	2.6100e-003	0.0260		237.8555	237.8555	0.0101	0.0356	248.7198
Worker	0.1658	0.1065	1.3419	3.7100e-003	0.4682	2.4300e-003	0.4707	0.1242	2.2400e-003	0.1264		382.2189	382.2189	0.0119	0.0111	385.8167
Total	**0.1769**	**0.5790**	**1.5077**	**5.9000e-003**	**0.5494**	**5.1600e-003**	**0.5546**	**0.1476**	**4.8500e-003**	**0.1524**		**620.0743**	**620.0743**	**0.0221**	**0.0467**	**634.5365**

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	lb/day										lb/day					
Off-Road	1.5971	12.8235	14.1002	0.0250		0.5381	0.5381		0.5153	0.5153	0.0000	2,289.6541	2,289.6541	0.4265		2,300.3154
Total	**1.5971**	**12.8235**	**14.1002**	**0.0250**		**0.5381**	**0.5381**		**0.5153**	**0.5153**	**0.0000**	**2,289.6541**	**2,289.6541**	**0.4265**		**2,300.3154**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Building Construction - 2024

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	lb/day										lb/day					
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	0.0000
Vendor	0.0112	0.4725	0.1658	2.1900e-003	0.0812	2.7300e-003	0.0839	0.0234	2.6100e-003	0.0260		237.8555	237.8555	0.0101	0.0356	248.7198
Worker	0.1658	0.1065	1.3419	3.7100e-003	0.4682	2.4300e-003	0.4707	0.1242	2.2400e-003	0.1264		382.2189	382.2189	0.0119	0.0111	385.8167
Total	**0.1769**	**0.5790**	**1.5077**	**5.9000e-003**	**0.5494**	**5.1600e-003**	**0.5546**	**0.1476**	**4.8500e-003**	**0.1524**		**620.0743**	**620.0743**	**0.0221**	**0.0467**	**634.5365**

3.5 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	lb/day										lb/day					
Off-Road	0.8425	8.1030	11.7069	0.0179		0.3957	0.3957		0.3652	0.3652		1,710.2024	1,710.2024	0.5420		1,723.7529
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.8425**	**8.1030**	**11.7069**	**0.0179**		**0.3957**	**0.3957**		**0.3652**	**0.3652**		**1,710.2024**	**1,710.2024**	**0.5420**		**1,723.7529**

Everett Street Terraces - Ventura County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Paving - 2024

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	lb/day										lb/day					
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	0.0000
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	0.0000
Worker	0.0436	0.0280	0.3531	9.8000e-004	0.1232	6.4000e-004	0.1239	0.0327	5.9000e-004	0.0333		100.5839	100.5839	3.1400e-003	2.9100e-003	101.5307
Total	**0.0436**	**0.0280**	**0.3531**	**9.8000e-004**	**0.1232**	**6.4000e-004**	**0.1239**	**0.0327**	**5.9000e-004**	**0.0333**		**100.5839**	**100.5839**	**3.1400e-003**	**2.9100e-003**	**101.5307**

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	lb/day										lb/day					
Off-Road	0.8425	8.1030	11.7069	0.0179		0.3957	0.3957		0.3652	0.3652	0.0000	1,710.2024	1,710.2024	0.5420		1,723.7529
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.8425**	**8.1030**	**11.7069**	**0.0179**		**0.3957**	**0.3957**		**0.3652**	**0.3652**	**0.0000**	**1,710.2024**	**1,710.2024**	**0.5420**		**1,723.7529**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Paving - 2024

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	lb/day										lb/day					
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	0.0000
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	0.0000
Worker	0.0436	0.0280	0.3531	9.8000e-004	0.1232	6.4000e-004	0.1239	0.0327	5.9000e-004	0.0333		100.5839	100.5839	3.1400e-003	2.9100e-003	101.5307
Total	**0.0436**	**0.0280**	**0.3531**	**9.8000e-004**	**0.1232**	**6.4000e-004**	**0.1239**	**0.0327**	**5.9000e-004**	**0.0333**		**100.5839**	**100.5839**	**3.1400e-003**	**2.9100e-003**	**101.5307**

3.6 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	lb/day										lb/day					
Archit. Coating	14.8092					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609		281.4481	281.4481	0.0159		281.8443
Total	**14.9900**	**1.2188**	**1.8101**	**2.9700e-003**		**0.0609**	**0.0609**		**0.0609**	**0.0609**		**281.4481**	**281.4481**	**0.0159**		**281.8443**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.6 Architectural Coating - 2024

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	lb/day										lb/day					
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	0.0000
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	0.0000
Worker	0.0320	0.0206	0.2590	7.2000e-004	0.0904	4.7000e-004	0.0908	0.0240	4.3000e-004	0.0244		73.7615	73.7615	2.3000e-003	2.1400e-003	74.4559
Total	**0.0320**	**0.0206**	**0.2590**	**7.2000e-004**	**0.0904**	**4.7000e-004**	**0.0908**	**0.0240**	**4.3000e-004**	**0.0244**		**73.7615**	**73.7615**	**2.3000e-003**	**2.1400e-003**	**74.4559**

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	lb/day										lb/day					
Archit. Coating	14.8092					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609	0.0000	281.4481	281.4481	0.0159		281.8443
Total	**14.9900**	**1.2188**	**1.8101**	**2.9700e-003**		**0.0609**	**0.0609**		**0.0609**	**0.0609**	**0.0000**	**281.4481**	**281.4481**	**0.0159**		**281.8443**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.6 Architectural Coating - 2024

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	lb/day										lb/day					
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	0.0000
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	0.0000
Worker	0.0320	0.0206	0.2590	7.2000e-004	0.0904	4.7000e-004	0.0908	0.0240	4.3000e-004	0.0244		73.7615	73.7615	2.3000e-003	2.1400e-003	74.4559
Total	**0.0320**	**0.0206**	**0.2590**	**7.2000e-004**	**0.0904**	**4.7000e-004**	**0.0908**	**0.0240**	**4.3000e-004**	**0.0244**		**73.7615**	**73.7615**	**2.3000e-003**	**2.1400e-003**	**74.4559**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Increase Transit Accessibility

Improve Pedestrian Network

Everett Street Terraces - Ventura County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule 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
Category	lb/day										lb/day					
Mitigated	0.8729	0.9601	7.6667	0.0139	1.5364	0.0115	1.5479	0.4096	0.0107	0.4203		1,441.8019	1,441.8019	0.1140	0.0747	1,466.9090
Unmitigated	0.9932	1.1930	9.4542	0.0183	2.0337	0.0147	2.0485	0.5422	0.0138	0.5559		1,892.2609	1,892.2609	0.1350	0.0918	1,922.9967

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Condo/Townhouse High Rise	349.20	349.20	349.20	964,865	728,900
Enclosed Parking with Elevator	0.00	0.00	0.00		
Recreational Swimming Pool	0.00	0.00	0.00		
Total	349.20	349.20	349.20	964,865	728,900

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	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
Condo/Townhouse High Rise	10.80	7.30	7.50	32.90	18.00	49.10	86	11	3
Enclosed Parking with Elevator	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Recreational Swimming Pool	9.50	7.30	7.30	33.00	48.00	19.00	52	39	9

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Condo/Townhouse High Rise	0.548670	0.058343	0.171689	0.130773	0.027316	0.007545	0.011806	0.006161	0.000681	0.000392	0.029028	0.000637	0.006958
Enclosed Parking with Elevator	0.548670	0.058343	0.171689	0.130773	0.027316	0.007545	0.011806	0.006161	0.000681	0.000392	0.029028	0.000637	0.006958

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Recreational Swimming Pool	0.548670	0.058343	0.171689	0.130773	0.027316	0.007545	0.011806	0.006161	0.000681	0.000392	0.029028	0.000637	0.006958

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Kilowatt Hours of Renewable Electricity Generated

	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	lb/day										lb/day					
NaturalGas Mitigated	0.0198	0.1689	0.0719	1.0800e-003		0.0137	0.0137		0.0137	0.0137		215.6252	215.6252	4.1300e-003	3.9500e-003	216.9066
NaturalGas Unmitigated	0.0198	0.1689	0.0719	1.0800e-003		0.0137	0.0137		0.0137	0.0137		215.6252	215.6252	4.1300e-003	3.9500e-003	216.9066

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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
Land Use	kBTU/yr	lb/day										lb/day					
Condo/Townhouse High Rise	1832.81	0.0198	0.1689	0.0719	1.0800e-003		0.0137	0.0137		0.0137	0.0137		215.6252	215.6252	4.1300e-003	3.9500e-003	216.9066
Enclosed Parking with Elevator	0	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
Recreational Swimming Pool	0	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
Total		**0.0198**	**0.1689**	**0.0719**	**1.0800e-003**		**0.0137**	**0.0137**		**0.0137**	**0.0137**		**215.6252**	**215.6252**	**4.1300e-003**	**3.9500e-003**	**216.9066**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

5.2 Energy by Land Use - NaturalGas

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	lb/day										lb/day					
Condo/Townhouse High Rise	1.83281	0.0198	0.1689	0.0719	1.0800e-003		0.0137	0.0137		0.0137	0.0137		215.6252	215.6252	4.1300e-003	3.9500e-003	216.9066
Enclosed Parking with Elevator	0	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
Recreational Swimming Pool	0	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
Total		**0.0198**	**0.1689**	**0.0719**	**1.0800e-003**		**0.0137**	**0.0137**		**0.0137**	**0.0137**		**215.6252**	**215.6252**	**4.1300e-003**	**3.9500e-003**	**216.9066**

6.0 Area Detail

6.1 Mitigation Measures Area

Everett Street Terraces - Ventura County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule 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
Category	lb/day										lb/day					
Mitigated	1.9064	0.0572	4.9644	2.6000e-004		0.0275	0.0275		0.0275	0.0275	0.0000	8.9484	8.9484	8.6400e-003	0.0000	9.1645
Unmitigated	1.9064	0.0572	4.9644	2.6000e-004		0.0275	0.0275		0.0275	0.0275	0.0000	8.9484	8.9484	8.6400e-003	0.0000	9.1645

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	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.2029					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.5532					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	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
Landscaping	0.1503	0.0572	4.9644	2.6000e-004		0.0275	0.0275		0.0275	0.0275		8.9484	8.9484	8.6400e-003		9.1645
Total	**1.9064**	**0.0572**	**4.9644**	**2.6000e-004**		**0.0275**	**0.0275**		**0.0275**	**0.0275**	**0.0000**	**8.9484**	**8.9484**	**8.6400e-003**	**0.0000**	**9.1645**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

6.2 Area by SubCategory

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	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.2029					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.5532					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	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
Landscaping	0.1503	0.0572	4.9644	2.6000e-004		0.0275	0.0275		0.0275	0.0275		8.9484	8.9484	8.6400e-003		9.1645
Total	**1.9064**	**0.0572**	**4.9644**	**2.6000e-004**		**0.0275**	**0.0275**		**0.0275**	**0.0275**	**0.0000**	**8.9484**	**8.9484**	**8.6400e-003**	**0.0000**	**9.1645**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

Use Water Efficient Irrigation System

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

8.0 Waste Detail

8.1 Mitigation Measures Waste

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

APPENDIX B – BIOLOGICAL LITERATURE REVIEW

October 27, 2021
5 Hutton Centre Drive, Suite 750
Santa Ana, CA 92707

Shanna Farley-Judkins
Community Development Department, City of Moorpark
799 Moorpark Ave.,
Moorpark, CA 93021

Subject: Desktop Analysis/Biological Literature Review for the Everett Street Terraces Project

Dear Ms. Farley-Judkins,

Chambers Group, Inc. (Chambers Group) was retained by the City of Moorpark to conduct a biological literature review for the Everett Street Terraces Project (Project). A formal biological reconnaissance-level survey was not conducted; however, a biologist has visited the site to verify present conditions and verify the statements described herein.

Project Site Location and Description

Newton and Associates (Applicant) proposes the construction of a 60-unit residential condominium complex consisting of 2- and 3-bedroom units on an approximately 2.438-acre vacant parcel located at the northern intersection of Everett Street and Walnut Canyon Road in the City of Moorpark (City), Ventura County.

The Project site is located at the northeast corner of Everett Street and Walnut Canyon Road (Assessor's Parcel Number (APN) 512-006-131, 512-006-132, 512-006-106, 512-006-105, and 512-006-121). Walnut Canyon Road becomes Moorpark Avenue as it passes south of Everett Street and the Project site is bounded by Wicks Road to the north and Walnut Canyon Road to the west, which becomes Moorpark Avenue as it passes south of Everett Street. The Project site is approximately 0.60 mile north of Los Angeles Avenue which becomes California State Route 118 going east, and approximately 1 mile west of State Route 23/Moorpark Freeway. The Project site is approximately 45 miles east of the Pacific Ocean.

The Project site was formerly developed with six single-family homes. These six homes had been removed prior to 2009 and no structures remain. There are existing residences north, south, east and west of the Project site with one commercial building north of Charles Street (dental office), and a public facility, the City Hall, west of Walnut Canyon Road. The elevation range at the Project site ranges from 516 to 571 feet above mean sea level (amsl). Maps of the Project Location and Project Vicinity are provided in Attachment 1 (Figure 1 – Project Location and Vicinity Map).

Methods

Literature Review

Chambers Group staff conducted a literature review for soils, jurisdictional water features that contribute to hydrology, and special status species known to occur within the vicinity of the Project. Chambers Group senior biologist, Heather Clayton, visited the site on August 26, 2020 to verify the site conditions and assess potential for special status species.

This biological literature review included a review of the California Department of Fish and Wildlife's (CDFW) California Natural Diversity Database (CNDDB) and the California Native Plant Society's (CNPS) Electronic Inventory for records of reported occurrences of federal- and/or state-listed endangered or threatened species, California Species of Concern (SSC), or otherwise special status species or habitats that may occur within or in the immediate vicinity (within 5 miles) of the Project site. A Trust Resource Report was generated through the United States Fish and Wildlife Service (USFWS) Information for Planning and Conservation (IPaC) process for critical habitat within the Project area or within the immediate Project vicinity (within 5 miles) and federally listed species identified as potentially occurring in or near the Project site. The USFWS National Wetlands Inventory (NWI) and U.S. Department of Agriculture (USDA) Soil Conservation Service and Web Soil Survey have also been reviewed. In addition, biological information included in reports previously prepared for this Project or adjacent projects has been reviewed.

Soils

Soil maps for the Project site were reviewed and soils determined in accordance with categories set forth by the USDA Soil Conservation Service and by referencing the USDA Natural Resources Conservation Service (NRCS) Web Soil Survey (USDA 2021).

Hydrology

A general assessment of waters potentially regulated by the U.S. Army Corps of Engineers (USACE), California Regional Water Quality Control Board (RWQCB), and CDFW was conducted for the Project site. Pursuant to Section 404 of the Clean Water Act, USACE regulates the discharge of dredged and/or fill material into waters of the United States. The State of California (State) regulates discharge of material into waters of the State pursuant to Section 401 of the Clean Water Act and the California Porter-Cologne Water Quality Control Act (California Water Code, Division 7, §13000 et seq.). Pursuant to Division 2, Chapter 6, Sections 1600-1602 of the California Fish and Game Code, CDFW regulates all diversions, obstructions, or changes to the natural flow or bed, channel, or bank of any river, stream, or lake, which supports fish or wildlife. A desktop assessment was conducted with available data from the NWI to assess the potential for waters to be present on site (Figure 2). A visual inspection of the site was also performed during the site visit to determine if any waters or potential waters were present.

Special Status Habitats and Species

The most recent records of the CNDDB managed by the CDFW (CDFW 2021) and the CNPS Electronic Inventory of Rare and Endangered Vascular Plants of California (CNPS 2021) were reviewed for the following quadrangles containing and surrounding the Project: Moorpark, Santa Paula, Santa Paula Peak, Fillmore, Piru, Simi, Thousand Oaks, Newbury Park, and Camarillo, California U.S. Geological Survey (USGS) 7.5-minute quadrangles. These databases contain records of reported occurrences of federal- or state-listed endangered or threatened species, California Species of Concern (SSC), or otherwise special status species or habitats that may occur within or in the immediate vicinity of the Project site (Figure 3 – CNDDB and USFWS Occurrences Map).

Biological Literature Review Results

Biological Site Conditions

Soils

According to the results from the USDA NRCS Web Soil Survey (USDA 2021), the Project site is located in the Ventura area, CA674 (Figure 4). Two soil types are known to occur within and/or adjacent to the site. These soil types are described below.

The GaC—Garretson Loam, 2 to 9 Percent Slopes

The GaC—Garretson loam with 2 to 9 percent slopes composes the southern portion of the Project site. The parent material is alluvium derived from sedimentary rock and is typically composed of loam at the first and second horizons to a depth of 60 inches. The available water capacity is moderate at approximately 9 inches. This is a well-drained soil with a water table approximately 80 inches below the surface (USDA 2021).

SvF2—Soper Gravelly Loam, 30 to 50 Percent Slopes, Eroded, MLRA 20

SvF2—Soper gravelly loam, 30 to 50 percent slopes, eroded, MLRA 20 composes the northern portion of the Project site. The parent material is residuum weathered from conglomerate and/or residuum weathered from sandstone and is typically composed of gravely loam to a depth of 11 inches at the A horizon, very gravelly clay loam at a depth of 11 to 57 inches at the Bt horizon, and bedrock at a depth of 57 to 79 inches at the Cr horizon. The available water capacity is moderate at approximately 7.1 inches. This is a well-drained soil with a water table approximately 80 inches or more below the surface (USDA 2021).

Hydrology

No jurisdictional features such as drainages or swales were observed within the Project site. Therefore, no impacts to waters of the United States and waters of the State are anticipated to occur as a result of this Project.

Special Status Species

Special Status Species Ranking Criteria

The following information is a list of abbreviations used to help determine special status biological resources potentially occurring in the Project site.

CNPS California Rare Plant Rank (CRPR)

1A = Plants presumed extinct in California.
1B = Plants rare and endangered in California and throughout their range.
2 = Plants rare, threatened or endangered in California but more common elsewhere in their range.
3 = Plants about which we need more information, a review list.
4 = Plants of limited distribution; a watch list.

CRPR Extensions

0.1 = Seriously endangered in California (greater than 80 percent of occurrences threatened/high degree and immediacy of threat).
0.2 = Fairly endangered in California (20 to 80 percent occurrences threatened).
0.3 = Not very endangered in California (less than 20 percent of occurrences threatened).

Federal

FE = Federally listed; Endangered
FT = Federally listed; Threatened

State

CT = State listed; Threatened
CE = State listed; Endangered
RARE = State listed; Rare (Listed "Rare" animals have been re-designated as Threatened, but Rare plants have retained the Rare designation.)
SSC = State Species of Special Concern
WL = CDFW Watch List
FP = CDFW Fully Protected

The following information was used to determine biological resources potentially occurring within the Project site. The criteria used to evaluate the potential for special status species to occur within the Project site are outlined in Table 1.

Table 1: Criteria for Evaluating Special Status Species Potential for Occurrence

PFO*	CRITERIA
Absent:	Species is restricted to habitats or environmental conditions that do not occur within the Project site.
Low:	Historical records for this species do not exist within the immediate vicinity (approximately 5 miles) of the Project site, and/or habitats or environmental conditions needed to support the species are of poor quality.

PFO*	CRITERIA
Moderate:	Either a historical record exists of the species within the immediate vicinity of the Project site (approximately 3 miles) and marginal habitat exists on the Project site, or the habitat requirements or environmental conditions associated with the species occur within the Project site, but no historical records exist within 5 miles of the Project site.
High:	Both a historical record exists of the species within the Project site or its immediate vicinity (approximately 1 mile), and the habitat requirements and environmental conditions associated with the species occur within the Project site.

*PFO: Potential for Occurrence

Special Status Plant Species

Database searches (CDFW 2021; CNPS 2021) resulted in a list of nine federally and/or state listed threatened and endangered or otherwise special status plant species documented to historically occur within the vicinity of the Project site. Of the nine plant species that resulted from the database search, all are considered Absent from the Project site.

The following six plant species are considered **Absent** from the Project site due to lack of suitable soil conditions or because they grow outside the elevation range of the Survey Area:

- marcescent dudleya (Dudleya cymosa subsp. marcescens) – CRPR 1B.2, FT
- California Orcutt grass (Orcuttia californica) – CRPR 1B.1, FE, CE
- Lyon's pentachaeta (Pentachaeta lyonii) – CRPR 1B.1, FE, CE
- Plummer's mariposa-lily (Calochortus plummerae) – CRPR 4.2
- Payne's bush lupine (Lupinus paynei) – CRPR 1B.1
- Gerry's curly-leaved monardella (*Monardella sinuata* subsp. *gerryi*) – CRPR 1B.1

The following three plant species are considered **Absent** from the Project site due to lack of habitat requirements or environmental conditions associated with the species. Although suitable soil conditions exist, there is no suitable habitat due to the previously developed nature of the site, the high non-native vegetation cover, and mowing that is performed on a regular basis for fire suppression. The habitat type on site deemed incompatible to these species' specific requirements was disturbed non-native grassland with non-native trees present (26 tree species, predominantly *Eucalyptus* spp.).

- mesa horkelia (*Horkelia cuneata* var. *puberula*) - CRPR 1B.1
- Conejo dudleya (*Dudleya parva*) – CRPR 1B.2, FT
- chaparral ragwort (*Senecio aphanactis*) – CRPR 2B.2

Special Status Wildlife Species

Database searches (CDFW 2021; USFWS 2021) resulted in a list of 15 federally and/or state listed endangered or threatened, SSC, or otherwise special status wildlife species documented to occur within the Project site. After a literature review and the assessment of the various habitat types within the Project site (Figure 3), it was determined that eleven of the special status wildlife species are considered absent, and four species have a low potential for occurrence at the Project site.

The following eleven wildlife species are considered **Absent** from the Survey Area due to the absence of suitable habitat present within the site:

- southern California rufous-crowned sparrow (Aimophila ruficeps canescens) – WL
- western pond turtle (Emys marmorata) – SSC
- arroyo chub (Gila orcuttii) – SSC
- San Diego desert woodrat (Neotoma lepida intermedia) – SSC
- coast horned lizard (Phrynosoma blainvillii) – SSC
- coastal California gnatcatcher (Polioptila californica californica) – FT, SSC
- western spadefoot (Spea hammondii) – SSC
- Riverside fairy shrimp (Streptocephalus woottoni) – FE
- American badger (Taxidea taxus) – SSC
- two-striped gartersnake (Thamnophis hammondii) – SSC
- least Bell's vireo (*Vireo bellii pusillus*) – **FE**, **CE**

The following four wildlife species are considered to have a **Low** potential for occurrence due to historical records of the species within five miles of the Project site and the presence of poor quality habitat within the Project site.

- California legless lizard (Anniella spp.) – SSC
- California glossy snake (Arizona elegans occidentalis) – SSC
- coastal whiptail (Aspidoscelis tigris stejnegeri) – SSC
- white-tailed kite (*Elanus leucurus*) – FP

Critical Habitat

Within 5 miles of the Project site four types of critical habitat are present: Southern Coast Live Oak Riparian Forest, Southern Riparian Scrub, Southern Willow Scrub, and Southern Sycamore Alder Riparian Woodland (USFWS 2021) (Figure 3). None of these were found on site and therefore no mitigation for any critical habitat is necessary.

Conclusions and Recommendations

Hydrology

No jurisdictional features were observed within the Project site. No impacts to waters are anticipated; therefore, a USACE 404 permit, State 401 certification, or State Streambed Alteration Agreement will not be required for Project authorization.

Special Status Plant Species

Following the literature review it was determined that of the nine special status plant species known to historically occur within 5 miles of the Survey Area, all nine plant species are considered absent from the Project site.

Everett Street Tree Report: Peer Review Recommendations

Chambers Group recommends removing trees outside of the nesting bird season for raptors to remain in compliance with the Migratory Bird Treaty Act. Signs of raptor use were present within and beneath many of the larger trees on site. Nesting season for raptors is between January 1 and August 31 each year. If tree removal needs to occur between January and August, a nesting bird survey may be conducted prior to removal and if a qualified biologist determines no raptor nests are present within 500 feet of the tree, the removal of that tree may occur during nesting season. Consultation with CDFW may be necessary.

Special Status Wildlife Species

Following the literature review it was determined that of the 15 special status wildlife species known to occur within 5 miles of the Project Area, 11 species are considered absent, and four species have a low potential for occurrence. To minimize potential impacts to nesting birds protected under the Migratory Bird Treaty Act (MBTA), construction activities should take place outside nesting season (February 1 to August 31), to the greatest extent practicable. If construction activities occur during nesting season, preconstruction surveys and biological monitoring should be conducted if an active nest is found within the work area. A qualified biologist should conduct and submit a migratory nesting bird and raptor survey report. The survey should occur no more than three days prior to initiation of Project activities, and any occupied passerine and/or raptor nests occurring within or adjacent to the impact area should be delineated. Additional follow-up surveys may be required by the resource agencies. To the maximum extent practicable, a minimum buffer zone around occupied nests should be maintained during physical ground-disturbing activities. The buffer zone should be sufficient in size to prevent impacts to the nest. Once nesting has ceased, the buffer may be removed.

Please contact me at (949) 261-5414 ext. 7241 if you have any questions or concerns regarding this letter report.

Sincerely,

CHAMBERS GROUP, INC.

Heather Clayton

Heather Clayton
Senior Biologist
hlayton@chambersgroupinc.com
(949) 261-5414 ext. 7241

Attachments

Figure 1 – Project Location and Vicinity Map
Figure 2 – NWI Map
Figure 3 – CNDDB and USFWS Occurrences Map
Figure 4 – Soil Report

References

California Department of Fish and Wildlife (CDFW)

2021 California Natural Diversity Database (CNDDB). RareFind Version 5.2.14. Database Query for the *Moorpark, Santa Paula, Santa Paula Peak, Fillmore, Piru, Simi, Thousand Oaks, Newbury Park, Camarillo,* California USGS 7.5-minute quadrangles. Wildlife and Habitat Data Analysis Branch.

California Native Plant Society (CNPS)

2021 Inventory of Rare and Endangered Plants (online edition). Rare Plant Scientific Advisory Committee, California Native Plant Society, Sacramento, California. Accessed October 2021 from http://www.cnps.org/inventory for the *Moorpark, Santa Paula, Santa Paula Peak, Fillmore, Piru, Simi, Thousand Oaks, Newbury Park, Camarillo,* California USGS 7.5-minute quadrangles.

United States Department of Agriculture (USDA)

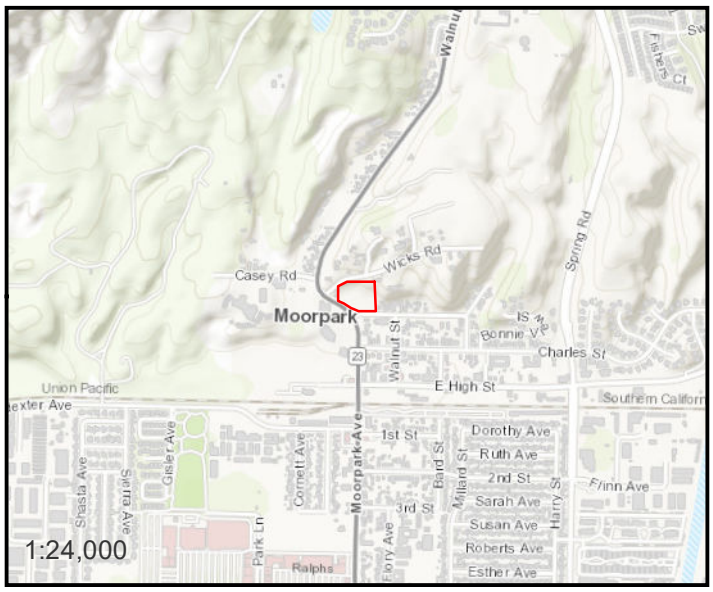
2021 Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture. Official Soil Series Descriptions Accessed October 2021 from https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx.

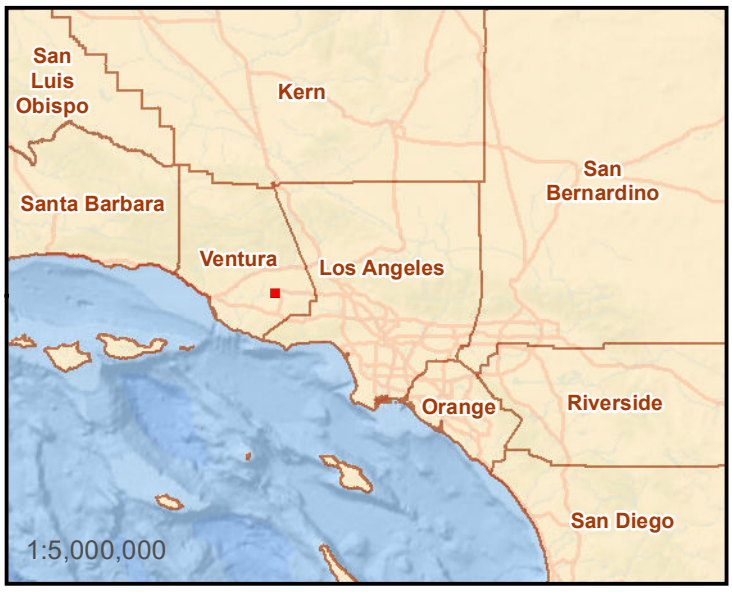
United States Fish and Wildlife Service (USFWS)

2021 National Wetland Inventory (NWI). http://www.fws.gov/wetlands/. Accessed October 2021.

2021 Critical Habitat for Threatened & Endangered Species. https://fws.maps.arcgis.com/home/webmap/viewer.html?webmap=9d8de5e265ad4fe09893cf75b8dbfb77 . Accessed October 2021.

ATTACHMENT 1 – FIGURES







Project Location

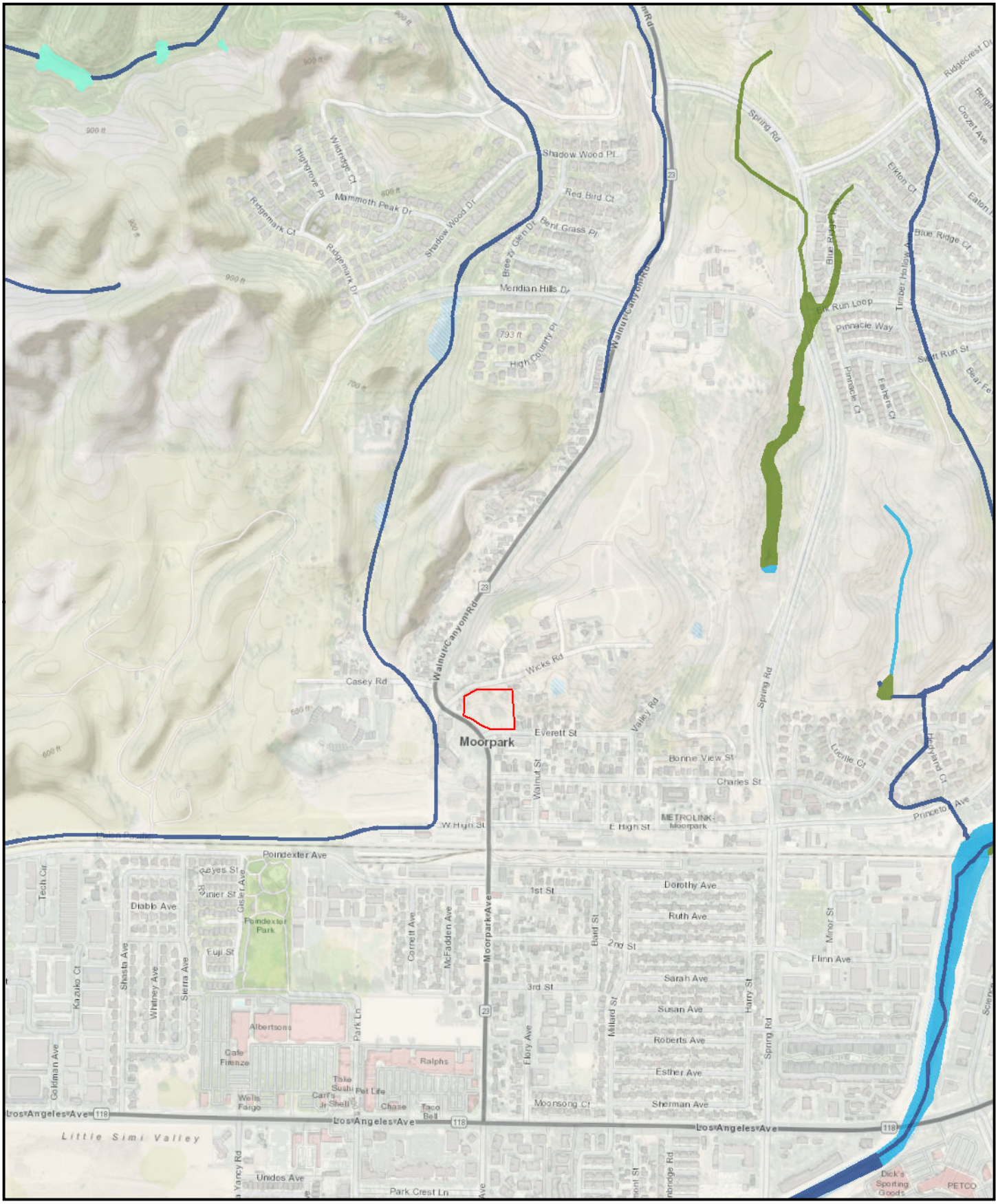
Figure 1
Everett St.Terraces
Project Location and Vicinity

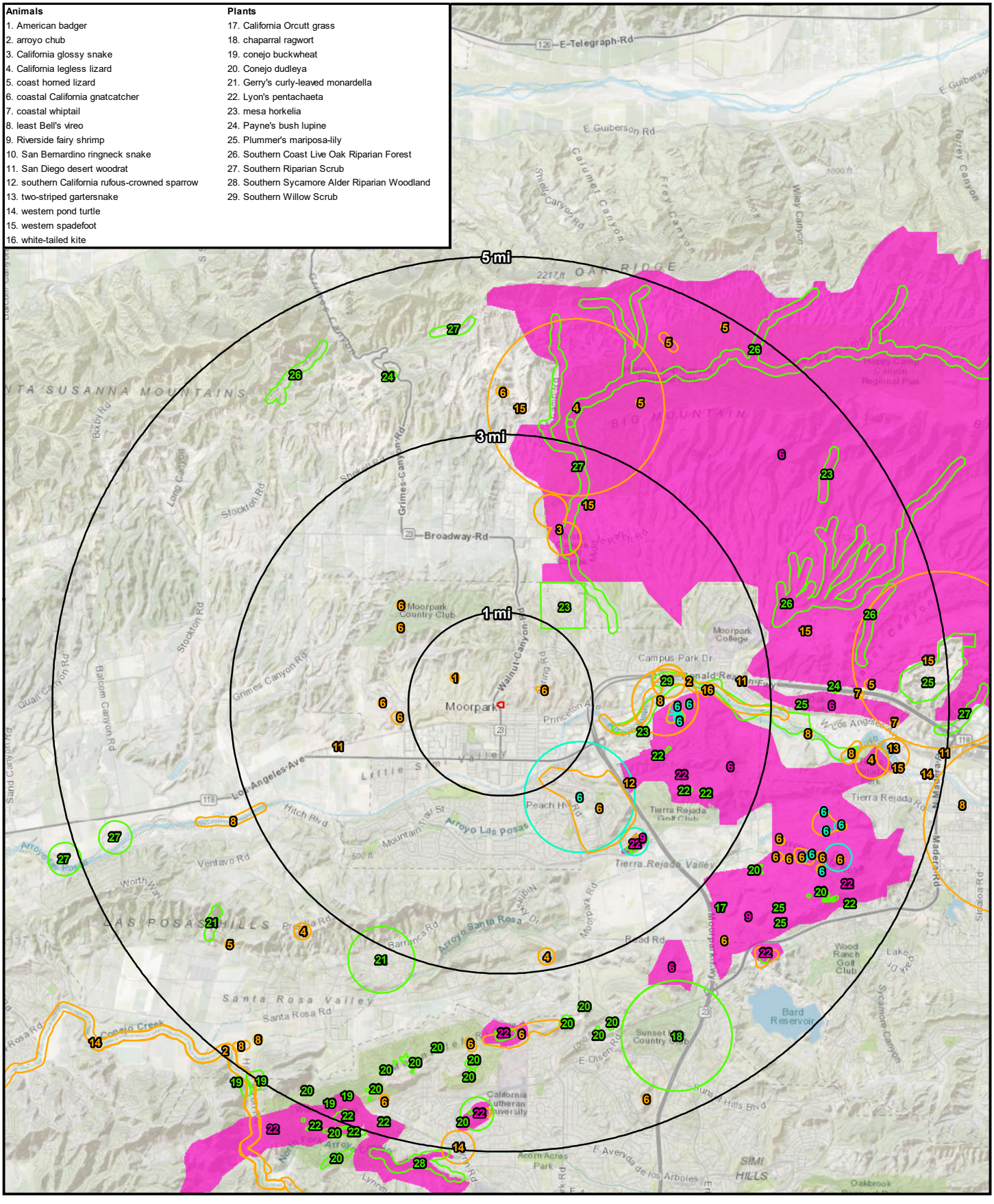
N

0 50 100 200
Feet

Name: 21257 BIO Fig 1 Project Location and Vicinity.Mxd
Print Date: 10/5/2021 12:08:31 PM Author: pcarlos

CHAMBERS GROUP


Project Location
NWI
Lake
Riverine
Freshwater Forested/Shrub Wetland
Freshwater Pond
Freshwater Emergent Wetland
N
0
400
800
1,600
Feet
Figure 2
Everett St.Terraces
NWI
Name: 21257 BIO Fig 2 NWI.Mxd
Print Date: 10/5/2021 1:43:46 PM Author: pcarlos
CHAMBERS GROUP
Moorpark
Everett St
Casey Rd
Wicks Rd
Walnut Canyon Rd
Spring Rd
Valley Rd
Walnut St
Bonne View St
Charles St
W High St
E High St
METROLINK-Moorpark
Princeton Ave
Poindexter Ave
Poindexter Park
Gisler Ave
Diablo Ave
Fuji St
Tech Cir
Shasta Ave
Whitney Ave
Sierra Ave
Kazuko Ct
Goldman Ave
Cornell Ave
McFadden Ave
Moorpark Ave
1st St
2nd St
3rd St
Dorothy Ave
Ruth Ave
Sarah Ave
Susan Ave
Roberts Ave
Esther Ave
Sherman Ave
Bard St
Millard St
Flory Ave
Harry St
Minor St
Flinn Ave
Albertsons
Park Ln
Cafe Firenze
Ralphs
Take Sushi
Pet Life
Carl's Jr
Shell
Wells Fargo
Chase
Taco Bell
Moonsong Ct
Los Angeles Ave
118
Little Simi Valley
Unidos Ave
Park Crest Ln
Yancy Rd
Dick's Sporting Goods
PETCO
Shadow Wood Pl
Red Bird Ct
Bent Grass Pl
Meridian Hills Dr
High Country Pl
Mammoth Peak Dr
Shadow Wood Dr
Ridgemark Ct
Ridgemark Dr
Highgrove Pl
Waterridge Ct
Breezy Glen Dr
Pinnacle Way
Pinnacle Ct
Fishers Ct
Timber Hollow Ln
Blue Ridge Ct
Elkton Ct
Ridgecrest Dr
Crozet Ave
Swift Run St
Bear Fe
Lucille Ct
Fairyland Ct
900 ft
800 ft
793 ft
700 ft
600 ft


Animals
1. American badger
2. arroyo chub
3. California glossy snake
4. California legless lizard
5. coast horned lizard
6. coastal California gnatcatcher
7. coastal whiptail
8. least Bell's vireo
9. Riverside fairy shrimp
10. San Bernardino ringneck snake
11. San Diego desert woodrat
12. southern California rufous-crowned sparrow
13. two-striped gartersnake
14. western pond turtle
15. western spadefoot
16. white-tailed kite
Plants
17. California Orcutt grass
18. chaparral ragwort
19. conejo buckwheat
20. Conejo dudleya
21. Gerry's curly-leaved monardella
22. Lyon's pentachaeta
23. mesa horkelia
24. Payne's bush lupine
25. Plummer's mariposa-lily
26. Southern Coast Live Oak Riparian Forest
27. Southern Riparian Scrub
28. Southern Sycamore Alder Riparian Woodland
29. Southern Willow Scrub
5 mi
3 mi
1 mi
E-Telegraph-Rd
E Guiberson Rd
Broadway-Rd
Moorpark
Moorpark Country Club
Moorpark College
Campus Park Dr
Los Angeles Ave
Walnut Canyon Rd
Grimes Canyon Rd
Stockton Rd
Bixby Rd
Long Canyon
Balcom Canyon Rd
Sand Canyon Rd
Princeton Ave
Peach Hill Rd
Tierra Rejada Golf Club
Tierra Rejada Valley
Tierra Rejada Rd
Madera Rd
Hitch Blvd
Ventavo Rd
Arroyo Las Posas
Arroyo Santa Rosa
Santa Rosa Valley
Santa Rosa Rd
Conejo Creek
Moorpark Rd
Wood Ranch Golf Club
Bard Reservoir
Sunset Country
California Lutheran University
Acorn Acres Park
E Avenida de los Arboles
Oakbrook
SIMI HILLS
LAS POSAS HILLS
SANTA SUSANNA MOUNTAINS
BIG MOUNTAIN
OAK RIDGE
Project Location
USFWS Occurrences
USFWS Critical Habitat
CNDDB Occurrences
Animals
Plants
N
0 0.5 1 2
Miles
Figure 3
Everett St.Terraces
CNDDB and USFWS Occurrences
Name: 21257 BIO Fig 3 CNDDB and USFWS Occurrences.Mxd
Print Date: 10/5/2021 1:39:22 PM Author: pcarlos
CHAMBERS GROUP

Custom Soil Resource Report
Soil Map



Map Scale: 1:710 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 10 20 40 60

Feet
0 30 60 120 180

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 11N WGS84

Figure 4
Everett St.Terraces
Soil Report

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Ventura Area, California
Survey Area Data: Version 16, Sep 13, 2021

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Nov 11, 2020—Nov 14, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

APPENDIX C – TREE REPORTS

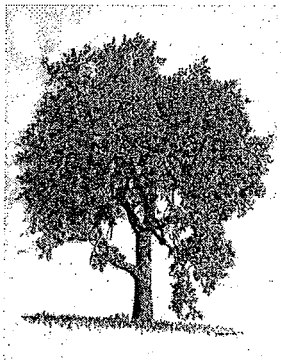
PRELIMINARY TREE REPORT

SUBJECT
Everett Street Terraces Apartments
Moorpark, CA

PREPARED FOR
John C. Chiu, FLPN
c/o John Newton & Associates, Inc.
165 High Street, Suite 103
Moorpark, CA 93021

PREPARED BY

L. NEWMAN DESIGN GROUP, INC.
ASLA, California State License #1314
31300 Via Colinas, Suite 104
Westlake Village, CA 91362-3992
E-Mail: *lndg@lndg.net*
Ph.: (818) 991-5056
Fx.: (818) 991-3478



Date: October 6, 2005

LNDG Project No.: 2270-01

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OBJECTIVES

The objective of this report is to qualify the present condition of the site's trees and to discuss the potential encroachments to them. This involved:

1. Determining the physiological condition of the trees addressed;
2. Ascertaining the encroachments that will occur due to grading (see site plan/**TREE LOCATION MAP**);

METHODS OF STUDY

Qualification of this site's trees was accomplished by the use of our standard visual survey, as completed by L. NEWMAN DESIGN GROUP, INC. (**LNDG**) on August 24, 2005. In the course of fieldwork, we performed the following:

1. Tree trunks were measured at 4½' above mean natural grade;
2. The trees were tagged with numbered, metal tags. These tags were affixed to the sides of the trees and correspond to the numbers on the **TREE LOCATION MAP**;
3. The dripline (the perimeter of the tree's canopy) of each tree was field measured radially from the trunk in the four compass directions.

All of the inventoried trees were located on a topographic map/site plan (scale: 1/16"=1'-0") that was prepared by Stantec, Inc. Refer to the **TREE LOCATION MAP** included herein for the approximate tree locations.

TREE SPECIES

The species of trees present on the site are:

Qty	Species	Common Name
11	*Schinus molle*	Peruvian pepper tree
9	*Ligustrum lucidum*	Texas privet
8	*Tipuana tipu*	tipu tree
3	*Casuarina sp.*	beefwood
2	*Citrus*	citrus
2	*Eucalyptus rudis*	desert gum
2	*Pinus eldarica*	Afghan pine
1	*Cupressus sempervirens*	Italian cypress
1	*Pinus halepensis*	Aleppo pine
1	*Schinus terebinthifolius*	Brazilian pepper tree
1	*Ulmus parvifolia*	Chinese elm
41		

TREE PROTECTION GUIDELINES

The City of Moorpark Zoning Ordinance provides for the protection of certain species of trees, defined as "Protected Trees": in Ordinance 101, Chapter 14.09 - Preservation, Cutting, and Removal of Historical Trees, Native Oak Trees and Mature Trees; and in Ordinance 102, Chapter 14.08 - Planting and Maintenance of Trees, Shrubs and Plants.

Ordinance 101, Section 14.09.101 - Intent and Purpose - It is the determination of the Moorpark City Council that proper and necessary steps should be taken in order to protect and preserve, to the greatest extent possible, mature trees, native Oak trees and historic trees, especially where such trees are associated with proposals for urban development, as such trees are a significant, historical, aesthetic and valuable ecological resource. It is the intent to maintain and enhance the general health,

safety and welfare of the citizens of the City by assisting in counteracting air pollution, by minimizing soil erosion and other related environmental damage and by enhancing the aesthetic environment of the City.

Ordinance 102, Section 14.08.101 - Intent and Purpose - Consistent with Chapter 14.09 regulating the preservation, cutting and removal of historic trees, native Oak trees and mature trees and Resolution No. 88-520 setting forth Guidelines for a Master Tree Plan, it shall be the City's policy to utilize whatever techniques, methods and procedures are required to preserve, whenever feasible, all trees in the City including, but not limited to, trees which are creating damage to surface improvements or underground facilities or which are diseased, or located where construction is being considered or will occur.

TREES OF CONCERN

Historical Tree - Any tree or group of trees identified by the City as a landmark, or identified on the Federal or California Historic Resources Inventory to be of historical or cultural significance or identified as contributing to a site or structure of historical or cultural significance.

Mature Tree - All trunks of any tree shall be measured at 4½'. If the trunk of any oak tree trunk exceeds 4inches in diameter or if the trunk of any other tree species exceeds 9½ inches in diameter, it is to be included in the inventory. Regrowing stumps are not to be included.

Native Oak Tree - Is any living tree of the genus *Quercus* and of the species *agrifolia, berberidifolia, dumosa, lobata* or hybrids thereof.

RESULTS OF STUDY

1. Physiological Condition of the Trees

a. The physiological condition of the trees is detailed in the **SUMMARY of FIELD OBSERVATIONS** contained within this report. Generally, there are few if any trees that are desirable or suitable for the proposed project. This is due to species, size or poor maintenance and pruning. All recommendations made on our field forms relate only to the specific dates of our fieldwork.

2. Summary of Data/Plan Review

a. According to the site grading plan, all of the trees will be removed in order to accomplish the excavation and grading required for this project. Therefore all 41 trees will be removed. Consideration was given to utilizing specimen trees in the landscape but none were found to be suitable.

b. No trees were found that have no value because of extremely poor health or hazardous condition.

c. Driplines shown on the **TREE LOCATION MAP** graphically represent the driplines and were created by an aerial survey. Refer to the **DRIPLINE MEASUREMENTS** section for precise dripline measurements.

d. No oak trees or other native trees were found on this site.

3. Tree Appraisals

a. The replacement value of each inventoried tree was established by using the 9th Edition of the *Guide for Plant Evaluation*, as prepared for the International Society of Arboriculture by the Council of Tree and Landscape Appraisers.

b. The following table gives the value of each tree using the standard trunk formula method including trunk diameter, tree species, health, esthetics and location.

Tree Numbers	Values
1	$12,100
2	$5,259
3	$9,600
4	$3,100
5	$2,100
6	$1,400
7	$1,600
8	$1,900
9	$8,100
10	$3,900
11	$2,700
12	$3,200
13	$8,100
14	$6,400
15	$2,000
16	$4,700
17	$3,100
18	$12,127
19	$13,400
20	$1,192
21	$1,200
22	$1,400
23	$8,100
24	$18,729
25	$3,449
26	$1,022
27	$639
28	$1,175
29	$3,066
30	$818
31	$7,420
32	$962
33	$1,380
34	$3,112
35	$3,446
36	$12,127
37	$7,453
38	$3,208
39	$5,306
40	$10,028
41	$3,053
TOTAL	**$203,071**

c. The total value of all of the trees is $203,071. All of the trees are being removed. Therefore, the proposed removal trees will be mitigated by upgrading the sizes or increasing the number of the proposed landscape trees to a value of at least $203,071.

NOTICE OF DISCLAIMER:

This report represents the independent opinion of the signatory consultant (L. NEWMAN DESIGN GROUP, INC.). The tree(s) discussed herein was/were generally reviewed for physical, biological function and aesthetic conditions. This examination was conducted in accordance with presently accepted industry procedures, which are a ground-plane macro-visual observation only. No extensive micro-biological, soil-root excavations, upper crown examination nor internal tree investigations were conducted and therefore, the reporting herein reflects the overall visual appearance of the tree(s) on the date reviewed and no warranty is implied as to the potential failure, health or demise of any part or of whole of any tree described in the report. Records may not remain accurate after our inspection due to unknown causes of changeable deterioration of the reviewed site.

Respectfully submitted,

L. NEWMAN DESIGN GROUP, INC.
ASLA License #1314



John Oblinger
Certified Arborist WE-6820A

G:\Jobs\2200\2270-01\WORD\2270-01_TR-1.doc

LNDG Job No. 2270-01

Date 08/24/05

SUMMARY OF FIELD OBSERVATIONS

	TREE NUMBER	1	2	3	4	5	6	7	8	9	10
FORM	TREE HEIGHT (APPROX)	40	40	25	25	60	40	10	10	40	25
	LEANING (DIRECTION)										
	TRUNK DIAMETER 1	16½	19½	25¼	13¾	35¾	11"	7¼	9"	25¾	11"
	TRUNK DIAMETER 2	26½			8¼			7"	5½		5"
	TRUNK DIAMETER 3										3"
	TRUNK DIAMETER 4										5"
	TRUNK DIAMETER 5										19"
PHYSICAL CONDITION	TRUNK CAVITY										
	TRUNK DAMAGE										X
	EXPOSED ROOTS	X			X						
	EXFOLIATING BARK										
	FRUITING BODIES										
	INSECT/MITE DAMAGE										
	FIRE DAMAGE										
	MAINSTEM DIEBACK										
	BRANCH CAVITIES										
	TWIG/BRANCH DIEBACK										
	EPICORMIC GROWTH										
	THIN FOLIAGE										
	VIGOR-GOOD/MOD/POOR	G	G	G	G	G	G	G	G	G	M
	TERRAIN - SLOPE/LEVEL	L	L	L	L	L	L	L	L	L	S
RATING	HERITAGE										
	HEALTH	C	C	C	C	C	C	C	C	C	C
	AESTHETICS/COMFORMITY	C	C	C	C	C	C	C	C	C	C
TREAT-MENT	REMOVE DEADWOOD										
	INSECT/DISEASE TREAT										
REMARKS:		Tipuana tipu		T. tipu	Ulmus parvifolia	Schinus terebinthifolius	Eucalyptus rudis	Cupressus sempervirens	Citrus	Citrus	Pinus halepensis	Casuarina sp.

LNDG Job No. 2270-01

Date 08/24/05

SUMMARY OF FIELD OBSERVATIONS

	TREE NUMBER	11	12	13	14	15	16	17	18	19	20
FORM	TREE HEIGHT (APPROX)	25	25	30	30	30	35	35	35	40	
	LEANING (DIRECTION)										S
	TRUNK DIAMETER 1	16"	9"x4	25½	12" SPLIT	12¾	12½	15¾	23⅝	34¼	9½
	TRUNK DIAMETER 2	5"	7"		14"		14¾		21"		
	TRUNK DIAMETER 3	6"	3"x2		13½						
	TRUNK DIAMETER 4	5"									
	TRUNK DIAMETER 5	3"x3									
PHYSICAL CONDITION	TRUNK CAVITY										
	TRUNK DAMAGE										
	EXPOSED ROOTS										
	EXFOLIATING BARK										
	FRUITING BODIES										
	INSECT/MITE DAMAGE										
	FIRE DAMAGE										
	MAINSTEM DIEBACK										
	BRANCH CAVITIES										
	TWIG/BRANCH DIEBACK										
	EPICORMIC GROWTH										
	THIN FOLIAGE										
	VIGOR-GOOD/MOD/POOR	M	M	G	G	G	G	G	G	G	G
	TERRAIN - SLOPE/LEVEL	S	S	L	L	L	L	L	L	L	S
RATING	HERITAGE										
	HEALTH	C	C	C	C	C	C	C	C	C	C
	AESTHETICS/COMFORMITY	D	D	C	C	C	C	C	C	C	C
TREAT-MENT	REMOVE DEADWOOD										
	INSECT/DISEASE TREAT										
	REMARKS:	Casuarina sp.	Casuarina sp.	Schinus molle	Tipuana tipu	T. tipu	Schinus molle	S. molle	S. molle	S. molle	S. molle

LNDG Job No. 2270-01 Date 08/24/05

SUMMARY OF FIELD OBSERVATIONS

Section	TREE NUMBER	21	22	23	24	25	26	27	28	29	30
			X			X					
FORM	TREE HEIGHT (APPROX)	20	50	40	35	25	15	15	20	20	20
	LEANING (DIRECTION)										
	TRUNK DIAMETER 1	9½	18½	26	41½	14¾	5½	5	7½	5½	4
	TRUNK DIAMETER 2		20¾				6	5	5	14	4
	TRUNK DIAMETER 3						4	4¾	7	7½	8
	TRUNK DIAMETER 4						4			8	
	TRUNK DIAMETER 5						4				
PHYSICAL CONDITION	TRUNK CAVITY			BEES							
	TRUNK DAMAGE										
	EXPOSED ROOTS										
	EXFOLIATING BARK										
	FRUITING BODIES										
	INSECT/MITE DAMAGE										
	FIRE DAMAGE										
	MAINSTEM DIEBACK										
	BRANCH CAVITIES										
	TWIG/BRANCH DIEBACK										
	EPICORMIC GROWTH										
	THIN FOLIAGE										
	VIGOR-GOOD/MOD/POOR										
	TERRAIN - SLOPE/LEVEL	S	S	L	L	L	L	L	L	L	L
RATING	HERITAGE										
	HEALTH	C	C	C	C	C	C	C	C	C	C
	AESTHETICS/COMFORMITY	C	C	C	C	C	C	C	C	C	C
TREAT-MENT	REMOVE DEADWOOD										
	INSECT/DISEASE TREAT										
	REMARKS:	Schinus molle	Eucalyptus rudis	Schinus molle	S. molle	Pinus eldarica	Ligustrum lucidum	L. lucidum	L. lucidum	L. lucidum	L. lucidum

LNDG Job No. 2270-01

Date 08/24/05

SUMMARY OF FIELD OBSERVATIONS

	TREE NUMBER	31	32	33	34	35	36	37	38	39	40
FORM	TREE HEIGHT (APPROX)	50	15	15	15	20	30	30	15	15	55
	LEANING (DIRECTION)										
	TRUNK DIAMETER 1	21½	6¾	7	14½	17	20¾	25	10	11	29
	TRUNK DIAMETER 2		7½	7½	6	cut	24		13	18	
	TRUNK DIAMETER 3			6½		cut					
	TRUNK DIAMETER 4										
	TRUNK DIAMETER 5										
PHYSICAL CONDITION	TRUNK CAVITY										
	TRUNK DAMAGE	X					X				
	EXPOSED ROOTS										
	EXFOLIATING BARK										
	FRUITING BODIES										
	INSECT/MITE DAMAGE										
	FIRE DAMAGE										
	MAINSTEM DIEBACK					DEADWOOD TIPS					
	BRANCH CAVITIES										
	TWIG/BRANCH DIEBACK							BRANCH CUT WAY BACK			
	EPICORMIC GROWTH										
	THIN FOLIAGE										
	VIGOR-GOOD/MOD/POOR										
	TERRAIN - SLOPE/LEVEL	L	L	L	L	L	L	L	L	L	L
RATING	HERITAGE										
	HEALTH	C	C	C	C	C	C	C	C	C	C
	AESTHETICS/COMFORMITY	C	C	C	C	C	C	C	C	C	C
TREAT-MENT	REMOVE DEADWOOD										
	INSECT/DISEASE TREAT										
	REMARKS:	Mistletoe coming from trunk @ 9' Pinus eldarica		Ligustrum lucidum		L. lucidum		Schinus molle		Tipuana tipu	
	REMARKS:					Tipuana tipu		S. molle		T. tipu	
	REMARKS:					T. tipu					
	REMARKS:										

LNDG Job No. 2270-01

Date 08/24/05

SUMMARY OF FIELD OBSERVATIONS

Section	Item										
FORM	**TREE NUMBER**	41									
	TREE HEIGHT (APPROX)	40									
	LEANING (DIRECTION)										
	TRUNK DIAMETER 1	16									
	TRUNK DIAMETER 2										
	TRUNK DIAMETER 3										
	TRUNK DIAMETER 4										
	TRUNK DIAMETER 5										
PHYSICAL CONDITION	TRUNK CAVITY										
	TRUNK DAMAGE										
	EXPOSED ROOTS										
	EXFOLIATING BARK										
	FRUITING BODIES										
	INSECT/MITE DAMAGE										
	FIRE DAMAGE										
	MAINSTEM DIEBACK										
	BRANCH CAVITIES										
	TWIG/BRANCH DIEBACK										
	EPICORMIC GROWTH										
	THIN FOLIAGE										
	VIGOR-GOOD/MOD/POOR										
	TERRAIN - SLOPE/LEVEL	L									
RATING	HERITAGE										
	HEALTH	C									
	AESTHETICS/COMFORMITY	C									
TREAT-MENT	REMOVE DEADWOOD										
	INSECT/DISEASE TREAT										
	REMARKS:	Pinus eldarica									

DRIPLINE MEASUREMENTS

2270-01 08/24/05

TREE NO	NORTH	EAST	SOUTH	WEST	TREE NO	NORTH	EAST	SOUTH	WEST
#1	15	15	15	15	26	10	10	10	10
2	15	15	15	15	27	6	6	6	6
3	15	15	15	15	28	15	15	15	15
4	15	15	15	15	29	15	15	15	15
5	20	20	20	20	30	15	15	15	15
6	2	2	2	2	31	20	20	20	20
7	4	4	4	4	32	5	5	5	5
8	4	4	4	4	33	5	15	5	5
9	15	15	15	15	34	5	5	5	5
10	10	10	10	10	35	5	5	5	5
11	6	6	6	6	36	20	20	20	10
12	7	7	7	7	37	20	15	15	15
13	15	15	15	15	38	5	5	5	5
14	10	10	10	10	39	10	10	10	10
15	10	10	10	10	40	15	15	15	15
16	15	15	15	15	41	15	15	15	15
17	20	6	10	15					
18	20	20	12	12					
19	20	20	15	15					
20	10	10	10	10					
21	–	5	10	–					
22	15	15	15	15					
23	20	20	20	2					
24	20	20	10	10					
25	10	10	10	10					

JOB NO. DATE: PAGE:

SUMMARY of FIELD OBSERVATIONS DEFINITIONS

INTRODUCTION

Familiarity with the following definitions is necessary to the basic understanding of the oak tree ordinance, this tree report, and of the procedures used to evaluate the oak trees and the site conditions. There are numerous diseases and insects that frequently attack oak trees. A long discourse in plant pathology or entomology is not a prerequisite to develop a basic understanding of the effects of disease and insects upon living plant tissue. A basic knowledge of disease and insects should include an understanding of the following definitions:

FORM

1. **Tree Number** - each tree in the field (sizes within the existing ordinance) has been assigned a number, which corresponds to a tree location on the "Tree Location Map".

2. **Species** - is the type of tree that is being evaluated.

3. **Number of Trunks** - as measured in accordance to the ordinance existing at the time of evaluation.

4. **Diameter of Trunks** - as measured at 4½' above mean natural grade.

5. **Tree Height** - is the approximate height of each numbered, evaluated tree.

6. **Leaning** - is the direction the tree is inclined from the natural vertical position.

PHYSICAL CONDITION

1. **Trunk Cavity/Damage** - A **Cavity** is a hollow area in the trunk, usually due to wood decay. **Damage** is a damaged area on the trunk, usually due to an external force onto the tree.

2. **Exposed Roots** - roots exposed near tree; e.g. in creek bed.

3. **Exfoliating Bark** - the flaking off of bark from trunk, branches and/or twigs.

4. **Water Pocket** - pockets formed at branch crotches that can hold water and possibly weaken the tree's structure (possible hazard).

5. **Exudation** - the issuance or expelling of liquid, usually from wounds.

6. **Fruiting Bodies** - are the external signs (i.e. mushrooms, conks) of internal wood decay.

7. **Insect/Mite Damage** - is some form of damage to the parts of the tree caused by insects or mites (i.e. scale, caterpillars, weevils, borers, mites, etc.).

8. **Galls/Oak Pit Scale** - **Galls** are abnormal growth (tumors) on the tree, which may be caused by insects, mites, bacteria, etc. **Oak Pit Scale** has a severe weakening effect on the twigs, sometimes resulting in their death. When the scale settles on the twig, a swelling of the twig tissue occurs so that the insect, in effect, is in a pit, hence, the name.

9. **Fire Damage** - each tree is rated on the amount of burn it has received. These are:

Category	Percent of Tree Burned
Slight (S)	0% - 25%
Moderate (M)	26% - 75%
Heavy (H)	76% - 100%
Complete (C)	Burned to the ground

A. A check mark only, indicates a sign of past fire damage;
B. The trees with slight damage have an excellent chance of recovering to their original form. Trees with moderate damage have a good chance of recovery with alterations in form. Heavy percentage of burn on trees will significantly alter their form and lower their probability of survival to half;
C. The complete category are those trees which burned to the ground.

10. **Mainstem Dieback** - death of healthy mainstems from the growing tip back.

11. **Branch Cavities** - hollow areas in the trunk or limbs in the upper tree, usually due to the decay of wood.

12. **Weak Crotches** - poorly formed branch attachments.

13. **Twig/Branch Dieback** - death of unhealthy twigs from the growing tip back.

14. **Exocormic Growth** - excessive growth along main limbs, rather than on twigs.

15. **Thin Foliage** - defoliation and twig dieback throughout the canopy.

16. **Vigor** - is the capacity of a tree for growth and survival. Below are the ratings:

Good (G) - New tip growth; good leaf color; relatively smooth bark free from cracks/decay;
OK (OK) - Some new tip growth; medium leaf color; some dead wood; thinning crown;
Poor (P) - No new tip growth; poor leaf color; abnormal bark; much dead wood; heavily thinned crown.
A vigorous tree will more easily ward off disease and/or insect attacks, and should recover from impacts more quickly than a weak tree.

17. **Terrain** - refers to "lay" of the land where the tree is found.

18. **Potential Hazard** - any tree may be a hazard to humans, depending on its location and/or health.

RATINGS

1. The **Health** of the trees was visually determined from a macroscopic inspection of signs and symptoms of disease. The following describes our system:

A. **Outstanding** - A healthy and vigorous tree characteristic of its species and free of any visible signs of disease or pest infestation;
B. **Above Average** - A healthy and vigorous tree. However, there are minor visible signs of disease and pest infestation;
C. **Average** - Although healthy in overall appearance, there is a normal amount of disease and/or pest infestation;
D. **Below Average/Poor*** - This tree is characterized by exhibiting a greater degree of disease and/or pest infestation or structural instability than normal and appears to be in a state of decline. This tree also exhibits extensive signs of dieback;
E. **Dead*** - This tree exhibits no signs of life whatsoever at the time of field evaluation.
*A tree rating of "D" and lower is in a low stage of vigor and naturally a meaningful level of recovery is doubtful. Removal should be considered if it is within the proposed project development.

2. The **Aesthetic/Conformity** quality of the trees was visually determined from an overall inspection of appearance. The following describes our system:

A. **Outstanding** - The tree is visually symmetrical, having the ideal form & appearance for the species;
B. **Average** - The tree, though non-symmetrical, has an appealing form for the species with very little dieback of foliage or twigs/branches;
C. **Below Average** - The tree is non-symmetrical for the species with an unappealing form and/or has much dieback of foliage and twigs/branches;

D. **Poor** - The tree has few, if any, positive characteristics and may detract from the beauty of the landscape.

TREATMENT

1. **Remove Dead Wood** - if noticeable dead wood, making the tree unattractive, is within the canopy, it should be removed.
2. **Remove Wire, etc.** - if anything has been physically attached to the tree, it should be removed.
3. **Insect/Disease Treatment** - see TREE PRESERVATION PROGRAM within this report for explanation.
4. **Cable/Brace** - can extend the time the tree remains healthy, attractive and hazard free.
5. **None** - no treatment is recommended.
6. **Remove Tree** - if the tree can't be saved through any type of treatment, it should be removed.

REMARKS (Some other terms that may be used)

1. **Basal Growth** - is leaf growth generating from around base of trunk.
2. **Exposed Buttress Roots** - is when soil absent, either all or partial, at basal portion of tree.
3. **Heart Rot** - is decomposition of heartwood (the central portion of a twig/branch/trunk).
4. **Powdery Mildew** - are leaves that are covered by a white powdery growth generally when new growth becomes wet for long periods of time; leaves may be distorted, stunted and drop prematurely.
5. **Cankers** - are rough swellings with depressed centers resulting in death of tissue that later cracks open and exposes the wood underneath in twigs, branches, and/or trunks.
6. **Chlorotic Leaves** - leaf veins remain normally green, but the tissue between veins becomes yellow, which is usually caused by nutrient deficiencies.
7. **Mottling** - are leaves that have a variegated pattern of green and yellow.
8. **Defoliation** - is a premature leaf drop.
9. **Bark Beetle Frass** - are wood fragments mixed in the insect's excrement.
10. **Witches Broom** - is an abnormal growth cluster of twigs, which may be caused by insects, mites, fungus, etc.
11. **Mistletoe** - is a leafy evergreen perennial parasite with dark green leathery leaves.
12. **Crowded** - is a tree within the canopy of an adjacent tree or canopy.
13. **Shading Out** - is the defoliation and twig dieback inside the canopy due to the lack of sunlight.

TREE LOCATION MAP

WICKS ROAD

#12
#11
#10
#21
#20
#22
#18
#17
#16
#19
#13
#14
#15
#9
#7
#8
#2
#39
#23
#38
#1
#6
#37
#24
#40
#41
#36
#5
#25
#26
#4
#31
#27
#35
#3
#32
#28
#34
#33
#29
#30

ENTRANCE TO GARAGE
Office and Common (Lower Level) Type A Unit Dwelling Above
TRASH
ENTRANCE TO GARAGE
ENTRANCE TO GARAGE
TREE LOCATIONS

WALNUT CYN ROAD

EVERETT STREET

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

Tree Location Map

Everett Street Terraces Apartments

Moorpark, California

Prepared for:
John C.Chiu, FLPN
C/O:
John Newton & Associates Inc.

JOB #2270-01 October 10 2005

L. Newman Design Group, Inc.
■ Landscape Architecture
■ Planning
■ Horticulture
■ Biological Restoration
31300 Via Colinas ■ Suite 104
■ Westlake Village, CA 91362-3924
■ Phone: (818) 991-5056 ■ Fax: (818) 991-3478
■ E-mail: lndg @ lndg.net

Drawing: G:\Jobs\2200\2270-01\ACAD\PRELIMINARY\tree location map\2270-01_TreeMap.dwg
Layout: TREE PLAN
Oct 13, 2005, 11:39am

L. Newman
Design Group, Inc.

April 7, 2009

Mr. John W. Newton
John W. Newton & Associates, Inc.
5152 N. Commerce Ave.
Moorpark, CA 93021

RE: **Tree Report Addendum**, Everett Street Terrace Apartments
Moorpark, CA
LNDG Job# 2270-01

Dear Mr. Newton:

On April 2, 2009 I inspected the additional property on the west side of the project (see map) not addressed in the original report, dated October 6, 2005, in order to determine whether any protected trees are present. I took photographs of the site.

I found one mature tree on the site, a *Washingtonia robusta* (Mexican fan palm) adjacent to Wicks Road, north east of the intersection at Walnut Canyon Road. It is a healthy tree with a trunk diameter of 16 inches and a height of approximately 60 feet. According to our standard rating system (see original report) this palm tree is a "B" in health and a "B" aesthetically. The value of the tree was estimated, using the 9th Edition of the *Guide for Plant Evaluation,* to be $2,250. This tree must be removed due to the proposed grading and construction.

There are no other trees on this portion of the site that have protected status. In the same area as the palm tree (see map) there are two stumps of pepper trees that are not viable trees.

Respectfully submitted,

L. Newman Design Group, Inc.
ASLA California State License #1314

John Oblinger
Certified Arborist WE-6820A

Encl. photo

February 2, 2022

Everett Street Terraces

Removed tree mitigation upgrade replacement calculations

Approximately 107 trees will be upgraded as follows:

Upgrade (24) 36 inch box from 24 inch box
$650.00 - $300.00 = $350.00 upgrade x 24 = **$8,400.00**

Upgrade (11) 24 inch box from 15 gallon
$325.00 - $100.00 = $325.00 upgrade x 11 = **$2,475.00**

Upgrade (55) 36 inch box from 15 gallon
$650.00 - $100.00 = $550.00 upgrade x 24 = **$30,250.00**

Upgrade (6) 60 inch box from 36 inch box
$3,500.00 - $300.00 = $3,200.00 upgrade x 6 = **$19,200.00**

Upgrade (11) 72 inch box from 36 inch box
$6500.00 - $300.00 = $6,200.00 upgrade x 11 = **$68,200.00**

Tree upgrade summary total exceeds the existing tree removal value - $128,525.00

Existing tree removal value total per the Arborist tree report prepared by L. Newman Design Group, Inc. = $128,350.00

Tree Number	Species	Height ('05)	Height ('20)	DBH ('05)	DBH ('20)	Value ('15)	Quality ('15)	Quality ('20)	Rough Value ('20)*
1	Tipuana tipu	40	n/d	43	n/d	$0	Dead	Dead	$0
2	Tipuana tipu	40	n/d	19.5	n/d	$0	Dead	Dead	$0
3	Ulmus parvifolia	25	n/d	25.25	n/d	$0	Dead	Dead	$0
4	Schinus terebinthifolius	25	20	22	26.75	$3,100	C	C	$3,769
5	Eucalyptus rudis	60	50	35.75	46	$2,200	C	C	$2,831
6	Cupressus sempervirens	40	n/d	11	n/d	$0	Dead	Dead	$0
7	Citrus sp.	10	n/d	14.25	n/d	$0	Dead	Dead	$0
8	Citrus sp.	10	n/d	14.5	n/d	$0	Dead	Dead	$0
9	Pinus halepensis	40	n/d	25.75	n/d	$0	Dead	Dead	$0
10	Casuarina sp.	25	n/d	43	n/d	$3,900	C	Dead	$0
11	Casuarina sp.	25	n/d	41	n/d	$2,700	C	Dead	$0
12	Casuarina sp.	25	n/d	49	n/d	$3,200	C	Dead	$0
13	Schinus molle	30	30	25.25	30.5	$8,100	C	C	$9,784
14	Tipuana tipu	30	n/d	39.5	n/d	$0	Dead	Dead	$0
15	Tipuana tipu	30	n/d	12.75	n/d	$0	Dead	Dead	$0
16	Schinus molle	35	35	27.25	28.25	$4,700	C	C	$4,872
17	Schinus molle	35	28	15.75	17.25	$3,100	C	C	$3,395
18	Schinus molle	35	42	33.5	51.9	$12,127	C	D	$18,788
19	Schinus molle	40	30	34.5	36	$13,400	C	C	$13,983
20	Schinus molle	n/d	15	9.5	9.5	$1,192	C	C	$1,192
21	Schinus molle	20	20	9.5	9.5	$1,200	C	C	$1,200
22	Eucalyptus rudis	50	50	39.25	39.3	$1,700	B	C	$1,702
23	Schinus molle	40	38	26	48	$8,100	C	B	$14,954
24	Schinus molle	35	38	41.5	50.6	$18,729	C	B	$22,836
25	Pinus eldarica	25	n/d	14.75	n/d	$0	Dead	Dead	$0
26	Ligustrum lucidum	15	n/d	23.5	n/d	$0	Dead	Dead	$0
27	Ligustrum lucidum	15	n/d	14.75	n/d	$0	Dead	Dead	$0
28	Ligustrum lucidum	20	20	19.5	19.5	$0	Dead	C	$200
29	Ligustrum lucidum	20	20	35	35	$0	Dead	C	$300
30	Ligustrum lucidum	20	20	16	16	$0	Dead	C	$150
31	Pinus eldarica	50	n/d	21.5	n/d	$0	Dead	Dead	$0

32	Ligustrum lucidum	15	15	14.25	14.25	$137	D	D	$137
33	Ligustrum lucidum	15	15	21	21	$197	D	D	$197
34	Tipuana tipu	15	10	20.5	small	$0	Dead	Resproutir	$0
35	Tipuana tipu	20	n/d	17	n/d	$492	D	Dead	$0
36	Schinus molle	30	35	44.75	53	$12,127	C	B	$14,363
37	Schinus molle	30	39	25	29.6	$7,453	C	B	$8,824
38	Tipuana tipu	15	n/d	23	n/d	$0	Dead	Dead	$0
39	Tipuana tipu	15	n/d	29	n/d	$0	Dead	Dead	$0
40	Pinus eldarica	55	n/d	29	n/d	$0	Dead	Dead	$0
41	Pinus eldarica	40	n/d	16	n/d	$0	Dead	Dead	$0
42	Eucalyptus rudis	n/d	n/d	n/d	14	$207	B	C	$200
43	Scinus molle	n/d	9	n/d	21	$0	Small	C	$4,500
44		n/d	n/d	n/d	n/d	$0	Small	Dead	$0
45		n/d	n/d	n/d	n/d	$0	Dead	Dead	$0
46		n/d	n/d	n/d	n/d	$0	Dead	Dead	$0
47		n/d	n/d	n/d	n/d	$0	Small	Dead	$0
48	Casuarina sp.	n/d	20	n/d	33	$1,088	C	C	$2,000
49	Casuarina sp.	n/d	28	n/d	73	$4,015	C	D	$4,500
50		n/d	n/d	n/d	n/d	$1,051	C	Dead	$0
51		n/d	n/d	n/d	n/d	$1,643	C	Dead	$0
52	Pinus eldarica	n/d	25	n/d	17	$1,717	C	C	$2,000
53	Casuarina sp.	n/d	30	n/d	46	$2,957	C	C	$3,200
						$120,532			$139,877

Difference: **$19,345**

*The Rough Value as estimated in 2020 does not include a valuation based on the current ISA standards, does not account for inflation, or the current cost of replacement trees. Rather this value simply represents a strict increase based on DBH increases from 2005 to 2020.

APPENDIX D – CULTURAL RESOURCES LETTER REPORT

CULTURAL RESOURCES RECORDS SEARCH AND LITURATURE REVIEW RESULTS LETTER REPORT FOR THE EVERETT STREET TERRACES PROJECT

City of Moorpark

February 7, 2022
9620 Chesapeake Drive, Suite 202
San Diego, CA 92123
(21257)

Shanna Farley-Judkins, Principal Planner
Community Development Department
City of Moorpark
799 Moorpark Avenue
Moorpark, CA 93021

Subject: Everett Street Terraces Project Cultural Resources Records Search and Literature Review Results Letter Report

Dear Ms. Farley-Judkins,

Chambers Group, Inc. (Chambers Group) is providing this Letter Report for the cultural resources records search and literature review to City of Moorpark in support of the Everett Street Terraces Project (Project, Proposed Project) in the City of Moorpark, Ventura County, California. This assessment included a cultural resources records search and literature review for the Project site and study area (Figure 1). The purpose of the review was to gather and analyze information needed to assess the potential for impacts to cultural resources within the Proposed Project area.

Project Description

Newton and Associates (Applicant) proposes the construction of a 60-unit residential condominium complex consisting of two- and three-bedroom units on an approximately 2.438-acre vacant parcel located at the northern intersection of Everett Street and Walnut Canyon Road in the City of Moorpark (City), Ventura County (County). The two-bedroom units will range from approximately 1,081 square feet to 1,167 square feet, and the three-bedroom units will range from approximately 1,497 square feet to 1,586 square feet. Onsite amenities will include an outdoor playground, a changing room, swimming pool and spa, outdoor barbeque grill, outdoor covered parking, a lobby, an office, and private garages. Approximately 52 percent of the property will be covered by structures, and approximately 3 percent will be covered by surface parking.

The City of Moorpark is the lead agency for the Proposed Project. An Initial Study has been prepared in accordance with the California Environmental Quality Act (CEQA) (Public Resources Code [PRC] §21000 et seq.) and the State CEQA Guidelines (Title 14, California Code of Regulations [CCR] §15000 et seq.) and has determined that preparation of a Mitigated Negative Declaration would be appropriate under CEQA.

Location and Setting

The Project site is located at the northeast corner of Everett Street and Walnut Canyon Road (Assessor's Parcel Number (APN) 512-006-131, 512-006-132, 512-006-106, 512-006-105, and 512-006-121). Walnut Canyon Road becomes Moorpark Avenue as it passes south of Everett Street, and the Project site is bounded by Wicks Road to the north and Walnut Canyon Road to the west. The Project site is approximately 0.6 mile north of Los Angeles Avenue, which becomes California State Route 118 going east, and approximately 1 mile west of State Route 23/Moorpark Freeway. The Project site is approximately 45 miles east of the Pacific Ocean.

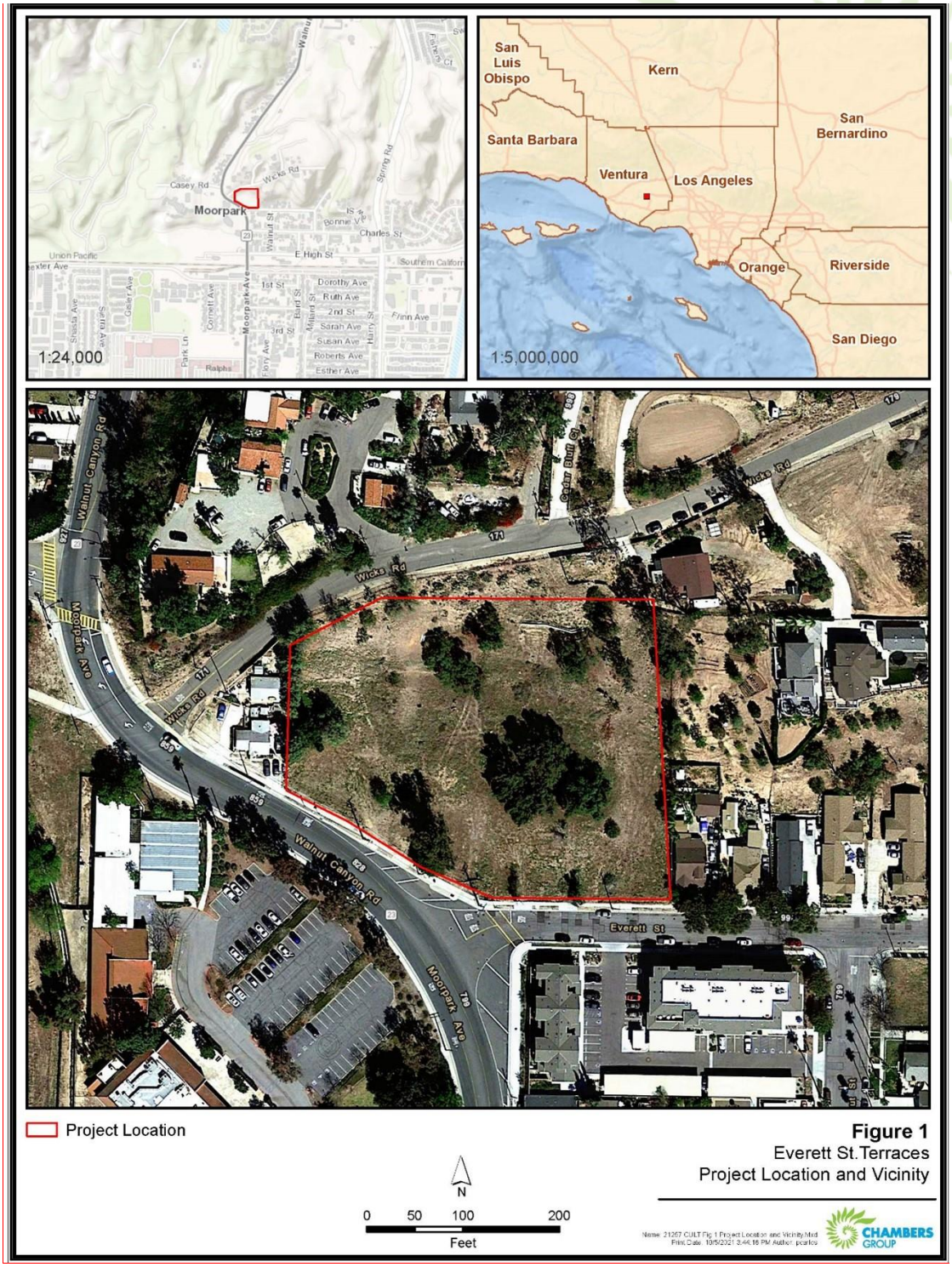


Figure 1: Project Location

Regulatory Context

As the lead agency for the Proposed Project, the City of Moorpark must comply with the provisions of CEQA, which requires a lead agency to determine whether a project may have a significant effect on historical resources (PRC Section 21084.1). In addition to State regulations, projects built in the City of Moorpark are also subject to a number of local regulations relating to historical resources. Chapter 15.36 of the Moorpark Municipal Code pertains specifically to historic preservation within the city. The regulatory framework as it pertains to cultural resources under CEQA has been detailed below.

Under the provisions of CEQA, including the CEQA Statutes (PRC §§ 21083.2 and 21084.1), the CEQA Guidelines (Title 14 CCR § 15064.5), and PRC § 5024.1 (Title 14 CCR § 4850 et seq.), properties expected to be directly or indirectly affected by a proposed project must be evaluated for eligibility for listing in the California Register of Historical Resources (CRHR, PRC § 5024.1).

The purpose of the CRHR is to maintain listings of the State's historical resources and to indicate which properties are to be protected, to the extent prudent and feasible, from material impairment and substantial adverse change. The term *historical resources* includes a resource listed in or determined to be eligible for listing in the CRHR; a resource included in a local register of historical resources; and any object, building, structure, site, area, place, record, or manuscript that a lead agency determines to be historically significant (CCR § 15064.5[a]). The criteria for listing properties in the CRHR were expressly developed in accordance with previously established criteria developed for listing in the National Register of Historic Places (NRHP). The California Office of Historic Preservation (OHP 1995:2) regards "any physical evidence of human activities over 45 years old" as meriting recordation and evaluation.

California Register of Historic Resources

A cultural resource is considered "historically significant" under CEQA if the resource meets one or more of the criteria for listing in the CRHR. The CRHR was designed to be used by State and local agencies, private groups, and citizens to identify existing cultural resources within the state and to indicate which of those resources should be protected, to the extent prudent and feasible, from substantial adverse change. The following criteria have been established for the CRHR. A resource is considered significant if it:

1. is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;
2. is associated with the lives of persons important in our past;
3. embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or
4. has yielded, or may be likely to yield, information important in prehistory or history.

In addition to meeting one or more of the above criteria, historical resources eligible for listing in the CRHR must retain enough of their historic character or appearance to be able to convey the reasons for their significance. Such integrity is evaluated in regard to the retention of location, design, setting, materials, workmanship, feeling, and association.

Under CEQA, if an archeological site is not a historical resource but meets the definition of a "unique archeological resource" as defined in PRC § 21083.2, then it should be treated in accordance with the provisions of that section. A *unique archaeological resource* is defined as follows:

- An archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:
    - Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information
    - Has a special and particular quality, such as being the oldest of its type or the best available example of its type

- Is directly associated with a scientifically recognized important prehistoric or historic event or person

Resources that neither meet any of these criteria for listing in the CRHR nor qualify as a "unique archaeological resource" under CEQA PRC § 21083.2 are viewed as not significant. Under CEQA, "A non-unique archaeological resource need be given no further consideration, other than the simple recording of its existence by the lead agency if it so elects" (PRC § 21083.2[h]).

Impacts that adversely alter the significance of a resource listed in or eligible for listing in the CRHR are considered a significant effect on the environment. Impacts to historical resources from a proposed project are thus considered significant if the project:

(1) physically destroys or damages all or part of a resource;

(2) changes the character of the use of the resource or physical feature within the setting of the resource, which contributes to its significance; or

(3) introduces visual, atmospheric, or audible elements that diminish the integrity of significant features of the resource.

Assembly Bill 52

Assembly Bill (AB) 52 was enacted in 2015 and expands CEQA by defining a new resource category: tribal cultural resources. AB 52 establishes that "a project with an effect that may cause a substantial adverse change in the significance of a tribal cultural resource is a project that may have a significant effect on the environment" (PRC Section 21084.2). AB 52 also establishes a formal consultation process for California tribes regarding those resources. The consultation process must be completed before a CEQA document can be certified. AB 52 requires that lead agencies "begin consultation with a California Native American tribe that is traditionally and culturally affiliated with the geographic area of the proposed project." Native American tribes to be included in the process are those that have requested notice of projects proposed in the jurisdiction of the lead agency. It further states that the lead agency shall establish measures to avoid impacts that would alter the significant characteristics of a tribal cultural resource, when feasible (PRC Section 21084.3). PRC Section 21074 (a)(1)(A) and (B) defines tribal cultural resources as "sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe" and meets either of the following criteria:

- Listed or eligible for listing in the CRHR, or in a local register of historical resources as defined in PRC Section 5020.1(k)
- A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of PRC Section 5024.1 (in applying the criteria set forth in subdivision (c) of PRC Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe)

Local

In addition to State regulations, projects built in the City of Moorpark are also subject to a number of local regulations relating to historical resources. Chapter 15.36 of the Moorpark Municipal Code pertains specifically to historic preservation within the city. Cited in Section 15.36.010 of the Municipal Code, its purpose is as follows:

To provide for the identification, protection, enhancement, perpetuation and use of historic landmarks within the city that reflects special elements of the city's historical heritage and to promote the general welfare by:

A. Encouraging public knowledge, understanding, and appreciation of the city's past

B. Fostering civic pride in the beauty and personality of the city and in the accomplishments of the city's past

C. Safeguarding the heritage of the city by protecting landmarks that reflect the city's history

D. Protecting and enhancing property values within the city and increasing economic and financial benefits to the city and its inhabitant

E. Identifying as early as possible and resolving conflicts between the preservation of historical landmarks and alternative land uses

F. Preserving historic building materials through maintenance and restoration of existing historical landmarks

G. Taking whatever steps are reasonable and necessary to safeguard the property rights of the owners whose building or structure is declared to be a landmark

H. Promoting the use of landmarks for the education and enjoyment of the people of the city

I. Promoting awareness of the economic benefits of historic preservation (Moorpark Municipal Code Section 15.36.10 1994)

The City ordinance also establishes the procedure for the designation of cultural resources in Moorpark. The criteria for the designation of a landmark are as follows:

A building, site, tree or structure may be designated as a landmark if it is found that the proposed landmark meets one or more of the following criteria:

1. It is associated with persons or events significant in local, state, or national history.
2. It reflects or exemplifies a particular period of national, state, or local history.
3. It embodies the distinctive characteristics of a type, style or period of architecture or of a method of construction.
4. It is strongly identified with a person or persons who significantly contributed to the culture, history, or development of the area.
5. It is one of the few remaining examples in the area possessing distinguishing characteristics of an architectural type of specimen.
6. It is a notable work of an architect or master builder whose individual work has significantly influenced the development of the area.
7. It embodies elements of architectural design, detail, materials or craftsmanship that represents a significant architectural innovation.
8. It has a unique location or singular physical characteristics representing an established and familiar visual feature of a neighborhood, community or the area.
9. It has unique design or detailing.
10. It is a particularly good example of a period of style.
11. It contributes to the historical or scenic heritage or historical or scenic properties of the area (to include, but not limited to landscaping, light standards, trees, curbing, and signs). (Moorpark Municipal Code Section 15.36.060 1994)

The City of Moorpark has additional legislated goals and policies outlined in the City's General Plan Land Use Element to promote balanced city growth pattern and land use compatibility, maintain the city's suburban/rural character, revitalize the downtown area, preserve important natural features and biological and cultural resources, and require that overall intensity and density of land use decreases away from the valley floor.

GOAL 6: Encourage the use of Specific Plans in the undeveloped areas of the community.

Policy 6.5: The land use plan shall include adequate land for public recreational, cultural, educational, institutional (governmental, police, fire, etc.), religious and other service uses for the community.

GOAL 15: Maintain a high quality environment that contributes to and enhances the quality of life and protects public health, safety and welfare.

Policy 15.3: Natural and cultural resources having significant educational, scientific, scenic, recreational or social value shall be protected and preserved.

GOAL 17: Enhance the physical and visual image of the community.

Policy 17.11: The City shall cooperate with the County of Ventura Cultural Heritage Board to identify and inventory, and preserve Moorpark's historical resources.

Finally, historic trees are addressed in Title 12 of the City of Moorpark Municipal Code. More specifically, Chapter 12.12.060, Tree Preservation Guidelines, provides instruction that pertains to the preservation of trees. These guidelines are provided below and should be adhered to throughout the construction of the proposed project to ensure protection of the historic trees.

a. Initial project layout, design, and grading shall recognize the desirability of preserving native oak trees, historic trees, or mature trees with appropriate modifications and adjustments to accommodate preservation and maintenance by locating the best candidates in areas where preservation is feasible. Design of the grading and other improvements shall reflect consideration of the following safeguards:
    1. Location in minimum growing areas as required by individual species
    2. No disruption or removal of structural feeder roots
    3. Fencing of trees at or beyond their driplines during grading and construction activities
    4. No filling, cutting, development, or compaction of soils within the dripline
    5. Such other measures required by the species of tree to be preserved as recommended by the consulting arborist, horticulturist, or landscape architect
b. It is recognized that the complete preservation of healthy trees may sometimes conflict with normal land developmental considerations such as proper drainage, grading, circulation, safety, and provision of utilities. Within a given development, it may not be practical to preserve all healthy trees; and, therefore, the City and the developer must be willing to compromise the goal of complete tree preservation in order to address other public safety and design concerns. In such instances, the design of the development must address preservation of the most desirable and significant of the healthy trees; and the developer is encouraged to utilize creative land planning techniques to achieve this end.
c. The planning commission of the City, when reviewing development plans, shall determine the adequacy and appropriateness of the proposed preservation plan.
d. Following approval of such a development, the developer shall submit grading, improvement, and precise landscaping plans detailing the approved preservation plan. Such plans shall be approved by the city engineer and/or the director of community development, as appropriate. Prior to use inauguration, the preserved trees shall be trimmed for balance, structural integrity, and ornamental appearance and treated for any diseases.

e. The precise vertical and horizontal locations plus or minus 1 foot of all mature trees shall be shown on an exhibit as part of the initial application for any project unless that project would involve no exterior construction activities (Ord. 101 § 1, 1988).

Cultural Setting

Prehistoric Overview

During the twentieth century, many archaeologists developed chronological sequences to explain prehistoric cultural changes within all or portions of Southern California (Moratto 1984; Jones and Klar 2007). A prehistoric chronology was devised for the Southern California coastal region based on early studies and focused on data synthesis that included four horizons: Early Man, Milling Stone, Intermediate, and Late Prehistoric (Wallace 1955, 1978). Though initially lacking the chronological precision of absolute dates (Moratto 1984:159), Wallace's 1955 synthesis has been modified and improved using thousands of radiocarbon dates obtained by Southern California researchers over recent decades (Byrd and Raab 2007:217; Koerper and Drover 1983; Koerper et al. 2002). The prehistoric chronological sequence for Southern California presented below is a composite based on Wallace (1955) and Warren (1968) as well as later studies, including Koerper and Drover (1983).

Ethnographic Overview

The Project site lies within a transitional area historically occupied by the Ventureño Chumash, so called after their historic-period association with Mission San Buenaventura (Grant 1978) and the Tataviam or Fernandeño named after their association with the Mission San Fernando.

Chumash

The Chumash spoke six closely related Chumashan languages, which have been divided into three branches—Northern Chumash (consisting only of Obispeño), Central Chumash (consisting of Purisimeño, Ineseño, Barbareño, and Ventureño), and Island Chumash (Jones and Klar 2007:80). Groups neighboring Chumash territory included the Salinan to the north, the Southern Valley Yokuts and Tataviam to the east, and the Gabrielino (Tongva) to the south.

Tatavium

The Tataviam were not well documented by early ethnographers; however, researchers today generally agree that the Tataviam spoke a Uto-Aztecan language, most likely a Takic language (Hudson 1982). Tataviam territory included the upper Santa Clara River from Piru Creek eastward, extending over the Sawmill Mountains to the southwest edge of the Antelope Valley (King and Blackburn 1978). Their territory was bounded on the west and north by various Chumash groups; on the south by the Tongva (Gabrielino and Fernandeño, though some Tataviam were also identified as Fernandeño because of their association with Mission San Fernando); and to the east by the Kitanemuk and Serrano.

Historic Overview

Post-European contact history for the state of California is generally divided into three periods: the Spanish Period (1769–1822), the Mexican Period (1822–1848), and the American Period (1848– present). Briefly, and in very general terms, the Spanish Period encompassed the earliest historic-period explorations of the West, colonization, missionization and proselytization across the western frontier, the establishment of major centers such as Los Angeles and Monterey and a line of missions and presidios with attendant satellite communities, minor prospecting, and a foundational economic structure based on the rancho system. The Mexican Period initiated with a continuation of the same structures; however, commensurate with the political changes that led to the establishment of the Mexican state the missions and presidios were secularized, the lands parceled, and Indian laborers released. Increased global trade introduced both foreign and American actors into the Mexican economic and political sphere, and both coincidentally, and purposefully, smoothing the transition to the American Period. The American Period was ushered in with a momentous influx of people seeking fortune in the Sierra foothills where gold was "discovered" in 1848. By the early 1850s people from all over the globe had made their way to California. Expansive industries were required to supply the early mining operations, such as forestry products, food networks such as grains, poultry, cattle, water systems, which intensified the early Mexican Period systems of ranches and supply chains, as well as the development and

expansion of port cities to supply hard goods and clothes, animals, and people along improved trail and road networks. California cycled through boom and bust for several decade until World War I when the Department of the Navy began porting war ships along the west coast. Subsequently, California has grown, and contracted, predominantly around military policy along the west coast, and the Pacific Ocean. Following the industrial expansion related to World War II and the Cold War, technology and systems associated have come to fore as economic drivers.

City of Moorpark

The area that encompasses the current-day City of Moorpark was historically part of the 113,000-acre Rancho San José de Nuestra Senora de Altagracia y Simi (commonly known as Rancho Simi) which was granted by Governor Diego de Borica to Javier, Patricio, and Miguel Pico in 1795. Rancho Simi remained rural in the decades after its granting, primarily utilized for the grazing of cattle. A road was established through the Simi Valley to accommodate overland mail delivery in 1861, largely following an extant Chumash trail. The road created a viable access route for wagon transport in an area previously inaccessible to such travel, allowing further development of the region (Appleton 2009).

Rancho Simi ownership was transferred several times including an acquisition by the Philadelphia and California Petroleum Company for the exploration of oil. However, Rancho Simi was eventually subdivided and sold by 1887, after oil extraction failed to produce sufficient quantities. Robert W. Poindexter, secretary of the Simi Land and Water Company, eventually purchased the land which became Moorpark.

In 1900, Poindexter founded the town of Moorpark with the anticipation of the Southern Pacific Railroad reaching the area. The community was named for the Moorpark apricot, which grew successfully throughout the Simi Valley region (City of Moorpark 2015). Following the arrival of the railroad, the Moorpark area continued to grow and develop. The economy continued to be based in agriculture, primarily apricots. The railroad allowed for an increase in profitability with the associated expanded network for exporting goods. As large-scale agricultural irrigation methods became more sophisticated, the variety of crops being produced increased to include citrus and walnuts (Winters 2016).

Arriving in Simi Valley in the 1920s, the poultry industry also made significant contributions to shaping the economy and character of Moorpark (LA Times 1990, 1992). However, agriculture continued to characterize Moorpark throughout the World War II years. Consistent with trends throughout Southern California following the Second World War, the Simi Valley region saw an increase in large scale suburban development of areas that were formerly agricultural lands. This trend impacted Moorpark, although less so than in other areas in the region The town of Moorpark became a city when it was incorporated on July 1, 1983 (Moorpark Historical Society 2021).

Methods of Review

Chambers Group requested a records search from the California Historical Resources Information System (CHRIS) South-Central Coastal Information Center (SCCIC) at California State University, Fullerton on October 1, 2021. The SCCIC returned the records search results on November 17, 2021, providing information on all documented cultural resources and previous archaeological investigations within one mile of the Project site. A one-mile study area was requested to provide additional context to the Project site and surrounding area and more information on which to base this review. Resources consulted during the records search conducted by the SCCIC included the NRHP, California Historical Landmarks (CHL), California Points of Historical Interest (CPHI), Caltrans Historic Highway Bridge Inventory, the California State Historic Resources Inventory, local registries of historic properties, and a review of available Sanborn Fire Insurance maps as well as historic photographs, maps, and aerial imagery. The task also included a search for potential prehistoric and/or historic burials (human remains) evident in previous site records and/or historical maps. In addition, Chambers Group submitted a request to the Native American Heritage Commission (NAHC) for a review of the Sacred Land Files (SLF) for the Project site and surrounding vicinity. Results of the records search and additional research are detailed below and included in Attachment B.

Cultural Resources Reports within the Study Area

Based on the records search conducted by the SCCIC, 65 cultural resource studies have previously been completed within the one-mile records search radius. Table 1 provides further details of these 65 studies. Of these 65 reports, two are located within the Project site (i.e., VN-01102, VN-01680). These projects are bolded and italicized in the table.

Table 1: Previous Cultural Resources Studies within the One-Mile Study Area

Report Number	Year	Author	Title	Resources	Within Project Boundary?
VN-00021	1975	Rosen, Martin D.	Evaluation of the Archaeological Resources and Potential Impact of Routes 118 and 23 Interchange Construction, Ventura County	56-000225, 56-000227	No
VN-00112	1978	Desautels, Roger J.	Archaeological Survey Report on a 600+/- Acre Parcel of Land Located in the Moorpark Area of the County of Ventura, California		No
VN-00129	1978	Meighan, Clement W.	Archaeological and Historical Survey of Tracts 2451 and 2748, Ventura County Near Moorpark.		No
VN-00191	1979	Lopez, Robert	An Archaeological Reconnaissance of Korwasser Estates, Tract 3271, Moorpark, Ventura County, California (M-2774.3).		No
VN-00213	1979	Lopez, Robert	Archaeological Assessment for Pm-3192 Moorpark, Ventura County California.		No
VN-00233	1979	Lopez, Robert	Archaeological Assessment for Pm-3244 Moorpark, Ventura County California 93003.		No
VN-00235	1980	Lopez, Robert	An Archaeological Reconnaissance of the 89 Acre Involved in Tentative Tract 3387 Moorpark, Ventura County, California	56-000671, 56-000672	No
VN-00291	1980	Lopez, Robert	An Archaeological Reconnaissance of the 850 Acres Involved in the Moorpark Mountain Meadows Development, Ventura County, California.		No
VN-00322	1979	Lopez, Robert	An Archaeological Reconnaissance of 230+- Acres of Tentative Tract No. 3218, Moorpark, Ventura County, California.		No
VN-00399	1981	Singer, Clay A.	Cultural Resource Survey and Impact Assessment for Tentative Tract No.		No

Table 1: Previous Cultural Resources Studies within the One-Mile Study Area

Report Number	Year	Author	Title	Resources	Within Project Boundary?
			3319 in Moorpark, Ventura County, California.		
VN-00500	1986	Wlodarski, Robert J. and John F. Romani	Archaeological Survey Report for the Ven 23/118 Freeway to Freeway Connection Near Moorpark, Ventura County, California	56-000225, 56-000227, 56-000786	No
VN-00549	1979	Callison, Sheila	Cultural Resource Survey for CUP 3600		No
VN-00551	1979	Callison, Sheila	Survey Data Sheet: PM-3434		No
VN-00557	1980	Callison, Sheila	Cultural Resource Survey for PM-3496		No
VN-00558	1979	Callison, Sheila	Cultural Resources Survey for PM-3408		No
VN-00572	1988	Dames and Moore	Phase 1 Cultural Resources Survey Fiber Optic Cable Project, Burbank to Santa Barbara, California for US Sprint Communications Company	56-000027, 56-000196, 56-000202, 56-000240, 56-000241, 56-000341, 56-000342, 56-000550, 56-000643, 56-000644, 56-000655, 56-000729, 56-000789, 56-000895, 56-000896, 56-000916, 56-000917, 56-000918	No
VN-00575	1988	Lopez, Robert	An Archaeological Reconnaissance of the Areas Involved in the Proposed Swepi Well Locations and Pipeline Routes Oxnard Plain, Ventura County, California	56-000631, 56-000665, 56-000666	No
VN-00607	1977	Lopez, Robert	An Archaeological Survey of 2500 Acres for a Proposed Oil Exploration Project by Neaves Petroleum Developments in the Vicinity of Moorpark, Ventura County, California		No
VN-00821	1990	Romani, Gwendolyn R.	Archaeological Investigation: 538 Los Angeles Avenue, Moorpark, Ventura County		No
VN-00937	1990	Simon, Joseph M.	Phase 1 Archaeological Survey of a 7.51 Acres Parcel for the Moorpark Country Inn, City of Moorpark, Ventura County, California		No
VN-00944	1967	Boyer, Jackie	Field Project UCAS-107		No
VN-01019	1979	Callison, Sheila	Cultural Resources Survey Of: TR-2723		No
VN-01102	***1977***	***Singer, Clay A.***	***Preliminary Cultural Resource Survey and Potential Impact Assessment for***	***56-000003, 56-000004, 56-000005, 56-000013,***	***Yes***

Table 1: Previous Cultural Resources Studies within the One-Mile Study Area

Report Number	Year	Author	Title	Resources	Within Project Boundary?
			Thirteen Areas in Southern Ventura County, California	***56-000014, 56-000031, 56-000032, 56-000033, 56-000075, 56-000076, 56-000077, 56-000087, 56-000135, 56-000136, 56-000137, 56-000138, 56-000140, 56-000142, 56-000148, 56-000149, 56-000150, 56-000158, 56-000163, 56-000164, 56-000165, 56-000458, 56-000478, 56-000479, 56-000481, 56-000490***	
VN-01107	1976	Singer, Clay A.	Cultural Resource Survey and Assessment of Potential Impacts for Tentative Tract No. 2632, in Unincorporated Territory Near the Community of Moorpark, Ventura County, California.		No
VN-01150	1992	Gerber, Joyce	The Results of a Phase 1 Field Survey for a Proposed Channel Widening Project Located Along Arroyo Simi, Ventura County, California		No
VN-01153	1991	Peak and Associates, Inc.	Class 3 Cultural Resource Assessment of the Proposed Carpinteria and Southern Reroutes, Santa Barbara, Ventura, and Los Angeles Counties, California	56-001089	No
VN-01265	1992	Reed, L.W.	Consolidated Report: Cultural Resources Studies for the Proposed Pacific Pipeline Project	19-000007, 19-000021, 19-000034, 19-000089, 19-000251, 19-000357, 19-000385, 19-000389, 19-000390, 19-000407, 19-000409, 19-000668, 19-000781, 19-000830, 19-000887, 19-000901, 19-000963, 19-001097, 19-001112, 19-001124, 19-001575, 19-001620	No
VN-01274	1993	Whitley, David S. and Joseph M. Simon	Phase I Archaeological Survey and Cultural Resources Assessment for the Moorpark Golf Course Project, Ventura County, California		No

Table 1: Previous Cultural Resources Studies within the One-Mile Study Area

Report Number	Year	Author	Title	Resources	Within Project Boundary?
VN-01329	1994	Whitley, David S. and Joseph M. Simon	Phase 1 Archaeological Survey and Cultural Resources Assessment for the Levy Specific Plan Study Area, Ventura County, California		No
VN-01377	1995	Knell, Edward J.	Cultural Resource Reconnaissance of Moorpark Specific Plan #2 - EIR, Moorpark, Ventura County, California	56-001264, 56-001265, 56-001266, 56-001267, 56-001268, 56-001269, 56-001270, 56-100048, 56-100049, 56-100050	No
VN-01471	1996	Lopez, Robert	An Archaeological Reconnaissance of the Area Involved in Parcel Map No. 5056 Within the Incorporated Limits of the City of Moorpark, Ventura County		No
VN-01548	1997	Anonymous	Phase 1 Archaeological Survey and Cultural Resources Assessment for the Moorpark Street Improvements Project Study Area, Ventura County, California		No
VN-01571	1997	Drover, Christopher E.	Environmental Impact Evaluation: A Cultural Resources Impact Assessment for Security Capital Pacific Trust		No
VN-01589	1977	Lopez, Robert	Archaeological Survey of a Proposed New Well Site Within the Area of the Winchester Development in the Vicinity of Moorpark, Ventura County, Ca.		No
VN-01619	1998	Unknown	Phase I Archaeological Survey and Cultural Resources Assessment of the Burnette Property, Moorpark, Ventura County, California		No
VN-01656	1998	Horne, Stephen	Report of Phase I Archaeological Investigation Westpointe Moorpark Project Tentative Tract No. 4620 Moorpark, California	56-001573	No
VN-01680	***1998***	***Maxon, Patrick O.***	***Archaeological Test Excavation of CA-VEN-1574 on the Suncal Development, Tentative Tract 5130, Moorpark, Ventura County, California***	***56-001574***	***Yes***

Table 1: Previous Cultural Resources Studies within the One-Mile Study Area

Report Number	Year	Author	Title	Resources	Within Project Boundary?
VN-01933	1986		Historic Property Survey, 07-VEN-118, P.M. M18.2/R20.5, Route 23/Route 118, Moorpark, Ventura Co	56-000786, 56-152750, 56-152751, 56-152752, 56-152753, 56-152754, 56-153120, 56-153121, 56-153122, 56-153123, 56-153124, 56-153125, 56-153126, 56-153127, 56-153128, 56-153129, 56-153130, 56-153131, 56-153132	No
VN-02052	2000	Whitley, David S. and Joseph Simms	Phase I Archaeological Survey of the Gisler Fields Project Study Area, Moorpark, Ventura County, California		No
VN-02053	1999	Whitley, David S. and Joseph Simms	Phase I Archaeological Survey of the Charles Street Affordable Housing Project Study Area, Moorpark, Ventura County, California		No
VN-02311	2005	Bonner, Wayne H.	Cultural Resource Records Search and Site Visit Results for Cingular Telecommunications Facility Candidate VY-197-01 (VN-058-01) Ventura Water Works, 7150-1/2 Walnut Canyon Road, Moorpark, Ventura County, California		No
VN-02314	2003	Whitley, David S. and Joseph M. Simon	Phase I Archaeological Survey of Hitch Ranch, Moorpark, Ventura County, California		No
VN-02315	2003	Whitley, David S. and Joseph M. Simon	Phase I Archaeological Survey of a 15-Acre Study Area in Moorpark, Ventura County, California		No
VN-02320	2004	Stone, David	Phase 1 Archaeological Resources Report, Birkenshaw Site, 251 Moorpark Avenue, Moorpark, California		No
VN-02325	2002	Bonner, Wayne H.	Phase I Archaeological Field Survey for Cingular Wireless Site VY-197-03 (El Ranchito), 13931 E. Los Angeles Ave., Moorpark, Ventura County, California	56-001266, 56-100048, 56-100049	No
VN-02345	2004	Whitley, David S.	Limited Archaeological Testing at Sites CA-VEN-1265h, -1267H and -1269H, Moorpark Highlands, Moorpark, Ventura County, California	56-001265, 56-001267, 56-001269	No

Table 1: Previous Cultural Resources Studies within the One-Mile Study Area

Report Number	Year	Author	Title	Resources	Within Project Boundary?
VN-02386	2006	Jordon, Stacey C. and Patterson, Joshua D.	Archaeological Survey Report for the Southern California Edison Company Replacement of 71 Deteriorated Poles on the Patricia 16kV, Thacher 16kV, Matilda 16kV, Tico 16kV, Seaquit 4kV, Maguire 16kV, Galahad 16kV, Brennan B4 16kV Strathern 16kV, Gabbert B2	19-001041, 19-001402, 19-002075, 19-002076, 19-120027, 56-000137, 56-000140, 56-000192, 56-000193, 56-001109, 56-001265, 56-001266, 56-100048, 56-100049, 56-152750	No
VN-02390	2006	Jordan, Stacey C. and Patterson, Joshua D.	Archaeological Survey Report for the Southern California Edison Company Replacement of 30 Deteriorated Poles Private and Public Inholdings, Ventura, Los Angeles, and Santa Barbara Counties, California	19-000729, 19-000730, 19-000731, 19-001266, 56-000141, 56-000550, 56-000562, 56-000901, 56-000902, 56-000980, 56-001110, 56-001124, 56-001125	No
VN-02504	2006	Arrington, Cindy and Nancy Sikes	Cultural Resources Final Report of Monitoring and Findings for the Qwest Network Construction Project State of California: Volumes I and II		No
VN-02521	2007	Schmidt, James J.	Dwo 6335-6792; AI 6-1190: Essex Properties Overhead Relocation Project, Moorpark Area, Ventura County.		No
VN-02741	2009	Schmidt, June	Strathern 16kV Deteriorated Pole Replacement Project, Ventura County, California		No
VN-02745	2009	Wlodarski, Robert J.	A Phase I Archaeological Study for the Charles Street Affordable House Project Located at 396-408-428 Charles Street, APN# 512-0-081-020, -030, -040, City of Moorpark, County of Ventura, California	56-000791, 56-001265, 56-001266, 56-001267, 56-001268, 56-001269, 56-001270, 56-001574	No
VN-02796	2009	Schmidt, June A.	Moorpark-Shelline-Valdez 66kV New Pole Installation/ Old Pole Removal and WO 6039-4800; 9-4857 Deteriorated Pole Replacements, Various Distribution Circuits, Ventura County, California	56-000031, 56-000032, 56-000033, 56-000034, 56-000201, 56-000241, 56-152746, 56-152747, 56-152748	No

Table 1: Previous Cultural Resources Studies within the One-Mile Study Area

Report Number	Year	Author	Title	Resources	Within Project Boundary?
VN-02847	2006	Jordan, Stacey C. and Joshua D. Patterson	Archaeological Survey Report for the Southern California Edison Company Replacement of Seven Deteriorated Poles on the Morganstein 16 kV, Strathern 16 kV, and Brennan 16kV Circuits, Private Inholdings in Ventura County, California	56-000901, 56-000902, 56-000980	No
VN-02852	2004	Whitley, David S.	Phase I Archaeological Survey for TTM 5505, Moorpark, Ventura County, California	56-000671, 56-000791, 56-001264, 56-001270, 56-001573, 56-001574	No
VN-02853	2003	Whitley, David S.	Phase I Archaeological Survey for the Moorpark Human Services Complex, Moorpark, Ventura County, California		No
VN-02872	2009	Fortier, Jana	TEA-21 Rural Roadside Inventory: Native American Consultants and Ethnographic Study for Caltrans District 7, Ventura County		No
VN-02881	2001	Sylvia, Barbara	(also LA10613) Negative Archaeological Survey Report - State Route 118 from New Los Angeles Avenue to Iverson Road	19-000851, 19-150424, 19-150425, 56-000066, 56-000075, 56-000076, 56-000077, 56-000227, 56-000344, 56-000345, 56-000612, 56-000615, 56-000616, 56-000643, 56-000674, 56-000690, 56-000691, 56-001591, 56-100048, 56-100049, 56-100120, 56-152750	No
VN-02890	2010	Schmidt, James	Archeological Letter Report: WO 6035-4800; TD 453269: Moorpark Deteriorated Pole Replacement Project, Ventura County, California	56-001574	No
VN-02981	2008	Maxon, Patrick	Moorpark Vistas & North Hills Parkway Extension Archaeology	56-000791, 56-001574	No
VN-03094	2002	Foster, John A.	Historic Resource Evaluation Report-Mason Avenue At-Grade Crossing and Safety Improvements Project, Los Angeles City, California		No
VN-03196	2014	Rendon, Richard	Section 1-6 consultation LWCF Project LW-56-015, Arroyo Vista Recreational Trail, Moorpark		No

Table 1: Previous Cultural Resources Studies within the One-Mile Study Area

Report Number	Year	Author	Title	Resources	Within Project Boundary?
VN-03210	2015	Carmack, Shannon, Breana Campbell, and Christopher Duran	Housing Authority of Ventura County Moorpark Affordable Housing Project	56-000791, 56-001268, 56-001269, 56-001270, 56-001503, 56-001574, 56-100050, 56-152817, 56-153133, 56-153134	No
VN-03251	2014	Simon, Joseph M. and Robert B. Rechtman	Phase I Archaeological Survey for TTM 5505, Moorpark, Ventura County, California		No
VN-03266	2014	Stone, David and Ken Victorino	Archaeological Survey Report Vistas at Moorpark Ventura County, California	56-000791, 56-001503, 56-001574	No

Previously Recorded Cultural Resources within the Study Area

Based upon the records search conducted by the SCCIC, 23 previously recorded cultural resources are recorded within the one-mile records search radius (Table 2). Of those 23 previously recorded resources, none are located within the Project area. A map of the record search results is included in Attachment B.

Table 2: Previously Recorded Cultural Resources within the One-Mile Study Area

Primary Number	Trinomial	Resource Names	Site Description	Within Project Boundary?
P-56-000671	CA-VEN-000671	TT-3387/1	Prehistoric Site	No
P-56-000791	CA-VEN-000791	Moorpark 1	Prehistoric Site	No
P-56-001264	CA-VEN-001264H	MP-S1H	Historic Site	No
P-56-001265	CA-VEN-001265H	MP-S2H	Historic Site	No
P-56-001266	CA-VEN-001266H	MP-S3H	Historic Site	No
P-56-001267	CA-VEN-001267H	MP-S4H	Historic Site	No
P-56-001268	CA-VEN-001268H	MP-S5H	Historic Site	No
P-56-001269	CA-VEN-001269H	MP-S6H	Historic Site	No
P-56-001270	CA-VEN-001270H	MP-S7H	Historic Site	No
P-56-001503	CA-VEN-001503	VAM-1	Prehistoric Site	No
P-56-001573	CA-VEN-001573	West Pointe No. 1	Prehistoric Site	No
P-56-001574	CA-VEN-001574	SunCal 1	Prehistoric Site	No
P-56-100048		MP-I1	Prehistoric Site	No
P-56-100049		MP-I2	Historic Site	No
P-56-100050		MP-I3	Prehistoric Site	No
P-56-152750		Lopez House	Historic Building	No
P-56-152817		Tanner Corner	Historic Building	No

Table 2: Previously Recorded Cultural Resources within the One-Mile Study Area

Primary Number	Trinomial	Resource Names	Site Description	Within Project Boundary?
P-56-153125		Conejo Ready Mix, Inc	Historic Building	No
P-56-153127		Iron Fabricators	Historic Building	No
P-56-153130		Crawford Canyon Property	Historic Building	No
P-56-153132		Ferguson House	Historic Building	No
P-56-153133		Fire Station No. 42	Historic Building	No
P-56-153134		798 Moorpark Ave	Historic Building	No

Background Research Results

In addition to the records search review, Chambers Group archaeologists completed extensive background research to determine if any additional historic properties, landmarks, bridges, or other potentially significant or listed properties are located within the Project footprint or 0.5-mile study area. This background research included, but was not limited to, the NRHP, California State Historic Property Data Files, California State Historical Landmarks, California Points of Historical Interest, Office of Historic Preservation Archaeological Determinations of Eligibility, historic aerial imagery accessed via NETR Online, Historic U.S. Geological Survey topographic maps, Built Environment Resource Directory (BERD), and California Department of Transportation (Caltrans) State and Local Bridge Surveys. Additionally, Chambers Group archaeologists reviewed the Ventura County Historical Landmarks inventory designated by the County of Ventura Cultural Heritage Board, as well as the Moorpark Historical Society and local historical newspaper clippings via Newspapers.com, ProQuest Historical Newspapers.com, and the California Digital Newspaper Collection

As a result of the records search review and archival research, no previously recorded resources or any other listed or potentially significant properties are located within the Project site. However, three listed properties do occur outside the Project site but within the one-mile study area. Two properties are listed on the BERD inventory, 333 2nd Street and the Tanner Corner. The third property, the Moorpark Community Church, is listed in the Ventura County Historical Landmarks inventory as Landmark No. 55. See below for further details (Table 3).

Table 3: Historic Properties Listed on the BERD within the One-Mile Study Area

APN	Occupant/Street Address	Year Built (Per County Assessor)	Owner	NRHP/CRHR/Local Status	Within Project Boundary
N/A	333 2nd Street	1959	Unavailable	6Y: Determined ineligible for NRHP; Not evaluated for CRHR or local listing (11/29/2017, HUD_2017_1120_002)	No
N/A	The Tanner Corner 601 Moorpark Avenue	1900	Private	1CS: Individually listed in the CRHR by the SHRC (11/03/2000, CR); 3S: Appears eligible for NRHP individually	No

				through survey evaluation (11/13/2000, 56-0026)	
N/A	Moorpark Community Church	1892	Private	Not evaluated	No

Tanner Corner

The historic brick building known as the Tanner Corner is located outside the Project site but within the study area, on the northwest corner of Moorpark Avenue and High Street. The property once belonged to Moorpark's first fire chief, Ira G. Tanner, who settled in Moorpark in 1913. Prior to 1917, Tanner owned and operated the Mission Garage and gas station. Tanner also served on the board of trustees when Moorpark Memorial Union High School was built in 1920. The building was listed in the CRHR in 2000. Today it houses Cesar Carpets and First Impression Upholstery.

Moorpark Community Church

This historic building is located outside the Project site but within the study area, at the northeast corner of Walnut Street and Charles Street. This building is a unique combination of two historic period buildings, the Epworth and the Somis churches. The Somis Church was built in 1892 at the current location. The Epworth Colony was established by retired Methodist ministers, and in 1894 they built a small chapel just north of what is now Moorpark. The Epworth chapel was moved to this site and combined with the existing Somis Church building around 1904. This building still stands today and is currently home to Moorpark's First Baptist Church. This building is not yet recorded as a historic resource but is listed as County of Ventura Historical Landmark No. 55, on the County of Ventura Historical Landmark inventory (County of Ventura, 2016).

Additionally, based on the review of available historic maps and imagery, Chambers Group archaeologists observed that the Project site was previously developed with small cottage residential buildings after 1944 but before 1947. Photographic evidence of these buildings is scarce, but historic United States Geological Survey (USGS) topographic maps appear to indicate that the area was not developed in 1921. The updated USGS Piru topographic quadrangle and subsequent aerial imagery show that the area was still undeveloped through 1944. However, both aerial imagery and topographic maps indicate that the area had been developed by 1947. The number and layout of these buildings within the current Project site remained consistent through the 1980s. These structures were demolished and cleared from the Project site by 1994 (NETRonline 2021).

Native American Heritage Commission Sacred Lands File Search

On October 1, 2021, Chambers Group requested that the Native American Heritage Commission (NAHC) conduct a search of its Sacred Lands File (SLF) to determine if Tribal Cultural Resources (TCR) important to Native Americans have been recorded in the Project footprint and buffer area. Additional consultation with the tribes indicated in the NAHC SLF letter (Attachment A) would be required to determine the nature of any existing resources located during ground-disturbing activities. PRC Section 21074 defines a resource as a TCR if it meets either of the following criteria:

1. sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a tribe that are listed, or determined to be eligible for listing, in the national or state register of historical resources, or listed in a local register of historic resources; or
2. a resource that the lead agency determines, in its discretion, is a tribal cultural resource

On November 4, 2021, Chambers Group received a response from the NAHC stating that the search of its Sacred Lands File was **negative** for the presence of Native American cultural resources within Project site and the record search study area.

The NAHC provided a list of nine Native American tribal contacts that may have knowledge of cultural resources near the Project area (Attachment A). The nine Native American contacts identified by the NAHC include Chumash Council of Bakersfield, Coastal Band of the Chumash Nation, Northern Chumash Tribal Council, San Luis Obispo County Chumash Council, Santa Ynez Band of Chumash Indians, and four representatives of the Barbareño/Ventureño Band of Mission Indians. A letter describing the Project and asking these individuals and organizations for their input was sent via U.S. mail and electronic mail on November 9, 2021. A copy of the letters sent, the list of contacts, and responses received are included in Attachment A.

As of the date of this report, no responses have been received.

AB 52 Consultation

The City of Moorpark completed the initial AB 52 outreach for the Project. As of the date of this report, Chambers Group archaeologists have not been requested to support the AB 52 consultation efforts. However, the city has provided Chambers Group with the responding tribes to date. Currently, two tribes have responded to the AB 52 consultation request. The Cultural Resources Management (CRM) Division of the Fernandeño Tataviam Band of Mission Indians (FTBMI), responded via email on September 28, 2021, and requested to be included in further consultation and to be provided with the grading plans, geotechnical report, and this cultural resource letter report for the Project. Additionally, the Gabrielino Tongva Tribe responded via email on October 26, 2021, and requested further consultation through direct meetings with the City of Moorpark.

Discussion

Chambers Group conducted a cultural resources records search and literature review within the Everett Street Terraces Project site and surrounding study area in November 2021. The purpose of the review was to gather and analyze information needed to assess the potential for impacts to cultural resources within the proposed Project area.

In addition, Chambers Group evaluated whether the Project would impact cultural resources and if additional studies, including a site visit or field survey, are warranted. The purpose of the review and survey was to gather and analyze information needed to assess the potential for impacts to cultural resources within the Proposed Project site.

An archival records search through the CHRIS database at the SCCIC and background study of the Project area were conducted as part of the study. In addition, Chambers Group submitted a search request of the NAHC SLF to determine the presence or absence of data regarding any known tribal cultural resources previously reported within the Project area or surrounding vicinity. The SCCIC records search identified two cultural resources reports and no (0) cultural resources within the Project site. The NAHC SLF search resulted in negative findings within the search radius.

However, historic maps and aerial imagery revealed that the Project site was previously occupied with several cottage-style residences. Based on available historic images and USGS topographic maps from 1921 and 1941, the parcel was developed between 1944 and 1947. All the historic-age buildings were destroyed and cleared from the parcel by 1994, and the area appears to have been further cleared of vegetation through the subsequent years (NETRonline 2021). Due to the nature of construction in the early twentieth century, the previous historic-age structures were likely constructed without major excavation or more intensive ground-disturbing activity associated with later cut-and-fill construction methods. Therefore, the nature of the previous disturbance may allow for intact native soils and geologic formations to be impacted by the current Proposed Project construction and increases the risk of encountering intact buried cultural resources. Similarly, encountering paleontological resources during the more intensive excavation for the proposed subterranean parking garage is possible. Please see the associated Paleontological Records Search and Literature Review Results Letter Report prepared by Chambers Group for more details regarding this Project as related to the paleontological resources (Chambers Group 2021).

Recommendations

Based on the results of the records search review and ample background research, Chambers Group archaeologists observed that the Proposed Project site is previously disturbed and is currently a vacant parcel of land located within a

largely urban context. Under most circumstances this would indicate that the potential for buried cultural resources and/or human remains within the Proposed Project site is low. Further, NAHC SLF search results were negative, and the cultural resources records search from the SCCIC was negative for previously recorded cultural resources within the Project site. Only two cultural resources studies have been completed that include the Project site. However, background research revealed that the Project site was occupied as early as 1944 with several buildings, which have since been demolished. While the data potential for these historic-age properties is low, the nature of construction methods common to the time period limits the associated soil disturbance to most likely only 12 to 36 inches in depth for foundations, footings, and related historic built environment features. Therefore, the potential to encounter intact buried native formations and associated cultural resources at depths below 12 to 36 inches remains. Although the NAHC SLF search results were negative, further consultation with the tribes listed in Attachment A is recommended.

Chambers Group recommends the following mitigation measures be considered and implemented in support of this Project with the intent to reduce potential impacts to cultural resources to less than significant. If any cultural resources are identified, they would need to be evaluated for eligibility for the CRHR. Evaluation for archaeological sites consists of an archaeological testing program. For historical structures, evaluation by an architectural historian may be necessary. If determined eligible by the CEQA lead agency or the State Historic Preservation Office, mitigation, consisting of data recovery for archaeological sites and documentation for historical structures, would be required if preservation is not feasible.

MM CUL-1 Prior to issuance of grading permits, the applicant shall be required to obtain the services of a qualified project archaeologist to remain on-call for the duration of the proposed ground disturbing construction activity. The archeologist selected must be approved in writing by the Community Development Director. Prior to construction commencing, all construction personnel associated with earth moving equipment, drilling, grading, or excavating, shall be provided with basic training. The training shall be completed by the applicant retained project archaeologist and shall include written notification of the restrictions regarding disturbance and/or removal of any portion of archaeological deposits and the procedures to follow should a potential resource be identified during construction activity. The construction contractor, or its designee, shall be responsible for implementation of this measure. A tribal monitor shall be provided an opportunity to attend the pre-construction briefing, if requested. The project archaeologist shall be on-call and available to contact in the event of any unanticipated discovery of archaeological or historical resources during the proposed construction activity. If any archeological or historical resources are uncovered during grading or excavation operations, all grading or excavation shall immediately cease in the immediate area, a 50-foot buffer area around the discovery shall be cordoned off, and the discovery must be left untouched. The applicant, in consultation with the project archeologist, shall assure the preservation of the resource and immediately contact the Community Development Director by phone, in writing by email or hand delivered correspondence informing the Director of the find. In the absence of the Director, the applicant shall so inform the City Manager. Additionally, all consulting Native American Tribal groups that requested notification of any unanticipated discovery of archaeological resources on the Project shall be notified appropriately. The applicant retained project archeologist shall provide an assessment regarding the sensitivity of the discovery and, if avoidance is not feasible, recommend the appropriate treatment and/or recovery procedures for discovery. The applicant shall pay for all costs associated with the investigation and, if required, the treatment and/or recovery of the discovery.

MM-CUL-2 At the completion of all ground-disturbing activities, the project archaeologist shall prepare an Archaeological Resources Monitoring Report summarizing all monitoring efforts and observations, as performed, and any and all prehistoric or historic archaeological finds as well as providing follow-up reports of any finds to the South-Central Coastal Information Center (SCCIC), as required.

Unanticipated discovery of Human Remains: In the unlikely event that human remains are discovered during ground-disturbing activities, then the Proposed Project would be subject to California Health and Safety Code 7050.5, CEQA Section 15064.5, and California Public Resources Code Section 5097.98. If human remains are found during ground-disturbing activities, State of California Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the Ventura County Coroner has made a determination of origin and disposition pursuant to Public Resources Code Section 5097.98. In the event of an unanticipated discovery of human remains, the County Coroner shall be notified immediately. If the human remains are determined to be prehistoric, the County Coroner shall notify the NAHC, which shall notify a most likely descendant (MLD). The MLD shall complete the inspection of the site within 48 hours of notification and may recommend scientific removal and nondestructive analysis of human remains and items associated with Native American burials.

Chambers Group is available to assist with any further support or document preparation related to Cultural Resources, including tribal consultation. Please contact Meghan Gibson, Senior Project Manager, at (213) 623-1859 extension 7511, or myself at the contact information below if you have any questions or comments regarding this report.

Sincerely,

CHAMBERS GROUP, INC.



Lucas Tutschulte

Cultural Department Lead
858.541.2800 Ext 7114
9620 Chesapeake Drive, Suite 202
San Diego, CA 92123

Attachments

Attachment A: NAHC SLF Records Search Results Letter

Attachment B (Confidential): Record Search Results

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County of Ventura

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ATTACHMENT A – NAHC SLF RECORDS SEARCH RESULTS LETTER

Attachment A: NAHC SLF Records Search Results Letter

STATE OF CALIFORNIA — Gavin Newsom, Governor

NATIVE AMERICAN HERITAGE COMMISSION

CHAIRPERSON
Laura Miranda
Luiseño

VICE CHAIRPERSON
Reginald Pagaling
Chumash

PARLIAMENTARIAN
Russell Attebery
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Yokayo Pomo, Yuki, Nomlaki

COMMISSIONER
Wayne Nelson
Luiseño

COMMISSIONER
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NAHC.ca.gov

November 4, 2021

Lucas Tutschulte
The Chambers Group, Inc.

Via Email to: LTutschulte@chambersgroupinc.com

Re: 21257-Everett St. Terraces Project, Ventura County

Dear Mr. Tutschulte:

A record search of the Native American Heritage Commission (NAHC) Sacred Lands File (SLF) was completed for the information you have submitted for the above referenced project. The results were negative. However, the absence of specific site information in the SLF does not indicate the absence of cultural resources in any project area. Other sources of cultural resources should also be contacted for information regarding known and recorded sites.

Attached is a list of Native American tribes who may also have knowledge of cultural resources in the project area. This list should provide a starting place in locating areas of potential adverse impact within the proposed project area. I suggest you contact all of those indicated; if they cannot supply information, they might recommend others with specific knowledge. By contacting all those listed, your organization will be better able to respond to claims of failure to consult with the appropriate tribe. If a response has not been received within two weeks of notification, the Commission requests that you follow-up with a telephone call or email to ensure that the project information has been received.

If you receive notification of change of addresses and phone numbers from tribes, please notify me. With your assistance, we can assure that our lists contain current information.

If you have any questions or need additional information, please contact me at my email address: Andrew.Green@nahc.ca.gov.

Sincerely,

Andrew Green

Andrew Green
Cultural Resources Analyst

Attachment

Native American Heritage Commission
Native American Contact List
Ventura County
11/4/2021

Barbareno/ Ventureno Band of Mission Indians
Annette Ayala,
188 S. Santa Rosa Street — Chumash
Ventura, CA, 93001
Phone: (805) 515 - 9844
annetteayala78@yahoo.com

Barbareno/Ventureno Band of Mission Indians
Julie Tumamait-Stenslie,
Chairperson
365 North Poli Ave — Chumash
Ojai, CA, 93023
Phone: (805) 646 - 6214
jtumamait@hotmail.com

Barbareno/ Ventureno Band of Mission Indians
Patrick Tumamait,
992 El Camino Corto — Chumash
Ojai, CA, 93023
Phone: (805) 216 - 1253

Barbareno/ Ventureno Band of Mission Indians
Brenda Guzman,
58 N. Ann Street, #8 — Chumash
Ventura, CA, 93001
Phone: (209) 601 - 4676
brendamguzman@gmail.com

Chumash Council of Bakersfield
Julio Quair, Chairperson
729 Texas Street — Chumash
Bakersfield, CA, 93307
Phone: (661) 322 - 0121
chumashtribe@sbcglobal.net

Coastal Band of the Chumash Nation
Mariza Sullivan, Chairperson
P. O. Box 4464 — Chumash
Santa Barbara, CA, 93140
Phone: (805) 665 - 0486
cbcntribalchair@gmail.com

Northern Chumash Tribal Council
Violet Walker, Chairperson
P.O. Box 6533 — Chumash
Los Osos, CA, 93412
Phone: (760) 549 - 3532
violetsagewalker@gmail.com

San Luis Obispo County Chumash Council
Mark Vigil, Chief
1030 Ritchie Road — Chumash
Grover Beach, CA, 93433
Phone: (805) 481 - 2461
Fax: (805) 474-4729

Santa Ynez Band of Chumash Indians
Kenneth Kahn, Chairperson
P.O. Box 517 — Chumash
Santa Ynez, CA, 93460
Phone: (805) 688 - 7997
Fax: (805) 686-9578
kkahn@santaynezchumash.org

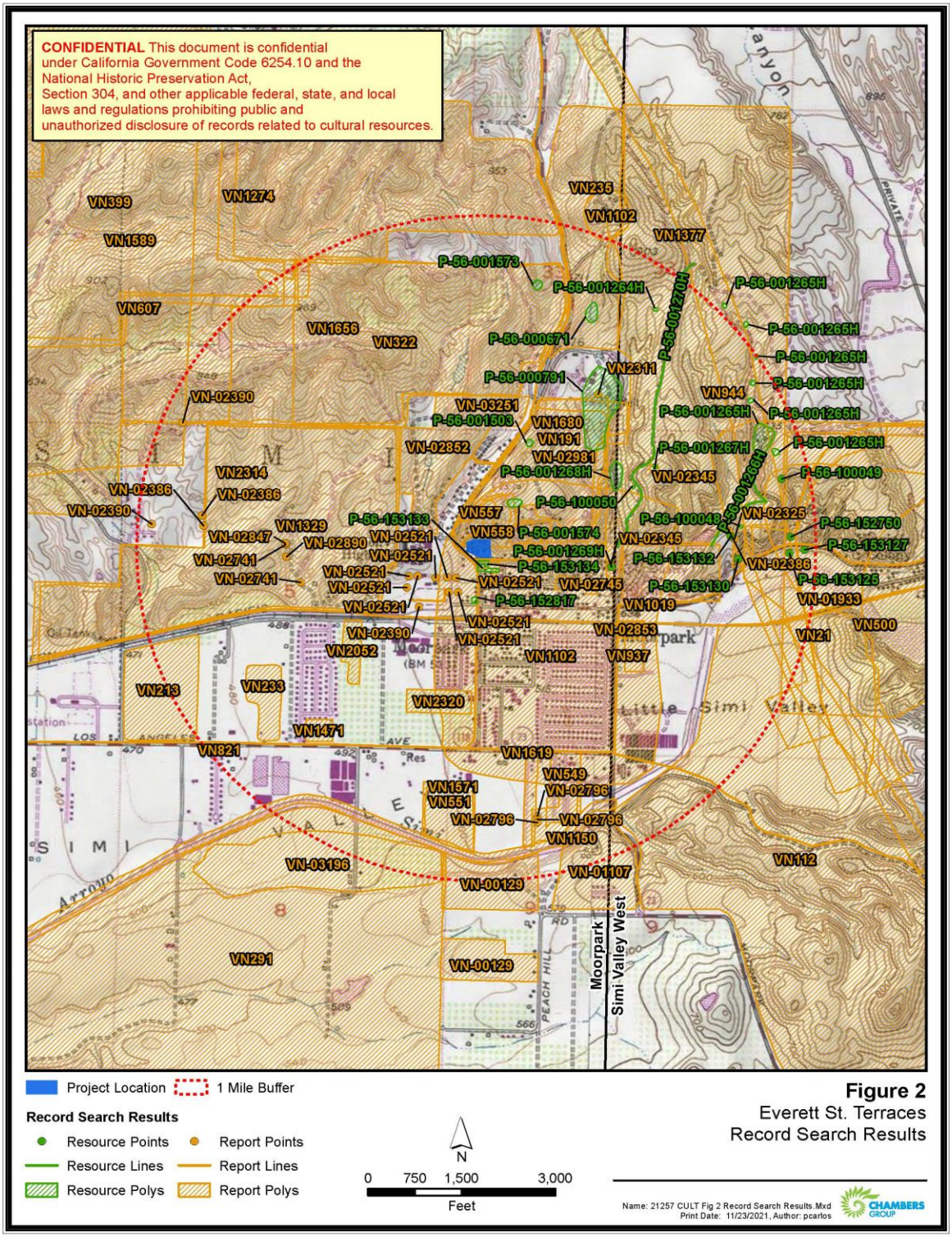
This list is current only as of the date of this document. Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resource Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources assessment for the proposed 21257-Everett St. Terraces Project, Ventura County.

CONFIDENTIAL. This document is confidential under California Government Code 6254.10 and the National Historic Preservation Act, Section 304, and other applicable federal, state, and local laws and regulations prohibiting public and unauthorized disclosure of records related to cultural resources. Recipients of this document acknowledge they are authorized to receive these materials and are responsible for maintaining the confidential nature of the contents related to cultural resources identified in this document and will not disclose confidential information to the public and/or unauthorized persons.

ATTACHMENT B (CONFIDENTIAL) – RECORD SEARCH RESULTS

Attachment B (Confidential): Record Search Results



APPENDIX E – ENERGY MODEL RUN OUTPUTS

Appendix B - Energy Calculations

Construction-Related Petroleum Fuels

The off-road construction equipment fuel usage was calculated through use of the off-road equipment assumptions utilized in the CalEEMod model run provided in Appendix A and the fuel usage calculations provided in the 2017 Off-road Diesel Emission Factors spreadsheet, prepared by CARB (https://ww3.arb.ca.gov/msei/ordiesel.htm). The Spreadsheet provides the following formula to calculate fuel usage from off-road equipment:

Fuel Used = Load Factor x Horsepower x Total Operational Hours x BSFC / Unit Conversion

Where:

Load Factor - Obtained from CalEEMod default values

Horsepower – Obtained from CalEEMod default values

Total Operational Hours – Calculated by multiplying CalEEMod default daily hours by the estimated number of working days for each phase of construction

BSFC – Brake Specific Fuel Consumption (pounds per horsepower-hour) – If less than 100 Horsepower = 0.408, if greater than 100 Horsepower = 0.367

Unit Conversion – Converts pounds to gallons = 7.109

The Following Table shows the off-road construction equipment fuel calculations based on the above formula, which shows that the off-road equipment utilized during construction of the proposed project would consume 34,833 gallons of fuel.

Off-Road Construction Equipment Modeled in CalEEMod and Fuel Used

Equipment Type	Equipment Quantity	Horse-Power	Load Factor	Operating Hours Per Day	Total Operational Hours[1]	Fuel Used (gallons)
Site Preparation						
Grader	1	187	0.41	8	80	317
Scraper	1	367	0.48	8	80	728
Tractors/Loaders/Backhoes	1	97	0.37	7	70	144
Grading						
Grader	1	187	0.41	8	320	1,267
Rubber Tired Dozer	1	247	0.4	8	320	1,632
Tractors/Loaders/Backhoes	2	97	0.37	7	560	1,153
Building Construction						
Crane	1	231	0.29	8	1,760	6,087
Forklifts	2	89	0.2	7	3,080	3,146
Generator Set	1	84	0.74	8	1,760	6,279

Equipment Type	Equipment Quantity	Horse-Power	Load Factor	Operating Hours Per Day	Total Operational Hours[1]	Fuel Used (gallons)
Tractors/Loaders/Backhoes	1	97	0.37	6	1,320	2,719
Welders	3	46	0.45	8	5,280	6,273
Paving						
Cement and Mortar Mixers	1	9	0.56	8	400	116
Paver	1	130	0.42	8	400	1,127
Paving Equipment	1	132	0.36	8	400	981
Rollers	2	80	0.38	8	800	1,396
Tractors/Loaders/Backhoes	1	97	0.37	8	400	824
Architectural Coatings						
Air Compressor	1	78	0.48	6	300	645
Total Off-Road Equipment Fuel used during Construction of the Proposed Project (gallons)						**34,833**

Notes:

[1] Based on 10 days for Site Preparation, 40 days for Grading , 220 days for Building Construction, 50 days for Paving, and 50 days for Architectural Coatings.

Source: CalEEMod Version 2020.4.0, CARB, 2018.

The on-road construction-related vehicle trips fuel usage was calculated through use of the default construction vehicle trip assumptions from the CalEEMod model run. The calculated total construction miles were then divided by the fleet average for Ventura County miles per gallon rates for the year 2023 that were calculated through use of the EMFAC2017 model (https://www.arb.ca.gov/emfac/2017/) and the EMFAC2017 model printouts are attached. The following Table shows the on-road construction vehicle trips modeled in CalEEMod and the fuel usage calculations, which shows that the on-road construction-related vehicle trips would consume 7,972 gallons of fuel for the proposed Project.

On-Road Construction Vehicle Trips Modeled in CalEEMod and Fuel Used

Vehicle Trip Types	Daily Trips	Trip Length (miles)	Total per Day (miles)	Total per Phase (miles)	Fleet Average Miles per Gallon	Fuel Used (gallons)
Site Preparation						
Worker Trips	8	10.8	86	864	27.6	31
Grading						
Worker Trips	10	10.8	108	4,320	27.6	157
Haul Trips	3.7	20	74	2,940	9.4	313
Building Construction						
Worker Trips	57	10.8	616	135,432	27.6	4,913
Vendor Trips	12	7.3	88	19,272	9.4	2,050
Paving						
Worker Trips	15	10.8	162	8,100	27.6	294
Architectural Coatings						

Vehicle Trip Types	Daily Trips	Trip Length (miles)	Total per Day (miles)	Total per Phase (miles)	Fleet Average Miles per Gallon	Fuel Used (gallons)
Worker Trips	11	10.8	119	5,940	27.6	215
Total On-Road Vehicle Fuel used during Construction of the Proposed Project (gallons)						**7,972**

Notes:

[1] Based on 10 days for Site Preparation, 40 days for Grading , 220 days for Building Construction, 50 days for Paving, and 50 days for Architectural Coatings..

Source: CalEEMod Version 2020.4.0, CARB, 2018.

Operations-Related Petroleum Fuels

The on-road operations-related vehicle trips fuel usage was calculated through use of the total annual vehicle miles traveled assumptions from the CalEEMod model run provided in Appendix A, which found that operation of the proposed project would generate 728,900 vehicle miles traveled per year. The calculated total operational miles were then divided by the Ventura County fleet average rate of 27.6 miles per gallon, which was calculated through use of the EMFAC2017 model for year 2023. The EMFAC2017 model printouts are attached to this Appendix. Based on the above calculation methodology, the operation of the proposed Project would consume 26,440 gallons of petroleum fuels per year.

EMFAC2017 (v1.0.2) Emissions Inventory
Region Type: County
Region: VENTURA
Calendar Year: 2023
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for VMT, trips/day for Trips, tons/day for Emissions, 1000 gallons/day for Fuel Consumption. Note 'day' in the unit is operation day.

Region	Calendar Y	Vehicle Cat	Model Yea	Speed	Fuel	Population	VMT	Trips	Fuel Consumption
VENTURA	2023	HHDT	Aggregate	Aggregate	GAS	1.584942	213.73213	31.71152	0.0467988
VENTURA	2023	LDA	Aggregate	Aggregate	GAS	291891	11389118	1372309	346.27487
VENTURA	2023	LDT1	Aggregate	Aggregate	GAS	32016.85	1160417.4	145081.3	41.858074
VENTURA	2023	LDT2	Aggregate	Aggregate	GAS	94375.81	3558570.1	437475.2	137.07261
VENTURA	2023	LHDT1	Aggregate	Aggregate	GAS	7709.39	276213.66	114858.4	25.841707
VENTURA	2023	LHDT2	Aggregate	Aggregate	GAS	1384.262	48905.246	20623.44	5.264898
VENTURA	2023	MCY	Aggregate	Aggregate	GAS	16218.89	80979.401	32437.78	2.2482873
VENTURA	2023	MDV	Aggregate	Aggregate	GAS	72044.43	2428532.4	327382.3	116.43824
VENTURA	2023	MH	Aggregate	Aggregate	GAS	2962.397	25120.172	296.3582	4.9266156
VENTURA	2023	MHDT	Aggregate	Aggregate	GAS	731.8971	37757.685	14643.8	7.1568797
VENTURA	2023	OBUS	Aggregate	Aggregate	GAS	238.7227	8995.1471	4776.363	1.7473959
VENTURA	2023	SBUS	Aggregate	Aggregate	GAS	71.82497	2854.4575	287.2999	0.3063043
VENTURA	2023	UBUS	Aggregate	Aggregate	GAS	59.38871	4428.2148	237.5548	0.8189129

vehicle miles per day (All Categories)	19022106	690	1,000 gall per day
		690,002	gallons per day
Fleet Avg Miles per gallon	27.6		

EMFAC2017 (v1.0.2) Emissions Inventory
Region Type: County
Region: VENTURA
Calendar Year: 2023
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for VMT, trips/day for Trips, tons/day for Emissions, 1000 gallons/day for Fuel Consumption. Note 'day' in the unit is operation day.

Region	Calendar Y	Vehicle Cat	Model Yea	Speed	Fuel	Population	VMT	Trips	Fuel Consumption
VENTURA	2023	HHDT	Aggregate	Aggregate	DSL	3189.254	346461.5	31284.61	48.25642
VENTURA	2023	LDA	Aggregate	Aggregate	DSL	3485.115	135978.9	16275.22	2.709975
VENTURA	2023	LDT1	Aggregate	Aggregate	DSL	24.24519	419.4451	78.03768	0.017157
VENTURA	2023	LDT2	Aggregate	Aggregate	DSL	673.5368	28721.98	3261.94	0.778107
VENTURA	2023	LHDT1	Aggregate	Aggregate	DSL	7767.324	291844.6	97703.17	13.78099
VENTURA	2023	LHDT2	Aggregate	Aggregate	DSL	2819.574	107185.9	35466.7	5.558593
VENTURA	2023	MDV	Aggregate	Aggregate	DSL	1701.253	67577.39	8180.928	2.409239
VENTURA	2023	MH	Aggregate	Aggregate	DSL	1090.161	9548.531	109.0161	0.905546
VENTURA	2023	MHDT	Aggregate	Aggregate	DSL	5608.331	359036.9	57227.45	31.54999
VENTURA	2023	OBUS	Aggregate	Aggregate	DSL	143.201	8919.232	1273.734	0.912332
VENTURA	2023	SBUS	Aggregate	Aggregate	DSL	286.7253	8901.391	3308.77	1.209614
VENTURA	2023	UBUS	Aggregate	Aggregate	DSL	33.42634	2717.962	133.7053	0.451184

Diesel Truck (HHDT, MDV, MHDT) vehicle miles per day	773,076	82	1,000 gall per day
		82,216	gallons per day
Diesel Truck Fleet Avg Miles per gallon	9.4		

APPENDIX F – GEOTECHNICAL REPORTS

Preliminary Geotechnical Investigation, Proposed Everett Street Terraces Apartment Complex, Northeast Corner of Everett Street and Walnut Canyon Road, Moorpark, California

W.O. 8953
December 2, 2005

GEOLABS - WESTLAKE VILLAGE

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GEOLABS-WESTLAKE VILLAGE
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Corporation

December 2, 2005
W.O. 8953

John W. Newton & Associates, Inc.
165 High Street, Suite 103
Moorpark, California 93021

Attention: John Newton

SUBJECT: Preliminary Geotechnical Investigation of 2-Acre Parcel, Northeast Corner of Everett Street and Walnut Canyon Road, Moorpark, California

Mr. Newton:

In accordance with your request, our firm has undertaken a study of the geotechnical conditions at the subject property (Plate 1.1). Our purpose was to evaluate the distribution and engineering characteristics of the earth materials that occur at the site so that we might assess their impact upon the proposed development of the property.

The scope of work for this project included the following tasks:

- mapping of the site and its immediate vicinity;
- logging of three (3) Cone Penetrometer Tests (CPT) soundings;
- logging and sampling of four (4) exploratory borings excavated with a truck-mounted hollow-stem auger;
- logging and sampling of two (2) exploratory borings excavated with a truck-mounted bucket-auger drill rig and one (1) exploratory boring excavated with a track-mounted limited access bucket-auger drill rig;
- selected laboratory testing of the retrieved samples;
- review of previous work which was judged both pertinent to our purpose and readily available to our office;
- soil engineering analysis of the assembled data;
- preparation of this report.

Field data and the approximate locations of exploratory excavations are shown on the enclosed Geologic Map (Plate 1.2). Descriptions of the materials encountered in the exploratory excavations are provided on the enclosed logs (Plates B1.1 to B7, and CPT1 to CPT3). Pertinent

laboratory test results are also provided herein. Our findings are presented in the following sections, followed by a discussion of these findings and geotechnical recommendations.

SITE DESCRIPTION

The project site consists of an approximate 2-acre parcel of land on the northeast corner of Everett Street and Walnut Canyon Road in the City of Moorpark, California. The land is presently partially developed with approximately one dozen older residential structures plus minor remnants of one or two demolished structures that originally faced Everett Street. The southern three-fourths of the site consists of gently southerly sloping land with a gradient of approximately 15:1 (horizontal:vertical) and sparse vegetation. The northern one-fourth of the site consists of moderate to steep southeast to southwest facing vegetated slopes with gradients ranging from 3:1 (H:V) to as steep as 1:1 (H:V) locally.

Regionally the site is located on the northern margin of Little Simi Valley and ranges in elevation from 530 to 585 feet above Mean Sea Level (MSL). The Arroyo Simi drains Little Simi Valley from east to west and is located approximately 1.9 miles south of the site at approximate elevation 490 feet above MSL.

PREVIOUS GEOTECHNICAL STUDIES

No record of previous geotechnical studies on the subject site was found in the City's files and we are not aware of any previous studies performed on the site. Geotechnical investigations performed for nearby projects were reviewed as part of this investigation. These include studies for Tentative Tracts 5505 and 5130, Tracts 5045 and 5187, and studies for smaller projects including 251 Moorpark Road and 180 Wicks Road. Pertinent geotechnical reports from those projects are listed in the attached References.

PROPOSED PROJECT

Based upon project drawings received from the architect and civil engineer, we understand that the proposed project consists of a terraced complex of 44 apartments with two levels of partially subterranean to subterranean parking. Site access will be from Everett Street near the intersection with Walnut Canyon Road. Retaining walls up to 24 feet in height are proposed. Terraced pads will occur at approximate elevations 533', 544', 555' and 564'. Given this configuration the greatest structural loads are anticipated to occur in the northern portion of the project where two stories of apartments will be constructed atop two stories of partially subterranean parking. The highest proposed fill slope is approximately 6 feet, fronting Everett Street. No permanent cut slopes are proposed. The preliminary grading plan by Stantec indicates raw cut and fill volumes of 11,204 cubic yards and 10,243 cubic yards, respectively.

At the time of this writing, specific foundation loads, nor specific foundation locations or types are known. For purposes of this preliminary report, we have assumed that maximum column loads will be on the order of 250 kips, and maximum wall loads will be on the order of 2 to 6 kips per linear foot of wall.

FIELD INVESTIGATION

Our office selected several exploratory locations and several methods of exploration in order to characterize the nature of the earth materials throughout the site.

The subsurface exploration began on June 29, 2004 with performing three cone penetrometer (CPT) soundings. The soundings were performed using a 23-ton truck-mounted CPT rig provided by Holguin, Fahan & Associates, Inc. The cone tip has a cross-sectional area of 10 square centimeters. The CPT is capable of obtaining tip pressure and side friction data at 2 inch (0.05 meter) intervals. The cone tip was pushed to a depth of approximately fifty feet or

refusal, whichever was shallower.

Exploratory borings were performed by three types of drill rigs. Borings B1 through B4 extended into the alluvium underlying the site. These borings were performed with a hollow-stem auger drill rig. Samples were driven with a 140 lb. hydraulic winch safety hammer lifted 30 inches. The estimated efficiency of the hydraulic winch hammer is approximately 68 percent (Kovacs et.al. 1978]). Drilling rod was not used, the sampler and hammer was suspended by cable. The boring diameter was approximately eight inches (outer diameter). The samplers consisted of an SPT Split Spoon Sampler and a lined California split spoon sampler (2.375 inch id.).

Borings B5 and B6 were excavated with a truck-mounted bucket-auger drill rig and Boring B7 was excavated with a track-mounted limited access bucket-auger drill rig. Samples were driven with the drill rig Kelly bar lifted with a hydraulic winch dropped 12 inches, except for Boring B7 which was dropped 15 inches. The estimated efficiency of the hammer is approximately 68 percent (Kovacs et.al. 1978). Drilling rod was not used, the sampler and hammer were suspended by cable. The boring diameter for borings B5-B7 was approximately 24 inches. The samplers consisted of a lined California Split Spoon sampler (2.375 inch id.).

Both disturbed (bulk) and relatively undisturbed samples were obtained from each boring. These samples were secured and transported to our laboratory for testing.

GEOLOGIC SETTING

The site is located in the Transverse Ranges geomorphic province of Southern California. The Transverse Ranges are essentially east-west trending elongate mountain ranges and valleys that are geologically complex. Structurally, the province reflects the north-south compressional forces that are the result of a bend in the San Andreas fault. As the Pacific Plate (westerly side

of the fault) and the North American Plate (easterly side) move past one another along the fault the bend creates a deflection which allows for large accumulations of compressional energy. Some of these forces are spent in deforming the crust into roughly east-west trending folds and secondary faults. The most significant of these faults are typically reverse or thrust faults, which allow for the crustal shortening taking place regionally.

The site lies in the central portion of the Transverse Ranges province, in the City of Moorpark. The site is situated at the base of a range of low foothills that define the northern margin of Little Simi Valley. The foothills are underlain by Quaternary-age sediments (Saugus Formation) that were deposited in a fluvial/floodplain environment that has subsequently been uplifted and eroded. The valley margin is underlain by alluvial deposits which thicken considerably toward the south into the broad floodplain of Arroyo Simi.

EARTH MATERIALS

The subject property is underlain by alluvium and Saugus Formation bedrock (see Plate 1.2). Due to past development of the site, minor thin artificial fill may be present; however, artificial fill was not encountered in the subsurface exploration and is not present in significant quantity to be a mappable earth unit. A brief description of each material is provided in the following sections.

Artificial Fill (Af)

Fill was encountered to a depth of approximately 5 feet in offsite boring B7 which was drilled on the Bowen property between Wicks Road and the subject property. This material consisted of dark brown fine to coarse grained sand with minor amounts of clay and silt, in a moist, medium dense to dense condition. This fill is presumably associated with the construction of Wicks Road.

Alluvium (Qal)

Alluvium was encountered in all three CPT soundings as well as in borings B1 through B6. The alluvium consists predominantly of fine to coarse grained silty sand with infrequent lenses and strata of gravelly sand, clayey sand, silt and clay. An exception is a stiff clayey silt unit approximately 5 feet thick between 11-16 feet in Boring B1 which correlates well with CPT1, CPT2, CPT3 and B3. The alluvial soils tested in our laboratory have dry densities ranging from 104 to 123 pcf and moisture contents ranging from 1.8 to 18.2 percent.

Saugus Formation Bedrock (TQs)

Bedrock of the Plio-Pleistocene age Saugus Formation underlies the hillside terrain and alluvial deposits at the site. Saugus Formation was encountered in borings B3, B5, B6 and B7. The lithologies encountered include fine to coarse grained sandstone, gravelly sandstone and minor conglomeratic sandstone, with less prevalent interbeds of siltstone and clayey siltstone. Claystone was absent with the exception of a 4-inch thick bed in Boring B5. The coarser grained units were typically dense, weakly cemented to uncemented, and friable. These units frequently exhibited scoured irregular contacts, internal scours and channel fills, and crude bedding to well-defined cross bedding. Finer grained units were typically stiff and massive. Overall we would characterize the Saugus Formation in this location to be very thinly to thickly bedded.

GEOLOGIC STRUCTURE

The site is located on the far southern flank of a regional structure originally described as the Moorpark Anticline (Weber, 1973; Dibblee, 1992) which is a broad, possibly asymmetrical structure occupying the foothills north of Little Simi Valley and downtown Moorpark. Numerous studies conducted on sites to the west, northwest, north and northeast suggest that this

broad anticlinal structure is folded and faulted, and that gentle lower-order folds and warps are superimposed upon the larger anticlinal structure. Pertinent geologic structural data surrounding the site include Tentative Tract 5505 approximately 850 feet northwest (GWV, unpublished), and Tentative Tract 5130 approximately 1250 feet to the northeast (Gorian, 1998). These data suggest an overall gentle west-southwesterly dip, ranging from 2 to 8 degrees, for the Saugus Formation in the area of the subject site. Although the data are being projected across significant distances, the data are projected from different directions (northeast and northwest) and when viewed in conjunction with the site specific data, suggest that the overall structure across the area is somewhat consistent with gentle southwest dips.

Site-specific geologic data were obtained from the downhole logging of Borings B5 through B7 and these data are illustrated on Plate 1.2. Attitudes were measured on bedding planes, and in some cases on cross-bedding and scoured contacts. It should be noted that the cross-bedding and scoured contact attitudes are not representative of the overall geologic structure of the site vicinity. In general, bedding attitudes measured in the borings ranged in strike from N55E to N45W, with gentle dips to the northwest, west and southwest. The boring data for B5 revealed some northwest to northeast dipping Saugus Formation structure. A sharp moderately southwest-dipping contact identified as a possible fault was logged at 43.5 feet in B5; however, displacement could not be measured and no clayey shear surface was identified. Below this feature bedding structure changed to gentle southwesterly dips.

Local Faulting

Fault investigations performed on Tract 5045 (PML, 1996, 1997) northeast of the subject site identified two significant fault features (termed the *Northern Area Thrust* and *Southern Area Thrust*) and concluded that these features were active faults but not seismogenic structures (i.e.,

not deeply rooted into the regional tectonic framework and not capable of individually producing earthquakes), rather, they were secondary fault features that originated along bedding planes at relatively shallow depths during folding (aka "bending moment structures"). The faults were modeled as features associated with active deformation (i.e., folding and warping in response to north-south regional compression and uplift) that presumably occurs co-seismically with events on either the Oak Ridge Fault or Simi-Santa Rosa Fault which bracket the area to the north and south, respectively. The *Northern Area Thrust* was concluded to be a blind thrust fault that warped older alluvial sediments that were younger than 50,000 years (ECI, 1997). The *Southern Area Thrust*, a north-dipping feature, was interpreted by PML to be an active fault based upon geomorphic expression (lineament) and displacement of older alluvial sediments; however the *Southern Area Thrust* was never studied further on that site--apparently due to designation of that area of the site as Open Space. We are aware that representatives of the State Geologist (Mr. Jerry Treiman) reviewed the fault trenches on Tract 5045; however, the State chose to not zone the features under the Alquist-Priolo Earthquake Fault Zoning Act program.

A fault investigation on Tract 5187 (GWV, 1999), which is approximately 2500 feet north of the subject property, encountered a north-dipping thrust fault which may well be a southwesterly extension of the *Northern Area Thrust* from Tract 5045. This investigation concluded that the observed fault did not displace sediments on the order of 15 ka to 20 ka, and therefore the fault was not considered active under the State's criteria (GWV, 1999; Shlemon, 1999).

A fault investigation on Tract 5130, north of the subject site, was performed by Gorian & Associates, Inc. (GAI, 1998). The investigation was based upon a geomorphic lineament traversing the property approximately 500 to 600 feet north of Wicks Road. This lineament

appeared to be a westerly projection of the *Southern Area Thrust* lineament from Tract 5045. A prominent south-dipping reverse fault was encountered in two trenches on Tract 5130. The projected surface trace of this feature is approximately 750 feet north of the subject site. GAI concluded that the fault observed was a bending moment or back-thrust feature, and that due to its apparent association with the *Southern Area Thrust* to the east (although oriented differently), it should also be considered active. The fault was found to displace Saugus Formation bedrock and warp and displace an older alluvial unit described as Qoal2. Studies by others (ECI,1997) estimated the Qoal2 unit on adjacent Tract 5045 to range in age from 80 ka to 130 ka (80,000 to 130,000 years before present). A younger alluvial unit described as Qoal3 (and estimated by ECI to be younger than 50 ka on adjacent tract 5045) was not displaced or warped in the GAI trenches. Nevertheless, GAI assumed the fault to be active and recommended building setbacks from this feature.

GROUNDWATER

Groundwater was not encountered to the depths explored (51.5 feet bgs in the alluvium, 70 feet bgs in the Saugus Formation).

We have reproduced Plate 1.2 from CDMG Open-File Report 2000-007 (Seismic Hazard Zone report for the Moorpark Quadrangle) to illustrate the site's location at the edge of the alluviated valley. This figure also illustrates historical high groundwater that has been encountered in the alluviated valley, generally south of the subject site. At the southern end of the subject site, groundwater was not encountered in the CPT soundings or borings which were extended to 51.5 feet below ground surface, with the southern-most boring (B1) extending to an elevation of approximately 477 feet above mean sea level (from a surface elevation of 529 feet).

Approximately 2500 feet south of the site, at a similar point in time, GWV encountered

groundwater at elevation 465 feet from a surface elevation of approximately 503 feet in September 2004 (GWV, 2004).

Research was performed at the County of Ventura to obtain information regarding the history of groundwater in the area. Our research indicates there are two wells in Moorpark with a significant history of water depth readings. They are well 02N19W05K001S and 02N19W04K001S. Several others have information dating back a decade or so. The following table summarizes the groundwater information:

Well Designation	Date Drilled	GS Elevation	GW Elevation	Comments
02N19W05K001S	06/1975*	497'	361' to 469'	GW highest after 1985 (27')
4K001S	10/1950	530'	290' to 500'	GW highest after 1985 (29')
4H	07/1995	543'	530.5'	Near Arroyo Simi (12.5')
4K	09/1991	550'	None	(>50')
4M	12/1989	520'	485' to 488.5'	West of Moorpark Rd. (31.5')
4M	11/2000	520'	469.5' to 471'	(49')
4M	06/2002	520'	470'	412 High St. (50')
9B	07/1988	500'	467' to 470'	Spring & New L.A. Ave. (30')

* Denotes date of 1st reading

Based on well data, the groundwater has been rising in the last half of the 1900's and has leveled off since significant development occurred in Moorpark in the mid 1980's. In addition, we feel it can be reasonably concluded that groundwater has not historically risen above approximate elevation 490' at the site, nor immediately south of the site.

Historic high groundwater is indicated on Plate 1.2 in the SHZ report to be about 20 feet below the ground surface in the alluviated valley south of the site. However, it should be noted that as the topography rises at the valley margin, a 40-foot below ground surface groundwater contour is illustrated in some locations (CDMG, 2000). Based upon the historic groundwater information as well as the site elevation range of 530 to 580 feet above sea level (which at the south end is roughly 25 feet above the valley floor), it can be reasonably concluded that the

subject site falls into this category. As such we have assumed historic high groundwater to be 40 feet below the ground surface for the purposes of liquefaction analysis.

FAULTING AND SEISMICITY

The subject site contains no known active or potentially active faults, nor is it within an Earthquake Fault Zone designated along faults judged sufficiently active and well defined by the State Geologist. Local faults which appear to be secondary, bending-moment structures encountered north and northeast of the site, are described above in the Geologic Structure section. The closest of these known faults is some 750 feet north of the subject property and poses no ground rupture hazard to the subject property. Therefore, the potential for ground rupture is considered to be very low. However, the property is situated within the seismically active Southern California region and ground shaking is likely to occur due to earthquakes caused by movement along nearby faults.

One method of seismic design is to utilize the Static Force procedure (structures less than five stories) presented in the Uniform Building Code (UBC), which can be used to estimate base shear/on-site acceleration based upon site location, occupancy classifications, and the planned structural system. For the 1997 UBC this site has a Seismic Zone Factor, Z of 0.4 (Tbl 16-I). The Soil Profile Type is considered S_D (Tbl 16-J). The Seismic Source Type is considered B (Tbl 16-U) for the Simi-Santa Rosa fault, and the Near Source Factors are estimated as N_a =1.3 and N_v =1.6 (Tbl 16-S & 16-T). These values were derived from the computer program UBCSEIS. The UBCSEIS output is included in Appendix A.

Another method of seismic design is to assess the potential on-site ground acceleration based upon a site's proximity to specific, known faults. This relies upon prediction of a maximum earthquake for each fault considered, relationships that characterize the diminution of

ground response with distance from the causative event, and relationships that assess impact of site-characteristics upon ground response. Two commonly used methods of estimating possible on-site accelerations are the deterministic seismic hazard analysis method (DSHA) and the probabilistic seismic hazard analysis method (PSHA). The deterministic method is of interest in evaluating how individual faults affect the site, and when a design is based on a deterministic analysis (such as a Caltrans structure). The probabilistic methods are of interest in evaluating the design-basis earthquake as prescribed by the UBC. The probabilistic type analyses can be further separated into a site specific PSHA and a probabilistic analysis using the "Simple Prescribed Parameter Value" Method (SPPV). The results of probabilistic analyses using these methods are discussed below. Analysis summaries are attached in Appendix A, Seismic Analyses.

Probabilistic "Simple Prescribed Parameter Value" (SPPV)

We have employed the "Simple Prescribed Parameter Value" Method (SPPV) for estimating the peak ground acceleration (PGA) for a 10 percent exceedance probability for an exposure period of 50 years (UBC Design-Basis Earthquake, 475 year return period). As discussed in CGS Seismic Hazard Evaluation Reports, the attenuation relationships of Boore et.al. (1997), Campbell (1997), Sadigh et.al. (1997), and Youngs et.al. (1997) were utilized to generate PGA maps. We have reproduced Figure 3.3 of CDMG Open File Report 2000-007 (for the Moorpark 7.5 Minute Quadrangle) in Appendix A to illustrate the project location with respect to SPPV PGA values for alluvial conditions. A peak ground acceleration of 0.69g is estimated for a UBC design-level event. A design earthquake magnitude of M_w=6.9 is the predominant earthquake, per Figure 3.4 of Open File Report 2000-007.

Seismic Discussion

The methodology in the Uniform Building Code has been to protect and preserve life and

limb. Building designs using previous UBC codes (pre-1997) has apparently been successful in that regard. With the acceptance of the 1997 UBC, the seismic design of structures has generally become more conservative. On that basis, we recommend minimum structural design be in compliance with the seismic design provisions of the UBC. Though still not performance based, this most recent Building Code will enhance performance over designs based on previous codes.

Design per the UBC (and hence adoption of the philosophy that life and limb need be protected) is commensurate with the local building ordinance. Being that higher standards of design (i.e. that intend to minimize property damage in the case of a much less likely event) have not been adopted by the governing agency (which is responsible for setting such standards), use of a higher acceleration (than provided by the UBC) is discretionary.

LABORATORY TESTING

Undisturbed and bulk samples of soil and rock materials encountered at the site were collected during the course of our fieldwork. Selected laboratory tests completed on the retrieved samples are described below. A comprehensive summary of laboratory test results is provided in Plate LS in Appendix B.

Moisture-Density

The field moisture content and dry unit weight were determined for each undisturbed sample. Dry unit weight is expressed in pounds per cubic foot and the moisture content represents a percentage of the dry unit weight. This test data is presented in the attached boring logs.

Compaction and Expansion Tests

To determine the compaction characteristics of the onsite materials, compaction tests are performed in accordance with ASTM D 1557-00. The maximum dry density is reported in

pounds per cubic foot and the optimum moisture content as a percentage of the maximum dry density. Expansion index tests were performed in accordance with the criteria in U.B.C. 18-2. The results of these tests are included below in Table I.

Laboratory Test Data – Table I

Sample	Description	Maximum Dry Density (PCF)	Optimum Moisture Content (%)	Expansion Index
B1@0-3'	Silty Sand	129.0	8.0	0

Shear Test

Shear tests were performed in a Direct Shear Machine of the strain control type. The rate of deformation is approximately 0.01 inches per minute. Shearing occurred under a variety of confining loads in order to determine the Coulomb shear strength parameters. The test was performed on undisturbed and remolded (@ 90% relative compaction) samples in an artificially saturated condition. The test results are presented graphically on Plates S-B1.0 to SB6.50).

Consolidation Test

Settlement predictions of the soil's behavior under load are made on the basis of consolidation tests. A one-inch high sample is loaded in a geometric progression and the resulting deformation is recorded at selected time intervals. Porous stones are placed in contact with the sample (top and bottom) to permit addition and release of pore fluid. The sample is inundated at a selected load during the progression. Selected samples had data recorded at timed intervals for specific loads to obtain data for time-rate evaluations. Results are plotted on the enclosed Consolidation-Pressure Curves (Plates C-B1.10-C-B6.30).

Particle Size Analysis

The distribution of various particle sizes in selected representative samples was determined using both mechanical sieves and hydrometer tests. The percentage and distribution

of particles larger than a #200 sieve (0.075 mm) are determined using mechanical processes. Particle distributions for fine-grained soils are determined using hydrometer methods. The particle distribution is presented as the relative percentages of sand, silt and clay particles in each sample tested. The results are presented on the attached boring logs and on Plate PS.1.

Liquid Limit, Plastic Limit, and Plasticity Index

The Liquid Limit, Plasticity Limit, and Plasticity Index for selected cohesive soil samples were determined in the laboratory. The Standard Test Method (ASTM D4318-84) was utilized. These parameters are used in the classification of cohesive soils.

A cohesive plastic soil may go through four consistency states as the moisture content of the soil is increased. These states are the solid state, the semisolid state, the plastic state, and the liquid state. The limits between these consistency states are the Shrinkage limit, Plastic limit, and the Liquid Limit (respectively). These limits are often referred to as the Atterberg limits. The Plasticity Index is defined as the numeric value of the Liquid limit minus the numeric value of the Plastic limit (see Plate AL).

Resistivity

The laboratory test for resistivity is performed in order to determine the relative quantity of soluble salts present in a specific soil. It is most often used as a method to determine the likelihood of corrosion potential for steel pipe, pile, or reinforced concrete structures. The resistivity test is also a means for determining the necessity of further chemical analysis of the soil or water for pH, sulfate and chloride-ion content.

A representative sample of the earth materials encountered at the site was delivered to M.J.Schiff & Associates, Inc. where it was tested for resistivity. The test method utilized is in conformity with the procedures outlined in California Test 532/643. Resistivity of soils is

inversely proportional to corrosiveness. Thus, the analysis helps in determining whether the soils may have a deleterious affect on underground metallic structures. Test results are presented below in Table II. A generally accepted correlation between resistivity and soil corrosiveness toward metals is provided below:

Resistivity (Ohm-Centimeter)	Corrosiveness
< 1,000	Severely Corrosive
1,000 - 2,000	Corrosive
2,000 - 10,000	Increasingly Moderate
> 10,000	Increasingly Mild

Laboratory Test Results-Table II

Sample	Description	Status	Resistivity (ohm-centimeters)
B1@0-3'	Silty Sand	as-received	52,000
		saturated	5,000

Soluble Sulfates

A sample was taken from each lot and submitted to our laboratory for a soluble sulfate analysis. Please refer to Table III for a list of the results. When test results exceed 150 ppm, special considerations for concrete design are appropriate per UBC Table 19-A-3. This table contains specific requirements for concrete that is exposed to sulfate.

Laboratory Test Results-Table III

Sample	Description	Soluble Sulfates (ppm)
B1@0-3'	Silty Sand	ND (Not Detected)

pH

The pH of selected samples was tested. The results indicate the sample was slightly basic, with a pH of 7.3.

HYDROCONSOLIDATION POTENTIAL

Hydroconsolidation is a condition where dry or moist soils undergo settlement upon being wetted. In many cases no additional surcharge load is necessary to trigger the

hydroconsolidation.

The potential for hydroconsolidation has been evaluated based upon the results of consolidation tests performed on samples taken from the excavated borings. The results from our testing suggest that the soils within the upper 5 to 7 feet of the site have a potential for hydroconsolidation, considering the results from our consolidation test on the sample from boring B3 at a depth of 5 feet. Other consolidation test results indicate potential hydroconsolidation on the order of 0 to 3 percent. The 3 percent consolidation was noted in a sample from the Saugus formation bedrock in B6 at a depth of 30 feet. This material was noted in the boring log as being friable. The alluvial samples obtained from depths below five feet and exhibiting hydroconsolidation during testing are also coarse-grained. Each of these alluvial samples required a high number of blows to drive the sampler.

Based on our data, we believe that much of the hydroconsolidation noted in our laboratory samples is related to disturbance of sandy samples. It is our opinion that the potential for hydroconsolidation is significant only in the upper 5 to 7 feet of the soil profile. If the recommended removals are accomplished (see the grading recommendation portion of this report), the materials to support the planned construction will have an insignificant potential for hydroconsolidation.

LIQUEFACTION POTENTIAL

Liquefaction is a condition where the soil undergoes continued deformation at a constant low residual stress due to the build-up of high porewater pressures. The possibility of liquefaction occurring at a given site is dependent upon the occurrence of a significant earthquake in the vicinity; sufficient groundwater to cause high pore pressures; and on the grain size, relative density, and confining pressures of the soil at the site.

As part of our analyses of the liquefaction potential on the site, we have performed three CPT soundings and seven borings to obtain subsurface data. Based upon our subsurface information and review of published data, the site is situated at the northern edge of Little Simi Valley where alluvial deposits range from 0 to >50 feet depth beneath the site. We have reproduced Plate 1.2 from CDMG Open-File Report 2000-007 (Moorpark Quadrangle) to illustrate the site's location at the edge of the alluviated valley. As discussed above in the Groundwater section, despite the fact that groundwater was not encountered in the subsurface exploration of the alluvial soil to a depth of 51.5 feet, we feel that available information supports an assumption of historic high groundwater to be 40 feet below the ground surface. This, coupled with the likelihood of significant ground shaking, was cause to perform further evaluation of the liquefaction potential at the site.

General Discussion

Liquefaction is a condition where the sedimentary soils, primarily recently deposited sands and silts, below the water table lose strength and behave as a viscous liquid rather than a solid. This is related to ground shaking when these soils undergo continued deformation at a constant low residual stress due to the build-up of high porewater pressures. The possibility of liquefaction occurring at a given site is dependent upon the occurrence of a significant earthquake in the vicinity; sufficient groundwater to cause high pore pressures; and on the grain size, relative density, and confining pressures of the soil at the site.

We have performed both borings and CPT soundings for use in evaluating the liquefaction potential at the site. Boring B1 has been excavated immediately adjacent to CPT1 to allow for confirmation of the CPT correlations used in our analysis. Based on the exploration information, the CPT data appears to correlate well with the boring information (comparative

information is available in the Liquefaction Analysis Appendix with the CPT 1 data). Considering the positive correlation between the boring information and the CPT information, we have chosen to use primarily the CPT data in analysis of liquefaction potential because of its inherent repeatability and its superior ability to define the underlying earth material stratigraphy.

Based on our data, there are some coarse-grained materials below the assumed design groundwater elevation that have a potential to liquefy during a design-level earthquake.

In the liquefied condition, soil may deform with little shear resistance. The amount of soil deformation following liquefaction depends on the looseness of the material, the depth, thickness, and areal extent of the liquefied layers, the ground slope, and the distribution of loads applied by structures. When liquefaction is accompanied by ground displacement or ground failure, it can be destructive. Adverse effects of liquefaction can include ground oscillation, lateral spreads, flow failures, loss of bearing strength, settlement, and increased pressures on retaining walls.

Discussion of Liquefaction Hazard Assessment

As part of our analyses of the liquefaction potential on the site, we have performed several CPT soundings and borings to obtain subsurface data for use in analyses. Based upon our data, coarse-grained sedimentary soils are present on the site within the upper fifty feet of the soil profile; however it should be noted that these alluvial soils pinch out to zero thickness as bedrock crops out in the northern portion of the site. Groundwater was not encountered within the upper fifty feet during our exploration but is assumed to occur at forty feet below ground surface to reflect probable historic highs.

To address the possible impacts of liquefaction, the practice of geotechnical engineering currently has methods of approximating the potential liquefaction-induced settlement, lateral

spreading, and the possibility of surface manifestations.

Liquefaction-Induced Settlement Potential

The potential for liquefaction-induced settlement has been evaluated using the procedures proposed by Tokimatsu and Seed (1987). Our analysis indicates the potential seismic settlement due to a design-level earthquake could be on the order of 3 ½ inches in the southern portion of the site, where the alluvial deposits are the thickest. The potential seismic settlement is actually due mostly to anticipated compression of the unsaturated alluvial soils, with only a minor contribution from the liquefiable soils. In northern portions of the site, where alluvial deposits are thinner, the potential seismic settlement is reduced. This methodology does not apply to fine-grained materials. Currently, the practice of geotechnical engineering does not have effective means to estimate seismic settlement of fine-grained materials. Recommended design settlement values are discussed subsequent to the Foundation Systems section of this report.

Lateral Spreading and Surface Manifestations

Do to the depth of the groundwater, lateral spreading and surface manifestations are not anticipated using the evaluation methods noted in the attached liquefaction appendix.

SLOPE STABILITY

Stability analyses of the planned and existing slopes were performed using a computerized limit-equilibrium method, the Spencer's Method. The computer program SLIDE v5.0 (Rocscience, 2004) was used. Spencer's Method of stability analysis was chosen because with its use of inter-slice forces, it solves for both force and moment equilibrium. A search of postulated failure surfaces was performed along a fine-grained layer in the bedrock along what we have considered the most critical geologic section. The results of these analyses are provided as a factor of safety. The factor of safety is considered the ratio of available shear strength to the shear strength required for just-stable equilibrium. The minimum computed factor of safety for the static permanent case is in excess of 1.5; however, for the pseudostatic case it is below 1.10.

Cross-Section B-B'

Cross-Section B-B' was drawn through the subject site and projected approximately 1,000 feet north of the northerly property line. Available geologic data projected into the cross-section from offsite areas results in an overall apparent dip of approximately 3 degrees to the southwest, based upon southwest true dips of 4 to 6 degrees. For purposes of analyses, we projected the weakest material encountered in the subsurface exploration (clay at 46 feet in B5) upslope along a 3 degree dip. Based upon attitudes in the lower section of B5, we also projected the bed upslope along a 5 degree apparent dip. Both projections were assumed to be truncated by the south-dipping fault encountered by GAI on Tract 5130. It should be noted that these upslope clay bed projections assume: 1) that the clay bed is laterally continuous across a distance of >500 feet; and, 2) that it is perfectly planar (i.e., not warped by local folding). Neither of these assumptions may be true but we have modeled the slope stability in this manner based upon the limited available geologic data that can be projected to the site.

For material strengths we have utilized our shear test results from our work on this project, along with our knowledge of strength results for these geologic units in the general area of the project. The use of residual strength (based on Stark & McCone correlation) for the aforementioned clay bed, as opposed to the fully-softened state, further assumes that the clay bed has been previously sheared (i.e., via flexural slip) when in fact downhole observation of the material yielded no such evidence. The following strengths were used in our analyses.

Material	Wet Unit Weight (pcf)	Cohesion (psf)	Internal Friction Angle (deg)
Eng. Fill	130	130	32
Alluvium	130	200	38
Saugus Form. Across-bedding	130	500	27
Saugus Form. Along-bedding	130	300	20
Saugus Form. Fine-Grained Bed	130	Non-linear*	Non-linear*

* Based on results of Stark & McCone correlation

Slope Stability – Static Analyses

Based on our static slope stability analysis of cross-section B-B', the slopes superjacent to the subject site appear to have a factor of safety in excess of 1.5. This stability analysis considers the planned cuts for structural improvements.

Slope Stability – Pseudostatic Analyses

We have performed pseudostatic slope stability analysis along cross-section B-B'. These analyses utilized a pseudostatic coefficient of friction of 0.2, in keeping with our understanding of the standards for the City of Moorpark. The results of our analysis using the Spencer's Method indicate a factor of safety of approximately 1.03. This does not meet the customary factor of safety of 1.10 for pseudostatic analysis.

When conditions are such that the customary pseudostatic factor of safety is not met, a secondary analysis is performed to estimate the potential deformation that could occur for the pseudostatic condition. For our deformation analysis, we have used the methods proposed in the "Recommended Procedures for Implementation of DMG Special Publication 117 Guidelines for Analyzing and Mitigating Landslide Hazards in California" ("Guidelines"). We have performed seismic slope stability analyses using the method proposed by Bray, et.al., (1998). This stability methodology was developed for analyses of geosynthetic-lined solid waste landfills. It has been adopted by the implementation committee as being applicable to conventional fill and natural slopes.

Bray Slope Stability Method

The Bray slope stability method utilizes the results of the PSHA, a shear wave velocity for the material, a maximum depth to failure plane, and a failure yield acceleration. The yield acceleration is that pseudo-static coefficient that produces a factor-of-safety of 1.0.

The shear wave velocity acceleration for the bedrock was obtained from reference materials. The analyses, for a CBC level earthquake (475 year return period), predicts displacements of 1 inch and 2 inches for the 3° and 5° apparent dip cases, respectively. Typically, estimated displacements of less than 5 cm are considered acceptable for residential structures. We do not consider this estimated displacement to have negative consequences for the project.

DISCUSSION AND RECOMMENDATIONS

Data from our field exploration, laboratory testing, reference reports, and engineering analyses, coupled with inferred conditions about our exploratory excavations, is the basis for the following discussion. Recommendations, based upon the presently available data, are presented for your consideration.

Removals

Based upon our findings, it is recommended that the upper 5 to 7 of alluvial soil be removed down to firm native materials in areas proposed to support fills or structural loads. In addition, design cuts into bedrock which may support foundations should be observed to confirm that the uppermost weathered zone, which typically affects the upper 3 feet of bedrock, has been removed.

Temporary Excavations

Temporary excavations (such as backcuts for retaining wall excavations) may be considered stable if cut vertical, providing they are restricted to a maximum of 4 feet in height, are provided with permanent support as soon as possible, and they are protected from erosion and saturation. Portions of temporary excavations in excess of 4 feet high should be laid down to 1 1/2:1 for excavations exposing alluvial soils, or 1:1 for excavations exposing bedrock, unless

specific alternative treatments are evaluated and found acceptable.

It should be noted several offsite structures occur near the property line of the subject site. Alternative construction methods, such as slot cutting, or shoring, may be required to ensure temporary stability of offsite properties during construction of retaining walls proposed along property lines. This should be evaluated further during the plan review stage of the project, unless the Client desires an earlier assessment for purposes of evaluating economic feasibility.

Engineered Fill—Compaction Standard

The on-site materials are suitable for use as engineered fill. All roots, organic matter, and other deleterious material should be hand-picked from the soils prior to their use as engineered fill. The majority of soils at the site are coarse-grained, having more than 15% fines passing a 0.005 mm particle size sieve. These materials should be moistened and/or air-dried to near optimum moisture content and compacted to at least 90% of their maximum density as determined using the Modified Proctor Test (ASTM D 1557-00).

Grading—Engineered Fills

The following recommendations pertain to the placement of, and preparation for, engineered fills;

1. The on-site soils are suitable for use as structural fill. Any import materials that are to be used as structural fill should be approved by this office prior to placement.

2. Shrinkage refers to the lesser volume of fill that results from a given volume of excavation. The shrinkage of the alluvial materials is anticipated to be between 12% and 17%. The Saugus Formation bedrock is anticipated to shrink on the order of 7% to 12% considering the planned cuts.

3. All vegetation, trash debris or other deleterious material should be stripped from the area to be graded. Soils bearing sparse grasses may be thoroughly mixed with at least ten parts clean soil and incorporated into the engineered fill. Other materials should be wasted from the site.

4. Compressible soils that lie within the areas to receive engineered fill should be removed to relatively incompressible material, moisture conditioned, and replaced as properly compacted fill. Portions of the compressible materials that are sufficiently thin may be scarified, watered or air dried to approximately the material's optimum moisture content, and compacted in-place. A combination of removal and recompaction in-place may be used, providing the recommended compaction is obtained throughout the recommended depth interval. Based upon the materials exposed in our exploratory excavations, we anticipate the removals to extend to depths of 5 to 7 feet. Removal bottoms must be field verified by a representative of the geotechnical consultant.

5. Exposed surfaces should be scarified, moistened or air dried as appropriate, and compacted to the appropriate percentage of the material's maximum dry density prior to placement of fill (see COMPACTION STANDARD section).

6. We recommend a uniform blanket of compacted fill be created for support of structural footings. The fill cap should extend to at least three feet below the base of proposed footings and five feet beyond their perimeter. Special consideration should be paid to locations where property lines or existing improvements (buildings, retaining walls, fences, power poles, etc.) interfere with the creation of the desired fill cap. Such conditions should be brought to the attention of this office so that the specific site conditions may be evaluated and recommendations provided. Depending upon the circumstances, special excavating techniques may be employed (i.e. slot cutting), alternative foundation designs may be used (i.e. grade beams supported by pad footings or piles), or the compaction standard may be increased.

7. Transition lots (building pads partially cut and partially fill), building pads underlain by non-uniform earth materials (e.g. differing expansive properties) and shallow cut lots (where the depth of cut is less than the thickness of compressible soils) should be provided with a uniform blanket of compacted fill for support of structural footings. The fill cap should extend to at least three feet below the base of proposed footings and five feet beyond their perimeter.

8. Where the ground slopes steeper than 5:1 (H:V), the engineered fill should be properly benched into competent material. Typical benching is illustrated in Appendix E.

9. Fill slopes that toe onto sloping ground should be founded below the compressible surface soils in [MATERIAL]. The key should be at least 20 feet wide and 3 feet deep (measured on the downslope side). The bottom of the key should be graded so that there is at least one foot of fall across its width (toward the upslope side). The key should be located in front of the toe of slope (as shown on the plan) so that the outside limit of the key lies at or beyond a 1:1 projection from the planned toe of the slope. Typical fill key construction is illustrated in Appendix E.

10. Areas that are to be paved should be scarified to at least 12 inches below the existing or rough grade (whichever is deeper), brought to near the material's optimum moisture content, and compacted to the appropriate relative compaction (see COMPACTION STANDARD section).

11. Fill materials should be placed in thin lifts, watered to near the material's optimum moisture content, and compacted to the appropriate relative compaction prior to placing the next lift.

12. Fill slopes constructed of clean sand are commonly subject to excessive erosion or shallow slope failures. Similarly, fill slopes constructed with clayey soils may be subject to desiccation, cracking, creep or other surficial deterioration. Utilizing mixed soils (sand with

some proportion of fines, i.e. clayey sand) in the outer 20 feet of the fill slope may serve to minimize the potential for surficial slope deterioration.

13. The compaction standard applies to the face of fill slopes. This may be achieved by overfilling the constructed slope and trimming to a compacted finished surface, rolling the slope face with a sheepsfoot, or any method that achieves the desired product.

14. All grading should comply with the grading specifications and requirements of the local governing agency.

Grading—Temporary Excavations

Temporary excavations (such as backcuts for stability fills, removals, and retaining wall excavations) may be considered stable if cut vertical, providing they are restricted to a maximum of 4 feet in height, are provided with permanent support as soon as possible, and they are protected from erosion and saturation. Portions of temporary excavations in excess of 4 feet high should be laid back to 1 1/2:1 unless specific alternative treatments are evaluated and found acceptable.

Utility Trench Backfill

Backfill for utility trench excavations should be compacted the appropriate relative compaction (see COMPACTION STANDARD section). Where installed in sloping areas, the backfill should be properly keyed and benched.

Foundation Systems

For planning purposes, this section provides preliminary foundation recommendations for conventional foundations. Once specific building types and foundation loads and locations are known, project specific foundation recommendations can be prepared.

Considering the planned excavations near property lines, there is a probability that

portions of the buildings will have walls designed to use soldier piles. Recommendations for pile foundations are provided in the retaining wall section of this report.

Conventional Foundations

Continuous or pad footings may be used to support the proposed structures. In order to achieve the capacities specified below, they should be founded a minimum of 12 inches into engineered fill, with the concrete placed against in-place, undisturbed material. Foundation design criteria are based, in part, upon the expansive properties of the materials anticipated to be present near the finished pad grade. Laboratory testing to verify the expansive properties of the near-pad-grade materials should be performed at the completion of rough grading.

Pre-saturation guidelines are presented in the following table. Pre-saturation of the foundation soils should be initiated well before concrete is scheduled to be placed. Care should be taken to see that the water has properly penetrated the soil. Last minute flooding is not a good practice. Excess water remaining in the target pre-saturation zone at the time of concrete placement will penetrate further into the soil, possibly causing additional expansion and uplift of the curing concrete.

Anticipated Expansion Index Range	**0 - 20**
Pre-moisten	12"
Footings[1]	
Allowable Bearing Capacity	1800 PSF[2]
Lateral Resistance	400 PSF/Ft[2][3]
Maximum Lateral Resistance	2500 PSF[2][3]
Coefficient of Friction	0.4
Minimum Embedment Into Foundation Material	12 inches
Minimum Embedment Below Adjacent Grade[4]	24 inches
Minimum Reinforcement	2 #4 bars, 1 near top, 1 near bottom
Slabs-On-Grade	
Bedding	2" of clean sand[5]
Thickness	Full 4"
Minimum Reinforcement	#4 bars @ 16" o.c., e.w.

Anticipated Expansion Index Range	**21 - 90**
Pre-saturation	18" (EI 21-50) 21" (EI 51-90)
Footings[1]	
Allowable Bearing Capacity	1800 PSF[2]
Lateral Resistance	250 PSF/Ft[2] [3]
Maximum Lateral Resistance	1800 PSF[2] [3]
Coefficient of Friction	0.3
Minimum Embedment Into Foundation Material	12 inches
Minimum Embedment Below Adjacent Grade[4]	24 inches
Minimum Reinforcement	2 #4 bars, 1 near top, 1 near bottom
Slabs-On-Grade	
Bedding	4" of clean sand[5]
Thickness	Full 4"
Minimum Reinforcement[6]	#4 bars @ 16" o.c., e.w.

(1) Bearing portions of all footings should be at least five feet (measured horizontally) from the face of adjacent, descending slopes. All footings should bear at least three feet below an imaginary plane projected upward at 1.5:1 from the toe of locally over-steepened slopes. Pad footings should be at least 24 inches square.

(2) May be increased by 1/3 for short duration loading such as by wind or seismic forces.

(3) Decrease by 1/3 when combined with friction.

(4) Applies to exterior footings. Depth must meet the CBC requirements for the specific level of stories supported.

(5) Place vapor barrier (10 mil. visqueen) one inch below top of sand layer beneath all areas where moisture penetration of the slab is undesirable.

(6) Dowel slab to exterior footing using #3 bars @ 32" on center, bent 3' into slab for EI=51-90.

For design of mat foundations or slabs-on-grade, a modulus-of-subgrade reaction of 125 PSI/IN may be used. This value is a unit value for use with a 1-foot-square plate. The modulus should be reduced in accordance with the following equation when used with a larger area:

$$K_S = K_1\left[\frac{B+1}{2B}\right]^2$$

Where: K_S =Reduced subgrade modulus
K_1 =Unit subgrade modulus
B =Foundation width in feet

Settlement

For planning purposes, structural foundations designs should consider total static settlement from foundation loads to be on the order of 1 inch with differential settlement on the order of ½ inch over a distance of 30 feet.

The site is defined as having a potential for seismically induced settlement. Our analysis indicates a potential for seismic settlement as great as approximately 3 ½ inches during a design-level earthquake. The differential seismic settlement can be assumed to be equal half of the total seismic settlement. Considering the estimated potential total seismic settlement of 3 ½ inches, the differential seismic settlement can be considered 1 ¾ inches over an assigned horizontal distance of 30 feet.

Retaining Wall Recommendations

Retaining walls are planned throughout the property, with some to be constructed near the perimeter property lines. It is anticipated that the walls away from the property lines will use conventional foundations, while those walls along the perimeter of the property will be designed as soldier pile walls. Foundation design criteria for conventional foundations are provided in the preceding Foundation section. Pile design criteria is provided in subsequent portions of this report. Lateral loading criteria for cantilevered wall designs are presented in the table below.

Slope of Backfill	Equivalent Fluid Density Active Condition (pcf)	Equivalent Fluid Density At-Rest Condition (pcf)
Level	43	64
3:1	56	95
2:1	70	---

All retaining walls should be provided with adequate backdrainage systems. Either weep holes or pipe outlets should be installed. Free draining material should be used behind weep holes or about pipe drains. Care should be exercised to see that weep holes are installed and maintained above the finish grade adjacent to the face of the wall.

Backfill for retaining walls should be properly compacted. An impervious cap should be provided at the top of the backfill to retard infiltration of water.

Additional surcharge, such as that due to proposed structures, traffic, or other loading, should be included in the wall design. Use of expansive soil as backfill for retaining walls will result in a surcharge to the wall, the magnitude of which is dependent upon the expansion index of the backfill. This may be avoided by using sand or gravel as backfill adjacent to the wall. Details regarding this type of construction may be provided upon request.

In areas where sloping of the sidewalls of temporary excavations is not possible, such as where retaining walls are planned along property lines, soldier pile walls may be used as an alternative to cantilever retaining walls with conventional shallow spread footings. The following geotechnical recommendations are provided for of cantilever soldier piles with lagging. It is anticipated that for the property line walls, the temporary lagging will be covered over with a reinforced concrete wall between soldier piles. These recommendations are general in nature, additional recommendations may be warranted once construction methods and specific data regarding the shoring design are available.

For soldier pile retaining walls the aforementioned active-earth lateral pressure may be used for the retained soil. Additional loading from any adjacent foundations should be incorporated into the design of the retaining wall. The lateral surcharge load from foundations should be continued to a depth where the pressure exerted by the surcharge is 100 psf or less. At this point the foundation surcharge may be discontinued provided it is below the bottom of the excavation. Nearby traffic loads within a 1:1 projection from the base of the excavation should also be incorporated into the design loading. The lateral load from traffic loads should be continued to a depth of 10 feet or to the bottom depth of the excavation, whichever is less.

The cantilever soldier piles are anticipated to resist lateral movement or overturning through transmission of these lateral forces to the soils below the excavation elevation. The

passive resistance provided by the soils below the base of the excavation can be assumed to be an allowable pressure of 600 psf/ft to a maximum of 6000 psf (considering a factor of safety of 1.5) for piles spaced at least three pile diameters apart. This passive resistance is applicable for undisturbed soil in direct contact with the soldier pile. The depth of the pile penetration below the base of the excavation must be sufficient to resist the lateral movement and over-turning of the soldier pile system. We recommend that passive resistance be ignored for a depth equal to 1.5 times the effective pile diameter below the base of the excavation. The effective pile diameter is considered the dimension of the soldier pile taken parallel to the line of the wall for driven piles, or the diameter of the drilled hole, whichever is greater.

Drilled holes may be backfilled with structural concrete below the excavation line. The remainder of the hole may be backfilled to the ground surface with sand-cement slurry or lean concrete that is strong enough to prevent collapse of the hole, but weak enough to be excavated for installation of lagging.

Wood or steel lagging should be used to support the excavation wall between the soldier piles. If the lagging is to remain in place permanently, then treated lumber should be used for the wood lagging. Much of the lateral force is anticipated to be distributed to the cantilever soldier piles through soil arching. Therefore, the lagging may be designed to resist 60% of the theoretical lateral load on a simple span, but need not exceed a value of 400 psf (without surcharges). For the arching effect to occur, the backside of the soldier pile must bear against the soil. Placement of lagging behind the back flange of the soldier pile is not recommended.

Cast-in-Drilled-Hole Pile Foundations

Based on the site conditions and our understanding of the project, the proposed structures may be supported on cast-in-drilled-hole (CIDH) friction piles founded in competent native

materials. The alluvium and bedrock on the site can be excavated by a drill rig. This material is sandy and caving of the excavations may occur.

CIDH piles may be designed with a minimum diameter of 24 inches. The recommended allowable vertical capacity is presented on Plate C1. Concrete must be placed in direct contact with the undisturbed in-place materials in order to achieve the specified allowable capacities. Piles may be assumed to derive vertical support via skin friction in the native materials or fill beginning at a depth of approximately 1.5 pile diameters below grade.

Pullout resistance may be taken as one-half the allowable capacity. Capacities may be increased by one-third for short duration loading (i.e., by wind and seismic loading). Settlement of piles is anticipated to be less than one half inch. Lateral deflection of 24 inch diameter CIDH piles is anticipated to be less than one quarter of an inch.

Factors of Safety

The factor of safety for the allowable bearing pressure provided is greater than three. The allowable passive pressure provided is based upon a factor of safety of 1.5. The factor of safety for the sliding friction is one. The factor of safety for the active pressure is one.

With regard to retaining walls, the Uniform Building Code calls for a 1.5 factor of safety for both sliding and overturning. We defer to the Uniform Building Code and the project structural engineer on this matter.

Corrosion Potential

Preliminary testing of a sample obtained from our borings indicates the on-site soils have a negligible level of sulfates indicates a low corrosion potential for concrete. Resistivity tests indicate the soils are mildly corrosive to ferrous metals. Near the completion of grading additional testing should be performed to verify the corrosion potential of the soils.

TABLE 19-A-4 REQUIREMENTS FOR CONCRETE
EXPOSED TO SULFATE-CONTAINING SOLUTIONS

SULFATE EXPOSURE	WATER-SOLUBLE SULFATE (SO_4) IN SOIL, percentage by weight	SULFATE (SO_4) IN WATER, ppm	CEMENT TYPE	Maximum Water-Cementitious Materials Ratio, by Weight, Normal-Weight Aggregate Concrete[1]	Minimum f'c Normal Weight and Lightweight Aggregate Concrete, psi[1] x 0.00689 for MPa
Negligible	0.00 - 0.10	0 – 150	--	--	--
Moderate[2]	0.10 - 0.20	150 - 1,500	II, IP(MS), IS(MS)	0.50	4,000
Severe	0.20 - 2.00	1,500 - 10,000	V	0.45	4,500
Very severe	Over 2.00	Over 10,000	V plus pozzolan[3]	0.45	4,500

1 A lower water-cementitious materials ratio or higher strength may be required for low permeability or for protection against corrosion of embedded items or freezing and thawing (Table 19-A-2).
2 Seawater
3 Pozzolan that has been determined by test or service record to improve sulfate resistance when used in concrete containing Type V cement.

Preliminary Pavement Structural Sections

Preliminary plans indicate improvements will include constructing parking lots, access drives, and perhaps improvements to existing exterior streets. The parking stalls should be designed using 3 inches of asphaltic concrete on 7.5 inches of base. The driveways should be designed using 3 inches of asphaltic concrete on 10.5 inches of base. At this time, the location and planned traffic index of exterior streets is not known. Street recommendations can be provided once supplemental street improvement design information is known.

The upper 12 inches of the subgrade soil should be compacted to at least 95% relative compaction. Base materials should be compacted to at least 95% relative compaction.

R-value tests should be performed at the completion of grading and final pavement section designs developed at that time.

Drainage

Positive drainage should be established to carry pad waters away from structures and foundations, and to prevent uncontrolled or sheet flow over manufactured slopes. We recommend as steep a gradient as practical be established around the structures, to the street or other non-erosive drainage devices. Fine-grade fills placed to create pad drainage should be compacted in order to retard infiltration of surface water.

Preserving proper surface drainage is also important. Planters, decorative walls, plants, trees or accumulations of organic matter should not be allowed to retard surface drainage. Area drains and roof gutters (if present) should be kept free of obstruction. Roof gutters (if present) and/or condensation lines from air conditioners should outlet to a non-erodible device, i.e., walkways, patios, driveways, drain lines or splash blocks that direct the water away from the structure. Swales and/or area drains should outlet to the street or acceptable non-erodible device. Positive drainage along the backs of retaining walls should be maintained. Any other measures that will facilitate positive surface drainage should be employed.

Construction Monitoring

Finalized grading plans and foundation plans should be submitted to this office. The project Civil Engineer should incorporate the removal recommendations into the grading plans. Additional recommendations may be provided at that time of our review, if such are considered warranted.

Placement of all fill and backfill should be monitored by representatives of this office. This includes our observation of prepared bottoms prior to filling. All excavated slopes, both temporary and permanent, should be observed by a representative of this office. Supplemental recommendations may prove warranted based upon the materials exposed in the actual excavations.

Foundation excavations should be observed by representatives of this office to see if the recommended penetration of proper supporting strata has been achieved. Such observations should be made prior to placing concrete, steel or forms. This office should be notified at least 24 hours prior to placing concrete.

CLOSURE

This geotechnical report has been prepared in accordance with generally accepted engineering practices at this time and location. No other warranties, either express or implied,

are made as to the professional advice provided under the terms of our agreement and included in this report.

Thank you for this opportunity to be of service. Please do not hesitate to call if you have any questions regarding this report.

Respectfully submitted,
GEOLABS-WESTLAKE VILLAGE

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C.E.G. 1832

Lawrence K. Stark
R.C.E. 46240

Ronald Z. Shmerling
C.E.G. 1047
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XC: (6) Addressee

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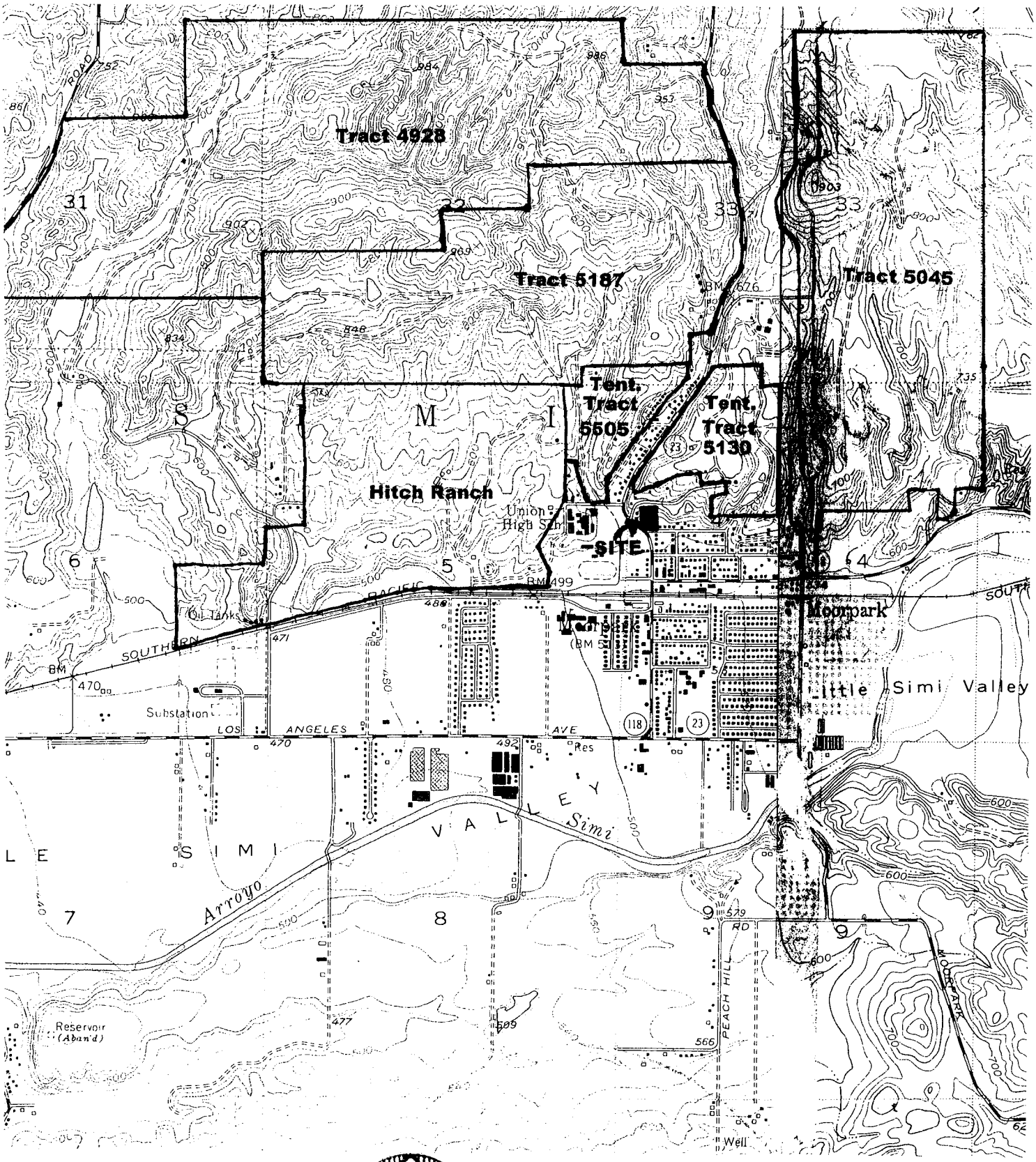
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LOCATION MAP - EVERETT TERRACE

City of Moorpark, California



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Geolabs – Westlake Village

GEOLOGY AND SOIL ENGINEERING

DATE _____ BY SD

SCALE 1"=2000' W.O. 8953

Base map: Moorpark 7.5-minute quadrangle, 1969.

PLATE 1.1

SUBSURFACE DATA

LOG OF BORING B1

CLIENT: John Newton	PROJECT: Everett Terrace	W.O.: 8953
LOCATION: Moorpark	ELEVATION: 529'	DATE: 7/2/04
RIG TYPE: 8" HSA	HAMMER WEIGHTS: 140 lbs.	DROP: 30"

	N	U	B	M	DD	DESCRIPTION	ATTITUDES
0			X				
			X				
	8/12/14	C	X	4.4	103.7	@2.5' - Alluvium: Dark brown silty SAND with infrequent coarse grains, dry, loose, porous, roots and rootlets.	
5	5/10/12	C		6.6	106.5	@5' - Dark brown silty SAND with occasional coarse grains, damp, loose, porous (frequent 1/16" diameter pores occasionally larger).	
	11/16/21	C		6.2	119.2	@6.5' - Yellowish brown slightly silty SAND, medium grained, with occasional subrounded coarse grains to fine grained sequences, damp, medium dense, friable.	
			X				
			X				
10	13/25/25	C		8.2	113.1	@10' - Yellowish brown slightly silty fine grained SAND, damp, dense.	
						@11' - Dark yellowish brown silty CLAY with sand, moist, very stiff,	
	11/30/50	C	X	18.2	112.4	frequent white calcium carbonate filaments (veinlets).	
			X				
15	12/25/32	C		17.8	108.5	@15' - Dark yellowish brown CLAY, moist, very stiff, frequent soft calcium carbonate rich pockets; LL=56.3, PL=17.8, PI=39; 12% sand,	
	7/8/10		S			58% silt, 30% clay (0.002).	
						@16' - Yellow brown fine to coarse grained SAND with occasional gravels, damp to dry, medium dense, friable.	
20	10/11/10		S			@20' - Yellowish brown silty SAND with occasional subrounded to subangular gravels, damp, medium dense.	
	9/10/12		S			@22.5' - Yellowish brown silty clayey SAND to sandy CLAY with occasional coarse grains, moist, medium dense to very stiff; 1% gravel, 52% sand, 33% silt, 14% clay (0.002).	
25	11/12/17		S			@25' - Pale yellowish brown SILT with clay stringers, grading to medium to coarse grained SAND with gravels, finer sequences moist, coarser	
	10/14/15		S			sequences dry, very stiff to dense, non-plastic; 2% gravel, 60% sand, 28% silt, 10% clay (0.002).	
						@27.5' - Yellow brown SILT with small white calcium carbonate veinlets,	
30	9/12/12		S			damp, very stiff, grading to fine grained SAND, friable, damp, dense to medium dense.	
	12/12/15		S			@30' - Yellowish brown silty fine grained SAND with infrequent coarse grains, damp, dense to medium dense, grading to medium brown sandy CLAY with frequent medium to coarse grained SAND, moist, very stiff.	
35	12/11/13		S			@31' - Dark yellowish brown slightly clayey silty SAND with frequent coarse grains, damp, dense to medium dense.	
	12/17/25		S			@35' - Medium brown clayey silty SAND, moist, dense/stiff; LL=26.5, PL=14.1, PI=13; 54% sand, 34% silt, 12% clay (0.002).	
						@37.5' - Pale yellow brown slightly silty medium to coarse grained	
40	12/12/14		S			SAND with frequent small gravels, dry, dense.	
						@40' - Medium brown clayey silty SAND with frequent coare grains, moist, dense to medium dense.	
45							

ADDITIONAL COMMENTS:

C = California Split Barrel Sampler
S = Standard Penetration Test (SPT)
Blows per 6"

SURFACE DATA

LOG OF BORING B1

CLIENT: John Newton	PROJECT: Everett Terrace	W.O.: 8953
LOCATION: Moorpark	ELEVATION: 529'	DATE: 7/2/0
RIG TYPE: 8" HSA	HAMMER WEIGHTS: 140 lbs.	DROP: 30"

	N	U	B	M	DD	DESCRIPTION	ATTITUDES
40							
	10/12/15		S			@42.5' - Medium brown slightly clayey silty SAND with frequent coarse sand grains, damp to moist, dense to medium dense.	
45	8/12/15		S			@45' - Medium brown slightly clayey silty SAND with frequent coarse sand grains, damp to moist, medium dense, to dense.	
	6/7/8		S			@47.5' - Medium brown slightly clayey silty SAND with frequent medium to coarse sand grains, moist, rnedium dense, non-plastic; 1% gravel, 63% sand, 27% silt, 9% clay (0.002).	
50	13/17/22		S			@50' - Dark brown silty sandy CLAY to silty clayey SAND (paleosol?) with frequent medium to coarse sand grains, moist, very stiff to dense.	
55						Total Depth - 51.5' No groundwater No caving Backfilled	
60							
65							
70							
75							
80							
85							

ADDITIONAL COMMENTS:

C = California Split Barrel Sampler
S = Standard Penetration Test (SPT)
Blows per 6"

SUBSURFACE DATA

LOG OF BORING B2

CLIENT: John Newton	PROJECT: Everett Terrace	W.O.: 8953
LOCATION: Moorpark	ELEVATION: 543'	DATE: 7/2/04
RIG TYPE: 8" HSA	HAMMER WEIGHTS: 140 lbs.	DROP: 30"

	N	U	B	M	DD	DESCRIPTION	ATTITUDES
0						Alluvium: Medium brown slightly clayey silty SAND with frequent coarse grains, dry to moist, loose to medium dense.	
			X				
			X				
5						Gravels at 5'.	
	14/23/	C		3.0	112.4	@5' - Yellowish brown fine, well sorted fine grained SAND with infrequent	
	50-5"					coarse grains, dry to damp, dense.	
			X			Occasional silt stringers.	
			X				
10	12/27/30		S			@10' - Yellowish brown SAND with graded sequences consisting of fine to coarse sands, dry, dense to very dense.	
						Subrounded gravels at 14'.	
15	100-6"	C		2.0	---	@15' - Yellowish brown slightly clayey silty SAND and gravels, damp,	
	50-6"		S			dense to very dense.	
						@16' - Yellowish gray brown GRAVEL with coarse sand, subrounded to rounded, dry to damp, tightly packed, very dense, occasional calcium carbonate coating of gravels.	
20							
25						Total Depth - 16.5' (refusal on gravels).	
						No groundwater	
						No caving	
						Backfilled.	
30							
35							
40							
45							

ADDITIONAL COMMENTS:

C = California Split Barrel Sampler
S = Standard Penetration Test (SPT)
Blows per 6"

SUBSURFACE DATA

LOG OF BORING B3

CLIENT: John Newton	PROJECT: Everett Terrace	W.O.: 8953
LOCATION: Moorpark	ELEVATION: 535'	DATE: 7/2/04
RIG TYPE: 8" HSA	HAMMER WEIGHTS: 140 lbs.	DROP: 30"

	N	U	B	M	DD	DESCRIPTION	ATTITUDES
0						Alluvium: Medium to dark brown silty SAND with frequent coarse grains, dry, porous, loose, abundant roots and rootlets.	
			X				
			X				
5	6/10/12	C		3.3	103.7		
10	13/14/15		S			@7' - Yellowish brown slightly clayey silty SAND, frequent medium grains, occasional coarse grains, damp, medium dense to dense.	
15	5/30/30	C		2.7	107.0	@15' - Yellowish brown fine to coarse grained SAND, frequent graded sequences (fine to coarse), damp to dry, dense to very dense, occasional white calcium carbonate coatings on coarse grains.	
			X			@17' - Yellowish brown clayey SILT to silty CLAY and interfingers of SAND, occasional coarse grains, moist, dense/very stiff, finer grained	
			X				
20	25-5"		S			sequences speckled with small white calcium carbonate veinlets.	
25	100-6"	C		8.0	114.0	@25' - Medium brown clayey SAND with frequent coarse grains, damp, very dense, occasional pores. @26.5' - Very tight drilling, near refusal. Saugus Formation:	
30	16/18/24		S			@30' - Pale yellow fine grained SANDSTONE, dry, dense, well sorted.	
35	100-11"	C		23.6	98.4	@34' - Dark yellow brown to medium brown CLAYSTONE, massive, frequent black manganese staining, damp, very stiff, grades to light brown SILTSTONE, damp, very stiff.	
40	40/50-5"		S			@40' - Pale yellow fine grained SANDSTONE, well sorted, friable, dry, very dense. Total Depth - 40' No groundwater No caving	
45						Backfilled	

ADDITIONAL COMMENTS:

C = California Split Barrel Sampler
S = Standard Penetration Test (SPT)
Blows per 6"

SUBSURFACE DATA

LOG OF BORING B4

CLIENT: John Newton	PROJECT: Everett Terrace	W.O.: 8953
LOCATION: Moorpark	ELEVATION: 540'	DATE: 7/2/04
RIG TYPE: 8" HSA	HAMMER WEIGHTS: 140 lbs.	DROP: 30"

	N	U	B	M	DD	DESCRIPTION	ATTITUDES
0						Alluvium:	
5	6/10/18		S			@5' - Medium brown silty SAND with frequent coarse grains, damp, medium dense.	
10	100-10"	C		6.0	122.5	@10' - Medium brown silty SAND with frequent coarse grains, damp, dense.	
15	7/18/20		S			@15' - Medium brown slightly clayey silty SAND with occasional coarse grains, damp, dense.	
20	12/15/25		S X X			@20' - Pale yellow fine to coarse grained SAND and subrounded subangular gravels, dry, dense, friable.	
25	8/16/50	C		10.0	115.3	@25' - Medium olive brown clayey SILT stringers over pale yellow very fine grained SAND, finer materials, moist, stiff, coarse grained materials dry, dense.	
30	12/20/25		S			@30' - Pale yellow silty SAND, damp, dense, with infrequent thin medium brown clayey stringers.	
35						Total Depth - 30' No groundwater No caving Backfilled	
40							
45							

ADDITIONAL COMMENTS:

C = California Split Barrel Sampler
S = Standard Penetration Test (SPT)
Blows per 6"

SUBSURFACE DATA LOG OF BORING B5

CLIENT: John Newton	PROJECT: Everett Terrace	W.O.: 8953
LOCATION: Moorpark	ELEVATION: 542'	DATE: 11/9/04
RIG TYPE: 24" Bucket	HAMMER WEIGHTS: Kelly Bar Weights	DROP: 18"

	N	U	B	M	DD	DESCRIPTION	ATTITUDES
0						Alluvium: Dark brown silty SAND with frequent coarse subangular grains and occasional subangular to subrounded gravels, moist, moderately loose, porous.	
5						@6' - Dry, increasing coarse grains, increasing clay content, decreasing porosity, stiff to dense.	
10						@12' - Clayey SAND with frequent coarse subangular to subrounded grains, moist, dense.	
15						@14.5' - Medium brown sandy CLAY, moist, frequent coarse grains, stiff.	
						@15' - Medium brown silty SAND with frequent subangular coarse grains, moist to damp.	
20						@19' - Coarsening at lower contact to friable SAND with subangular gravels, dry.	
						@21' - Irregular scoured contact of dark brown silty SAND with occasional friable SAND lenses with abundant coarse grains, dry.	
						@23-38' - Casing.	
25						@24' - Yellowish brown fine to coarse grained SAND with frequent small gravels, moderately friable, massive.	
						@26' - 4" SILT lens, discontinuous.	
						@27' - SILT with frequent subrounded to rounded coarse grains and small gravels.	@28' Approx. N35W/20NE
30						@28' - Caved - light gray fine to coarse grained well graded SAND and small gravel, dry, friable.	
						@30-38' - Not logged due to caving and casing. Saugus Formation contact estimated at ±35'.	
35							
						@38' - Saugus Formation: Olive tan SILTSTONE, wavy, weakly bedded, interbedded with fine grained SANDSTONE, moist, stiff to dense.	@38.5' - B N66W/25NE N52W/14NE
40							@39.5' B
	3/6/8			25.0	93.5	Becoming slightly clayey SILTSTONE, massive, moist, stiff.	N65E/25NW
	NR			18.5	109.9		@40' B N36W/25NE
							@40.5' B
45							N42W/16NE

ADDITIONAL COMMENTS: Kelly Bar Weights: 0 - 25', 2800 lbs.
25 - 47', 1600 lbs.
47'+, 1000 lbs.

NR = Not Recorded

SUBSURFACE DATA

LOG OF BORING B5

CLIENT: John Newton	PROJECT: Everett Terrace	W.O.: 8953
LOCATION: Moorpark	ELEVATION: 542'	DATE: 11/9/04
RIG TYPE: 24" Bucket	HAMMER WEIGHTS: Kelly Bar Weights	DROP: 18"

	N	U	B	M	DD	DESCRIPTION	ATTITUDES
40							
							@42.5' B
						@43.5' - Sharply truncated (faulted?) by sandy SILTSTONE bed.	N55W/13NE
						@44' - Medium brown SANDSTONE with abundant coarse sand,	@43' - B
45						occasional subrounded to rounded gravels, moist.	N38W/20NE
						@46' - 4" clay bed, smooth bedding plane, no striations, no evidence	@43.5' Fault
						of movement, underlain by olive brown SILTSTONE and light olive gray	N27W/37SW
						fine grained SANDSTONE interbeds.	@44' B
						@48' - Fine to medium grained SANDSTONE with fine grained	N33E/34SE
50	7/15			4.4	120.7	SILTSTONE interbedded lenses.	@46' B
						@49' - Olive brown SILTSTONE, massive, damp to moist.	N25W/14SW
						@51' - Light gray fine grained massive SANDSTONE with 1" gray,	@48' - B
						massive, stiff, clay lens at base.	N45W/15SW
						@52' - Yellow brown fine to medium grained SANDSTONE with	@52' Approx.
55						frequent subrounded to rounded coarse grained lenses and gravels,	BN45W/6SW
						moderately friable, damp, poorly bedded, moderate well graded,	@53' B
						coarsening downward sequences to include rounded cobbles, cross-	N80W/5SW
						bedded by coarser grained sequences.	
						@57' - Dark brown silty SANDSTONE with abundant coarse grains and	
60						subrounded to subangular gravels, damp.	
						@61' - Olive brown slightly silty fine to medium grained SANDSTONE	
						with abundant coarse grains and subrounded gravels.	
						@62' - Cobbles up to 10".	
65							
70						Total Depth - 70'	
						No groundwater	
						Caving from 28-38'	
						Casing placed from 23-38'	
						Backfilled	
72							
80							
85							

ADDITIONAL COMMENTS: Kelly Bar Weights: 0 - 25', 2800 lbs.
25 - 47', 1600 lbs.
47'+, 1000 lbs.

SUBSURFACE DATA

LOG OF BORING B6

CLIENT: Newton	PROJECT: Everett Terrace	W.O.: 8953
LOCATION: Moorpark	ELEVATION: 549'±	DATE: 2/7/05
RIG TYPE: 24" Bucket	HAMMER WEIGHTS: Kelly Bar Weights	DROP: 12"

	N	U	B	M	DD	DESCRIPTION	ATTITUDES
0						Fill: Dark brown clayey SAND with gravel, dense, moist, sparse roots to 8'.	
						@1.5' - Alluvium: Tan brown fine to coarse grained SAND, dense, damp. Tan brown fine to coarse grained SAND with occasional subrounded to round gravel, very friable, dense, damp.	
5	3			2.2	104.7	Belling below 4'. Cross bedded friable SAND.	@7' B N42E/19NW (x-bedding)
10	9			1.8	112.9	Subrounded to round gravel to cobble in friable yellow brown fine to coarse grained SAND, well graded, dense, damp. @9' - Interbedded 12" thick subrounded to round gravel to cobble in fine to coarse grained SAND, well graded, and fine to coarse grained SAND, friable, dense, damp.	@12' B N38E/7NW (lamination)
15	9			2.6	116.8	@12' - Laminated light olive gray fine to coarse grained SAND, friable, dense, damp. @12.5' - Subrounded to round gravel to coarse cobble in fine to coarse grained SAND, dense, damp, well graded, occasionally poorly graded gravel, heavily scoured.	
20	8			3.7	114.1	Saugus Formation: Scoured contact with discontinuous pale yellow brown SILTSTONE and light olive gray cross bedded friable fine to coarse grained SANDSTONE. Massive silty fine grained SANDSTONE, dense, moist.	@19' Contact N25E/27NW @22' B N25E/8NW
25	17			14.5	108.1	Interbedded 3-6" pale yellow brown clayey SILTSTONE, hard, moist, and silty SANDSTONE, dense, damp.	@26' B N22E/8NW
30	9			6.0	102.8	@30.5' - Slightly scoured contact between friable light olive brown fine to medium grained SANDSTONE and pale yellow brown friable fine grained SANDSTONE with silt.	@30.5' Contact N-S/39W
35	7			2.4	98.2	Thinly bedded brown clayey SILTSTONE within pale yellow brown silty SANDSTONE.	@34' B N16W/16SW
40	13			2.7	102.4	Thinly bedded (1-3" thick) yellow brown silty fine grained SANDSTONE within yellow brown to light live gray friable fine to coarse grained SANDSTONE, cross bedded, dense, damp, caving sands below 39'.	@39' B N21E/3NW
45							

ADDITIONAL COMMENTS: Blows per 12"

Kelly Bar Weights: 0 - 24', 3800 lbs.
24 - 47', 2800 lbs.
47 - 74', 1800 lbs.

SURFACE DATA

LOG OF BORING B6

CLIENT: Newton	PROJECT: Everett Terrace	W.O.: 8953
LOCATION: Moorpark	ELEVATION: 549'±	DATE: 2/7/05
RIG TYPE: 24" Bucket	HAMMER WEIGHTS: Kelly Bar Weights	DROP: 12"

	N	U	B	M	DD	DESCRIPTION	ATTITUDES
40							
						Yellow brown cross bedded fine to coarse grained SANDSTONE.	@44' B N40W/19SW (x-bedding)
45	18			3.3	104.1		
						@48.5' - Yellow brown friable gravelly coarse grained SANDSTONE to brown clayey SILTSTONE, massive, hard, moist.	@48.5' B N12W/6SW
50	61			13.2	106.3	12" thick brown clayey SILTSTONE itnerbedded within friable fine to coarse grained SANDSTONE, dense, damp.	@50' B N10W/6SW
						@51' - Tan brown friable fine to coarse grained SANDSTONE, dense, damp.	
55	36			2.5	101.0		
						Total Depth - 57'	
						No grounwater	
						Caving-very friable from 1.5-19' and 39-57'	
60							
65							
70							
75							
80							
85							

ADDITIONAL COMMENTS: Blows per 12"

Kelly Bar Weights: 0 - 24', 3800 lbs.
24 - 47', 2800 lbs.
47 - 74', 1800 lbs.

SUBSURFACE DATA

LOG OF BORING B7

CLIENT: Newton	PROJECT: Everett Terrace	W.O.: 8953
LOCATION: Moorpark	ELEVATION: 582'±	DATE: 3/8/05
RIG TYPE: 24" Bucket	HAMMER WEIGHTS: Kelly Bar Weights	DROP: 15"

	N	U	B	M	DD	DESCRIPTION	ATTITUDES
0						Fill: Dark brown fine to coarse grained SAND with clay and silt, abundant roots, trace paper debris, medium dense to dense, moist.	
5	36	C		10.7	123.8	Saugus Formation: Irregular contact, light brown medium to coarse grained SANDSTONE with fine gravel, very dense, moist, massive, poorly cemented, trace rootlets.	
						12" thick brown silty fine grained SANDSTONE, dense, moist.	@8' B
						3-4" diameter tree root.	N30E/10SE
10	27	C		10.0	115.5		
						Light brown medium to coarse grained SANDSTONE, well graded, bedded, slightly friable, dense, moist, over fine to medium grained SANDSTONE with clay and gravel, well graded, poorly cemented, dense, moist.	@11' B N21W/5NE
15	47	C		5.4	118.1	@11.5' - Grades to moderately cemented fine to coarse grained SANDSTONE with clay and subangular to subrounded gravel to cobble (5-15%), massive, dense, moist.	
						@16' - Horizontal contact with tan brown thinly bedded horizontal medium to coarse grained SANDSTONE interbed.	@16' Contact B Horizontal
20	53	C		4.8	107.7	@17' - 3" thick gravel CONGLOMERATE channel, slightly friable, dense, moist.	@20' scoured upper contact N80W/14SW
						@19' - Scoured contact with moderately cemented light brown silty fine grained SANDSTONE, very dense, moist.	
						@20' - Light brown medium grained SANDSTONE, thinly bedded, friable, over 12" thick light brown moderately cemented SILTSTONE, hard, moist.	@21' sharp contact
25	47	C		1.9	117.2	@21' - Sharp contact with 3" thick gravelly SANDSTONE, slightly friable, to brown clayey fine grained SANDSTONE, very dense, moist, massive.	N24W/3SW
						@24' - Grades to damp, slightly friable light brown fine to coarse grained SANDSTONE with subangular to subrounded gravel, dense, massive.	@27' Paleosol N55E/17SE
						@26' - Thin undulating Paleosols within light brown slightly friable fine to	N75W/8SW
30	60	C		2.1	117.1	coarse grained SANDSTONE with gravel, dense, damp, massive.	@29' B N20W/2SW
						Light brown thin bedded fine to coarse grained SANDSTONE with fine gravel, damp to massive, slightly friable, dense.	@31' B N23W/4SW
35	68	C		4.0	109.8	@35.5' - 12" thick light brown fine grained silty SANDSTONE, hard, moist to dry, friable, medium to coarse grained SANDSTONE, caving.	
40						Total Depth - 37'	
						No groundwater	
						Caving at 36.5'	
						Blows per 12"	
45							

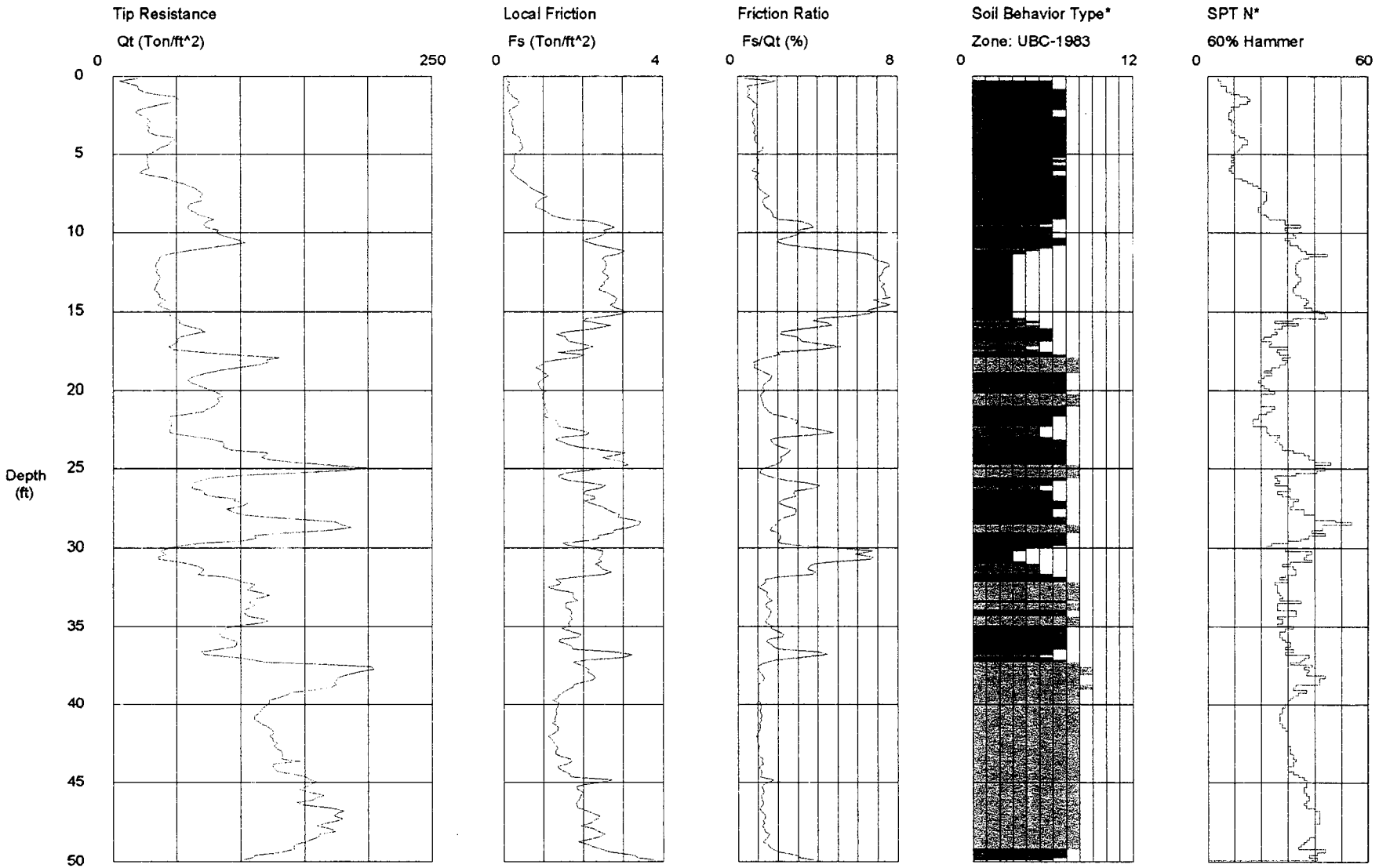
ADDITIONAL COMMENTS:

Kelly Bar Weights:				
	0-8'	866 lbs.	30.5-38'	326 lbs.
	8-15.5'	703 lbs.	38-45.5'	245 lbs.
	15.5-23'	556 lbs.	45.5-52'	172 lbs.
	23-30.5'	430 lbs.		

Geolabs Westlake Village

Operator: VO/ML
Sounding: CPT-01
Cone Used: DSA0472

CPT Date/Time: 6/29/2004 9:14:
Location: Everest Terrace
Job Number: 8953



Maximum Depth = 50.20 feet

Depth Increment = 0.164 feet

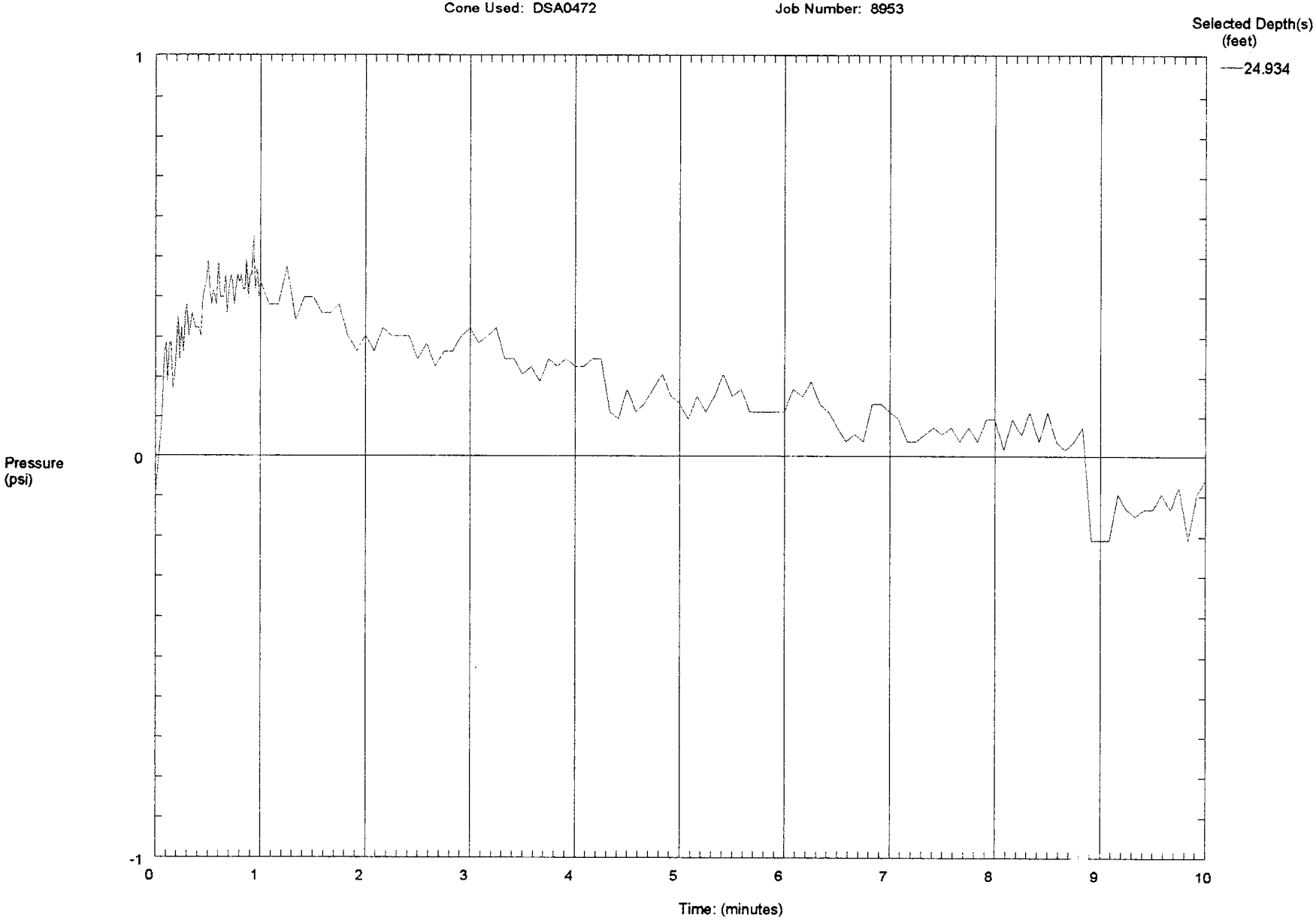
1 sensitive fine grained
2 organic material
3 clay
4 silty clay to clay
5 clayey silt to silty clay
6 sandy silt to clayey silt
7 silty sand to sandy silt
8 sand to silty sand
9 sand
10 gravelly sand to sand
11 very stiff fine grained (*)
12 sand to clayey sand (*)

Soil behavior type and SF ...d on data from UBC-1983

Geolabs Westlake Village

Operator VO/ML
Sounding: CPT-01
Cone Used: DSA0472

CPT Date/Time: 6/29/2004 9:14:00 AM
Location: Everest Terrace
Job Number: 8953

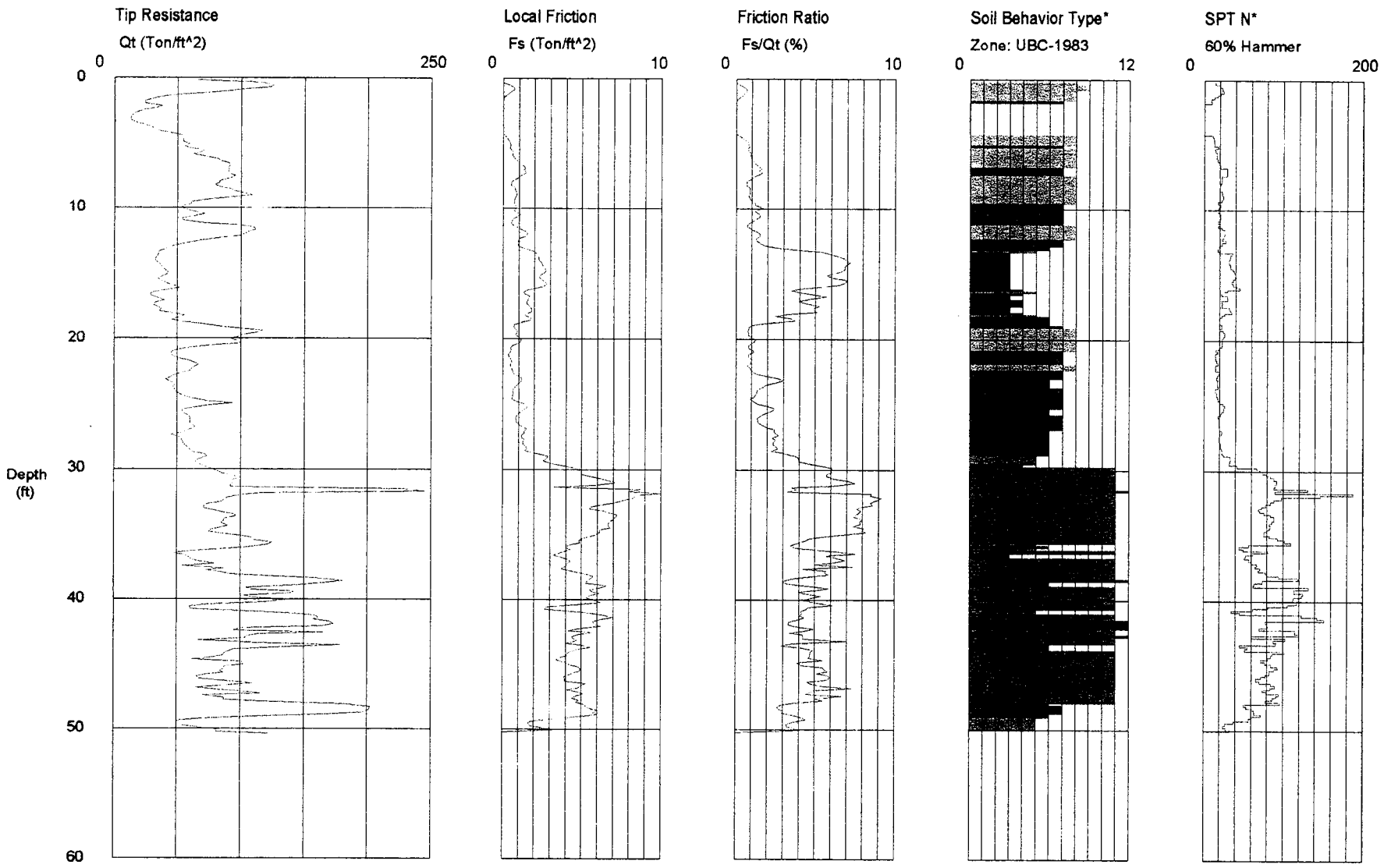


Maximum Pressure = 0.55 psi
Hydrostatic Pressure = 10.821 psi

Geolabs Westlake Village

Operator: VO/ML
Sounding: CPT-02
Cone Used: DSA0472

CPT Date/Time: 6/29/2004 10:33
Location: Everest Terrace
Job Number: 8953



Maximum Depth = 50.36 feet

Depth Increment = 0.164 feet

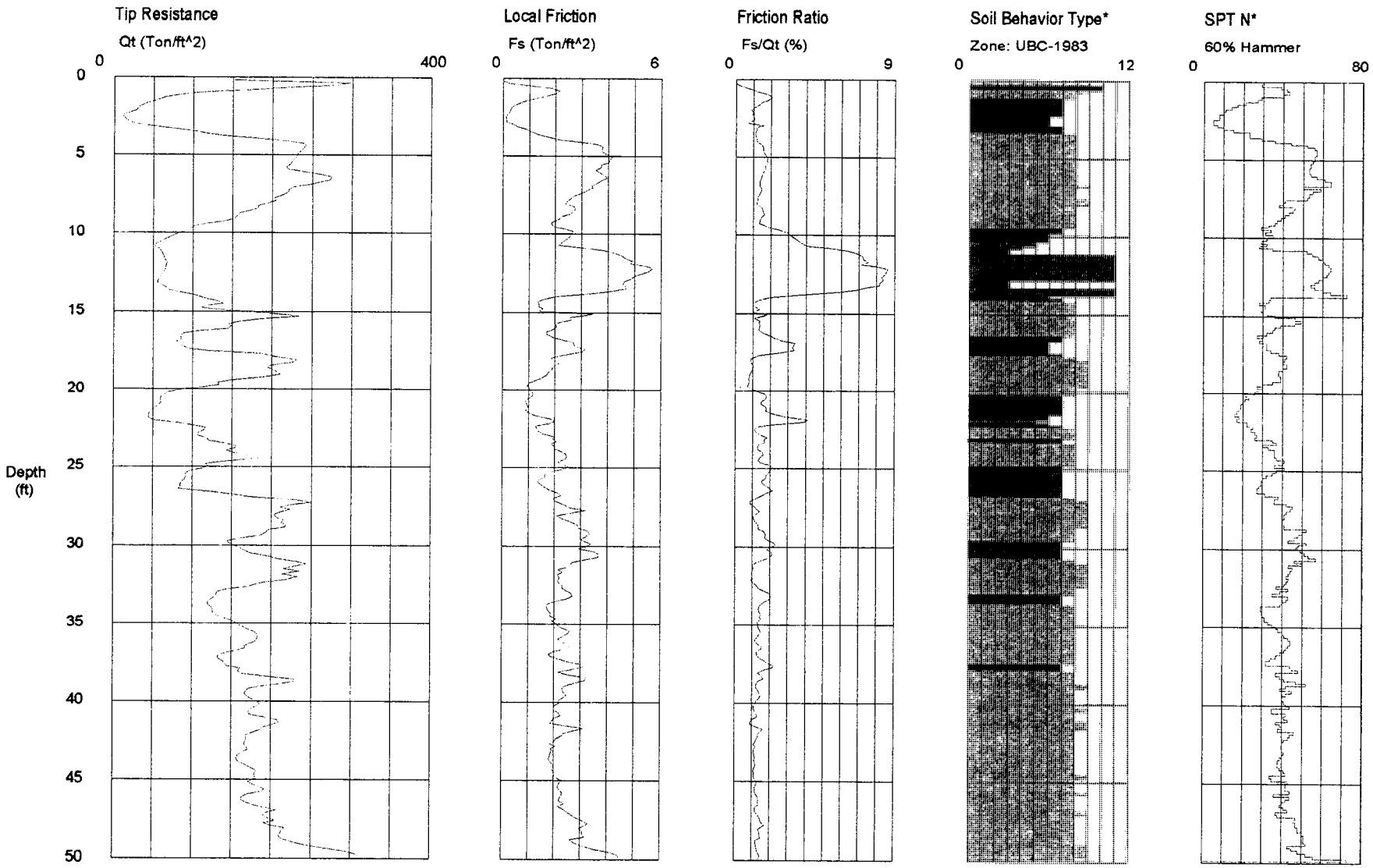
1 sensitive fine grained
2 organic material
3 clay
4 silty clay to clay
5 clayey silt to silty clay
6 sandy silt to clayey silt
7 silty sand to sandy silt
8 sand to silty sand
9 sand
10 gravelly sand to sand
11 very stiff fine grained (*)
12 sand to clayey sand (*)

Soil behavior type and SF d on data from UBC-1983

Geolabs Westlake Village

Operator: VO/ML
Sounding: CPT-03
Cone Used: DSA0472

CPT Date/Time: 6/29/2004 11:25
Location: Everest Terrace
Job Number: 8953



Maximum Depth = 50.20 feet

Depth Increment = 0.164 feet

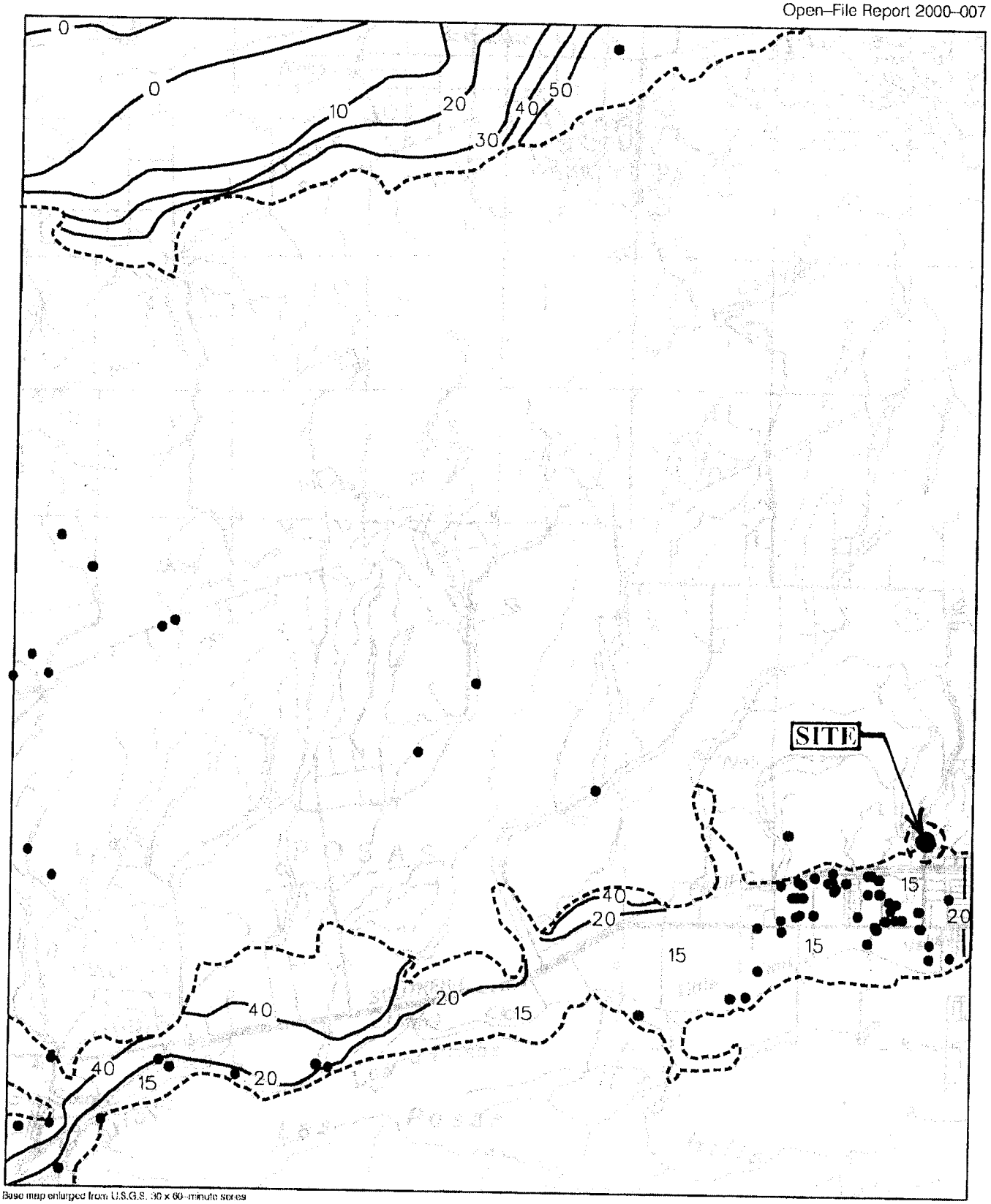
1 sensitive fine grained
2 organic material
3 clay

4 silty clay to clay
5 clayey silt to silty clay
6 sandy silt to clayey silt

7 silty sand to sandy silt
8 sand to silty sand
9 sand

10 gravelly sand to sand
11 very stiff fine grained (*)
12 sand to clayey sand (*)

Soil behavior type and SF d on data from UBC-1983



Base map enlarged from U.S.G.S. 30 x 60–minute series

Plate 1.2 Historically shallow ground–water depths and borehole data points in alluviated valley areas of the Moorpark Quadrangle.

Alluviated Valley

20 Historically shallow ground–water depth contours (in feet)

Borehole Site

15 Historically shallow ground–water depth where same value occurs over a broad area (in feet)

ONE MILE

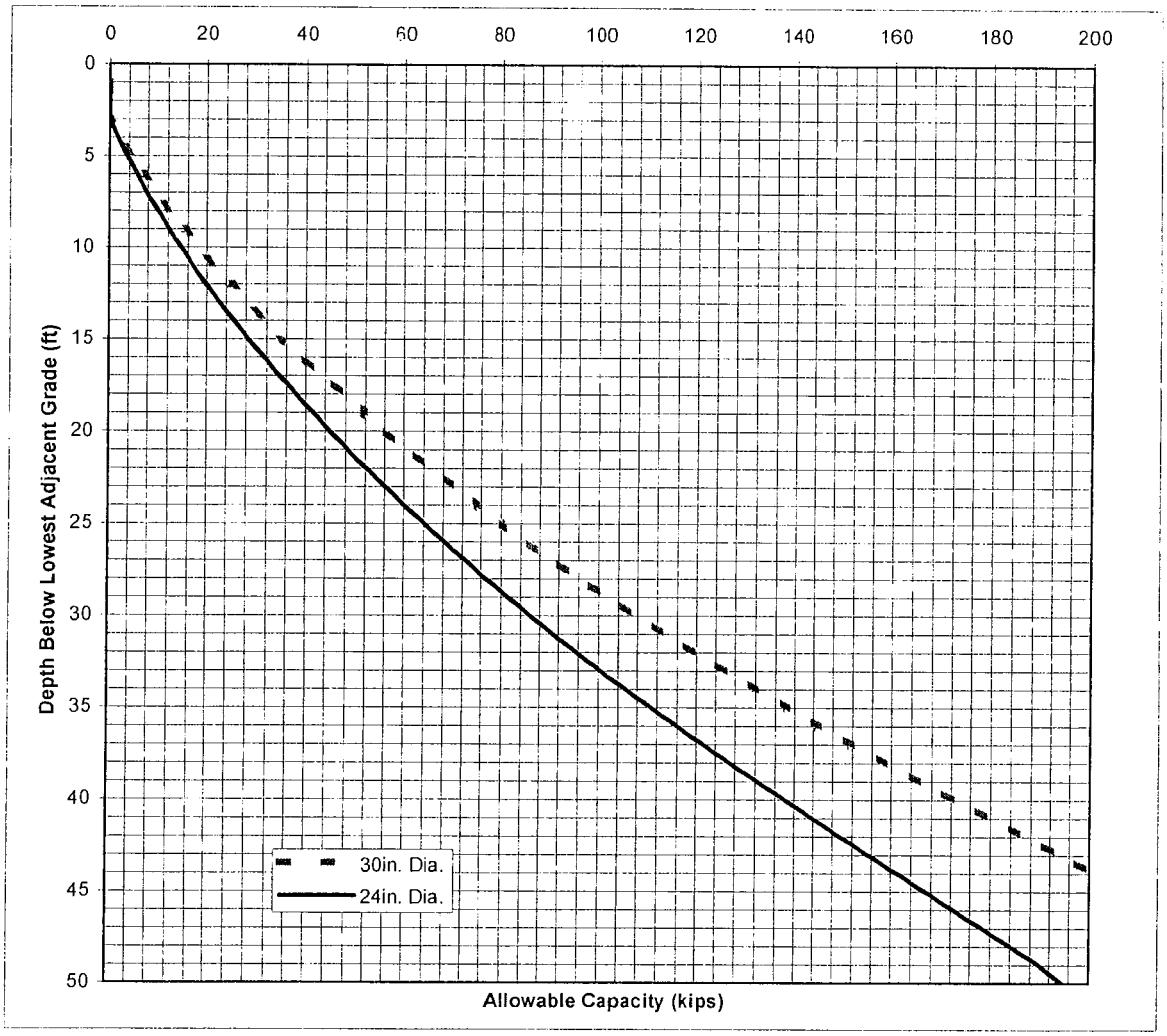
Scale

FRICTION CIDH PILE CAPACITIES (drilled,cast-in-place)

Soil Data: No.	Density	Phi (deg)	Cohesion (psf)	Bottom of Layer
Saugus Form. 1	125	27	500	60
2				
3				
4				
5				

Pile Configuration:

Non-Bearing Depth=	3.00	ft.
Min. Diameter=	2.00	ft.
Min. Embeddment=		ft.
Depth Increment=	1.00	ft.
Depth to Water=	50.00	ft.
Factor of Safety=	2.00	



APPENDIX A

LABORATORY TEST RESULTS

Laboratory Test Summary

W.O. 8953

Depth	Geology	Sample Description	ST	w	DD	S	Max Opt		EI	LL	PI	e	n	WD	SD	BD	Consol	Shear
Excavation: B1 (TD= 51.5 ft, No GW)																		
0	Engineered Fill	Silty Sand	(B)				129	8	0									S-B1.0
2.5	Alluvium	Silty Sand	(U)	4.4	104	19						0.62	0.38	108	127	64.7		
5	Alluvium	Silty Sand	(U)	6.6	107	31						0.57	0.36	114	129	66.7		
7.5	Alluvium	Silty Sand	(U)	6.2	119	41						0.41	0.29	127	137	74.6		
10	Alluvium	Silty Sand	(U)	8.2	113	46						0.48	0.32	122	133	70.9	C-B1.10	
12.5	Alluvium	Silty Clay with Sand	(U)	18.2	112	100						0.49	0.33	133	133	70.5		
15	Alluvium	Clay	(U)	17.8	109	88				56	39	0.54	0.35	128	130	68	C-B1.15	
25	Alluvium	Silt with Clay	(S)							NP	NP							
35	Alluvium	Clayey Silty Sand	(S)							26	13							
47.5	Alluvium	Clayey Silty Sand	(S)							NP	NP							
Excavation: B2 (TD= 16.5 ft, No GW)																		
6	Alluvium	Sand	(U)	3	112	16						0.50	0.34	116	132	69.7		S-B2.6
15	Alluvium	Silty Sand	(U)	2														
Excavation: B3 (TD= 40 ft, No GW)																		
5	Alluvium	Silty Sand	(U)	3.3	104	14						0.63	0.39	107	127	64.2	C-B3.5	
15	Alluvium	Sand	(U)	2.7	107	13						0.56	0.36	110	130	67.3	C-B3.15	
25	Alluvium	Clayey Sand	(U)	8	114	46						0.47	0.32	123	134	71.5		
35	Saugus Formation	Claystone	(U)	23.6	98.4	90						0.70	0.41	122	124	61.6		
Excavation: B4 (TD= 30 ft, No GW)																		
10	Alluvium	Silty Sand	(U)	6	123	44						0.37	0.27	130	139	76.8	C-B4.10	
25	Alluvium	Silt	(U)	10	115	60						0.45	0.31	127	135	72.4		
Excavation: B5 (TD= 70 ft, No GW)																		
41	Saugus Formation	clayey SILTSTONE	(U)	25	93.5	85						0.79	0.44	117	121	58.6		
42	Saugus Formation	clayey SILTSTONE	(U)	18.5	110	95						0.52	0.34	130	131	68.9		S-B5.42
43	Saugus Formation	clayey SILTSTONE	(U)							63	37							
46	Saugus Formation	CLAY	(U)							67	39							
50	Saugus Formation	SILTSTONE	(U)	4.4	121	31						0.38	0.28	126	138	76		

For abbreviation explanation see Legend on PLATE LS 2

GEOLABS-WESTLAKE VILLAGE

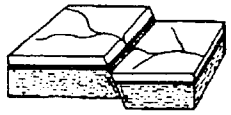


PLATE LS. 1

Depth	Geology	Sample Description	ST	w	DD	S	Max	Opt	EI	LL	PI	e	n	WD	SD	BD	Consol	Shear
Excavation: B6 (TD= 57 ft, No GW)																		
5	Alluvium	Sand	(U)	2.2	105	10						0.59	0.37	107	128	65.9		
10	Alluvium	Sand	(U)	1.8	113	10						0.48	0.32	115	133	70.7		
15	Alluvium	Sand	(U)	2.6	117	16						0.44	0.30	120	135	73.0		
20	Saugus Formation	SANDSTONE	(U)	3.7	114	21						0.47	0.32	118	134	71.2	C-B6.20	
25	Saugus Formation	clayey SILTSTONE and silty SANDSTONE	(U)	14.5	108	71						0.55	0.35	124	130	67.8		S-B6.25
30	Saugus Formation	SANDSTONE	(U)	6	103	26						0.62	0.38	109	127	64.8	C-B6.30	
35	Saugus Formation	clayey SILTSONE	(U)	2.4	98.2	9						0.71	0.42	101	124	61.1		
40	Saugus Formation	silty SANDSTONE	(U)	2.7	102	11						0.66	0.4	105	126	63.2		
45	Saugus Formation	SANDSTONE	(U)	3.3	104	15						0.59	0.37	108	128	65.9		
50	Saugus Formation	clayey SILTSTONE	(U)	15.2	106	71						0.57	0.37	123	129	66.6		S-B6.50
55	Saugus Formation	SANDSTONE	(U)	2.5	101	10						0.67	0.40	104	125	62.8		
Excavation: B7 (TD= 37 ft, No GW)																		
5	Saugus Formation	SANDSTONE	(U)	10.7	124	82						0.35	0.26	137	144	81.5		
10	Saugus Formation	SANDSTONE	(U)	10	116	60						0.45	0.31	127	145	82.7		
15	Saugus Formation	SANDSTONE	(U)	5.4	118	35						0.41	0.29	125	154	91.6		
20	Saugus Formation	SANDSTONE	(U)	4.8	108	23						0.56	0.36	113	155	92.9		
25	Saugus Formation	SANDSTONE	(U)	1.9	117	12						0.42	0.3	119	162	99.8		
30	Saugus Formation	SANDSTONE	(U)	2.1	117	13						0.43	0.30	120	162	99.2		
35	Saugus Formation	silty SANDSTONE	(U)	4	110	20						0.54	0.35	114	157	94.7		

LEGEND

Depth = Sample Depth (ft) below ground surface
ST = Sample Type*
w = Initial Moisture Content (%)
DD = Initial Dry Unit Weight (pcf)
Max = Maximum Dry Unit Weight (pcf)
Opt = Optimum Moisture Content (%)
EI = Expansion Index
S = Degree of Saturation (%)
LL = Liquid Limit
PI = Plasticity Index
e = Void Ratio
n = Porosity
WD = Initial Wet Unit Weight (pcf)
SD = Saturated Unit Weight (pcf)
BD = Bouyant (Submerged) Unit Weight (pcf) - Assuming water unit weight of 62.4 pcf
Consol = Consolidation Test Diagram (Plate No.)
Shear = Shear Test Diagram (Plate No.)

* Sample Types: (U) = relatively Undisturbed; (S) = SPT; (B) = Bulk

GEOLABS-WESTLAKE VILLAGE

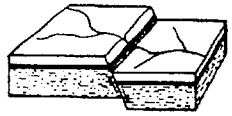
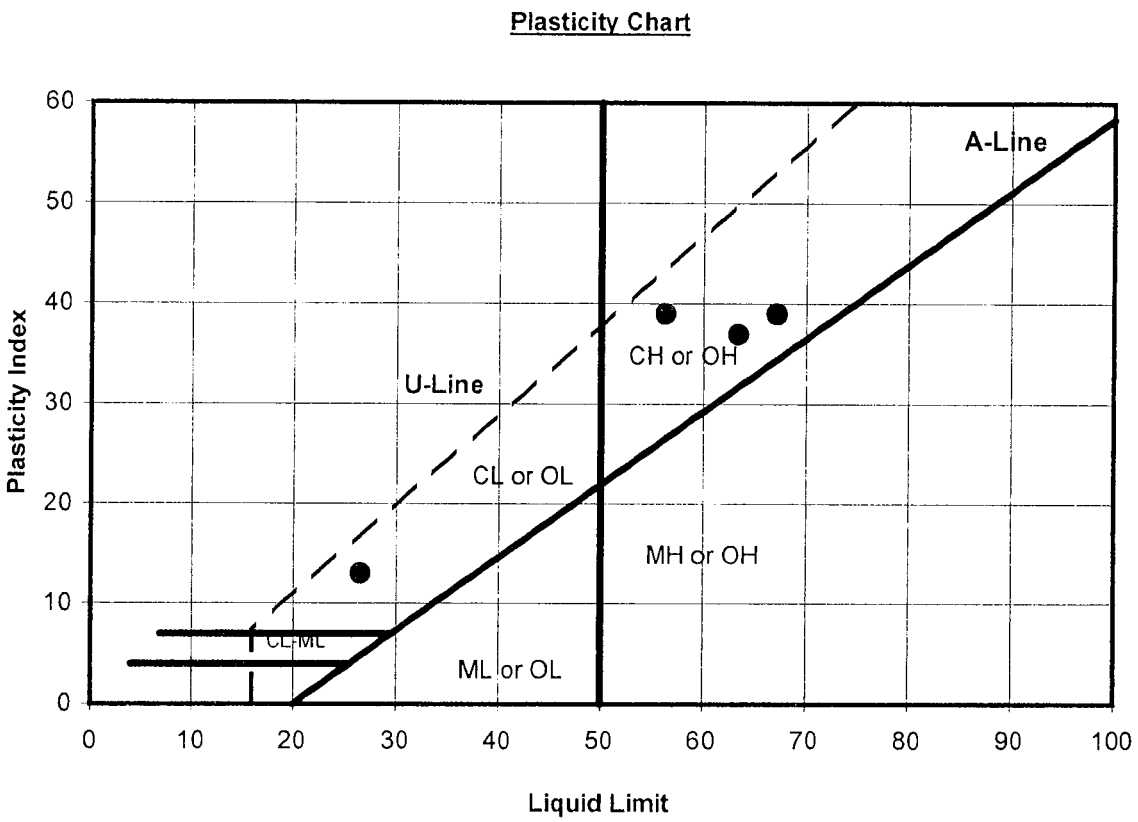
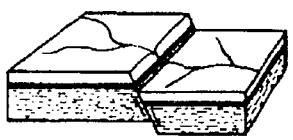


PLATE LS. 2

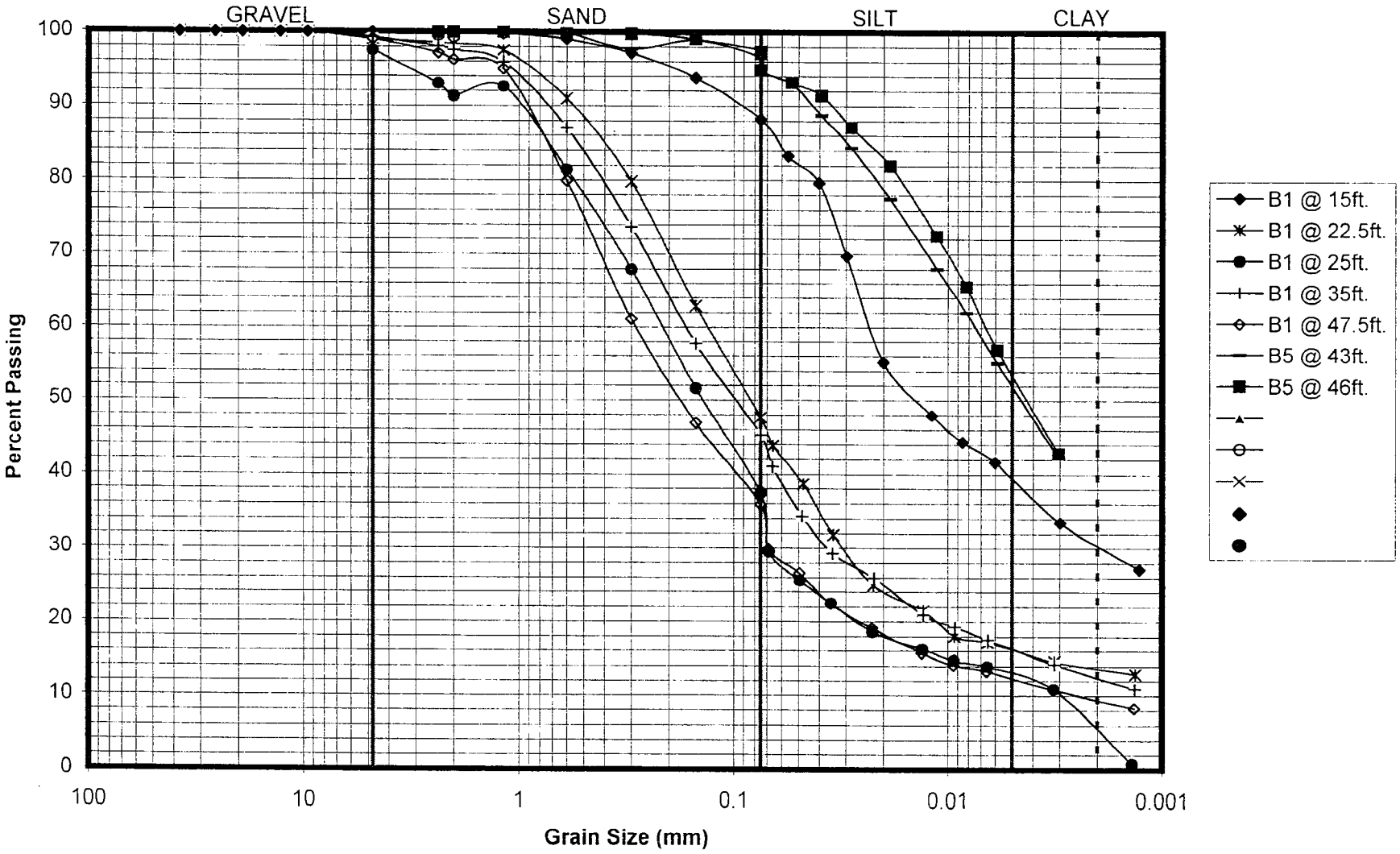
Atterberg Limits Test Results



Location	Depth (ft)	LL	PI	Classification
B1	15	56.3	39	CH
B1	35	26.5	13	CL
B5	43	63.4	37	CH
B5	46	67.2	39	CH
B1	25	-	-	non-plastic
B1	47.5	-	-	non-plastic

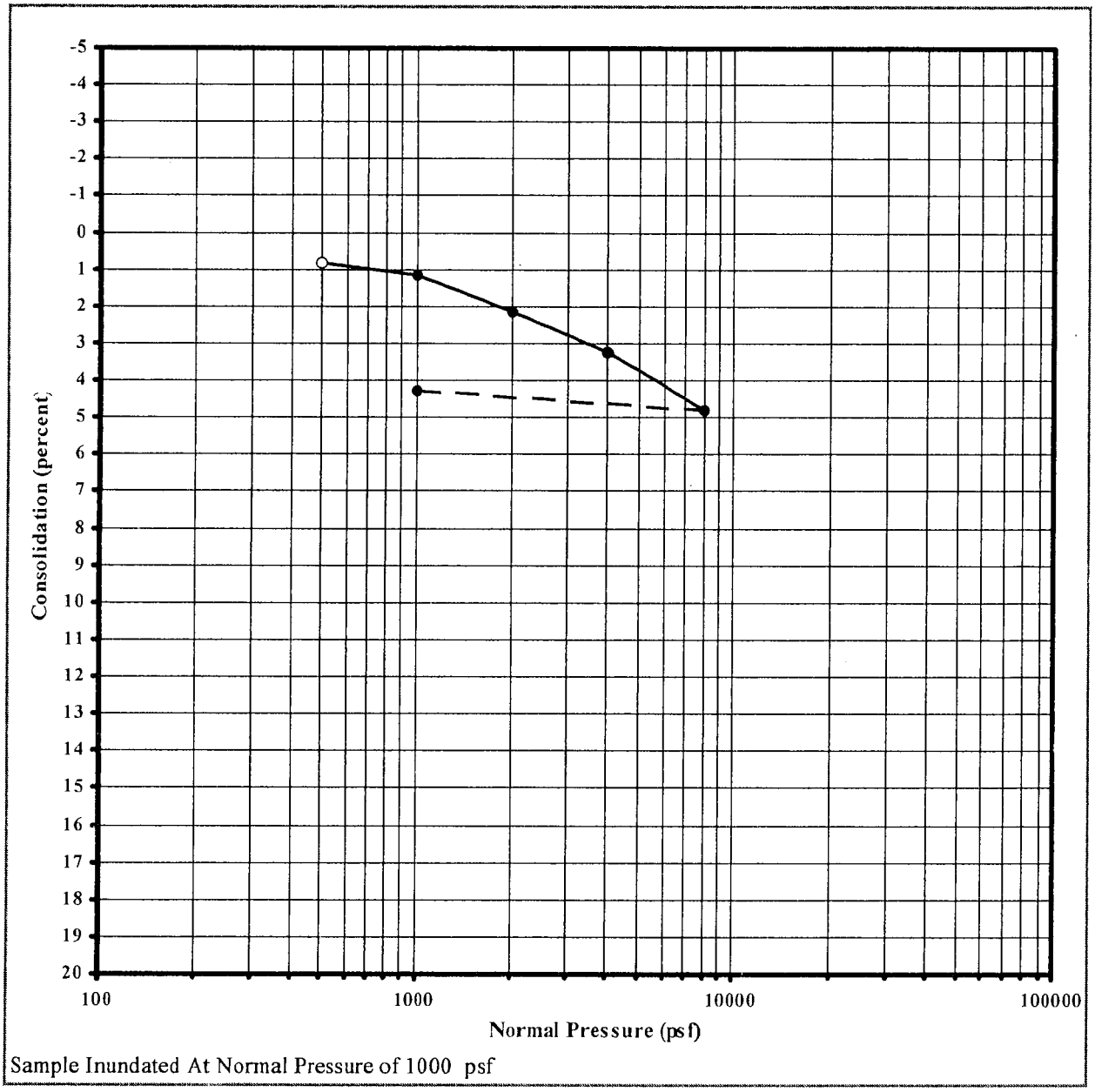


PARTICLE SIZE ANALYSIS



CONSOLIDATION RESULTS

Undisturbed Sample



Sample Inundated At Normal Pressure of 1000 psf

Sample Location: B1

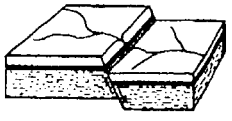
Sample Depth: 10 ft.

Initial Moisture: 8.2 %

Init. Dry Density: 113.1 pcf

Geologic Unit: Alluvium

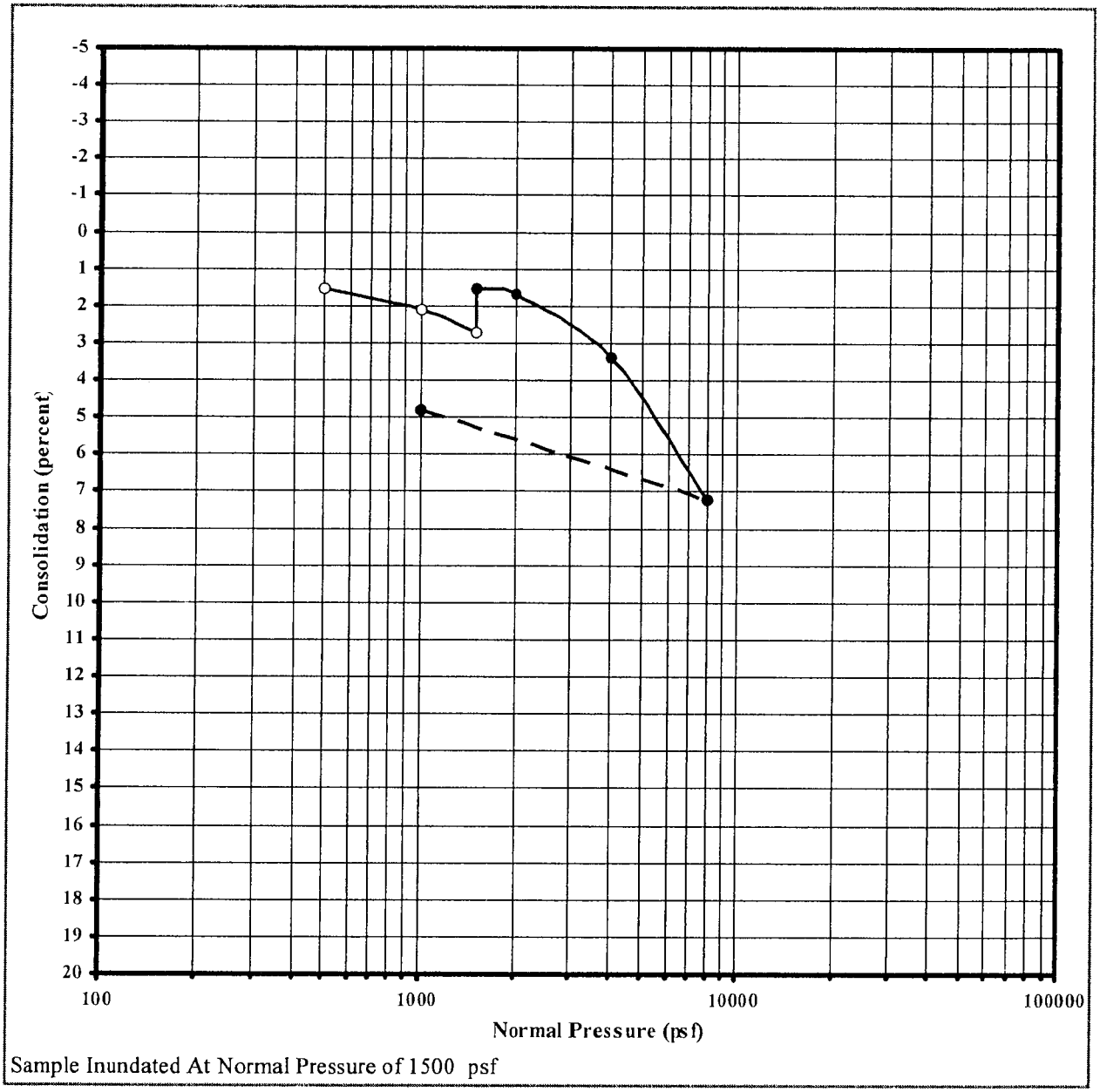
Material: Silty Sand



GEOLABS-WESTLAKE VILLAGE PLATE C-B1.10

CONSOLIDATION RESULTS

Undisturbed Sample



Sample Inundated At Normal Pressure of 1500 psf

Sample Location: B1

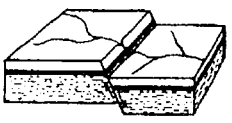
Sample Depth: 15 ft.

Initial Moisture: 17.8 %

Init. Dry Density: 108.5 pcf

Geologic Unit: Alluvium

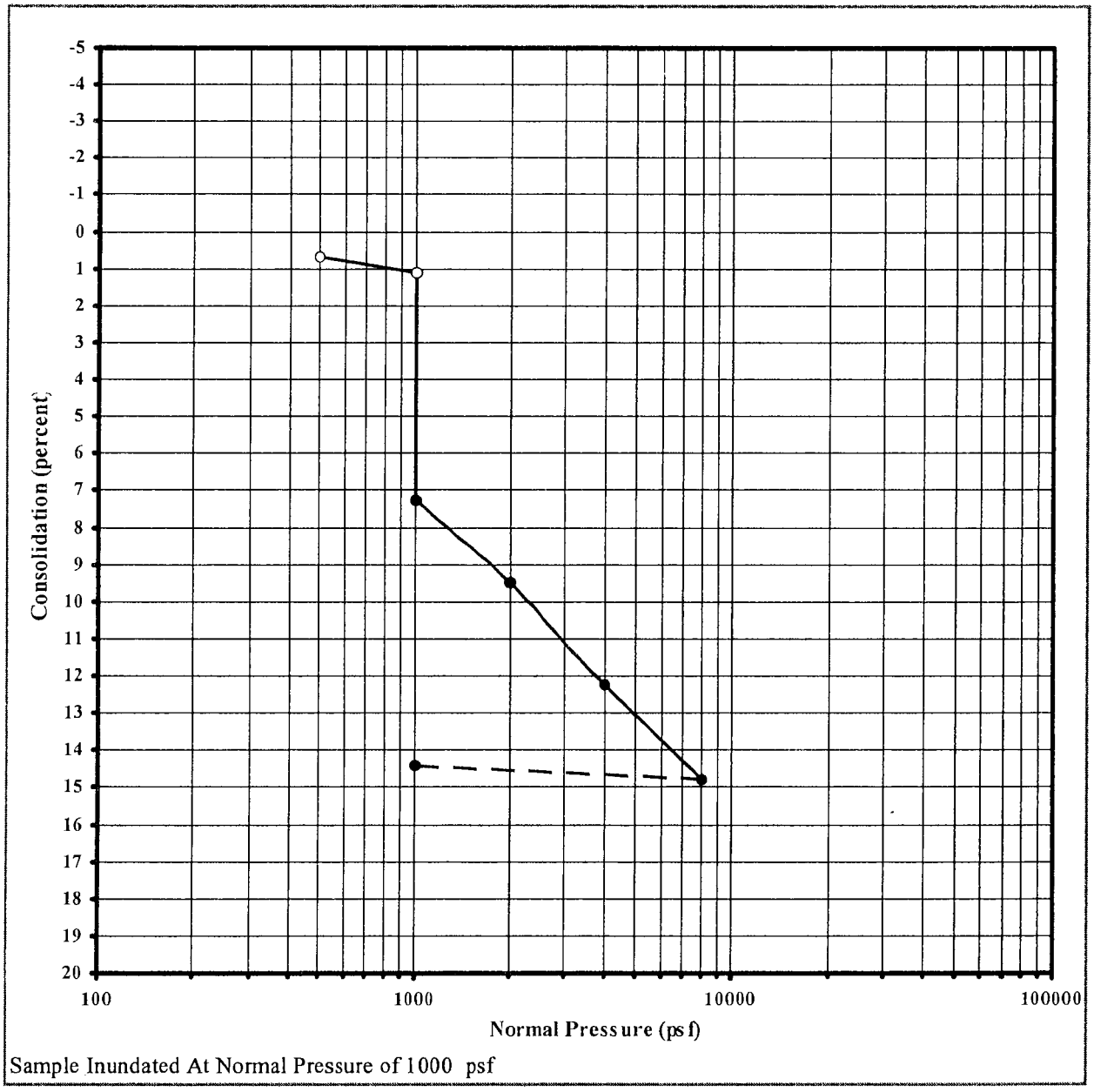
Material: Clay



GEOLABS-WESTLAKE VILLAGE PLATE C-B1.15

CONSOLIDATION RESULTS

Undisturbed Sample



Sample Inundated At Normal Pressure of 1000 psf

Sample Location: B3

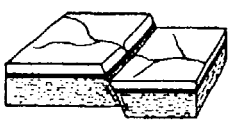
Sample Depth: 5 ft.

Initial Moisture: 3.3 %

Init. Dry Density: 103.7 pcf

Geologic Unit: Alluvium

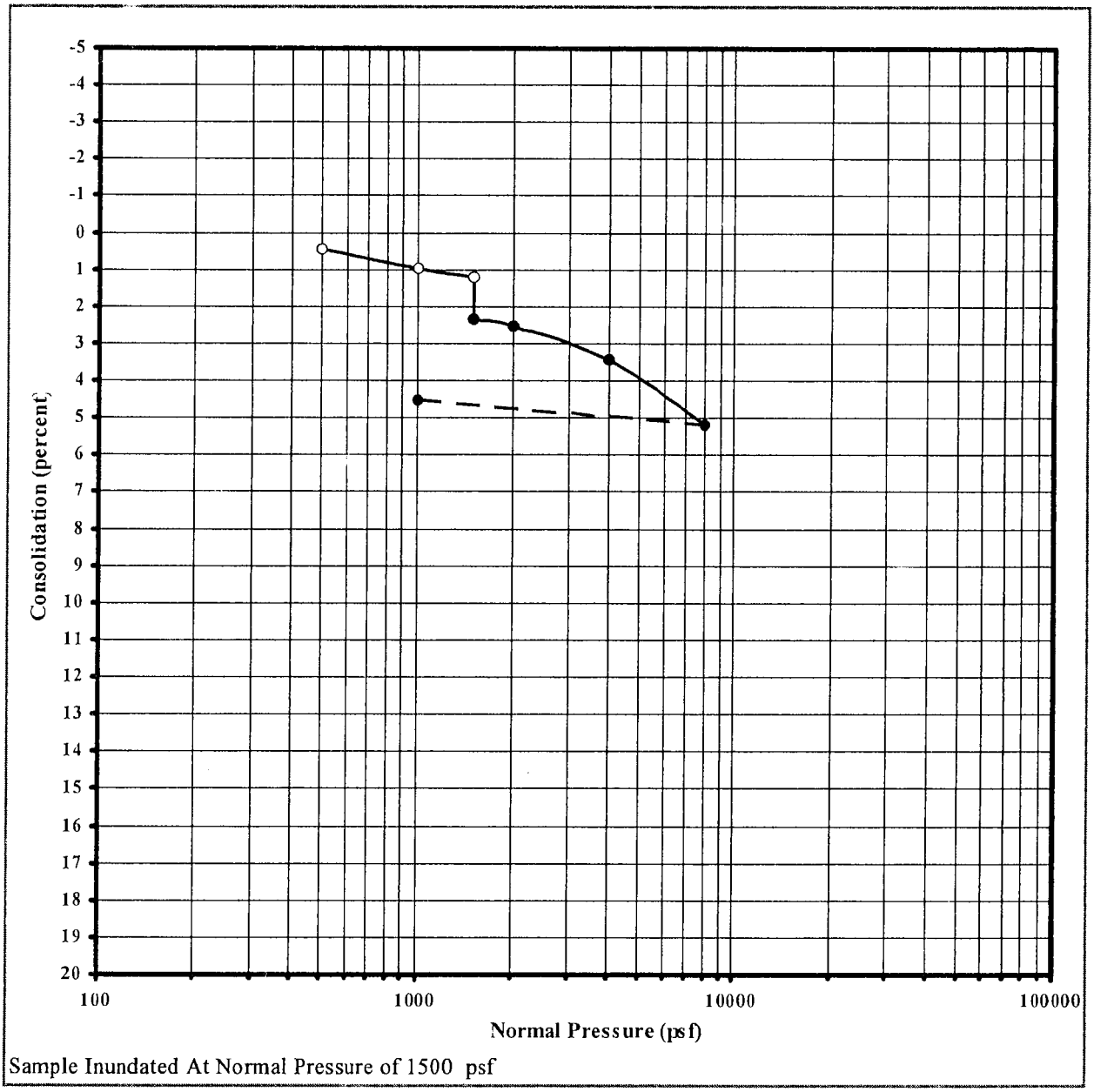
Material: Silty Sand



GEOLABS-WESTLAKE VILLAGE PLATE C-B3.5

CONSOLIDATION RESULTS

Undisturbed Sample



Sample Inundated At Normal Pressure of 1500 psf

Sample Location: B3

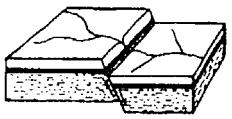
Sample Depth: 15 ft.

Initial Moisture: 2.7 %

Init. Dry Density: 107 pcf

Geologic Unit: Alluvium

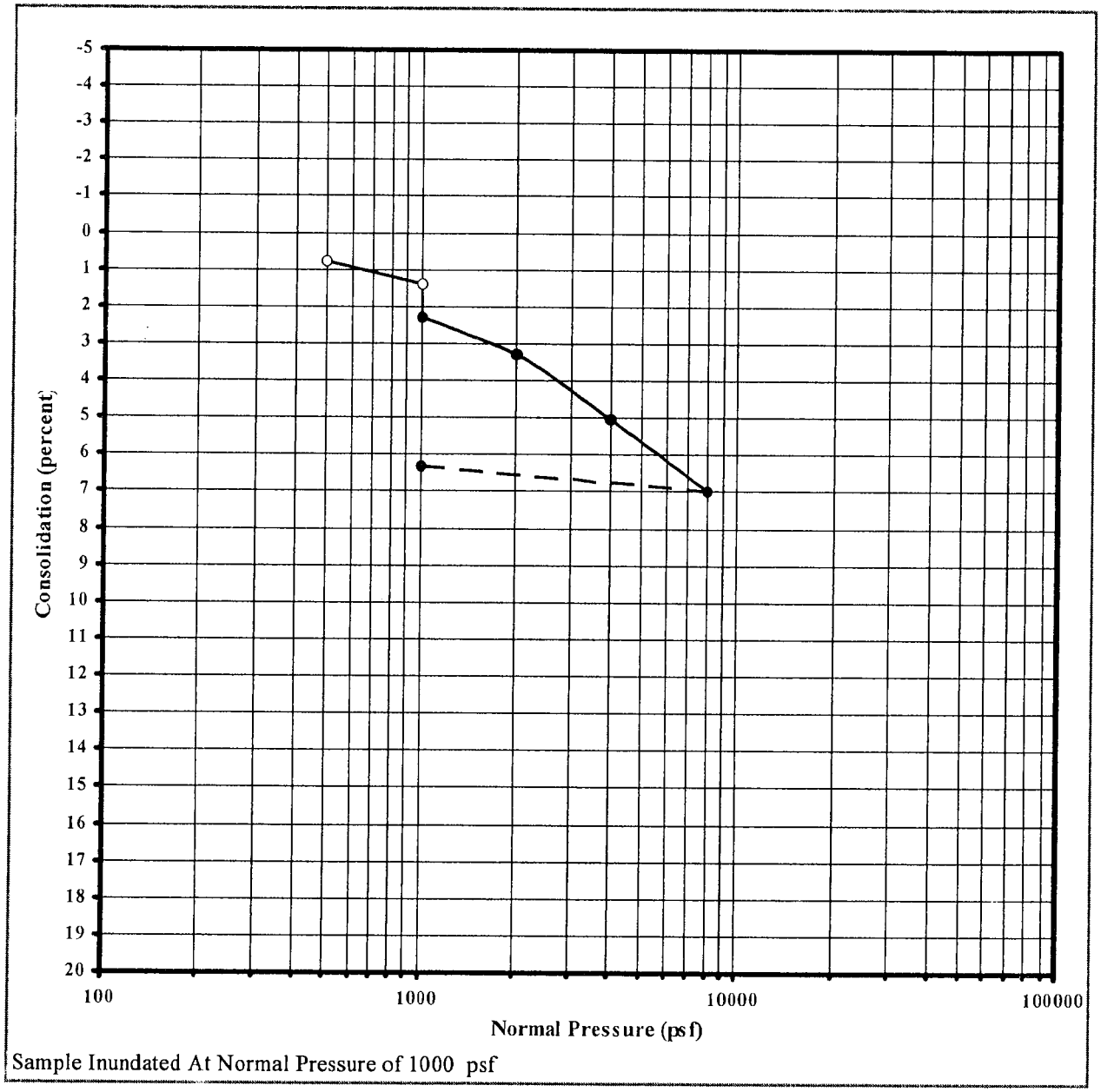
Material: Sand



GEOLABS-WESTLAKE VILLAGE PLATE C-B3.15

CONSOLIDATION RESULTS

Undisturbed Sample



Sample Inundated At Normal Pressure of 1000 psf

Sample Location: B4

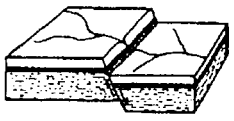
Sample Depth: 10 ft.

Initial Moisture: 6 %

Init. Dry Density: 122.5 pcf

Geologic Unit: Alluvium

Material: Silty Sand

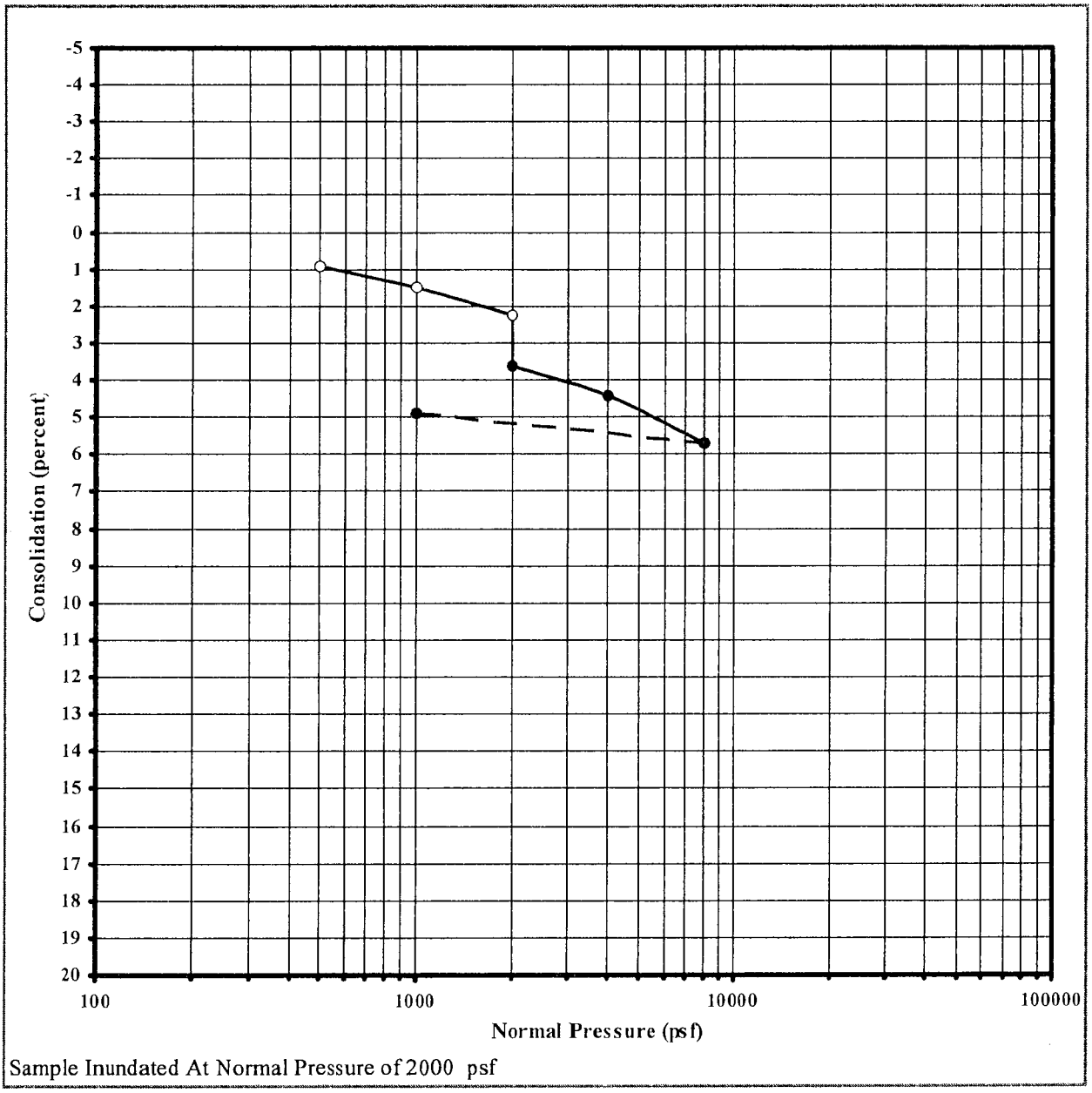


GEOLABS-WESTLAKE VILLAGE

PLATE C-B4.10

CONSOLIDATION RESULTS

Undisturbed Sample



Sample Inundated At Normal Pressure of 2000 psf

Sample Location: B6

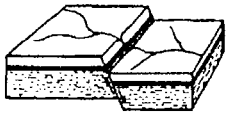
Sample Depth: 20 ft.

Initial Moisture: 3.7 %

Init. Dry Density: 114.1 pcf

Geologic Unit: Saugus Formation

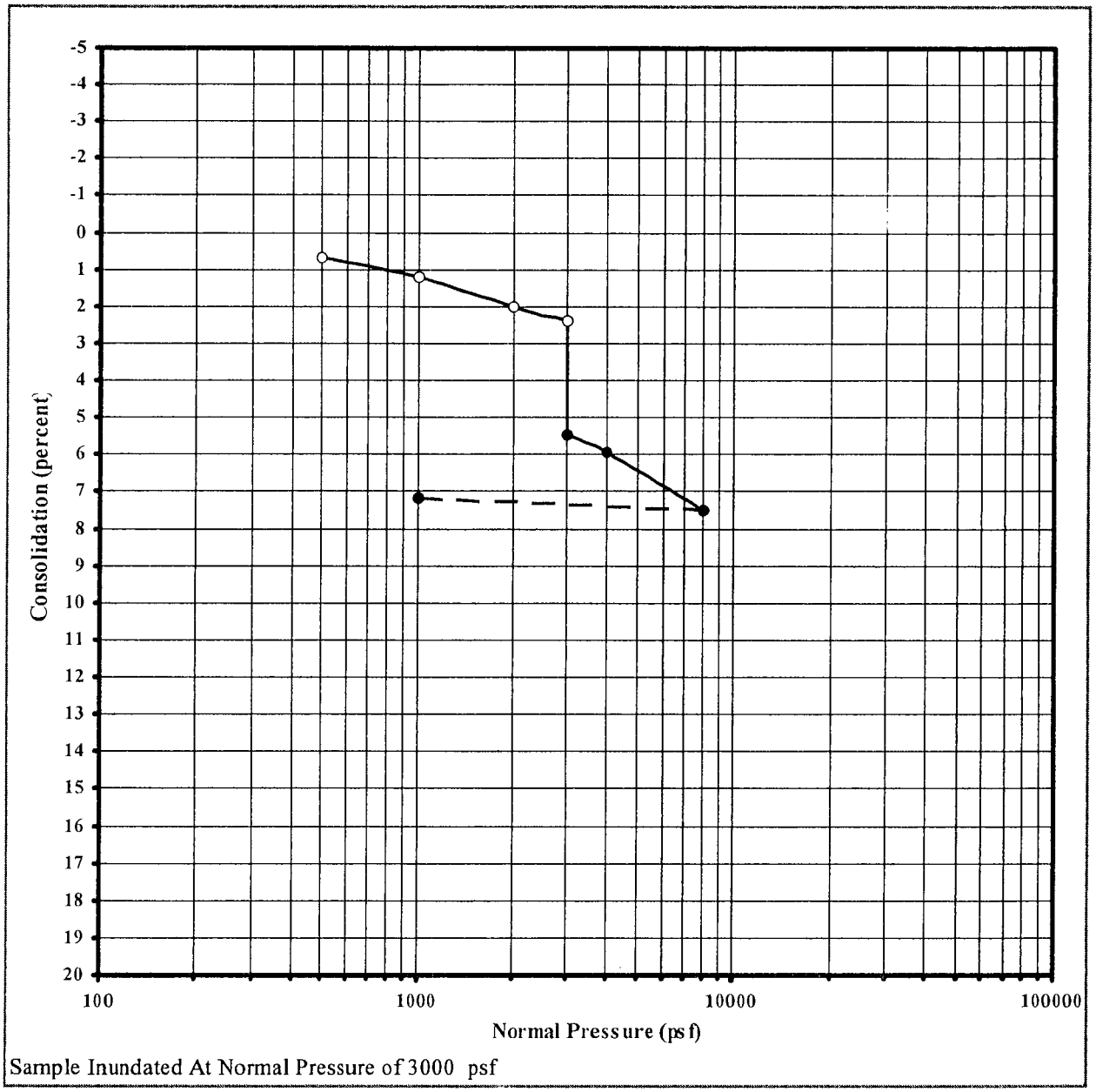
Material: SANDSTONE



GEOLABS-WESTLAKE VILLAGE PLATE C-B6.20

CONSOLIDATION RESULTS

Undisturbed Sample



Sample Inundated At Normal Pressure of 3000 psf

Sample Location: B6

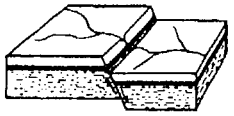
Sample Depth: 30 ft.

Initial Moisture: 6 %

Init. Dry Density: 102.8 pcf

Geologic Unit: Saugus Formation

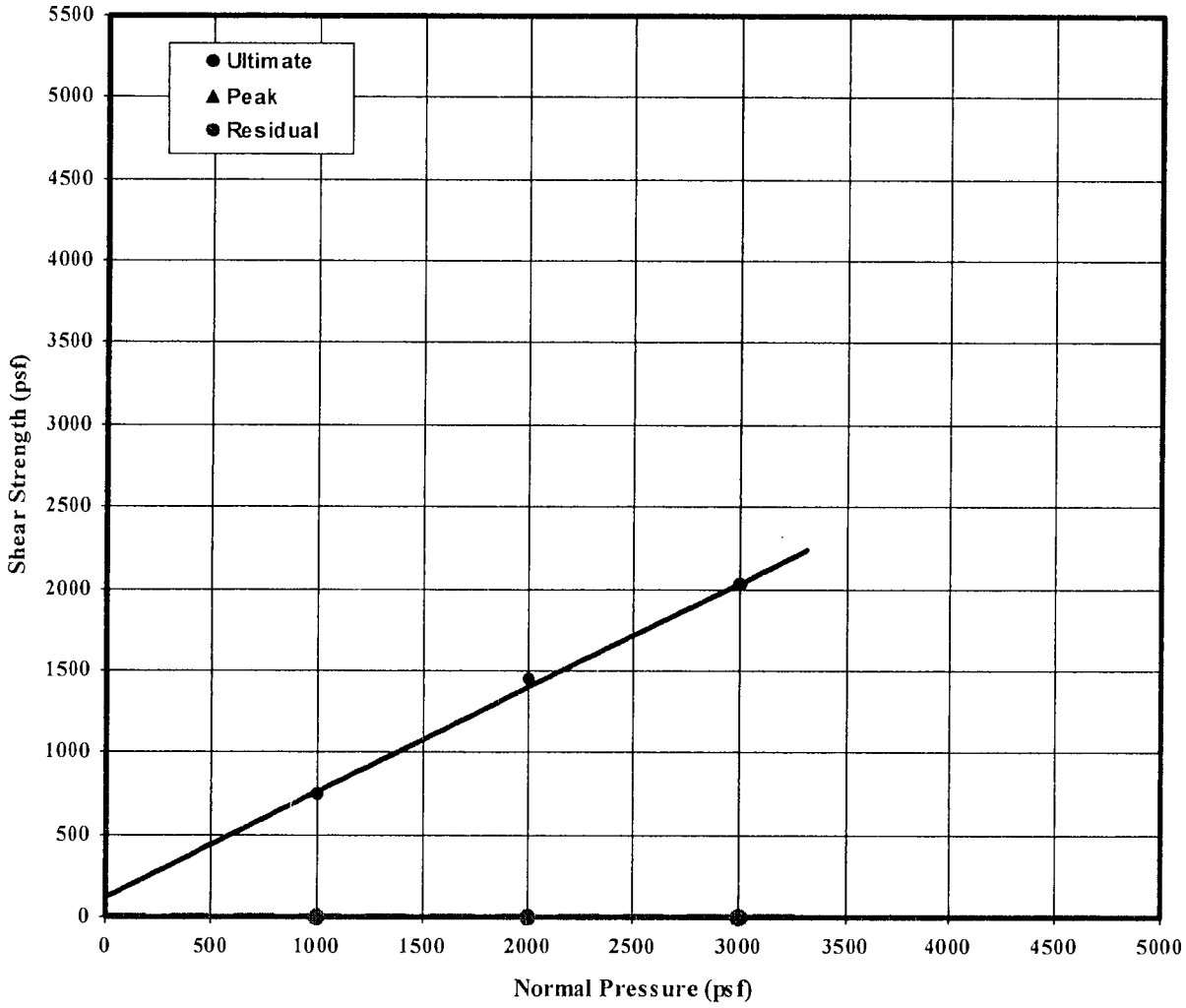
Material: SANDSTONE



GEOLABS-WESTLAKE VILLAGE PLATE C-B6.30

SHEAR TEST RESULTS

Bulk Sample Remolded to 90 Percent Relative Compaction

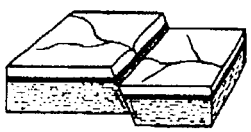


	Friction Angle	Cohesion
Ultimate Shear Strength:	32 deg	125 psf
Peak Shear Strength:		
Residual Shear Strength:		

Displacement Rate: 0.01 in/min

Sample Location: B1
Sample Depth: 0 ft.
Geologic Unit: Engineered Fill
Material: Silty Sand

Dry Density:	116 pcf
Moisture:	16.3 %

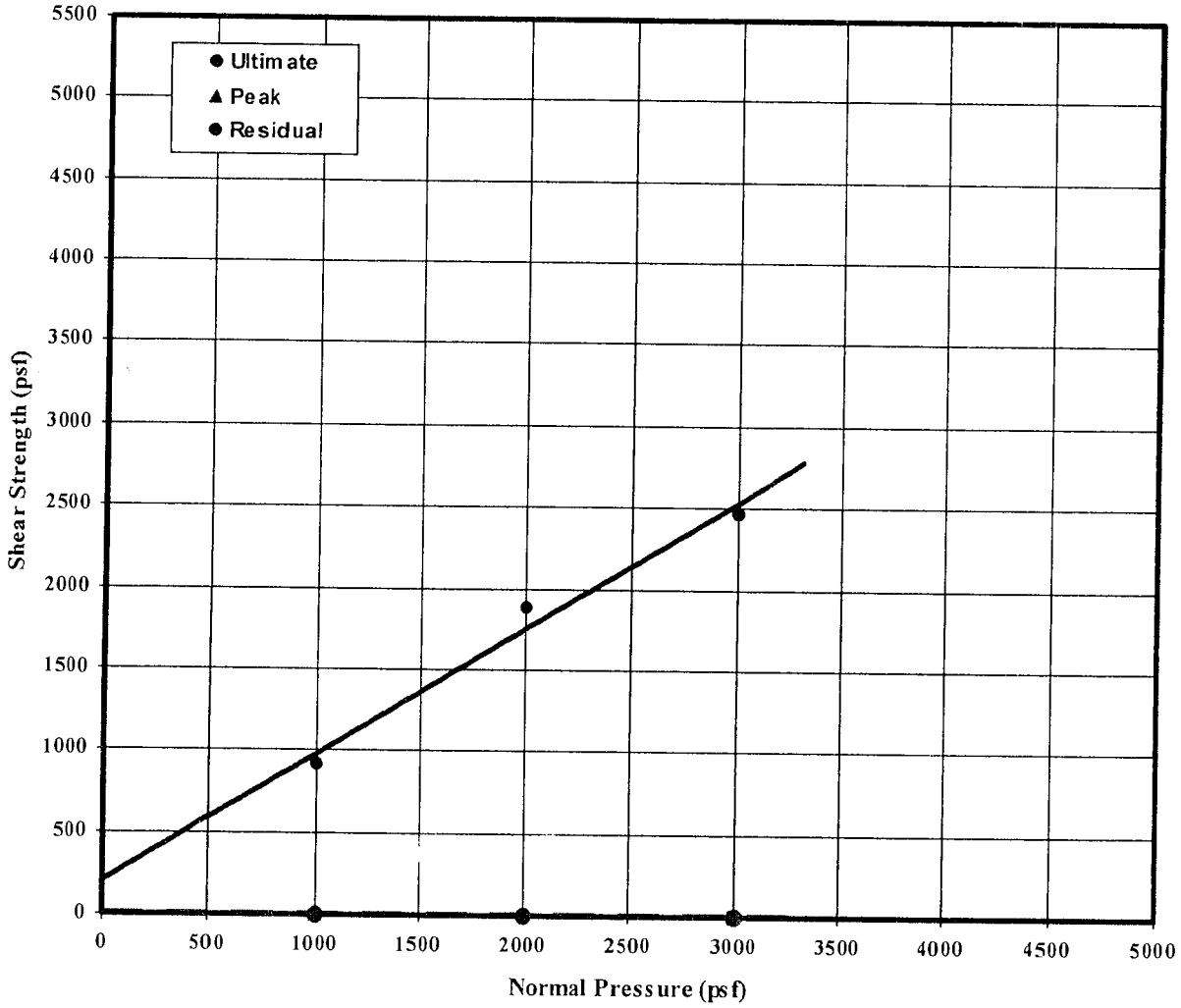


GEOLABS-WESTLAKE VILLAGE

PLATE S-B1.0

SHEAR TEST RESULTS

Undisturbed Sample

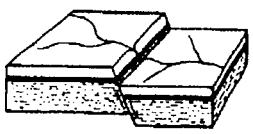


	Friction Angle	Cohesion
Ultimate Shear Strength:	38 deg	200 psf
Peak Shear Strength:		
Residual Shear Strength:		

Displacement Rate: 0.01 in/min

Sample Location: B2
Sample Depth: 6 ft.
Geologic Unit: Alluvium
Material: Sand

Dry Density:	112.4 pcf
Moisture:	19.3 %

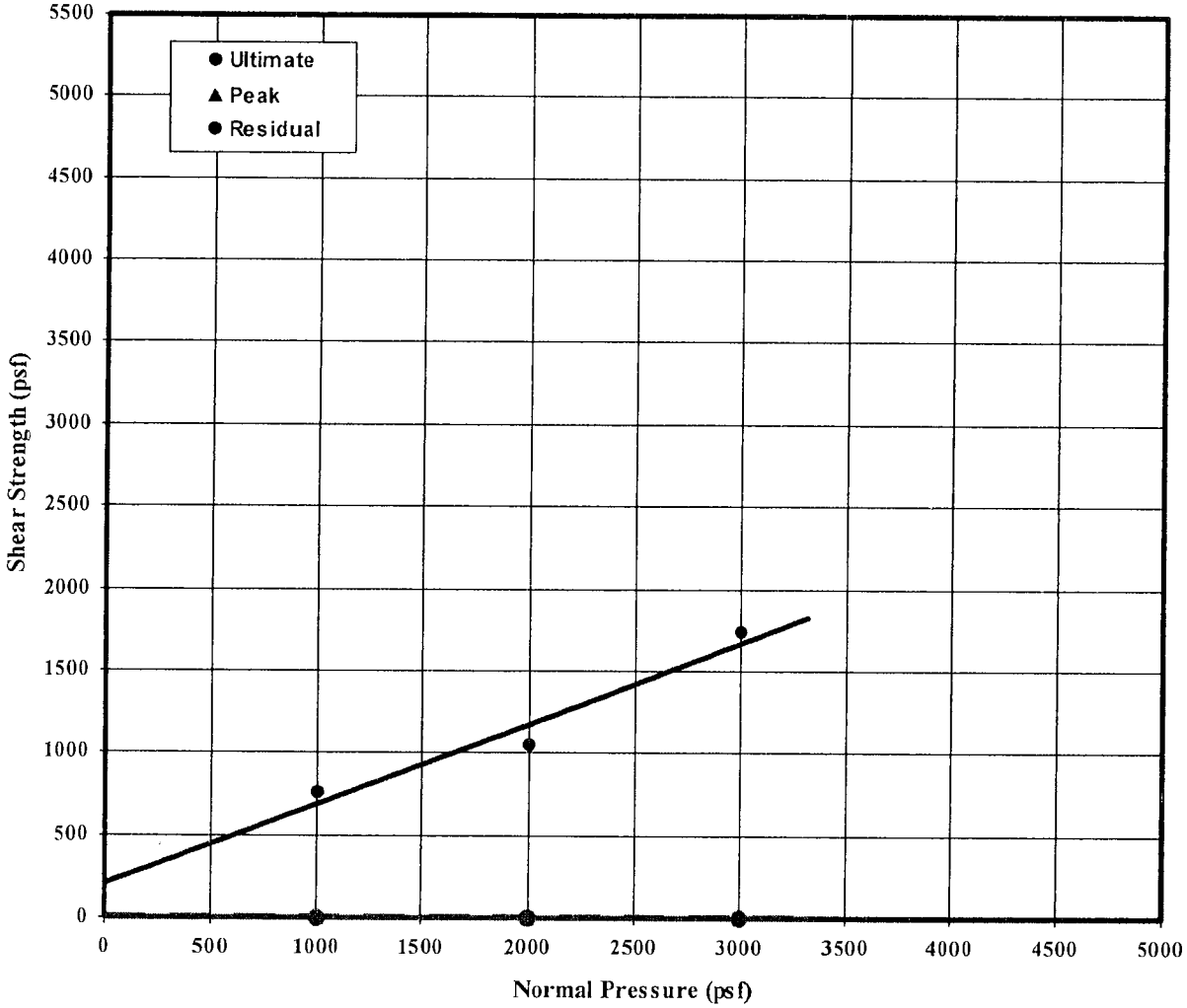


GEOLABS-WESTLAKE VILLAGE

PLATE S-B2.6

SHEAR TEST RESULTS

Undisturbed Sample

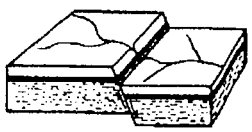


	Friction Angle	Cohesion
Ultimate Shear Strength:	26 deg	200 psf
Peak Shear Strength:		
Residual Shear Strength:		

Displacement Rate: 0.01 in/min

Sample Location: B5
Sample Depth: 42 ft.
Geologic Unit: Saugus Formation
Material: clayey SILTSTONE

Dry Density:	109.9 pcf
Moisture:	22.8 %

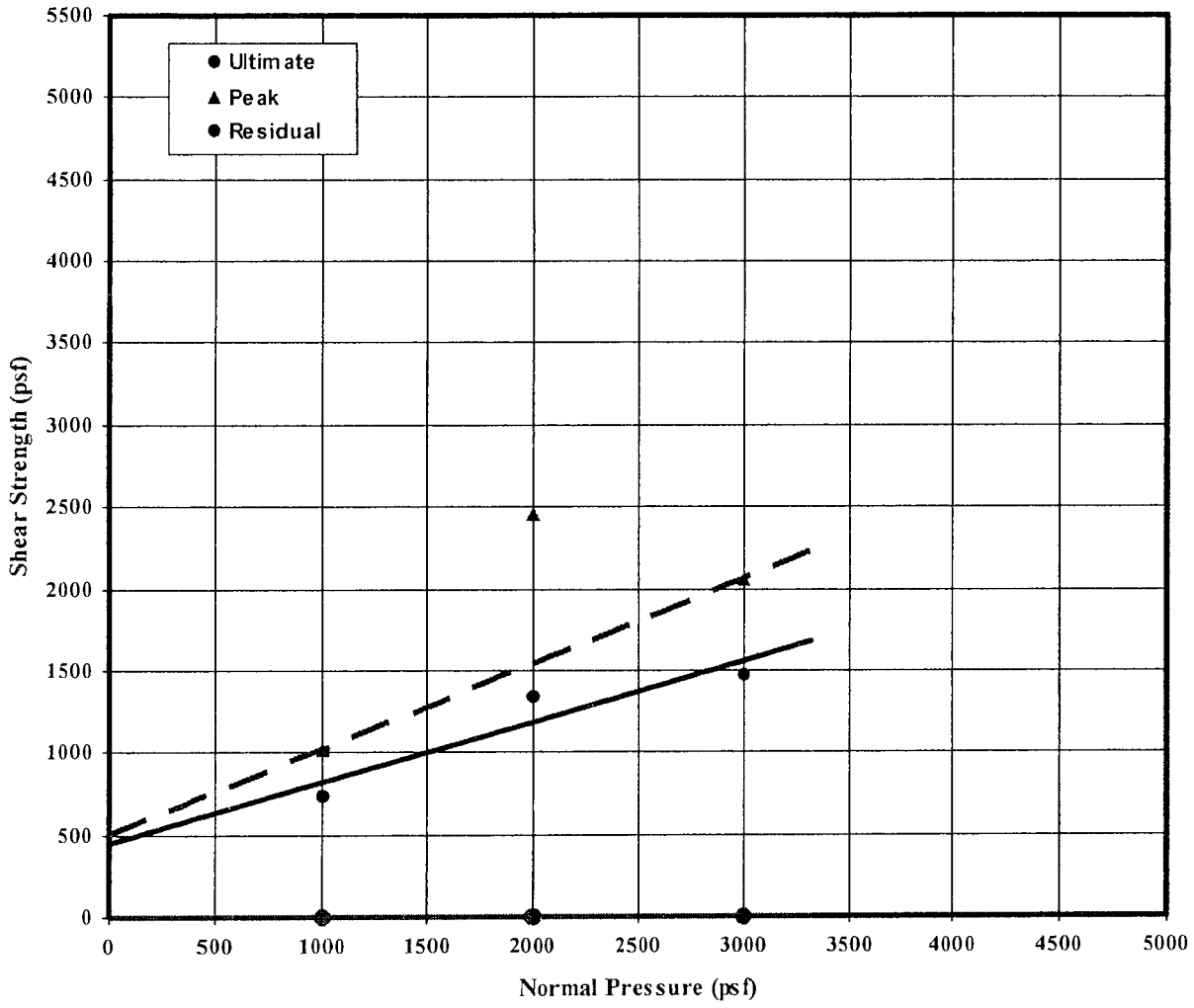


GEOLABS-WESTLAKE VILLAGE

PLATE S-B5.42

SHEAR TEST RESULTS

Undisturbed Sample

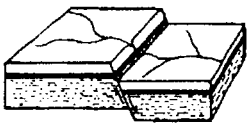


	Friction Angle	Cohesion
Ultimate Shear Strength:	20 deg	450 psf
Peak Shear Strength:	27 deg	500 psf
Residual Shear Strength:		

Displacement Rate: 0.01 in/min

Dry Density:	108.1 pcf
Moisture:	22.2 %

Sample Location: B6
Sample Depth: 25 ft.
Geologic Unit: Saugus Formation
Material: clayey SILTSTONE and silty SANDSTONE

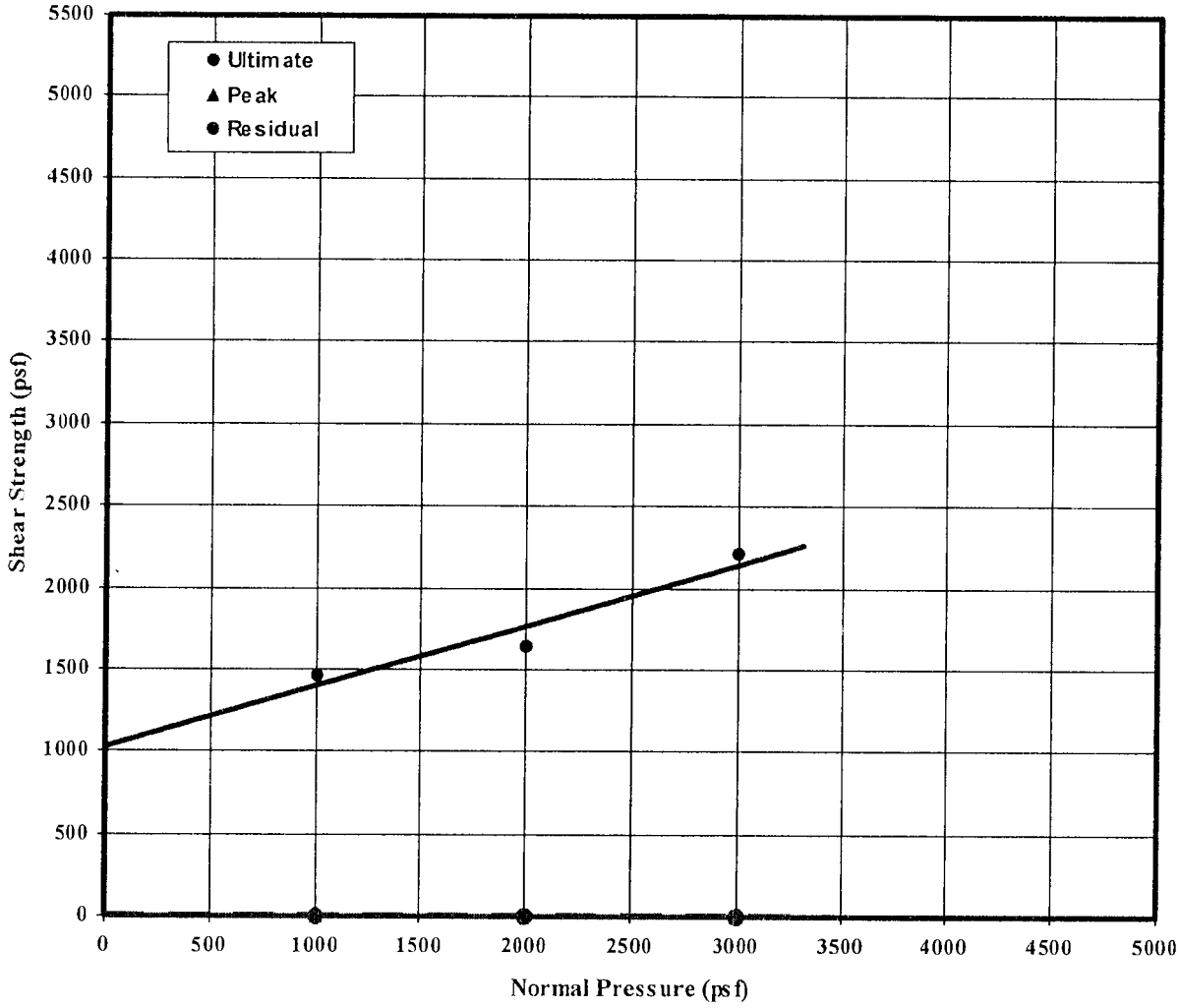


GEOLABS-WESTLAKE VILLAGE

PLATE S-B6.25

SHEAR TEST RESULTS

Undisturbed Sample

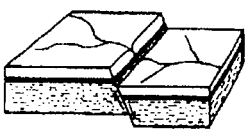


	Friction Angle	Cohesion
Ultimate Shear Strength:	20 deg	1025 psf
Peak Shear Strength:		
Residual Shear Strength:		

Displacement Rate: 0.01 in/min

Sample Location: B6
Sample Depth: 50 ft.
Geologic Unit: Saugus Formation
Material: clayey SILTSTONE

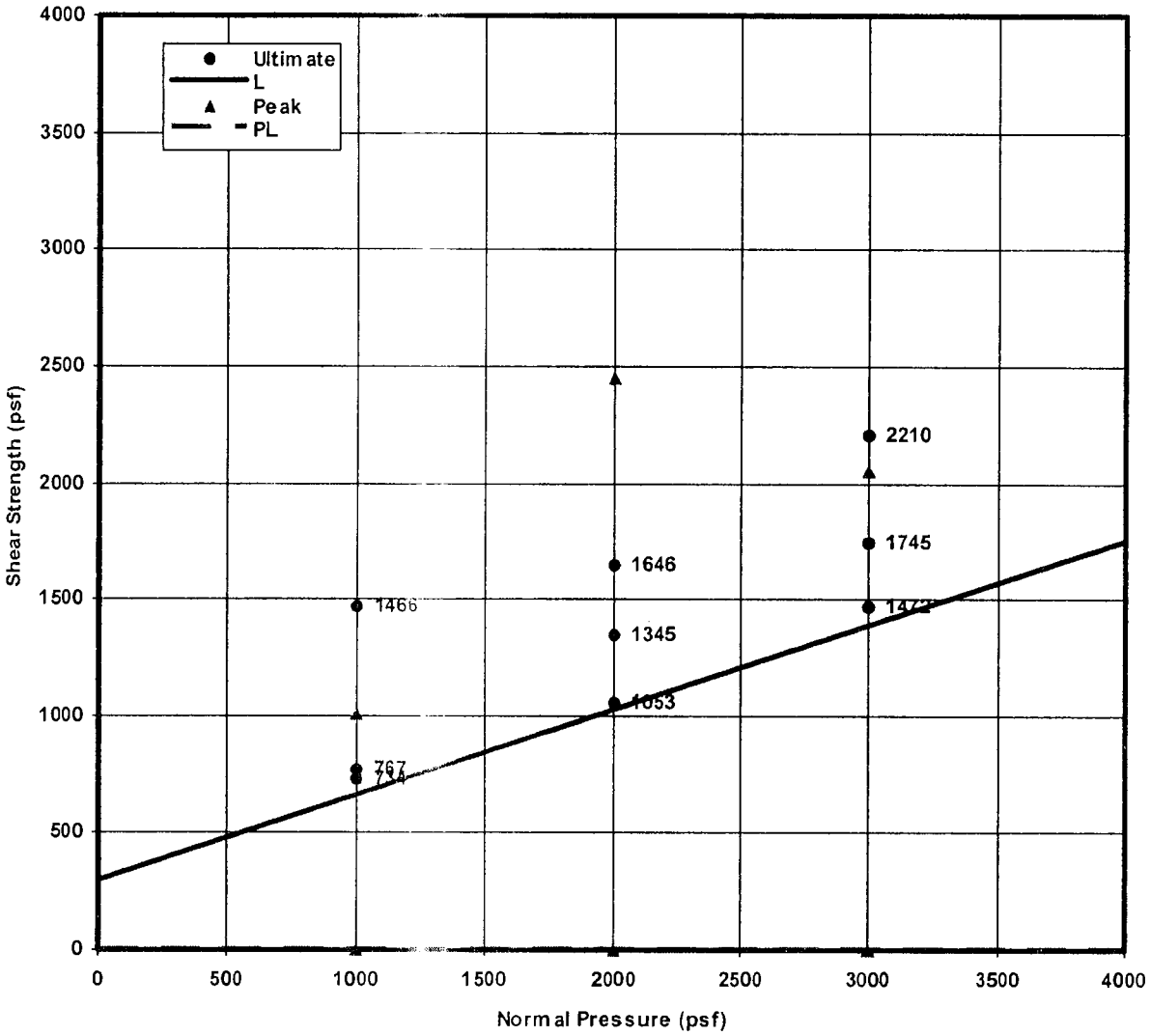
Dry Density:	106.3 pcf
Moisture:	19 %



GEOLABS-WESTLAKE VILLAGE

PLATE S-B6.50

SHEAR TEST RESULTS



	Friction Angle	Cohesion
Ultimate Shear Strength:	20 deg	300 psf

Material: TQs

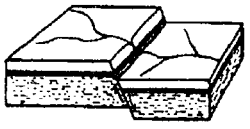
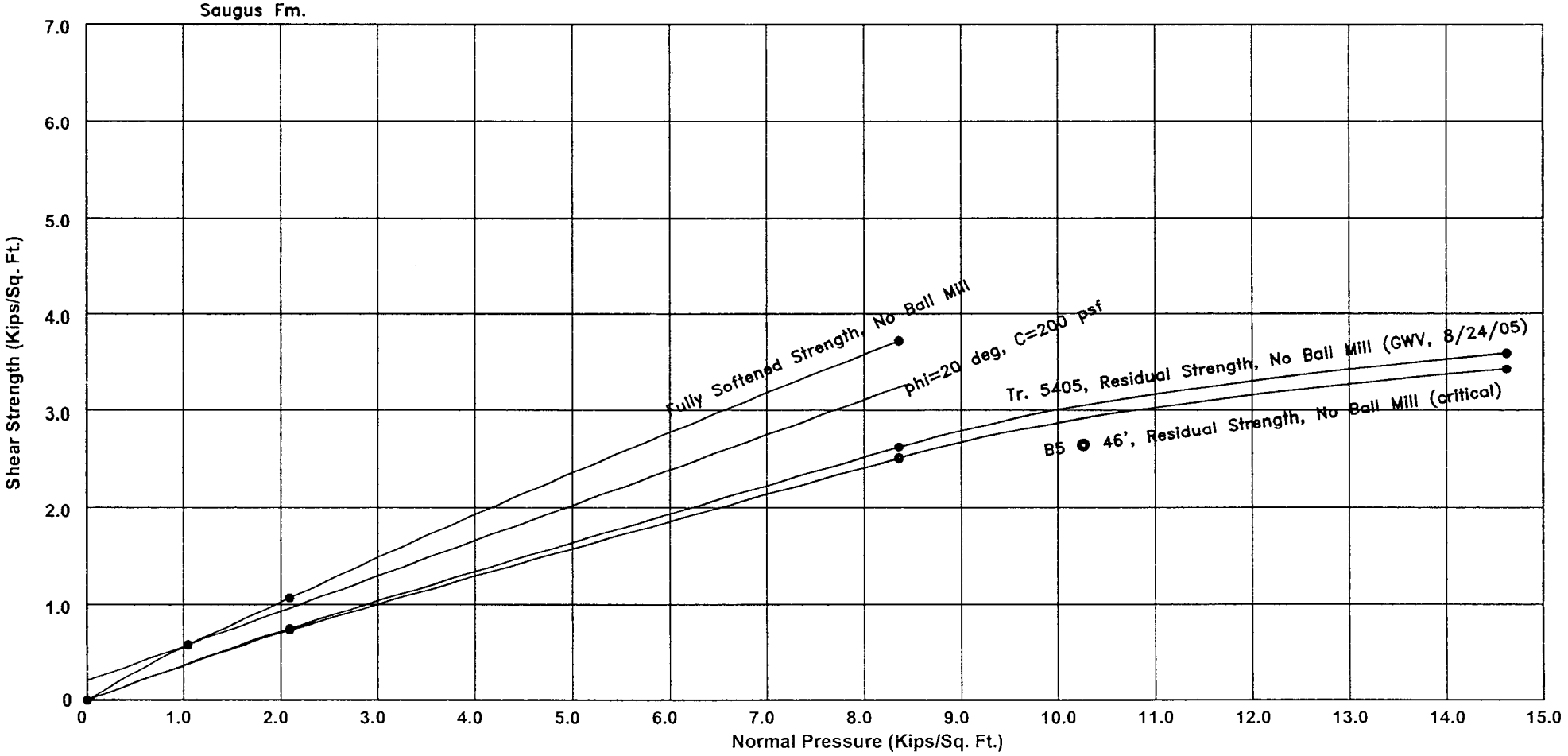


PLATE S-TQs

ESTIMATED SHEAR STRENGTH DIAGRAM



Emperical Correlation by Stark and McCone (2005)

Project Everett Terrace
Excavation B5
Depth 46 ft

Geolabs – Westlake Village
GEOLOGY AND SOIL ENGINEERING

DATE 1/05 BY
SCALE NTS W.O. 4993

PLATE

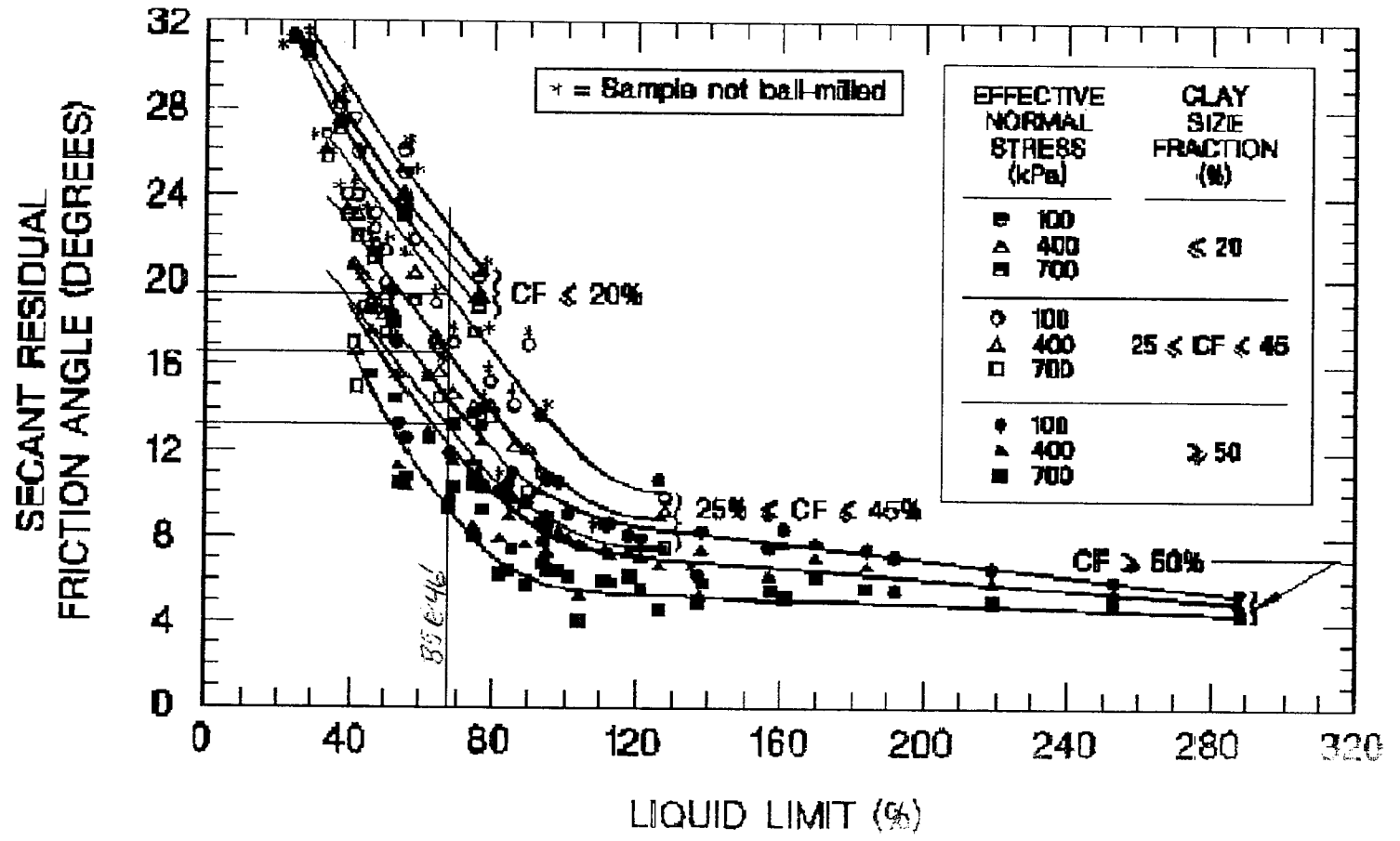


Fig. 1. Revised Secant Friction Angle Relationships with Liquid Limit, Clay-size Fraction, and Effective Normal Stress

Geolabs – Westlake Village
GEOLOGY AND SOIL ENGINEERING

DATE 11/05 BY
SCALE NTS W.O. 6963

PLATE

M. J. Schiff & Associates, Inc.

Consulting Corrosion Engineers - Since 1959
431 W. Baseline Road
Claremont, CA 91711

Phone: (909) 626-0967 Fax: (909) 626-3316
E-mail lab@mjschiff.com
website: mjschiff.com

Table 1 - Laboratory Tests on Soil Samples

Everett Terrace
Your #8953, MJS&A #04-1057LAB
5-Aug-04

Sample ID			B1 @ 0-3'
Resistivity		**Units**	
as-received		ohm-cm	52,000
saturated		ohm-cm	5,000
pH			7.3
Electrical Conductivity		mS/cm	0.11
Chemical Analyses			
Cations			
calcium	Ca^{2+}	mg/kg	64
magnesium	Mg^{2+}	mg/kg	27
sodium	Na^{1+}	mg/kg	5
Anions			
carbonate	CO_3^{2-}	mg/kg	ND
bicarbonate	HCO_3^{1-}	mg/kg	342
chloride	Cl^{1-}	mg/kg	ND
sulfate	SO_4^{2-}	mg/kg	ND
Other Tests			
ammonium	NH_4^{1+}	mg/kg	na
nitrate	NO_3^{1-}	mg/kg	na
sulfide	S^{2-}	qual	na
Redox		mV	na

Electrical conductivity in millisiemens/cm and chemical analysis were made on a 1:5 soil-to-water extract.
mg/kg = milligrams per kilogram (parts per million) of dry soil.
Redox = oxidation-reduction potential in millivolts
ND = not detected
na = not analyzed

APPENDIX B

SEISMICITY ANALYSES

```
**********
*        *
*  U B C S E I S  *
*        *
*  Version 1.00  *
*        *
**********
```

COMPUTATION OF 1997
UNIFORM BUILDING CODE
SEISMIC DESIGN PARAMETERS

JOB NUMBER: 8953 DATE: 11-14-2005

JOB NAME: Everett Terrace

FAULT-DATA-FILE NAME: CDMGUBCR.DAT

SITE COORDINATES:
SITE LATITUDE: 34.2880
SITE LONGITUDE: 118.8821

UBC SEISMIC ZONE: 0.4

UBC SOIL PROFILE TYPE: SD

NEAREST TYPE A FAULT:
NAME: SAN ANDREAS - 1857 Rupture
DISTANCE: 54.8 km

NEAREST TYPE B FAULT:
NAME: SIMI-SANTA ROSA
DISTANCE: 0.0 km

NEAREST TYPE C FAULT:
NAME: [illegible]
DISTANCE: 99999.0 km

SELECTED UBC SEISMIC COEFFICIENTS:
Na: 1.3
Nv: 1.6
Ca: 0.57
Cv: 1.02
Ts: 0.716
To: 0.143

```
**********************************************************************
* CAUTION: The digitized data points used to model faults are        *
*          limited in number and have been digitized from small-     *
*          scale maps (e.g., 1:750,000 scale). Consequently,         *
*          the estimated fault-site-distances may be in error by     *
*          several kilometers. Therefore, it is important that       *
*          the distances be carefully checked for accuracy and       *
*          adjusted as needed, before they are used in design.       *
**********************************************************************
```

SUMMARY OF FAULT PARAMETERS

Page 1

ABBREVIATED FAULT NAME	APPROX. DISTANCE (km)	SOURCE TYPE (A,B,C)	MAX. MAG. (Mw)	SLIP RATE (mm/yr)	FAULT TYPE (SS,DS,BT)
SIMI-SANTA ROSA	0.0	B	6.7	1.00	DS
OAK RIDGE (Onshore)	5.8	B	6.9	4.00	DS
SANTA SUSANA	13.2	B	6.6	5.00	DS
SAN CAYETANO	13.6	B	6.8	6.00	DS
HOLSER	16.9	B	6.5	0.40	DS
MALIBU COAST	23.8	B	6.7	0.30	DS
VENTURA - PITAS POINT	24.6	B	6.8	1.00	DS
ANACAPA-DUME	27.4	B	7.3	3.00	DS
SANTA YNEZ (East)	30.5	B	7.0	2.00	SS
SAN GABRIEL	32.7	B	7.0	1.00	SS
M.RIDGE-ARROYO PARIDA-SANTA ANA	33.0	B	6.7	0.40	DS
SANTA MONICA	35.2	B	6.6	1.00	DS
SIERRA MADRE (San Fernando)	37.1	B	6.7	2.00	DS
RED MOUNTAIN	38.7	B	6.8	2.00	DS
VERDUGO	42.5	B	6.7	0.50	DS
PALOS VERDES	46.2	B	7.1	3.00	SS
HOLLYWOOD	46.3	B	6.5	1.00	DS
NEWPORT-INGLEWOOD (L.A.Basin)	53.6	B	6.9	1.00	SS
SIERRA MADRE (Central)	53.8	B	7.0	3.00	DS
SAN ANDREAS - 1857 Rupture	54.8	A	7.8	34.00	SS
BIG PINE	56.8	B	6.7	0.80	SS
GARLOCK (West)	60.3	A	7.1	6.00	SS
PLEITO THRUST	62.2	B	6.8	2.00	DS
RAYMOND	62.4	B	6.5	0.50	DS
SANTA CRUZ ISLAND	67.0	B	6.8	1.00	DS
SANTA YNEZ (West)	72.4	B	6.9	2.00	SS
CLAMSHELL-SAWPIT	75.6	B	6.5	0.50	DS
WHITE WOLF	85.1	B	7.2	2.00	DS
ELSINORE-WHITTIER	86.2	B	6.8	2.50	SS
SAN JOSE	94.2	B	6.5	0.50	DS
SANTA ROSA ISLAND	98.6	B	6.9	1.00	DS
CUCAMONGA	102.1	A	7.0	5.00	DS
CHINO-CENTRAL AVE. (Elsinore)	105.3	B	6.7	1.00	DS
LOS ALAMOS-W. BASELINE	115.2	B	6.8	0.70	DS
NEWPORT-INGLEWOOD (Offshore)	117.9	B	6.9	1.50	SS
ELSINORE-GLEN IVY	124.2	B	6.8	5.00	SS
SAN ANDREAS - Southern	124.6	A	7.4	24.00	SS
SAN JACINTO-SAN BERNARDINO	126.3	B	6.7	12.00	SS
CLEGHORN	130.3	B	6.5	3.00	SS
LIONS HEAD	132.4	B	6.6	0.02	DS
GARLOCK (East)	136.1	A	7.3	7.00	SS
SAN JUAN	137.7	B	7.0	1.00	SS
SAN LUIS RANGE (S. Margin)	139.2	B	7.0	0.20	DS
CORONADO BANK	143.3	B	7.4	3.00	SS
LENWOOD-LOCKHART-OLD WOMAN SPRGS	146.1	B	7.3	0.60	SS
NORTH FRONTAL FAULT ZONE (West)	147.1	B	7.0	1.00	DS

SUMMARY OF FAULT PARAMETERS

ABBREVIATED FAULT NAME	APPROX. DISTANCE (km)	SOURCE TYPE (A,B,C)	MAX. MAG. (Mw)	SLIP RATE (mm/yr)	FAULT TYPE (SS,DS,BT)
CASMALIA (Orcutt Frontal Fault)	149.0	B	6.5	0.25	DS
HELENDALE - S. LOCKHARDT	150.7	B	7.1	0.60	SS
SAN JACINTO-SAN JACINTO VALLEY	154.1	B	6.9	12.00	SS
ELSINORE-TEMECULA	158.1	B	6.8	5.00	SS
So. SIERRA NEVADA	161.4	B	7.1	0.10	DS
LOS OSOS	168.4	B	6.8	0.50	DS
GRAVEL HILLS - HARPER LAKE	169.7	B	6.9	0.60	SS
HOSGRI	178.2	B	7.3	2.50	SS
LITTLE LAKE	185.3	B	6.7	0.70	SS
BLACKWATER	185.5	B	6.9	0.60	SS
ROSE CANYON	185.8	B	6.9	1.50	SS
RINCONADA	187.6	B	7.3	1.00	SS
SAN JACINTO-ANZA	190.5	A	7.2	12.00	SS
NORTH FRONTAL FAULT ZONE (East)	190.6	B	6.7	0.50	DS
LANDERS	195.3	B	7.3	0.60	SS
CALICO - HIDALGO	196.5	B	7.1	0.60	SS
ELSINORE-JULIAN	199.4	A	7.1	5.00	SS
PINTO MOUNTAIN	200.0	B	7.0	2.50	SS
JOHNSON VALLEY (Northern)	203.2	B	6.7	0.60	SS
TANK CANYON	211.6	B	6.5	1.00	DS
EMERSON So. - COPPER MTN.	217.1	B	6.9	0.60	SS
OWENS VALLEY	227.0	B	7.6	1.50	SS
PISGAH-BULLION MTN.-MESQUITE LK	227.9	B	7.1	0.60	SS
BURNT MTN.	228.3	B	6.5	0.60	SS
PANAMINT VALLEY	229.2	B	7.2	2.50	SS
EUREKA PEAK	229.3	B	6.5	0.60	SS
OWL LAKE	235.4	B	6.5	2.00	SS
SAN JACINTO-COYOTE CREEK	236.9	B	6.8	4.00	SS
EARTHQUAKE VALLEY	244.5	B	6.5	2.00	SS
SAN ANDREAS (Creeping)	245.1	B	5.0	34.00	SS
INDEPENDENCE	256.6	B	6.9	0.20	DS
DEATH VALLEY (South)	268.5	B	6.9	4.00	SS
DEATH VALLEY (Graben)	274.0	B	6.9	4.00	DS
ELSINORE-COYOTE MOUNTAIN	274.3	B	6.8	4.00	SS
SAN JACINTO - BORREGO	275.0	B	6.6	4.00	SS
HUNTER MTN. - SALINE VALLEY	277.0	B	7.0	2.50	SS
BIRCH CREEK	303.1	B	6.5	0.70	DS
SUPERSTITION MTN. (San Jacinto)	307.7	B	6.6	5.00	SS
BRAWLEY SEISMIC ZONE	309.9	B	6.5	25.00	SS
DEATH VALLEY (Northern)	311.3	A	7.2	5.00	SS
ELMORE RANCH	311.4	B	6.6	1.00	SS
SUPERSTITION HILLS (San Jacinto)	313.5	B	6.6	4.00	SS
WHITE MOUNTAINS	313.5	B	7.1	1.00	SS
ELSINORE-LAGUNA SALADA	325.8	B	7.0	3.50	SS
ROUND VALLEY (E. of S.N.Mtns.)	330.0	B	6.8	1.00	DS
ORTIGALITA	331.7	B	6.9	1.00	SS

SUMMARY OF FAULT PARAMETERS

ABBREVIATED FAULT NAME	APPROX. DISTANCE (km)	SOURCE TYPE (A,B,C)	MAX. MAG. (Mw)	SLIP RATE (mm/yr)	FAULT TYPE (SS,DS,BT)
CALAVERAS (So.of Calaveras Res)	334.7	B	6.2	15.00	SS
MONTEREY BAY - TULARCITOS	335.4	B	7.1	0.50	DS
DEEP SPRINGS	335.8	B	6.6	0.80	DS
PALO COLORADO - SUR	336.1	B	7.0	3.00	SS
IMPERIAL	340.4	A	7.0	20.00	SS
FISH SLOUGH	343.8	B	6.6	0.20	DS
QUIEN SABE	348.4	B	6.5	1.00	SS
HILTON CREEK	353.2	B	6.7	2.50	DS
DEATH VALLEY (N. of Cucamongo)	354.3	A	7.0	5.00	SS
ZAYANTE-VERGELES	365.8	B	6.8	0.10	SS
SAN ANDREAS (1906)	371.0	A	7.9	24.00	SS
SARGENT	371.5	B	6.8	3.00	SS
HARTLEY SPRINGS	372.7	B	6.6	0.50	DS
MONO LAKE	406.0	B	6.6	2.50	DS
SAN GREGORIO	410.2	A	7.3	5.00	SS
MONTE VISTA - SHANNON	421.0	B	6.5	0.40	DS
HAYWARD (SE Extension)	422.1	B	6.5	3.00	SS
GREENVILLE	423.6	B	6.9	2.00	SS
ROBINSON CREEK	435.1	B	6.5	0.50	DS
CALAVERAS (No.of Calaveras Res)	442.1	B	6.8	6.00	SS
HAYWARD (Total Length)	442.1	A	7.1	9.00	SS
ANTELOPE VALLEY	472.6	B	6.7	0.80	DS
CONCORD - GREEN VALLEY	490.9	B	6.9	6.00	SS
GENOA	494.0	B	6.9	1.00	DS
RODGERS CREEK	528.6	A	7.0	9.00	SS
WEST NAPA	530.3	B	6.5	1.00	SS
POINT REYES	545.0	B	6.8	0.30	DS
HUNTING CREEK - BERRYESSA	554.3	B	6.9	6.00	SS
MAACAMA (South)	591.5	B	6.9	9.00	SS
COLLAYOMI	609.3	B	6.5	0.60	SS
BARTLETT SPRINGS	614.4	A	7.1	6.00	SS
MAACAMA (Central)	632.7	A	7.1	9.00	SS
MAACAMA (North)	692.6	A	7.1	9.00	SS
ROUND VALLEY (N. S.F.Bay)	700.9	B	6.8	6.00	SS
BATTLE CREEK	737.0	B	6.5	0.50	DS
LAKE MOUNTAIN	758.8	B	6.7	6.00	SS
GARBERVILLE-BRICELAND	774.7	B	6.9	9.00	SS
MENDOCINO FAULT ZONE	829.1	A	7.4	35.00	DS
LITTLE SALMON (Onshore)	838.2	A	7.0	5.00	DS
CASCADIA SUBDUCTION ZONE	841.6	A	8.3	35.00	DS
MAD RIVER	842.5	B	7.1	0.70	DS
McKINLEYVILLE	852.6	B	7.0	0.60	DS
FICKLE HILL	854.3	B	6.9	0.60	DS
TRINIDAD	854.6	B	7.3	2.50	DS
TABLE BLUFF	858.3	B	7.0	0.60	DS
LITTLE SALMON (Offshore)	871.8	B	7.1	1.00	DS
BIG LAGOON - BALD MTN.FLT.ZONE	891.8	B	7.3	0.50	DS

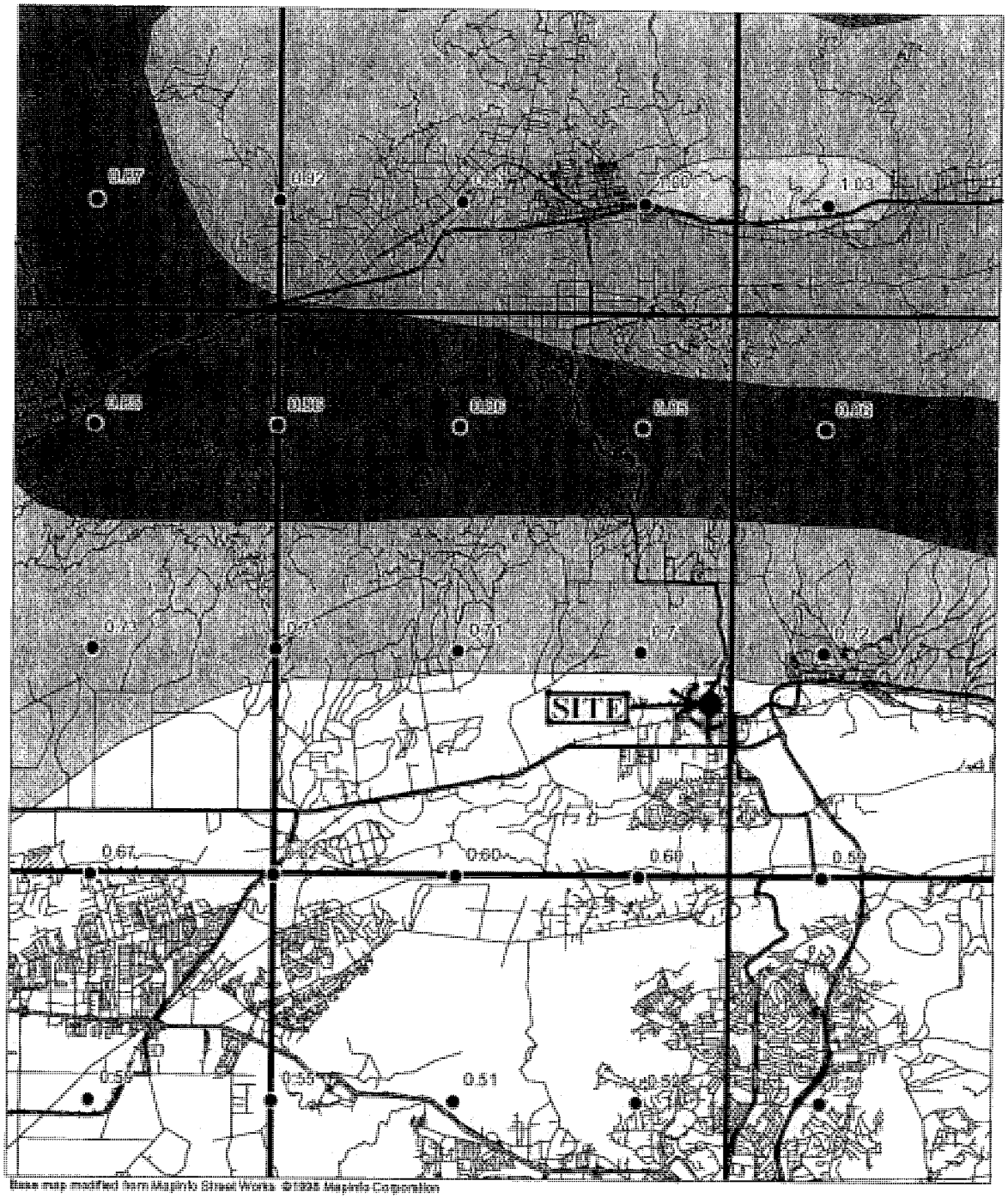
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MOORPARK 7.5 MINUTE QUADRANGLE AND PORTIONS OF ADJACENT QUADRANGLES

10% EXCEEDANCE IN 50 YEARS PEAK GROUND ACCELERATION (g)

1998

ALLUVIUM CONDITIONS



Base map modified from Maptech Street Works ©1998 Maptech Corporation

0 2.5 5
Kilometers

Department of Conservation
Division of Mines and Geology

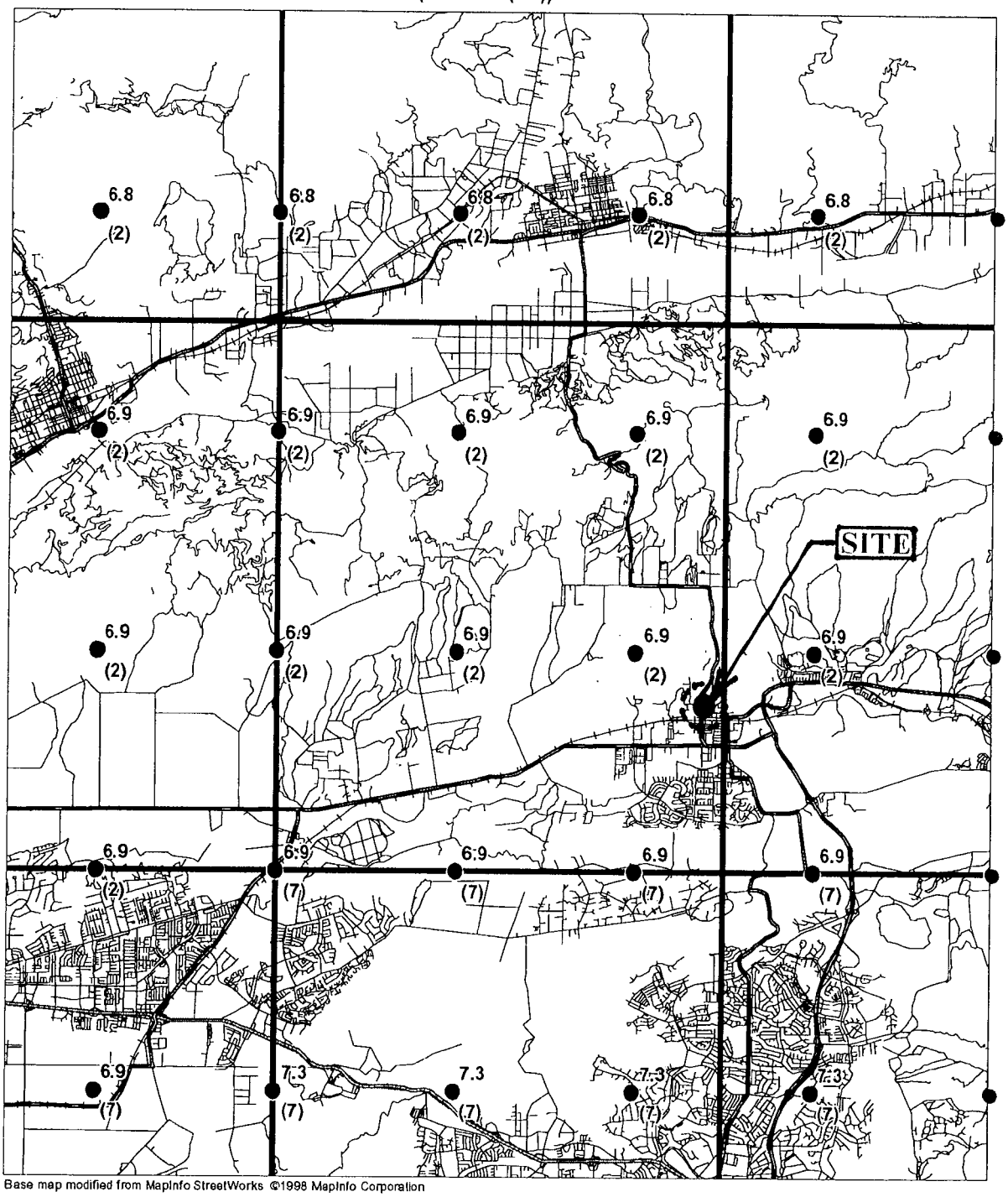
Figure 3.3

MOORPARK 7.5 MINUTE QUADRANGLE AND PORTIONS OF
ADJACENT QUADRANGLES

10% EXCEEDANCE IN 50 YEARS PEAK GROUND ACCELERATION

1998

PREDOMINANT EARTHQUAKE
Magnitude (Mw)
(Distance (km))



Base map modified from MapInfo StreetWorks ©1998 MapInfo Corporation

0 2.5 5
Kilometers

Department of Conservation
Division of Mines and Geology

Figure 3.4

APPENDIX C

LIQUEFACTION / SEISMIC SETTLEMENT ANALYSES

APPENDIX C
LIQUEFACTION AND SEISMIC SETTLEMENT ANALYSIS

This geotechnical investigation included analysis of the liquefaction potential and potential seismically induced settlement at the subject site. The liquefaction analysis addressed the alluvium below the shallow groundwater. The analysis of seismic settlement encompassed both saturated and unsaturated soils.

Field Investigation

These analyses used data retrieved from Standard Penetration Tests (SPT) in borings drilled using a hollow-stem auger and from the Cone Penetrometer Test (CPT) soundings. Samples were driven with a 140 lb. Cathead and winch hammer lifted 30 inches. The estimated efficiency of the hammer is approximately 60 percent. Drilling rod was used to allow the hammer to remain above the auger. The boring diameter was approximately 6 inches (outer diameter). The samplers consisted of both a SPT split spoon sampler and a lined Modified California split spoon sampler (2.375 inch i.d.). The borings for this investigation used water and drilling mud to prohibit soil from sluicing up the auger.

The CPT rig used during the field investigation was a 23-ton truck-mounted rig provided by Holguin, Fahan & Associates, Inc. The cone tip has a cross-sectional area of 10 square centimeters. The CPT is capable of obtaining tip pressure and side friction data at 2 inch (0.05 meter) intervals.

Data Analyses

The data obtained from the CPT and SPT tests were processed using the procedures proposed from the 1996 NCEER (Youd, 1997) and 1998 NCEER/NSF Workshops (Youd, 2001), and the SCEC implementation document (Martin, 1999). The analyses were performed using procedures programmed in the computer using Microsoft Visual Basic in conjunction with a Microsoft Excel spreadsheet.

SPT Analysis

The data from the SPT tests were processed according to the procedures proposed by NCEER, 2001. The field blowcounts were corrected for overburden, hammer energy, rod length, percent fines, and sampler liner. Tests performed using the lined California sampler (with 3 inch outer diameter and 2.37 inch inner diameter) were converted to SPT blowcounts using the procedures proposed by Lowe and Zaccheo (Fang, 1991). The cyclic resistance of the soils is compared to the cyclic stress ratio. Ratios less than 1.3 are considered to have a potential for liquefaction. The following correlations were used in these analyses.

Cyclic Stress Ratio, CSR:

$$CSR = 0.65(a_{max}/g)(\sigma_{vo}/\sigma'_{vo})r_d$$

Stress Reduction Coeff, r_d:

$$r_d = 1.0 - 0.00765z \quad \text{for} \quad z \le 9.15m$$

$$r_d = 1.174 - 0.0267z \quad \text{for} \quad 9.15m < z \le 23m$$

Cyclic Resistance Ratio, $CRR_{7.5}$:

$$CRR_{7.5} = \frac{1}{34-(N_1)_{60}} + \frac{(N_1)_{60}}{135} + \frac{50}{[10\times(N_1)_{60}+45]^2} - \frac{1}{200}$$

$$for: (N_1)_{60} < 30$$

Fines Content Correction: $(N_1)_{60cs} = \alpha + \beta(N_1)_{60}$

Where:

$\alpha = 0$ for $FC \le 5\%$

$\alpha = e^{(1.76-(190/FC^2)}$ for $5\% < FC < 35\%$

$\alpha = 5.0$ for $FC \ge 35\%$

$\beta = 1.0$ for $FC \le 5\%$

$\beta = [0.99 + (FC^{1.5}/1000)]$ for $5\% < FC < 35\%$

$\beta = 1.2$ for $FC \ge 35\%$

FC = Fines Content

Corrections to SPT N value: $(N_1)_{60} = N_{field} C_n C_e C_b C_r C_s$

Where: $C_n = 2.2/(1.2 + \sigma'_{vo}/P_a)$ for overburden normalization

Other Correction factors per Table 2 (Youd, 2001)

Liquefaction Safety Factor: $FS = (CRR_{7.5}/CSR)MSF$

Where: MSF is Magnitude Scaling Factor (Revised Idriss)

$MSF = 10^{2.24}/M_w^{2.56}$

CPT Analysis

The reduction of CPT data consisted of interpreting the soil behavior types encountered and assigning stratagraphic layers to the different soils. The depth ranges for the layers were assigned based upon material type differences such as grain size distribution and penetration resistance. Once soil layers were assigned to the sounding profile, thin sand layers were evaluated for the applicability of a correction for thin sand layers between soft clay layers. After applying a thin layer correction (if necessary), the profile data is normalized to approximately one atmosphere, evaluated, and material types and engineering characteristics are determined. The following correlations were used within these analyses.

Thin Layer Correction, K_H: $K_H = \frac{1}{4} \times [((\frac{H}{d_c})/17) - 1.77]^2 + 1.0$

Overburden Normalization: iterative procedure proposed by Robertson and Wride (1997).

$q_{c1N} = C_Q(q_c/P_a)$ where: $C_Q = (1'_a/\sigma'_{vo})^n$ but not greater than 1.7

n varies from 0.5 to 1 by soil type.
this requires an iterative process

SPT Blowcounts: R.S. Olsen (1997) (see attached graph)

Soil Behavior Index, Ic:

$$I_c = [(3.47 - \log Q)^2 + (1.22 + \log F)^2]^n$$

Soil Type: Soil Behavior Chart, Robertson & Wride (1997)

Where: $Q = [(q_c - \sigma_{vo}) / P_a][(P_a / \sigma'_{vo})^n]$

And $F = [f_s / (q_c - \sigma_{vo})] \times 100\%$

Percent Fines: Robertson & Wride (1997)

Where: if $Ic < 2.6$ $FC(\%) = 0$

if $1.26 \le Ic \le 3.5$ $FC(\%) = 1.75 Ic^{3.25} - 3.7$

if $Ic > 3.5$ $FC(\%) = 100$

Grain characteristic corr. factor, K_c: $K_c = 1.0$ for $I_c \le 1.64$

$K_c = -0.403 I_c^4 + 5.581 I_c^3 - 21.63 I_c^2 + 33.75 I_c - 17.88$ for $I_c > 1.64$

Overburden corr. factor, K_σ: $K_\sigma = (\sigma_v')^{f-1}$ where: f ranges from 0.8 to 0.6 inversely to Dr

Equivalent Clean Sand Normalized Penetration Resistance:

$$(q_{c1N})_{cs} = K_c q_{c1N}$$

Cyclic Resistance Ratio, $CRR_{7.5}$:

$CRR_{7.5} = 0.833[(q_{c1N})_{cs} / 1000] + 0.05$ for $(q_{c1N})_{cs} < 50$

$CRR_{7.5} = 93[(q_{c1N})_{cs} / 1000]^3 + 0.08$ for $50 \le (q_{c1N})_{cs} < 160$

Cyclic Stress Ratio, CSR:

$$\mathrm{CSR} = 0.65(a_{max} / g)(\sigma_{vo} / \sigma'_{vo}) r_d$$

Magnitude Scaling Factor, MSF:

$MSF = 10^{2.24} / M_w^{2.56}$ Magnitude Scaling Factor (Revised Idriss)

Liquefaction Safety Factor: $FS = (CRR_{7.5} / CSR) MSF$

Relative Density	$D_r = -98 + 66\log_{10}\frac{q_c}{[\sigma'_{vo}]^{0.5}}$	Jamiolkowski et al (1985), Units of 10kPa
	$D_r = \frac{1}{2.41} * \ln[q_c/(157 * \sigma'^{0.55}_{vo})]$	Baldi et al (1986), Units of kPa
Undrained Shear Strength:	$S_u = \frac{q_c - \sigma_o}{N_K}$	Robertson & Campanella (1989), N_k=15
Effective Internal Friction:	$\phi' = \tan^{-1}[0.1 + 0.38\log\frac{q_c}{\sigma'_{vo}}]$	Roberston & Campanella (1983)
	$\phi' = 53.881 - 27.6034e^{(-0.0147N)}$	Peck et al., (1974) after Coyle (1985)
Overconsolidation Ratio:	programmed from chart	Schmertmann (1978)

The results of our analyses are presented on the attached graphs. Layers of materials in which the CSR exceeds the $CRR_{7.5}$ are considered liquefiable. The data from boring B1 and CPT sounding CPT1 were compared on a plot located at the end of the CPT1 output series. In our opinion the CPT data compares well with the SPT data.

Liquefaction Induced Settlement

The analyses of the potential liquefaction induced settlement are performed using the same electronic spreadsheet used to perform the liquefaction analyses. The spreadsheet is programmed to perform the analyses proposed by Tokimatsu and Seed (1987).

For the settlement analyses, the normalized, fines corrected SPT blowcounts are compared to digitized files of chart data (SPT blowcounts vs. Volumetric strain for clean sands) provided in Tokimatsu and Seed. The fines correction to the SPT blowcounts consider a liquefied soil. Therefore, this fines correction produces smaller corrected blowcounts than the corrected blowcounts used to estimate the potential for triggering of liquefaction. This fines correction is based on the recommended procedures for implementation of Publication 117 (Martin and Lew, 1999). The spreadsheet estimates the percent volumetric strain for each layer assuming the lateral strain is minor so the volumetric strain is equivalent to settlement. The estimated settlement for each soil layer and a summation of all the soil layers below the design groundwater level are then reported.

Seismic Settlement of Dry Sands

For coarse-grained materials above the design groundwater level the potential for settlement related to ground shaking is analyzed using the methods proposed by Tokimatsu and Seed (1987). Like in the liquefaction-induced-settlement analyses, the SPT blowcounts and/or CPT derived SPT blowcounts are corrected to an equivalent blowcount for clean sand. Clayey soils with 15 percent clay or more, and soils with an Ic of 2.6 or greater are discarded from the analyses. The following equations are used in the analysis to enter into charts provided with the methodology.

Effective Shear Strain: $$\gamma_{eff} = \frac{\tau_{av}}{G_{max} \times \frac{G_{eff}}{G_{max}}}$$

Average Cyclic Shear Stress: $\tau_{av} = 0.65 \bullet \frac{a_{max}}{g} \bullet \sigma_o \bullet r_d$

Shear Modulus at Low Strain:

$$G_{max} = 1000 \bullet (K_2)_{max} \bullet (\sigma'_m)^{1/2} \quad \text{in psf units}$$

$$(K_2)_{max} \cong 20(N_1)^{1/3} \qquad \text{(Ohta and Goto, 1976)}$$

Using the referenced methodology, the volumetric strain is estimated for each soil layer or layer portion above the design water level. This methodology is considered applicable to dry or moist sands (unsaturated). Again the lateral strains are considered insignificant so the volumetric strain is considered as settlement. The estimated settlement for each soil layer and a summation of all the soil layers above the groundwater level are then reported by incorporation into the attached settlement graphs.

Currently the practice of soils engineering lacks accurate means or knowledge to estimate the potential seismic settlement for fine-grained soils. The use of this methodology for soils with significant amounts of fine grain sizes is believed to be conservative. This methodology is used with the understanding of its limitations and for lack of better simplified means of estimating the potential for seismic settlement.

The estimate of potential differential settlement is typically taken to be half of the total seismic settlement (Martin and Lew, 1999).

Surface Manifestations

Consideration of the potential for surface manifestations used the procedure proposed by Ishihara, 1985. The potential is considered a function of the relative density (SPT blowcounts), depth and thickness of liquefiable material, and thickness of overlying non-liquefiable material. Surface manifestations are not considered probable during a design level earthquake.

Liquefaction-Induced Lateral Spread

The potential for liquefaction-induced lateral spread was analyzed using the procedures proposed by Barlett and Youd (1995) as modified in 1999. The potential is considered a function of earthquake distance and magnitude, thickness and grain-size distribution in the liquefiable layers, and ground slope or nearness of an open face. It should be noted that this procedure was developed using a historical database of large displacement events. The database includes few points with movement magnitudes of small value, on the order that is of interest for engineering purposes. The procedure is also applicable only for earthquake sources greater than 10 kilometers from the subject site (though we have evaluated our data using smaller source distances). These two elements of the analyses are cause to suspect the output when faults are near source events and when the magnitude of movement is relatively small (a few meters). Therefore, for our purposes we have used this analyses as an indicator whether lateral-spread may be possible; however, the magnitudes of movement output from the analyses are considered suspect.

Considering the blow counts and estimated blow counts obtained during the investigation and the depth of design groundwater, lateral spreading during a design level earthquake is considered unlikely.

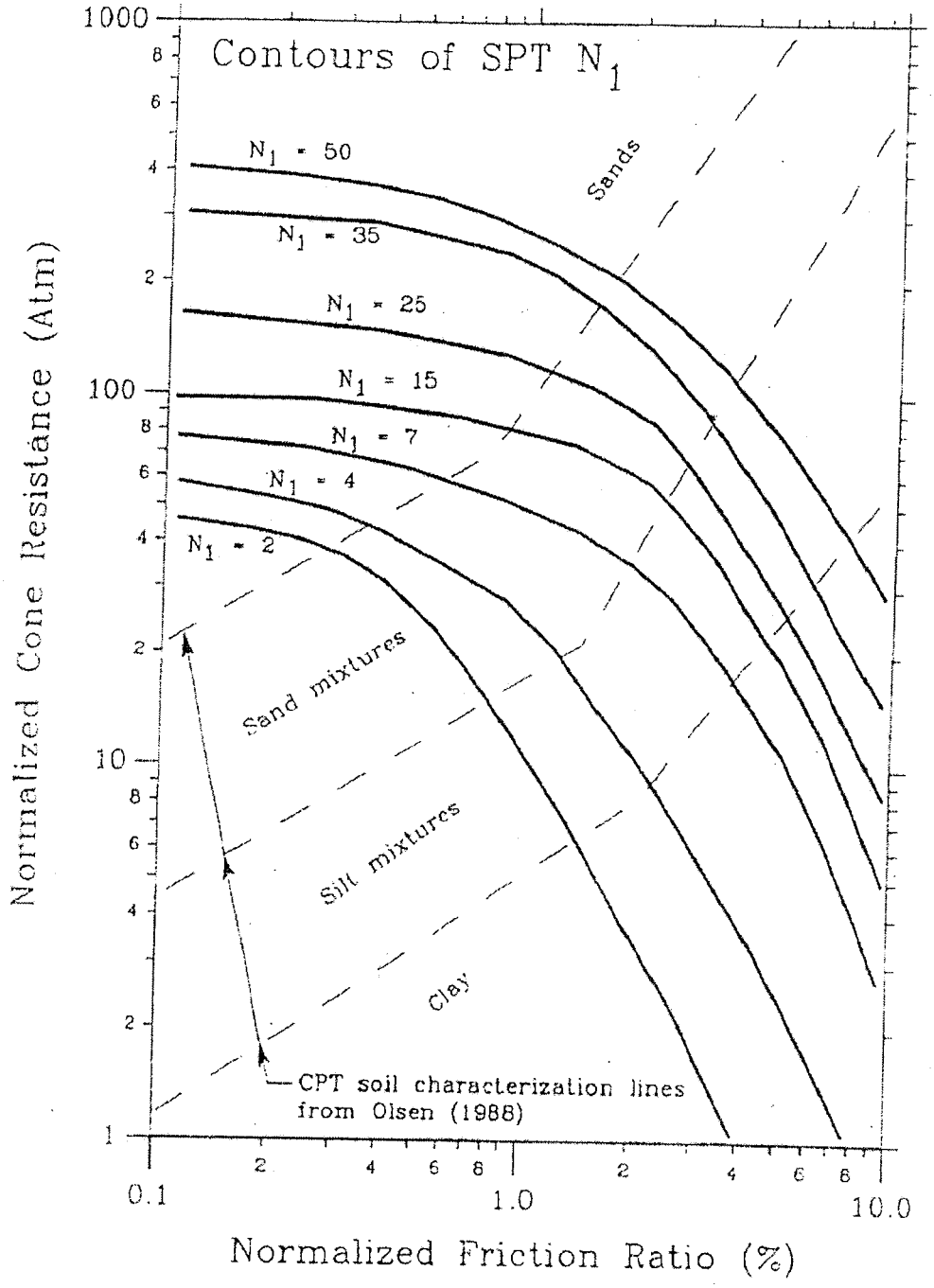


Figure 11 CPT estimation of SPT N_1 using both CPT measurements (Olsen 1994, 1988 1986, 1984).

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CPT ANALYSIS
CPT 1

Summary of Analysis of CPT Data

CPT: CPT1 W.O.: 8953
G.W. Depth: 60 ft Elev.: 0
Design G.W. Depth: 60 ft Ic: 2.6
Removal: 0 ft C:\JOBS\8953_Everest Terrace\8-29-04\CPT-01.cpd

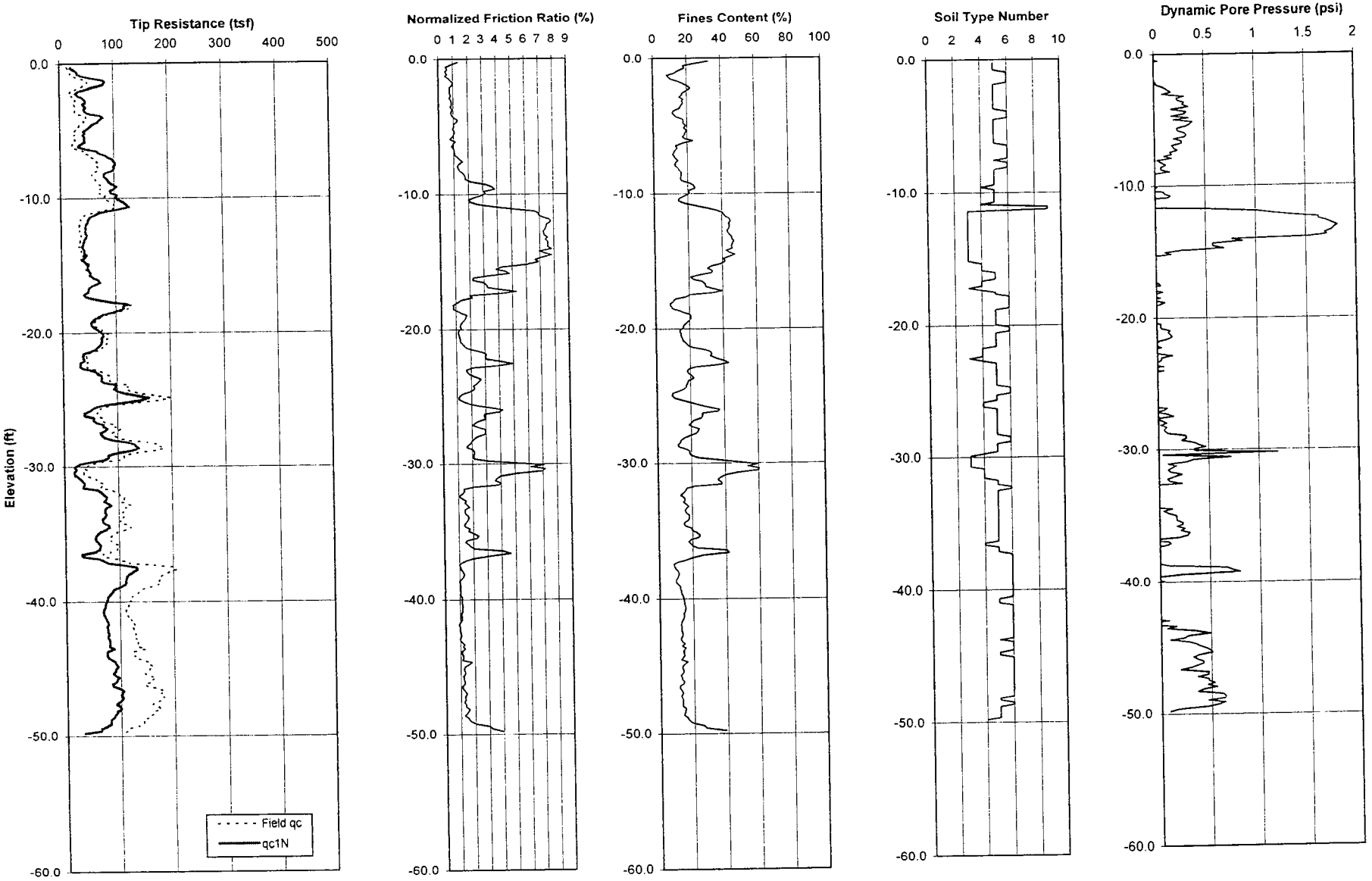
Fill Height: 0.0 ft 125 pcf
Max horizontal acc. @ surface: 0.69 g
Design earthquake magnitude: 6.90

Layer	Layer Bott. (ft)	Layer Thick. (ft)	Avg Tip Resist qc (tsf)	Avg. Side Fric. fs	Avg. Tip Resist qc1N (tsf)	Norm. Frc. Rt. (%)	Est. Wet Den. (pcf)	Soil Behavior Type	O.B. (tsf)	Eff. O.B. (tsf)	Norm. Exp. n	Ic Range	Kc	Fines Content (%)	Phi (deg)	Dr (%)	Su (tsf)	SPT N1(60) (bpf)	SPT N1(60)cs (bpf)
1	0.82	0.49	17.6	0.13	28.7	0.8	120	Sand mixtures - silty sand to sandy silt	0.031	0.031	0.5	2.17 to 2.55	2.09	23.2	49	75.0	---	3.9	8.2
2	1.80	0.98	41.4	0.28	67.5	0.7	125	Sands - clean sand to silty sand	0.080	0.080	0.5	1.8 to 2.07	1.26	11.8	48	87.0	---	10.6	12.4
3	3.77	1.97	26.6	0.22	43.3	0.8	120	Sand mixtures - silty sand to sandy silt	0.170	0.170	0.5	2.09 to 2.29	1.60	18.0	43	52.0	---	6.1	9.7
4	4.43	0.66	46.3	0.43	75.4	0.9	125	Sands - clean sand to silty sand	0.249	0.249	0.5	1.95 to 2.04	1.28	12.6	44	66.0	---	14.1	16.3
5	6.40	1.97	28.4	0.29	46.1	1.0	120	Sand mixtures - silty sand to sandy silt	0.329	0.329	0.5	2.15 to 2.32	1.65	18.7	40	39.0	---	7.2	11.1
6	7.55	1.15	57.9	0.65	86.8	1.1	125	Sands - clean sand to silty sand	0.424	0.424	0.5	1.94 to 2.04	1.29	12.7	42	63.0	---	18.1	20.5
7	7.71	0.16	68.6	1.10	98.5	1.6	120	Sand mixtures - silty sand to sandy silt	0.465	0.465	0.5	2.06	1.38	14.5	43	68.0	---	24.8	28.3
8	8.20	0.49	66.8	0.87	94.0	1.3	125	Sands - clean sand to silty sand	0.485	0.485	0.5	1.99 to 2.05	1.31	13.2	42	66.0	---	21.3	24.1
9	9.51	1.31	68.4	1.50	91.0	2.2	120	Sand mixtures - silty sand to sandy silt	0.540	0.540	0.5	2.07 to 2.34	1.59	17.7	42	65.0	---	27.9	32.9
10	9.68	0.16	73.3	2.81	93.9	3.9	120	Silt mixtures - clayey silt to silty clay	0.584	0.584	0.5	2.35	2.11	24.3	---	---	4.9	46.1	57.6
11	10.83	1.15	90.7	2.34	112.4	2.6	120	Sand mixtures - silty sand to sandy silt	0.623	0.623	0.5	2.06 to 2.26	1.60	18.0	43	73.0	---	37.6	43.3
12	10.99	0.16	73.1	2.74	87.9	3.8	120	Silt mixtures - clayey silt to silty clay	0.663	0.663	0.5	2.36	2.15	24.8	---	---	4.8	44.6	53.9
13	11.32	0.33	51.3	2.98	66.7	5.9	125	Very stiff, fine grained*	0.678	0.678	0.5 to 1	2.53 to 2.63	3.24	34.6	---	---	2.4	49.7	64.6
14	15.26	3.94	37.2	2.65	45.3	7.3	120	Clays - silty clay to clay	0.806	0.806	1	2.68 to 2.83	4.48	43.9	---	---	3.5	35.3	46.5
15	15.91	0.66	53.1	2.28	53.5	4.4	120	Silt mixtures - clayey silt to silty clay	0.944	0.944	0.5	2.51 to 2.57	3.02	32.9	---	---	---	23.1	29.9
16	16.57	0.66	63.8	1.68	63.0	2.7	120	Sand mixtures - silty sand to sandy silt	0.983	0.983	0.5	2.25 to 2.44	2.13	24.4	38	48.0	---	26.3	35.5
17	17.06	0.49	50.0	1.74	48.5	3.6	120	Silt mixtures - clayey silt to silty clay	1.018	1.018	0.5	2.48 to 2.58	2.84	31.2	---	---	3.3	36.3	48.6
18	17.22	0.16	43.6	2.24	41.0	5.3	120	Clays - silty clay to clay	1.038	1.038	1	2.69	3.90	39.8	---	---	2.8	41.4	27
19	17.39	0.16	48.4	2.00	46.3	4.2	120	Silt mixtures - clayey silt to silty clay	1.047	1.047	0.5	2.58	3.21	34.4	---	---	3.2	30.6	41.4
20	17.72	0.33	82.5	1.70	78.4	2.1	120	Sand mixtures - silty sand to sandy silt	1.062	1.062	0.5	2.17 to 2.24	1.69	19.2	39	57.0	---	21.9	27
21	18.70	0.98	111.9	1.14	104.4	1.0	125	Sands - clean sand to silty sand	1.103	1.103	0.5	1.81 to 2.04	1.20	10.6	41	68.0	---	21.6	23.2
22	20.01	1.31	67.6	0.98	61.1	1.5	120	Sand mixtures - silty sand to sandy silt	1.173	1.173	0.5	2.12 to 2.26	1.64	18.5	38	46.0	---	13.0	17.2
23	20.51	0.49	84.1	0.97	74.3	1.2	125	Sands - clean sand to silty sand	1.228	1.228	0.5	2.04 to 2.07	1.38	14.5	39	55.0	---	15.2	18.2
24	21.65	1.15	70.6	1.04	61.3	1.6	120	Sand mixtures - silty sand to sandy silt	1.277	1.277	0.5	2.07 to 2.46	1.72	19.2	37	46.0	---	13.3	17.6
25	22.47	0.82	45.1	1.41	35.9	3.2	120	Silt mixtures - clayey silt to silty clay	1.337	1.337	0.5 to 1	2.53 to 2.69	3.22	34.4	---	---	2.9	15.4	23.1
26	22.64	0.16	45.0	2.14	31.9	4.9	120	Clays - silty clay to clay	1.366	1.366	1	2.74	4.31	42.7	---	---	2.9	28.1	38.7
27	22.80	0.16	53.9	2.08	38.2	4.0	120	Silt mixtures - clayey silt to silty clay	1.376	1.376	1	2.62	3.45	36.4	---	---	3.5	25.2	35.2
28	24.61	1.80	101.7	2.20	83.0	2.2	120	Sand mixtures - silty sand to sandy silt	1.435	1.435	0.5	2.11 to 2.32	1.68	19.1	39	58.0	---	24.0	29.2
29	25.26	0.66	171.7	2.38	136.8	1.4	125	Sands - clean sand to silty sand	1.510	1.510	0.5	1.83 to 2.01	1.20	10.6	41	79.0	---	29.5	31.3
30	25.75	0.49	80.7	1.47	63.6	1.9	120	Sand mixtures - silty sand to sandy silt	1.545	1.545	0.5	2.1 to 2.38	1.82	20.6	37	47.0	---	16.1	21.1
31	26.25	0.49	62.7	2.38	42.2	3.9	120	Silt mixtures - clayey silt to silty clay	1.574	1.574	0.5 to 1	2.5 to 2.63	3.26	34.8	---	---	4.1	26.3	36.1
32	28.38	2.13	104.1	2.54	79.1	2.6	120	Sand mixtures - silty sand to sandy silt	1.653	1.653	0.5	2.03 to 2.41	1.91	21.7	38	55.0	---	26.8	33
33	28.87	0.49	178.6	3.10	132.8	1.8	125	Sands - clean sand to silty sand	1.732	1.732	0.5	1.97 to 2.02	1.29	12.7	41	78.0	---	31.4	34.3
34	29.69	0.82	106.3	2.21	78.2	2.1	120	Sand mixtures - silty sand to sandy silt	1.772	1.772	0.5	2.12 to 2.34	1.73	19.6	38	55.0	---	22.3	27.5
35	29.86	0.16	54.4	1.64	29.2	3.1	120	Silt mixtures - clayey silt to silty clay	1.802	1.802	1	2.64	3.57	37.3	---	---	3.5	10.9	18
36	30.84	0.98	40.7	2.40	21.1	6.3	120	Clays - silty clay to clay	1.836	1.836	1	2.82 to 3.03	6.19	55.0	---	---	2.6	27.7	38.3
37	31.66	0.82	66.7	2.48	34.3	3.8	120	Silt mixtures - clayey silt to silty clay	1.891	1.891	1	2.6 to 2.69	3.62	37.6	---	---	4.3	20.3	29.4
38	32.15	0.49	95.5	1.51	67.3	1.6	120	Sand mixtures - silty sand to sandy silt	1.930	1.930	0.5	2.12 to 2.27	1.82	18.2	37	49.0	---	15.5	19.8
39	32.48	0.33	110.1	1.25	77.1	1.2	125	Sands - clean sand to silty sand	1.955	1.955	0.5	2.01 to 2.06	1.35	14.0	37	55.0	---	15.8	18.7
40	36.42	3.94	102.5	1.65	69.6	1.7	120	Sand mixtures - silty sand to sandy silt	2.083	2.083	0.5	2.07 to 2.35	1.83	18.3	37	50.0	---	16.4	20.7
41	36.75	0.33	70.7	2.99	31.0	4.4	120	Silt mixtures - clayey silt to silty clay	2.211	2.211	1	2.7 to 2.73	4.11	41.3	---	---	4.6	22.9	32.5
42	37.24	0.49	108.5	2.27	71.0	2.2	120	Sand mixtures - silty sand to sandy silt	2.236	2.236	0.5	2.11 to 2.4	1.82	20.5	36	51.0	---	21.6	27.2
43	40.52	3.28	154.5	1.70	98.8	1.1	125	Sands - clean sand to silty sand	2.353	2.353	0.5	1.82 to 2.06	1.25	11.8	38	64.0	---	20.8	22.9
44	41.01	0.49	111.6	1.29	69.5	1.2	120	Sand mixtures - silty sand to sandy silt	2.470	2.470	0.5	2.08 to 2.08	1.42	15.2	36	50.0	---	13.9	17.2
45	43.64	2.62	127.5	1.34	77.9	1.1	125	Sands - clean sand to silty sand	2.567	2.567	0.5	1.98 to 2.06	1.32	13.3	37	55.0	---	15.6	18.1
46	43.80	0.16	125.6	1.61	75.5	1.3	120	Sand mixtures - silty sand to sandy silt	2.654	2.654	0.5	2.08	1.42	15.2	36	54.0	---	16.2	19.5
47	44.62	0.82	134.6	1.52	80.4	1.2	125	Sands - clean sand to silty sand	2.685	2.685	0.5	1.98 to 2.05	1.33	13.6	37	56.0	---	16.7	19.4
48	44.95	0.33	156.8	2.61	93.1	1.7	120	Sand mixtures - silty sand to sandy silt	2.720	2.720	0.5	2.06 to 2.11	1.43	15.4	38	62.0	---	23.8	27.6
49	48.06	3.12	163.5	2.05	95.1	1.3	125	Sands - clean sand to silty sand	2.827	2.827	0.5	1.94 to 2.04	1.30	12.9	38	63.0	---	21.4	24
50	48.39	0.33	161.5	2.46	92.2	1.6	120	Sand mixtures - silty sand to sandy silt	2.935	2.935	0.5	2.06 to 2.07	1.39	14.7	37	62.0	---	22.4	25.9
51	48.72	0.33	153.0	1.99	87.1	1.3	125	Sands - clean sand to silty sand	2.955	2.955	0.5	2.03 to 2.04	1.35	13.9	37	59.0	---	19.5	22.5
52	49.70	0.98	130.0	2.67	73.5	2.2	120	Sand mixtures - silty sand to sandy silt	2.995	2.995	0.5	2.09 to 2.41	1.79	20.1	36	52.0	---	22.3	27.8

Evaluation of Soil C[illegible]acteristics
Using CPT Data

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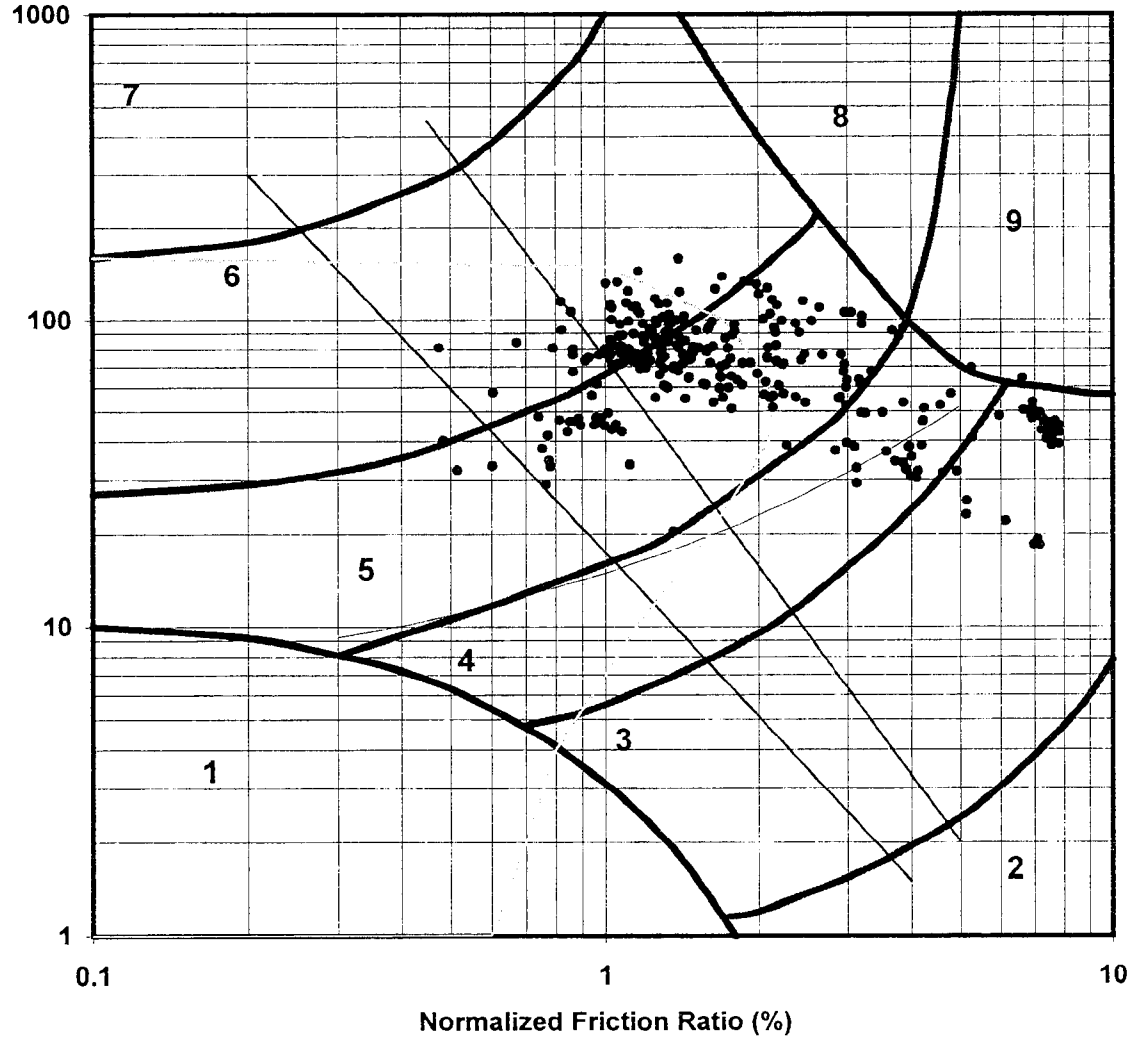
CPT: CPT1
G.W. Depth: 60 ft.
Design G.W. Depth: 60 ft.
Elev.: 0



CPT-Based Soil Behavior Type

CPT: CPT1
G.W. Depth: 60 ft
Ic: 2.6

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Soil Consistency Number

(Sand / Clay)
1 = very loose / very soft
2 = loose / soft
3 = medium dense / medium stiff
4 = dense / stiff
5 = very dense / very stiff
6 = — / hard

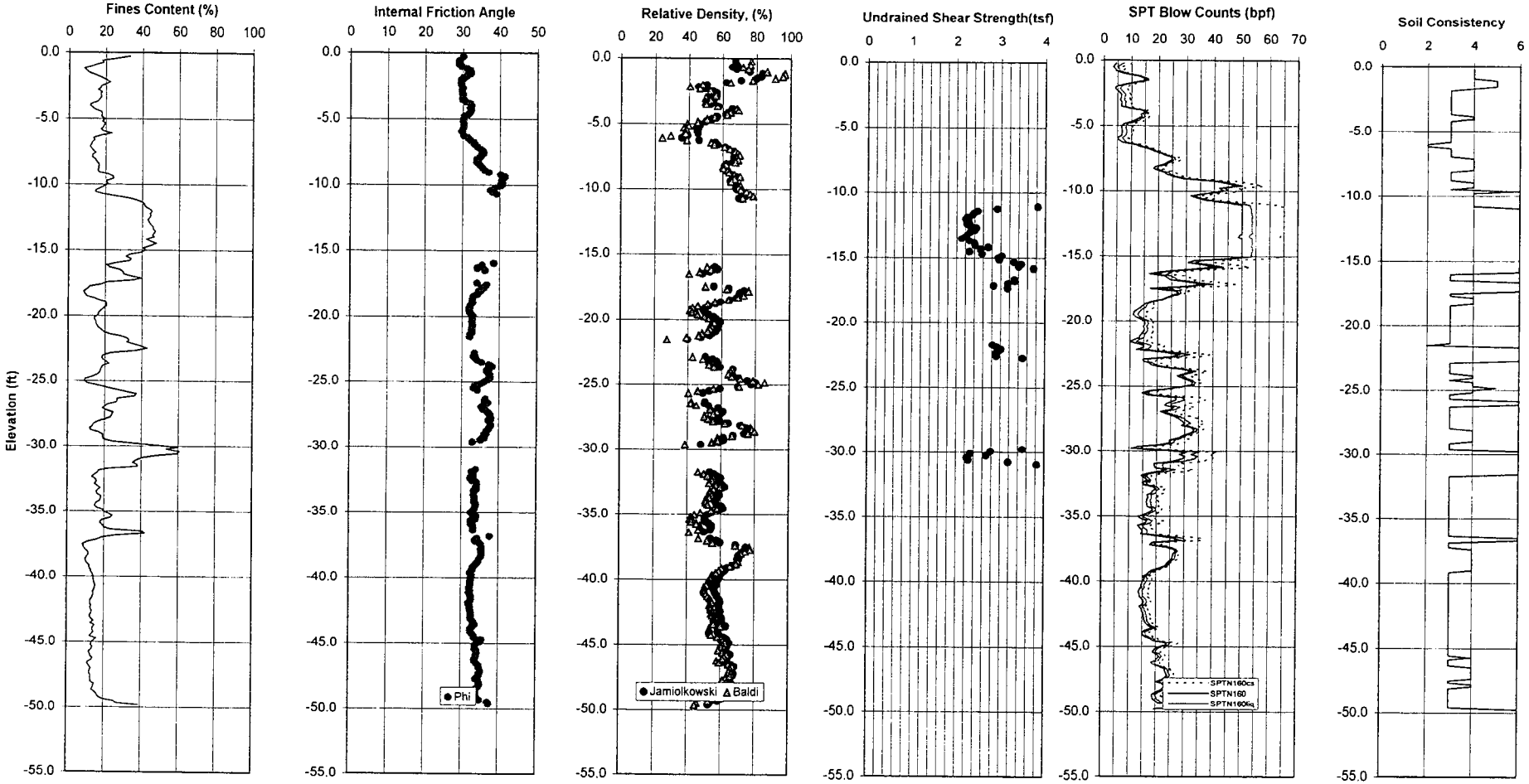
Soil Behavior Type Classification

1. Sensitive Fine Grained
2. Organic soils - peats
3. Clays - silty clay to clay
4. Silt mixtures - clayey silt to silty clay
5. Sand mixtures - silty sand to sandy silt
6. Sands - clean sand to silty sand
7. Gravelly sand to dense sand
8. Very stiff sand to clayey sand*
9. Very stiff, fine grained*

*Heavily overconsolidated or cemented

Soil Characteristics and Engineering Characteristics
Using CPT Data

CPT: CPT1
G.W. Depth: 60 ft. Elev.: 0
Design G.W. Depth: 60 ft.
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CPT ANALYSIS
CPT 1
NO DESIGN GROUNDWATER

"Dry" Sand Seismic Settlement Using CPT Data

CPT: CPT1 W.O.: 8953
G.W. Depth: 60 ft. Elev.: 0
Design G.W. Depth: 60 ft. Ic: 2.6 C:\JOBS\8953_Everest Terrace\6-25-04\CPT-01.cpd
Removal: 0 ft.

Fill Height: 0.0 ft. 125 pcf
Max horizontal acc. @ surface: 0.69 g
Design earthquake magnitude: 6.90
Magnitude Scaling Factor: 0.88

Layer	Layer Bott. (ft)	Layer Thick. (ft)	Avg. Tip Resist qc (tsf)	Avg. Side Fric. fs	Avg. Tip Resist qc1N (tsf)	Norm. Frc. Rt. (%)	Eff. O.B. (tsf)	Soil Behavior Type	Avg. rd	Kc	Kσ	Fines Content (%)	Avg. Dr (%)	Spt N160cs (bpf)	Cyclic Shear Stress τav (psf)	Gmax (ksf)	γeff / (Geff/Gmax)	γeff	Vol. Strain (%)	"Dry" Settle. (in)
1	0.82	0.49	17.6	0.13	28.7	0.8	0.031	Sand mixtures - silty sand to sandy silt (5)	1.00	2.09	1	23.2	75	8.2	28	2.16E+02	1.24E-04	4.21E-04	2.70E-01	1.85E-02
2	1.80	0.98	41.4	0.28	67.5	0.7	0.080	Sands - clean sand to silty sand (6)	1.00	1.26	1	11.8	87	12.4	72	4.12E+02	1.73E-04	1.20E-03	4.65E-01	5.50E-02
3	3.77	1.97	26.6	0.22	43.3	0.8	0.170	Sand mixtures - silty sand to sandy silt (5)	1.00	1.60	1	18.0	52	9.7	152	5.77E+02	2.60E-04	5.31E-03	2.23E+00	5.27E-01
4	4.43	0.66	46.3	0.43	75.4	0.9	0.249	Sands - clean sand to silty sand (6)	0.99	1.28	1	12.6	66	16.3	222	8.30E+02	2.67E-04	1.42E-02	2.64E+00	2.08E-01
5	6.40	1.97	28.4	0.29	46.1	1.0	0.329	Sand mixtures - silty sand to sandy silt (5)	0.99	1.65	1	18.7	39	11.1	292	8.61E+02	3.39E-04	3.69E-02	3.56E-01	8.40E-02
6	7.55	1.15	57.9	0.65	86.8	1.1	0.424	Sands - clean sand to silty sand (6)	0.99	1.29	1	12.7	63	20.5	375	1.18E+03	3.19E-04	5.99E-03	9.65E-01	1.33E-01
7	7.71	0.16	68.6	1.10	98.5	1.6	0.465	Sand mixtures - silty sand to sandy silt (5)	0.98	1.38	1	14.5	68	28.3	410	1.37E+03	2.98E-04	2.29E-03	2.62E-01	5.15E-03
8	8.20	0.49	66.8	0.87	94.0	1.3	0.485	Sands - clean sand to silty sand (6)	0.98	1.31	1	13.2	66	24.1	428	1.33E+03	3.21E-04	3.18E-03	4.66E-01	2.75E-02
9	9.51	1.31	68.4	1.50	91.0	2.2	0.540	Sand mixtures - silty sand to sandy silt (5)	0.98	1.59	1	17.7	65	32.9	475	1.55E+03	3.09E-04	2.31E-03	2.83E-01	4.46E-02
10	9.68	0.16	73.3	2.81	93.9	3.9	0.584	Silt mixtures - clayey silt to silty clay (4)	0.98	2.11	1	24.3	---	57.6	513	2.79E+03	1.84E-04	3.01E-04	1.62E-02	3.19E-04
11	10.83	1.15	90.7	2.34	112.4	2.6	0.623	Sand mixtures - silty sand to sandy silt (5)	0.98	1.60	1	18.0	73	43.3	547	1.83E+03	2.99E-04	1.49E-03	9.12E-02	1.26E-02
12	10.99	0.16	73.1	2.74	87.9	3.8	0.663	Silt mixtures - clayey silt to silty clay (4)	0.98	2.15	1	24.8	---	53.9	581	2.90E+03	2.00E-04	3.39E-04	1.83E-02	3.60E-04
15	15.91	0.66	53.1	2.28	53.5	4.4	0.944	Silt mixtures - clayey silt to silty clay (4)	0.97	3.02	1	32.9	---	46.5	819	3.30E+03	2.49E-04	4.44E-04	2.39E-02	1.89E-03
16	16.57	0.66	63.8	1.68	63.0	2.7	0.983	Sand mixtures - silty sand to sandy silt (5)	0.97	2.13	1	24.4	48	29.9	852	2.10E+03	4.08E-04	2.21E-03	2.61E-01	2.05E-02
17	17.06	0.49	50.0	1.74	48.5	3.6	1.018	Silt mixtures - clayey silt to silty clay (4)	0.96	2.84	1	31.2	---	35.5	881	3.13E+03	2.82E-04	5.26E-04	4.17E-02	2.47E-03
19	17.39	0.16	48.4	2.00	46.3	4.2	1.047	Silt mixtures - clayey silt to silty clay (4)	0.96	3.21	0.99	34.4	---	41.4	905	3.35E+03	2.70E-04	4.82E-04	2.61E-02	5.13E-04
20	17.72	0.33	82.5	1.70	78.4	2.1	1.062	Sand mixtures - silty sand to sandy silt (5)	0.96	1.69	0.99	19.2	57	27.0	917	2.10E+03	4.39E-04	2.66E-03	3.51E-01	1.38E-02
21	18.70	0.98	111.9	1.14	104.4	1.0	1.103	Sands - clean sand to silty sand (6)	0.96	1.20	0.97	10.6	68	23.2	951	2.01E+03	4.75E-04	3.59E-03	5.77E-01	6.82E-02
22	20.01	1.31	67.6	0.98	61.1	1.5	1.173	Sand mixtures - silty sand to sandy silt (5)	0.96	1.64	0.96	18.5	46	17.2	1008	1.92E+03	5.24E-04	4.69E-03	1.01E+00	1.60E-01
23	20.51	0.49	84.1	0.97	74.3	1.2	1.228	Sands - clean sand to silty sand (6)	0.96	1.38	0.94	14.5	55	18.2	1053	1.99E+03	5.28E-04	4.69E-03	9.44E-01	5.58E-02
24	21.65	1.15	70.6	1.04	61.3	1.6	1.277	Sand mixtures - silty sand to sandy silt (5)	0.95	1.72	0.94	19.2	46	17.6	1093	2.03E+03	5.38E-04	4.74E-03	9.96E-01	1.37E-01
25	22.47	0.82	45.1	1.41	35.9	3.2	1.337	Silt mixtures - clayey silt to silty clay (4)	0.95	3.22	0.94	34.4	---	23.1	679	1.81E+03	2.25E-04	4.39E-04	7.23E-02	7.11E-03
28	24.61	1.80	101.7	2.20	83.0	2.2	1.435	Sand mixtures - silty sand to sandy silt (5)	0.95	1.68	0.9	19.1	58	29.2	1217	2.51E+03	4.89E-04	2.89E-03	3.68E-01	7.97E-02
29	25.26	0.66	171.7	2.38	136.8	1.4	1.510	Sands - clean sand to silty sand (6)	0.94	1.20	0.86	10.6	79	31.3	1275	2.59E+03	4.94E-04	2.88E-03	2.94E-01	2.32E-02
30	25.75	0.49	80.7	1.47	63.6	1.9	1.545	Sand mixtures - silty sand to sandy silt (5)	0.94	1.82	0.88	20.6	47	21.1	1302	2.38E+03	5.48E-04	3.71E-03	6.29E-01	3.71E-02
31	26.25	0.49	62.7	2.38	42.2	3.9	1.574	Silt mixtures - clayey silt to silty clay (4)	0.94	3.26	0.91	34.8	---	36.1	439	1.30E+03	1.13E-04	1.98E-04	1.48E-02	8.73E-04
32	28.38	2.13	104.1	2.54	79.1	2.6	1.653	Sand mixtures - silty sand to sandy silt (5)	0.93	1.91	0.87	21.7	55	33.0	1383	2.83E+03	4.89E-04	2.18E-03	1.98E-01	5.07E-02
33	28.87	0.49	178.6	3.10	132.8	1.8	1.732	Sands - clean sand to silty sand (6)	0.93	1.29	0.81	12.7	78	34.3	1440	2.87E+03	5.02E-04	2.37E-03	1.96E-01	1.16E-02
34	29.69	0.82	106.3	2.21	78.2	2.1	1.772	Sand mixtures - silty sand to sandy silt (5)	0.92	1.73	0.83	19.6	55	27.5	1469	2.75E+03	5.35E-04	2.56E-03	3.29E-01	3.24E-02
38	32.15	0.49	95.5	1.51	67.3	1.6	1.930	Sand mixtures - silty sand to sandy silt (5)	0.91	1.62	0.85	18.2	49	19.8	1575	2.61E+03	6.04E-04	3.12E-03	5.75E-01	3.40E-02
39	32.48	0.33	110.1	1.25	77.1	1.2	1.955	Sands - clean sand to silty sand (6)	0.91	1.35	0.82	14.0	55	18.7	1591	2.56E+03	6.22E-04	3.46E-03	6.80E-01	2.68E-02
40	36.42	3.94	102.5	1.65	69.6	1.7	2.083	Sand mixtures - silty sand to sandy silt (5)	0.89	1.63	0.81	18.3	50	20.7	1669	3.E+03	6.08E-04	2.70E-03	4.68E-01	2.21E-01
42	37.24	0.49	108.5	2.27	71.0	2.2	2.236	Sand mixtures - silty sand to sandy silt (5)	0.88	1.82	0.82	20.5	51	27.2	1756	3.E+03	5.69E-04	2.01E-03	2.74E-01	1.62E-02
43	40.52	3.28	154.5	1.70	98.8	1.1	2.353	Sands - clean sand to silty sand (6)	0.86	1.25	0.75	11.8	64	22.9	1815	3.E+03	6.12E-04	2.34E-03	3.84E-01	1.51E-01
44	41.01	0.49	111.6	1.29	69.5	1.2	2.470	Sand mixtures - silty sand to sandy silt (5)	0.84	1.42	0.77	15.2	50	17.2	1869	3.E+03	6.61E-04	2.67E-03	5.94E-01	3.51E-02
45	43.64	2.62	127.5	1.34	77.9	1.1	2.567	Sands - clean sand to silty sand (6)	0.83	1.32	0.76	13.3	55	18.2	1909	3.E+03	6.54E-04	2.52E-03	5.25E-01	1.65E-01
46	43.80	0.16	125.6	1.61	75.5	1.3	2.654	Sand mixtures - silty sand to sandy silt (5)	0.82	1.42	0.73	15.2	54	19.6	1942	3052.360	6.36E-04	2.26E-03	4.11E-01	8.09E-03
47	44.62	0.82	134.6	1.52	80.4	1.2	2.685	Sands - clean sand to silty sand (6)	0.81	1.33	0.74	13.6	56	19.4	1952	3054.050	6.40E-04	0.0	0.43462	0.042778
48	44.95	0.33	156.8	2.61	93.1	1.7	2.720	Sand mixtures - silty sand to sandy silt (5)	0.80	1.43	0.73	15.4	62	27.6	1964	3433.130	5.72E-04	0.0	0.20157	0.007936
49	48.06	3.12	163.5	2.05	95.1	1.3	2.827	Sands - clean sand to silty sand (6)	0.79	1.30	0.71	12.9	63	24.0	1997	3339.520	5.98E-04	0.0	0.2749	0.102818
50	48.39	0.33	161.5	2.46	92.2	1.6	2.935	Sand mixtures - silty sand to sandy silt (5)	0.77	1.39	0.7	14.7	62	25.9	2027	3500.300	5.79E-04	0.0	0.22624	0.008907
51	48.72	0.33	153.0	1.99	87.1	1.3	2.955	Sands - clean sand to silty sand (6)	0.77	1.35	0.71	13.9	59	22.5	2032	3360.880	6.05E-04	0.0	0.30261	0.011914
52	49.70	0.98	130.0	2.67	73.5	2.2	2.995	Sand mixtures - silty sand to sandy silt (5)	0.76	1.79	0.72	20.1	52	27.8	2041	3648.220	5.62E-04	0.0	0.20888	0.024671

Evaluation of Liquefaction Resistance of Soils Using CPT Data

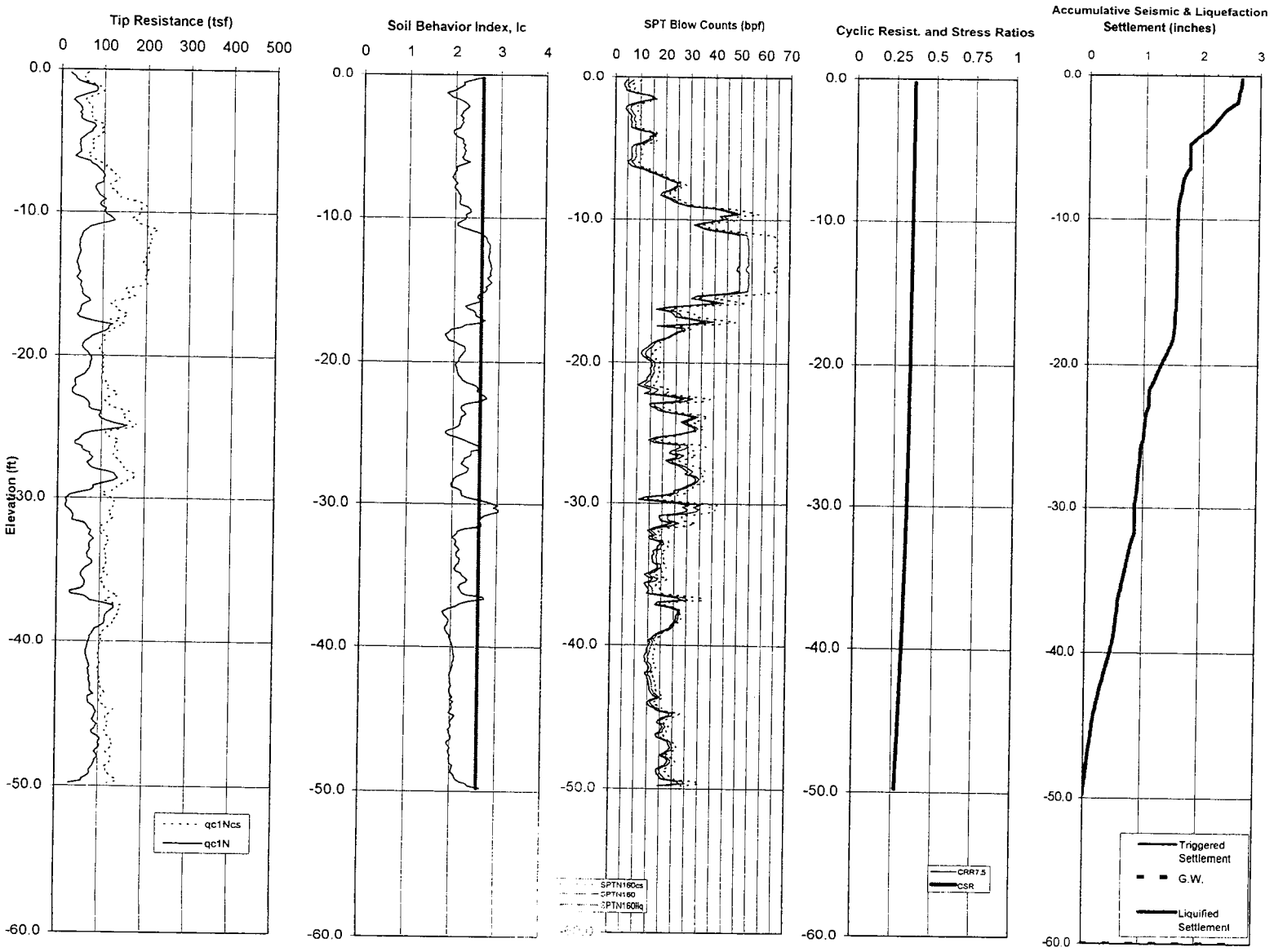
C:\JOBS\8953_Everest Terrace\6-29-04\CPT-01.cpd

CPT: CPT1
G.W. Depth: 60 ft.
Design G.W. Depth: 60 ft.

Elev.: 0

Ic: 2.6 (Standard Value)

Fill Height: 0.0 ft. 125 pcf
Max horizontal acc. @ surface: 0.69 g
Design earthquake magnitude: 6.9
Removal: 0 ft

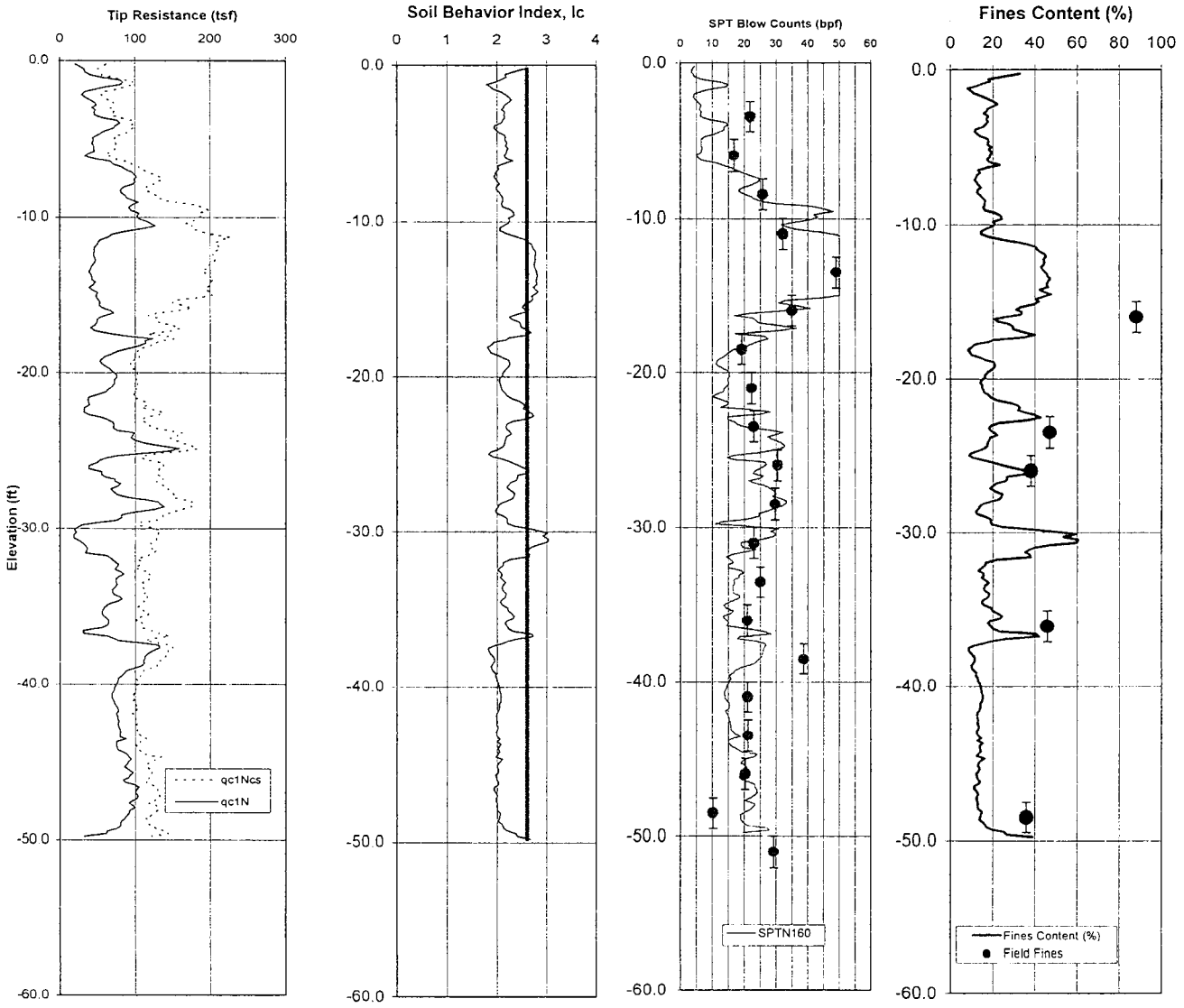


WESTLAKE VILLAGE

*Exclude Settlement from layers thinner than 6 inches

Comparison of CPT Data and SPT Data

Boring:	B1	Elev.:	0	C:\JOBS\8953_Everest Terrace\6-29-04\CPT-01.cpd
CPT:	CPT1	Elev.:	0	
G.W. Depth:	60 ft.			
Design G.W. Depth:	60 ft.			



CPT ANALYSIS
CPT 1
DESIGN GROUNDWATER AT 40 FOOT DEPTH

GEOLABS-WESTLAKE VILLAGE

"Dry" Sand Seismic Settlement Using CPT Data

CPT: CPT1 W.O.: 8953
G.W. Depth: 60 ft. Elev.: 0
Design G.W. Depth: 40 ft. Ic: 2 6 C:\JOBS\8953_Everest Terrace\6-29-04\CPT-01.cpd
Removal: 0 ft.

Fill Height: 0.0 ft. 125 pcf
Max horizontal acc. @ surface: 0.69 g
Design earthquake magnitude: 6.90
Magnitude Scaling Factor: 0.88

Layer	Layer Bott. (ft)	Layer Thick. (ft)	Avg. Tip Resist qc (tsf)	Avg. Side Fric. fs	Avg. Tip Resist qc1N (tsf)	Norm. Frc. Rt. (%)	Eff. O.B. (tsf)	Soil Behavior Type	Avg. rd	Kc	Kσ	Fines Content (%)	Avg. Dr (%)	Spt N160cs (bpf)	Cyclic Shear Stress τav (psf)	Gmax (ksf)	γeff / (Geff/Gmax)	γeff	Vol. Strain (%)	"Dry" Settle. (in)
1	0 82	0.49	17.6	0 13	28.7	0 8	0 031	Sand mixtures - silty sand to sandy silt (5)	1.00	2.09	1	23.2	75	8.2	28	2.16E+02	1.24E-04	4.21E-04	2.70E-01	1.85E-02
2	1.80	0 98	41.4	0 28	67.5	0.7	0.080	Sands - clean sand to silty sand (6)	1.00	1.26	1	11.8	87	12.4	72	4.12E+02	1.73E-04	1.20E-03	4.65E-01	5.50E-02
3	3 77	1 97	26 6	0 22	43 3	0.8	0.170	Sand mixtures - silty sand to sandy silt (5)	1.00	1.60	1	18.0	52	9.7	152	5.77E+02	2.60E-04	5.31E-03	2.23E+00	5.27E-01
4	4 43	0 66	46 3	0 43	75 4	0 9	0 249	Sands - clean sand to silty sand (6)	0.99	1.28	1	12.6	66	16.3	222	8.30E+02	2.67E-04	1.42E-02	2.64E+00	2.08E-01
5	6 40	1 97	28 4	0 29	46 1	1 0	0 329	Sand mixtures - silty sand to sandy silt (5)	0.99	1.65	1	18.7	39	11.1	292	8.61E+02	3.39E-04	3.69E-02	3.56E-01	8.40E-02
6	7.55	1.15	57.9	0.65	86 8	1.1	0.424	Sands - clean sand to silty sand (6)	0.99	1.29	1	12.7	63	20.5	375	1.18E+03	3.19E-04	5.99E-03	9.65E-01	1.33E-01
7	7.71	0.16	68.6	1.10	98.5	1.6	0.465	Sand mixtures - silty sand to sandy silt (5)	0.98	1.38	1	14.5	68	28.3	410	1.37E+03	2.98E-04	2.29E-03	2.62E-01	5.15E-03
8	8.20	0.49	66.8	0.87	94.0	1.3	0.485	Sands - clean sand to silty sand (6)	0.98	1.31	1	13.2	66	24.1	428	1.33E+03	3.21E-04	3.18E-03	4.66E-01	2.75E-02
9	9.51	1.31	68.4	1.50	91.0	2.2	0.540	Sand mixtures - silty sand to sandy silt (5)	0.98	1.59	1	17.7	65	32.9	475	1.55E+03	3.09E-04	2.31E-03	2.83E-01	4.46E-02
10	9.68	0.16	73.3	2.81	93.9	3.9	0.584	Silt mixtures - clayey silt to silty clay (4)	0.98	2.11	1	24.3	---	57.6	513	2.79E+03	1.84E-04	3.01E-04	1.62E-02	3.19E-04
11	10.83	1.15	90.7	2.34	112.4	2.6	0.623	Sand mixtures - silty sand to sandy silt (5)	0.98	1.60	1	18.0	73	43.3	547	1.83E+03	2.99E-04	1.49E-03	9.12E-02	1.26E-02
12	10.99	0.16	73.1	2.74	87.9	3.8	0.663	Silt mixtures - clayey silt to silty clay (4)	0.98	2.15	1	24.8	---	53.9	581	2.90E+03	2.00E-04	3.39E-04	1.83E-02	3.60E-04
15	15.91	0.66	53 1	2 28	53.5	4.4	0 944	Silt mixtures - clayey silt to silty clay (4)	0.97	3.02	1	32.9	---	46.5	819	3.30E+03	2.49E-04	4.44E-04	2.39E-02	1.89E-03
16	16.57	0.66	63.8	1.68	63.0	2.7	0.983	Sand mixtures - silty sand to sandy silt (5)	0.97	2.13	1	24.4	48	29.9	852	2.10E+03	4.08E-04	2.21E-03	2.61E-01	2.05E-02
17	17.06	0.49	50.0	1.74	48.5	3.6	1.018	Silt mixtures - clayey silt to silty clay (4)	0.96	2.84	1	31.2	---	35.5	881	3.13E+03	2.82E-04	5.26E-04	4.17E-02	2.47E-03
19	17.39	0.16	48.4	2.00	46.3	4.2	1.047	Silt mixtures - clayey silt to silty clay (4)	0.96	3.21	0.99	34.4	---	41.4	905	3.35E+03	2.70E-04	4.82E-04	2.61E-02	5.13E-04
20	17.72	0.33	82.5	1.70	78.4	2.1	1.062	Sand mixtures - silty sand to sandy silt (5)	0.96	1.69	0.99	19.2	57	27.0	917	2.10E+03	4.39E-04	2.66E-03	3.51E-01	1.38E-02
21	18.70	0.98	111.9	1.14	104.4	1.0	1.103	Sands - clean sand to silty sand (6)	0.96	1.20	0.97	10.6	68	23.2	951	2.01E+03	4.75E-04	3.59E-03	5.77E-01	6.82E-02
22	20.01	1.31	67.6	0.98	61.1	1.5	1.173	Sand mixtures - silty sand to sandy silt (5)	0.96	1.64	0.96	18.5	46	17.2	1008	1.92E+03	5.24E-04	4.69E-03	1.01E+00	1.60E-01
23	20.51	0.49	84.1	0.97	74.3	1.2	1.228	Sands - clean sand to silty sand (6)	0.96	1.38	0.94	14.5	55	18.2	1053	1.99E+03	5.28E-04	4.69E-03	9.44E-01	5.58E-02
24	21.65	1.15	70.6	1.04	61.3	1.6	1.277	Sand mixtures - silty sand to sandy silt (5)	0.95	1.72	0.94	19.2	46	17.6	1093	2.03E+03	5.38E-04	4.74E-03	9.96E-01	1.37E-01
25	22.47	0.82	45.1	1.41	35.9	3.2	1.337	Silt mixtures - clayey silt to silty clay (4)	0.95	3.22	0.94	34.4	---	23.1	679	1.81E+03	2.25E-04	4.39E-04	7.23E-02	7.11E-03
28	24.61	1.80	101.7	2.20	83.0	2.2	1.435	Sand mixtures - silty sand to sandy silt (5)	0.95	1.68	0.9	19.1	58	29.2	1217	2.51E+03	4.89E-04	2.89E-03	3.68E-01	7.97E-02
29	25.26	0.66	171.7	2.38	136.8	1.4	1.510	Sands - clean sand to silty sand (6)	0.94	1.20	0.86	10.6	79	31.3	1275	2.59E+03	4.94E-04	2.88E-03	2.94E-01	2.32E-02
30	25.75	0.49	80.7	1.47	63.6	1.9	1.545	Sand mixtures - silty sand to sandy silt (5)	0.94	1.82	0.88	20.6	47	21.1	1302	2.38E+03	5.48E-04	3.71E-03	6.29E-01	3.71E-02
31	26.25	0.49	62.7	2.38	42.2	3.9	1.574	Silt mixtures - clayey silt to silty clay (4)	0.94	3.26	0.91	34.8	---	36.1	439	1.30E+03	1.13E-04	1.98E-04	1.48E-02	8.73E-04
32	28.38	2.13	104.1	2.54	79.1	2.6	1.653	Sand mixtures - silty sand to sandy silt (5)	0.93	1.91	0.87	21.7	55	33.0	1383	2.83E+03	4.89E-04	2.18E-03	1.98E-01	5.07E-02
33	28.87	0.49	178.6	3.10	132.8	1.8	1.732	Sands - clean sand to silty sand (6)	0.93	1.29	0.81	12.7	78	34.3	1440	2.87E+03	5.02E-04	2.37E-03	1.96E-01	1.16E-02
34	29.69	0.82	106.3	2.21	78.2	2.1	1.772	Sand mixtures - silty sand to sandy silt (5)	0.92	1.73	0.83	19.6	55	27.5	1469	2.75E+03	5.35E-04	2.56E-03	3.29E-01	3.24E-02
38	32.15	0.49	95.5	1.51	67.3	1.6	1.930	Sand mixtures - silty sand to sandy silt (5)	0.91	1.62	0.85	18.2	49	19.8	1575	2.61E+03	6.04E-04	3.12E-03	5.75E-01	3.40E-02
39	32.48	0.33	110.1	1.25	77.1	1.2	1.955	Sands - clean sand to silty sand (6)	0.91	1.35	0.82	14.0	55	18.7	1591	2.56E+03	6.22E-04	3.46E-03	6.80E-01	2.68E-02
40	36.42	3.94	102.5	1.65	69.6	1.7	2.083	Sand mixtures - silty sand to sandy silt (5)	0.89	1.63	0.81	18.3	50	20.7	1669	3.E+03	6.08E-04	2.70E-03	4.68E-01	2.21E-01
42	37.24	0.49	108.5	2.27	71.0	2.2	2.236	Sand mixtures - silty sand to sandy silt (5)	0.88	1.82	0.82	20.5	51	27.2	1756	3.E+03	5.69E-04	2.01E-03	2.74E-01	1.62E-02
43	40.52	2.76	154.5	1.70	98.8	1.1	2.353	Sands - clean sand to silty sand (6)	0.86	1.25	0.75	11.8	64	22.9	1536	3.E+03	5.14E-04	1.95E-03	3.00E-01	1.18E-01

Liquefaction Analysis Using CPT Data

CPT: CPT1 W.O.: 8953 1.36
G.W. Depth: 60 ft. Elev.: 0 3.59
Design G.W. Depth: 40 ft. Ic: 2.6 C:\JOBS\8953_Everest Terrace\6-29-04\CPT-01.cpd
Removal: 0 ft.

Fill Height: 0.0 ft. 125 pcf
Max horizontal acc. @ surface: 0.69 g
Design earthquake magnitude: 6.90
Magnitude Scaling Factor: 1.24

Layer	Layer Bott. (ft)	Layer Thick. (ft)	Avg. Tip Resist qc (tsf)	Avg. Side Fric. fs	Avg. Tip Resist qc1N (tsf)	Norm. Frc. Rt. (%)	Eff. O.B. (tsf)	Soil Behavior Type	Avg. rd	Kc	Kσ	Avg. Fines Content (%)	Avg. Dr (%)	Avg. SPT N1(60)liq (bpf)	Min. CRR (M=7.5)	Avg. CSR	Min. Liq. FS	Avg. Strain (%)	Liq Settle. (in)
43	40.52	0.52	154.5	1.70	98.8	1.1	2.353	Sands - clean sand to silty sand (6)	0.86	1.25	0.75	11.8	64	109.1	0.13	0.312	0.43	1.8	0.12
44	41.01	0.49	111.6	1.29	69.5	1.2	2.470	Sand mixtures - silty sand to sandy silt (5)	0.84	1.42	0.78	15.2	50	15.2	0.13	0.309	0.42	1.9	0.11
45	43.64	2.62	127.5	1.34	77.9	1.1	2.567	Sands - clean sand to silty sand (6)	0.83	1.32	0.76	13.3	55	16.7	0.12	0.309	0.40	1.8	0.55
46	43.80	0.16	125.6	1.61	75.5	1.3	2.654	Sand mixtures - silty sand to sandy silt (5)	0.82	1.42	0.74	15.2	54	17.5	0.14	0.309	0.47	1.7	0.03
47	44.62	0.82	134.6	1.52	80.4	1.2	2.685	Sands - clean sand to silty sand (6)	0.81	1.33	0.76	13.6	56	17.8	0.13	0.309	0.43	1.6	0.16
48	44.95	0.33	156.8	2.61	93.1	1.7	2.720	Sand mixtures - silty sand to sandy silt (5)	0.80	1.43	0.74	15.4	62	25.1	0.22	0.309	0.70	0.0	0
49	48.06	3.12	163.5	2.05	95.1	1.3	2.827	Sands - clean sand to silty sand (6)	0.79	1.30	0.73	12.9	63	22.5	0.16	0.307	0.52	1.1	0.26
50	48.39	0.33	161.5	2.46	92.2	1.6	2.935	Sand mixtures - silty sand to sandy silt (5)	0.77	1.39	0.72	14.7	62	23.7	0.20	0.306	0.64	0.0	0
51	48.72	0.33	153.0	1.99	87.1	1.3	2.955	Sands - clean sand to silty sand (6)	0.77	1.35	0.73	13.9	59	20.7	0.16	0.305	0.53	1.4	0.05
52	49.70	0.98	130.0	2.67	73.5	2.2	2.995	Sand mixtures - silty sand to sandy silt (5)	0.76	1.79	0.74	20.1	52	24.1	0.17	0.305	0.55	0.9	0.08

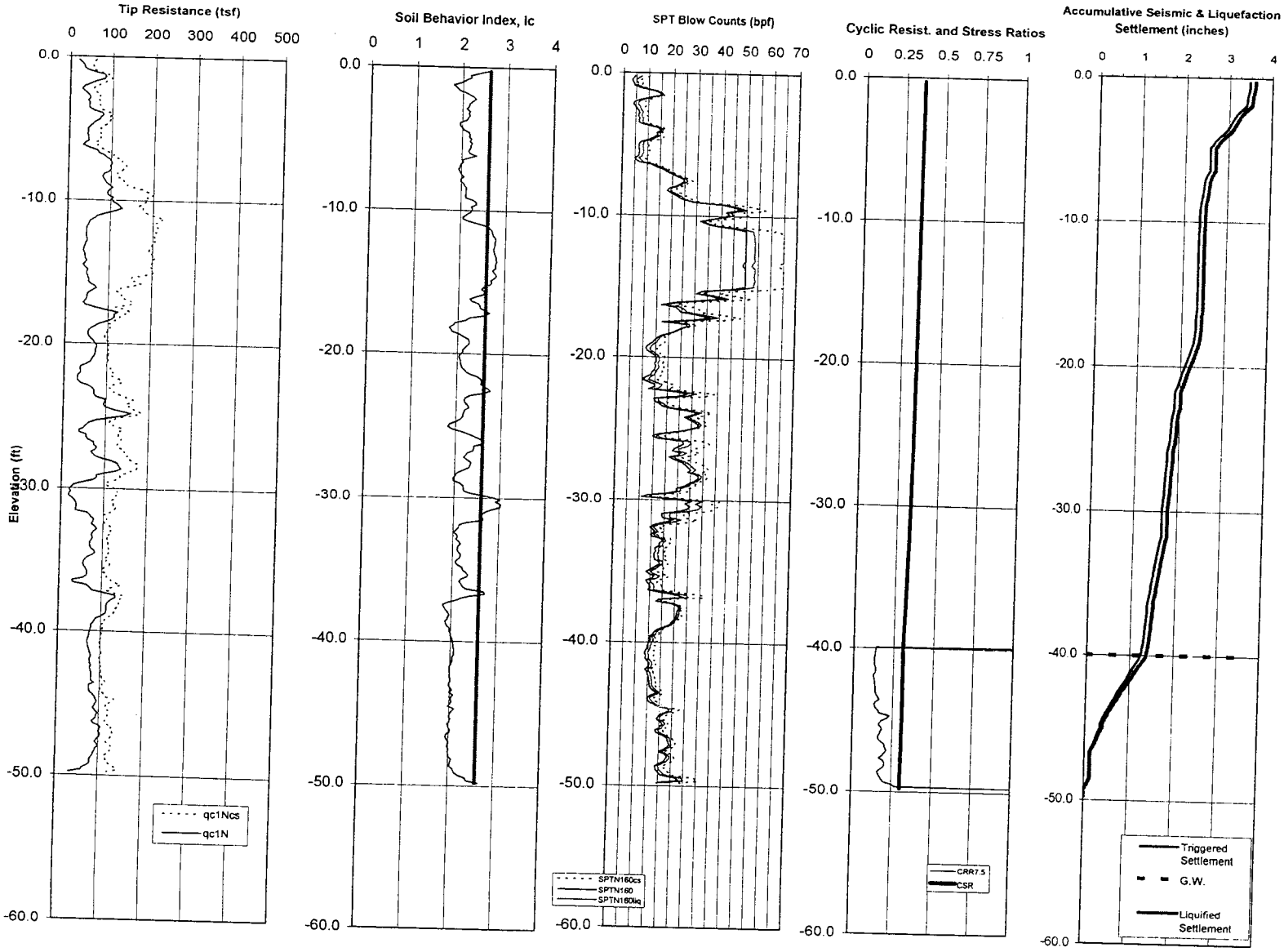
Evaluation of Liquefaction Resistance of Soils
Using CPT Data

CPT: CPT1
G.W. Depth: 60 ft.
Design G.W. Depth: 40 ft.

Elev.: 0

Ic: 2.6 (Standard Value)

C:\JOBS\8953_Everest Terrace\6-29-04\CPT-01.cpd
Fill Height: 0.0 ft. 125 pcf
Max horizontal acc. @ surface: 0.69 g
Design earthquake magnitude: 6.9
Removal: 0 ft



*Exclude Settlement from layers thinner than 6 inches

CPT ANALYSIS
CPT 2

GEOLABS-WESTLAKE VILLAGE

Summary of Analysis of CPT Data

CPT: CPT2 W.O.: 8953
G.W. Depth: 60 ft Elev.: 0
Design G.W. Depth: 60 ft Ic: 2.6 C:\JOBS\8953_Everest Terrace\5-29-04\CPT-02.cpd
Removal: 0 ft

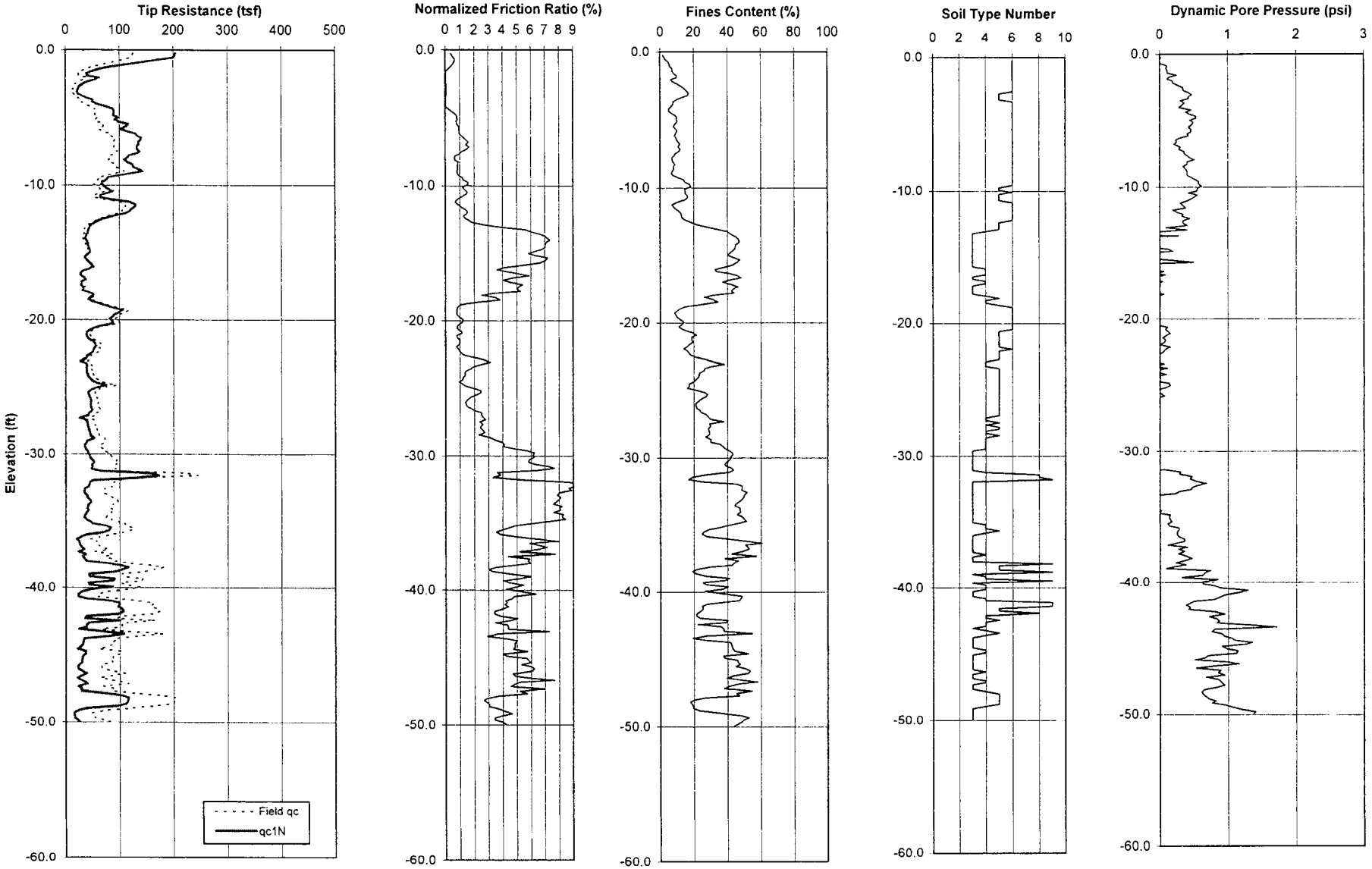
Fill Height: 0.0 ft 125 pcf
Max horizontal acc. @ surface: 0.69 g
Design earthquake magnitude: 6.90

Layer	Layer Bott. (ft)	Layer Thick. (ft)	Avg. Tip Resist qc (tsf)	Avg. Side Fric. fs	Avg. Tip Resist qc1N (tsf)	Norm. Frc. Rt. (%)	Est. Wet Den. (pcf)	Soil Behavior Type	O.B. (tsf)	Eff. O.B. (tsf)	Norm. Exp. n	Ic Range	Kc	Fines Content (%)	Phi (deg)	Dr (%)	Su (tsf)	SPT N1(60) (bpf)	SPT N1(60)cs (bpf)
1	2.62	2.30	56.9	0.23	92.7	0.3	125	Sands - clean sand to silty sand	0.092	0.092	0.5	1.41 to 1.98	1.09	7.1	49	78.0	—	14.1	14.5
2	3.28	0.66	14.3	0.01	23.3	0.1	120	Sand mixtures - silty sand to sandy silt	0.184	0.184	0.5	2.06 to 2.14	1.47	16.0	39	24.0	---	2.0	4.9
3	9.68	6.40	71.1	0.65	104.9	0.8	125	Sands - clean sand to silty sand	0.403	0.403	0.5	1.64 to 2.06	1.15	9.2	43	71.0	—	20.4	21.5
4	10.01	0.33	54.1	0.84	67.7	1.6	120	Sand mixtures - silty sand to sandy silt	0.613	0.613	0.5	2.16 to 2.18	1.59	17.9	40	52.0	—	15.2	19.5
5	10.17	0.16	59.2	0.70	73.0	1.2	125	Sands - clean sand to silty sand	0.628	0.628	0.5	2.06	1.39	14.7	40	55.0	—	15.0	18.1
6	10.83	0.66	63.3	0.88	76.7	1.4	120	Sand mixtures - silty sand to sandy silt	0.653	0.653	0.5	2.07 to 2.12	1.45	15.7	40	57.0	---	17.1	20.6
7	12.30	1.48	93.7	1.07	108.0	1.1	125	Sands - clean sand to silty sand	0.719	0.719	0.5	1.75 to 2.07	1.22	11.0	42	70.0	—	22.8	24.7
8	12.96	0.66	56.2	1.00	62.2	1.9	120	Sand mixtures - silty sand to sandy silt	0.785	0.785	0.5	2.07 to 2.44	1.85	20.8	39	47.0	—	15.5	20.4
9	13.12	0.16	40.7	1.61	44.3	4.0	120	Silt mixtures - clayey silt to silty clay	0.809	0.809	0.5	2.58	3.21	34.4	---	---	2.7	28.3	38.7
10	15.75	2.62	37.4	2.43	40.9	6.7	120	Clays - silty clay to clay	0.893	0.893	1	2.89 to 2.82	4.49	43.9	---	---	2.4	44.9	58.8
11	16.40	0.66	43.9	1.88	43.2	4.4	120	Silt mixtures - clayey silt to silty clay	0.991	0.991	0.5 to 1	2.55 to 2.71	3.45	36.2	---	---	2.9	30.1	40.8
12	16.73	0.33	29.4	1.55	27.8	5.5	120	Clays - silty clay to clay	1.021	1.021	1	2.8 to 2.84	4.94	47.0	---	---	1.9	29.1	39.9
13	17.06	0.33	37.7	1.60	35.2	4.4	120	Silt mixtures - clayey silt to silty clay	1.040	1.040	1	2.64 to 2.72	3.84	39.3	---	---	2.4	26.5	36.8
14	17.88	0.82	34.6	1.71	31.2	5.1	120	Clays - silty clay to clay	1.075	1.075	1	2.74 to 2.81	4.46	43.7	---	---	2.2	28.9	39.7
15	18.04	0.16	47.3	1.56	44.1	3.4	120	Silt mixtures - clayey silt to silty clay	1.104	1.104	0.5	2.53	2.91	32.0	---	---	3.1	22.5	31.1
16	18.21	0.16	55.3	1.38	51.3	2.5	120	Sand mixtures - silty sand to sandy silt	1.114	1.114	0.5	2.40	2.30	26.3	37	39.0	---	16.4	22.8
17	18.54	0.33	48.8	1.74	44.9	3.7	120	Silt mixtures - clayey silt to silty clay	1.129	1.129	0.5	2.51 to 2.58	3.02	32.8	---	---	3.2	25.9	35.4
18	18.70	0.16	55.2	1.16	50.5	2.2	120	Sand mixtures - silty sand to sandy silt	1.144	1.144	0.5	2.35	2.13	24.5	36	39.0	---	13.1	18.8
19	20.51	1.80	95.8	0.88	85.5	0.9	125	Sands - clean sand to silty sand	1.205	1.205	0.5	1.82 to 2.08	1.24	11.6	39	60.0	---	16.6	18.4
20	21.82	1.31	52.5	0.49	45.1	1.0	120	Sand mixtures - silty sand to sandy silt	1.301	1.301	0.5	2.09 to 2.27	1.63	18.3	35	33.0	---	6.6	10.4
21	21.98	0.16	66.7	0.49	56.3	0.7	125	Sands - clean sand to silty sand	1.345	1.345	0.5	2.04	1.35	14.0	37	43.0	---	7.7	10.2
22	22.80	0.82	57.0	0.68	47.6	1.2	120	Sand mixtures - silty sand to sandy silt	1.375	1.375	0.5	2.11 to 2.41	1.75	19.8	36	36.0	—	8.0	12.1
23	23.29	0.49	43.7	1.15	34.0	2.7	120	Silt mixtures - clayey silt to silty clay	1.414	1.414	0.5 to 1	2.49 to 2.65	3.08	33.2	---	---	2.8	10.7	17.4
24	27.07	3.77	59.4	0.99	46.8	1.7	120	Sand mixtures - silty sand to sandy silt	1.542	1.542	0.5	2.11 to 2.45	2.02	23.1	35	34.0	—	10.1	15.1
25	27.40	0.33	49.4	1.28	33.4	2.7	120	Silt mixtures - clayey silt to silty clay	1.665	1.665	0.5 to 1	2.48 to 2.65	3.14	33.7	---	---	3.2	10.2	16.7
26	27.56	0.16	51.6	1.20	39.0	2.4	120	Sand mixtures - silty sand to sandy silt	1.680	1.680	0.5	2.47	2.61	29.3	34	27.0	---	10.7	17
27	27.72	0.16	53.3	1.35	40.1	2.6	120	Silt mixtures - clayey silt to silty clay	1.690	1.690	0.5	2.48	2.68	29.9	---	---	3.4	12.3	18.9
28	28.05	0.33	54.7	1.30	41.0	2.4	120	Sand mixtures - silty sand to sandy silt	1.705	1.705	0.5	2.46 to 2.46	2.56	28.8	34	29.0	---	11.7	18
29	28.38	0.33	57.9	1.51	43.1	2.7	120	Silt mixtures - clayey silt to silty clay	1.724	1.724	0.5	2.46 to 2.47	2.61	29.2	---	---	3.7	14.0	20.8
30	28.54	0.16	60.8	1.38	45.1	2.3	120	Sand mixtures - silty sand to sandy silt	1.739	1.739	0.5	2.41	2.36	26.9	34	33.0	---	12.4	18.5
31	29.53	0.98	67.7	2.58	41.2	3.9	120	Silt mixtures - clayey silt to silty clay	1.774	1.774	0.5 to 1	2.48 to 2.7	3.33	35.2	—	---	4.4	25.5	35.1
32	31.17	1.64	86.6	5.43	45.7	6.4	120	Clays - silty clay to clay	1.852	1.852	1	2.66 to 2.75	4.12	41.3	---	---	5.7	45.0	59
33	31.33	0.16	92.0	3.27	65.2	3.6	120	Silt mixtures - clayey silt to silty clay	1.907	1.907	0.5	2.43	2.44	27.7	—	---	6.0	33.2	42.3
34	31.66	0.33	236.2	8.36	166.7	3.6	125	Very stiff sand to clayey sand*	1.922	1.922	0.5	2.13 to 2.2	1.60	18.0	42	87.0	---	50.0	56.5
35	31.82	0.16	184.2	9.97	59.2	8.7	125	Very stiff, fine grained*	1.937	1.937	0.5	2.38	2.24	25.7	---	---	12.2	50.0	60.4
36	35.10	3.28	85.4	6.73	40.9	8.1	120	Clays - silty clay to clay	2.041	2.041	1	2.69 to 2.89	5.02	47.6	---	---	5.6	49.3	64.2
37	35.60	0.49	115.0	4.97	69.0	4.4	120	Silt mixtures - clayey silt to silty clay	2.154	2.154	0.5 to 1	2.39 to 2.6	2.73	30.2	---	---	7.5	42.7	53.9
38	35.76	0.16	121.7	4.24	80.8	3.5	120	Sand mixtures - silty sand to sandy silt	2.174	2.174	0.5	2.36	2.16	24.9	37	57.0	---	38.6	47.3
39	35.93	0.16	105.9	3.98	70.1	3.8	120	Silt mixtures - clayey silt to silty clay	2.183	2.183	0.5	2.43	2.43	27.5	---	---	6.9	37.5	47
40	37.40	1.48	63.7	3.92	27.5	6.5	120	Clays - silty clay to clay	2.233	2.233	1	2.71 to 3.03	5.53	50.8	---	---	4.1	34.6	46.5
41	37.57	0.16	87.2	3.72	37.2	4.4	120	Silt mixtures - clayey silt to silty clay	2.282	2.282	1	2.66	3.71	38.4	---	---	5.7	27.5	38
42	38.06	0.49	83.1	4.76	35.1	5.9	120	Clays - silty clay to clay	2.302	2.302	1	2.74 to 2.81	4.54	44.3	---	---	5.4	36.8	49.2
43	38.22	0.16	121.6	5.75	78.1	4.8	125	Very stiff, fine grained*	2.321	2.321	0.5	2.47	2.63	29.4	---	---	7.9	50.0	62.2
44	38.71	0.49	167.9	5.42	107.4	3.3	120	Sand mixtures - silty sand to sandy silt	2.341	2.341	0.5	2.21 to 2.3	1.82	20.9	39	68.0	—	46.0	53.7
45	38.88	0.16	145.5	6.60	92.7	4.6	125	Very stiff, fine grained*	2.361	2.361	0.5	2.41	2.35	26.8	—	---	9.5	50.0	60.9
46	39.04	0.16	105.0	6.14	43.3	6.0	120	Clays - silty clay to clay	2.371	2.371	1	2.71	4.08	41.1	---	—	6.8	42.1	55.5
47	39.37	0.33	125.6	5.60	67.5	4.6	120	Silt mixtures - clayey silt to silty clay	2.386	2.386	0.5 to 1	2.37 to 2.66	2.96	31.8	---	---	8.2	43.2	54.4
48	39.53	0.16	140.1	6.13	88.5	4.5	125	Very stiff, fine grained*	2.401	2.401	0.5	2.41	2.36	26.9	---	—	9.2	50.0	60.9
49	39.70	0.16	102.7	5.51	41.6	5.5	120	Clays - silty clay to clay	2.411	2.411	1	2.70	3.97	40.2	---	---	6.7	38.0	50.7
50	40.19	0.49	122.3	5.76	59.5	4.8	120	Silt mixtures - clayey silt to silty clay	2.431	2.431	0.5 to 1	2.4 to 2.64	3.17	33.8	—	---	8.0	41.7	53.6
51	40.68	0.49	65.3	3.35	25.5	5.3	120	Clays - silty clay to clay	2.460	2.460	1	2.82 to 2.84	5.07	47.9	---	---	4.2	24.6	34.6
52	41.01	0.33	114.5	4.77	59.8	4.2	120	Silt mixtures - clayey silt to silty clay	2.485	2.485	0.5 to 1	2.42 to 2.63	2.97	32.2	---	---	7.5	37.1	47.7
53	41.50	0.49	159.0	6.55	98.2	4.2	125	Very stiff, fine grained*	2.510	2.510	0.5	2.35 to 2.37	2.16	24.9	—	---	10.4	50.0	60
54	41.83	0.33	171.5	5.78	105.4	3.4	120	Sand mixtures - silty sand to sandy silt	2.535	2.535	0.5	2.27 to 2.28	1.87	21.6	39	68.0	---	47.3	55.4
55	41.99	0.16	163.7	6.24	100.3	3.9	125	Very stiff sand to clayey sand*	2.550	2.550	0.5	2.33	2.05	23.6	38	66.0	---	50.0	59.4
56	42.32	0.33	98.0	4.56	37.2	4.8	120	Silt mixtures - clayey silt to silty clay	2.565	2.565	1	2.68 to 2.69	3.89	39.7	---	—	6.4	30.4	41.4
57	42.49	0.16	165.3	5.64	100.7	3.5	120	Sand mixtures - silty sand to sandy silt	2.580	2.580	0.5	2.29	1.92	22.2	38	66.0	—	46.0	54.3
58	42.98	0.49	107.4	4.57	40.3	4.4	120	Silt mixtures - clayey silt to silty clay	2.600	2.600	1	2.61 to 2.65	3.54	37.0	—	—	7.0	28.9	39.7
59	43.14	0.16	67.0	4.69	24.6	7.3	120	Clays - silty clay to clay	2.619	2.619	1	2.94	6.13	54.7	—	—	4.3	36.9	49.3
60	43.31	0.16	113.5	4.05	68.5	3.7	120	Silt mixtures - clayey silt to silty clay	2.629	2.629	0.5	2.42	2.39	27.2	—	—	7.4	34.7	43.8
61	43.47	0.16	178.9	5.12	107.8	2.9	120	Sand mixtures - silty sand to sandy silt	2.639	2.639	0.5	2.21	1.70	19.5	39	68.0	—	40.5	47.1
62	43.64	0.16	134.9	5.54	81.1	4.2	120	Silt mixtures - clayey silt to silty clay	2.649	2.649	0.5	2.41	2.37	27.0	—	—	8.8	46.2	56.7
63	44.62	0.98	83.4	4.02	30.1	5.0	120	Clays - silty clay to clay	2.683	2.683	1	2.72 to 2.91	4.56	44.4	---	---	5.4	27.5	38
64	44.95	0.33	101.9	4.11	36.4	4.1	120	Silt mixtures - clayey silt to silty clay	2.723	2.723	1	2.64 to 2.66	3.64	37.8	---	---	6.6	25.5	35.5
65	46.26	1.31	79.9	4.39	27.8	5.7	120	Clays - silty clay to clay	2.772	2.772	1	2.75 to 2.92	5.09	48.0	---	---	5.1	30.6	41.7
66	46.42	0.16	110.6	5.26	38.3	4.9	120	Silt mixtures - clayey silt to silty clay	2.816	2.816	1	2.68	3.88	39.6	---	---	7.2	31.7	43
67	46.92	0.49	77.1	4.60	26.2	6.3	120	Clays - silty clay to clay	2.836	2.836	1	2.81 to 2.99	5.52	50.7	---	---	5.0	32.4	43.9
68	47.24	0.33	109.4	4.99	37.2	4.7	120	Silt mixtures - clayey silt to silty clay	2.860	2.860	1	2.66 to 2.7	3.86	39.4	---	---	7.1	29.6	40.5
69	47.74	0.49	81.6	4.65	27.3	6.0	120	Clays - silty clay to clay	2.885	2.885	1	2.79 to 2.94	5.25	49.0	---	---	5.3	31.6	42.9
70	47.90	0.16	127.4	4.67	73.2	3.7	120	Silt mixtures - clayey silt to silty clay	2.905	2.905	0.5	2.41	2.34	26.7	---	---	8.3	37.8	47.1
71	48.88	0.98	191.5	5.65	109.3	3.0	120	Sand mixtures - silty sand to sandy silt	2.939	2.939	0.5	2.16 to 2.32	1.73	19.7	38	69.0	—	42.6	49.5
72	49.05	0.16	117.9	4.81	38.7	4.2	120	Silt mixtures - clayey silt to silty clay	2.974	2.974	1	2.63	3.54	37.0	---	---	7.7	26.8	37.2
73	49.87	0.82	58.8	2.20	18.6	3.9	120	Clays - silty clay to clay	3.003	3.003	1	2.8 to 2.91	5.26	49.2	---	---	3.7	9.7	16.6

Evaluation of Soil Characteristics
Using CPT Data

CPT: CPT2
G.W. Depth: 60 ft.
Design G.W. Depth: 60 ft.
Elev.: 0

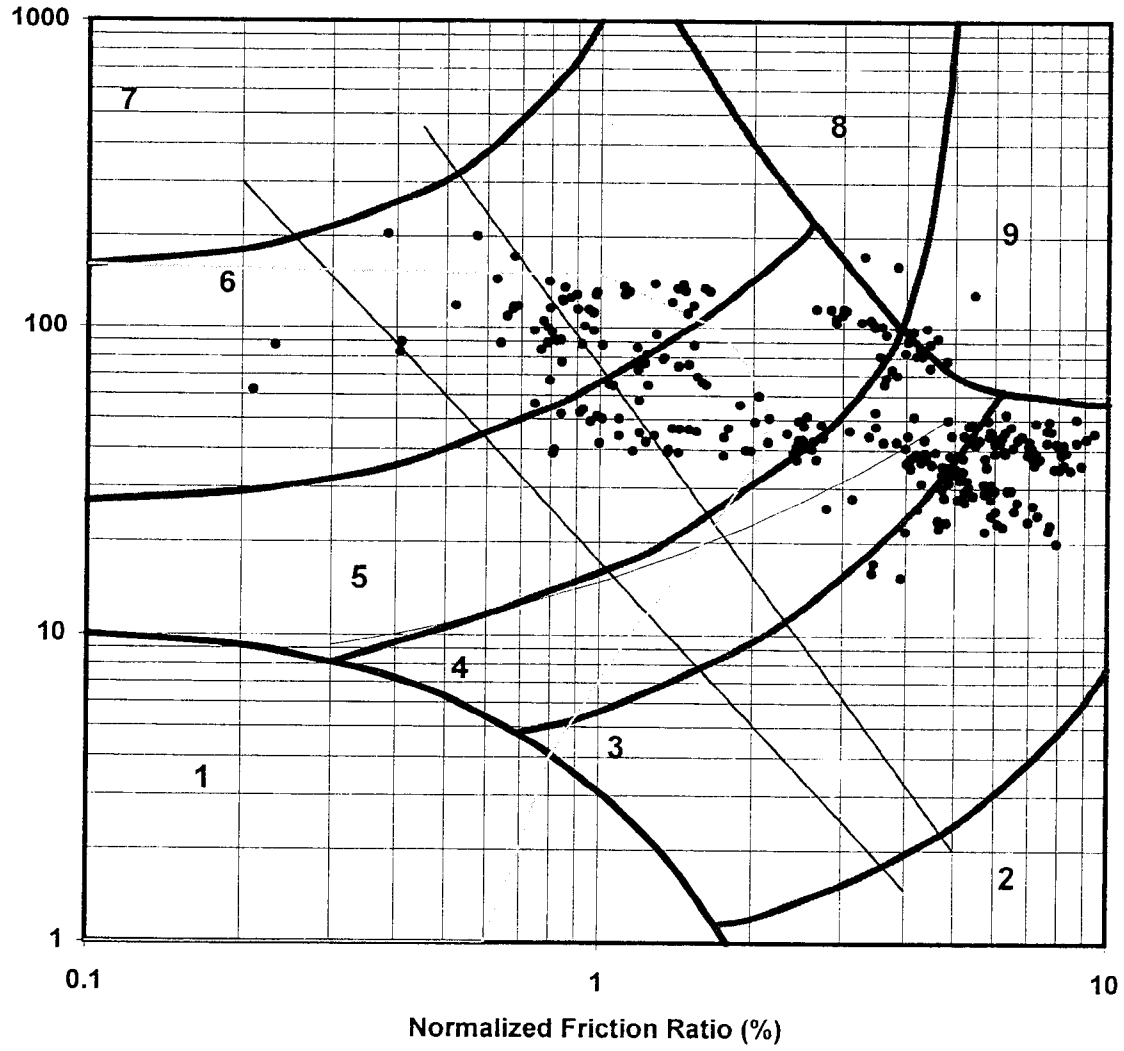
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CPT-Based Soil Behavior Type

CPT: CPT2
G.W. Depth: 60 ft
Ic: 2.6

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Soil Consistency Number

(Sand / Clay)
1 = very loose / very soft
2 = loose / soft
3 = medium dense / medium stiff
4 = dense / stiff
5 = very dense / very stiff
6 = --- / hard

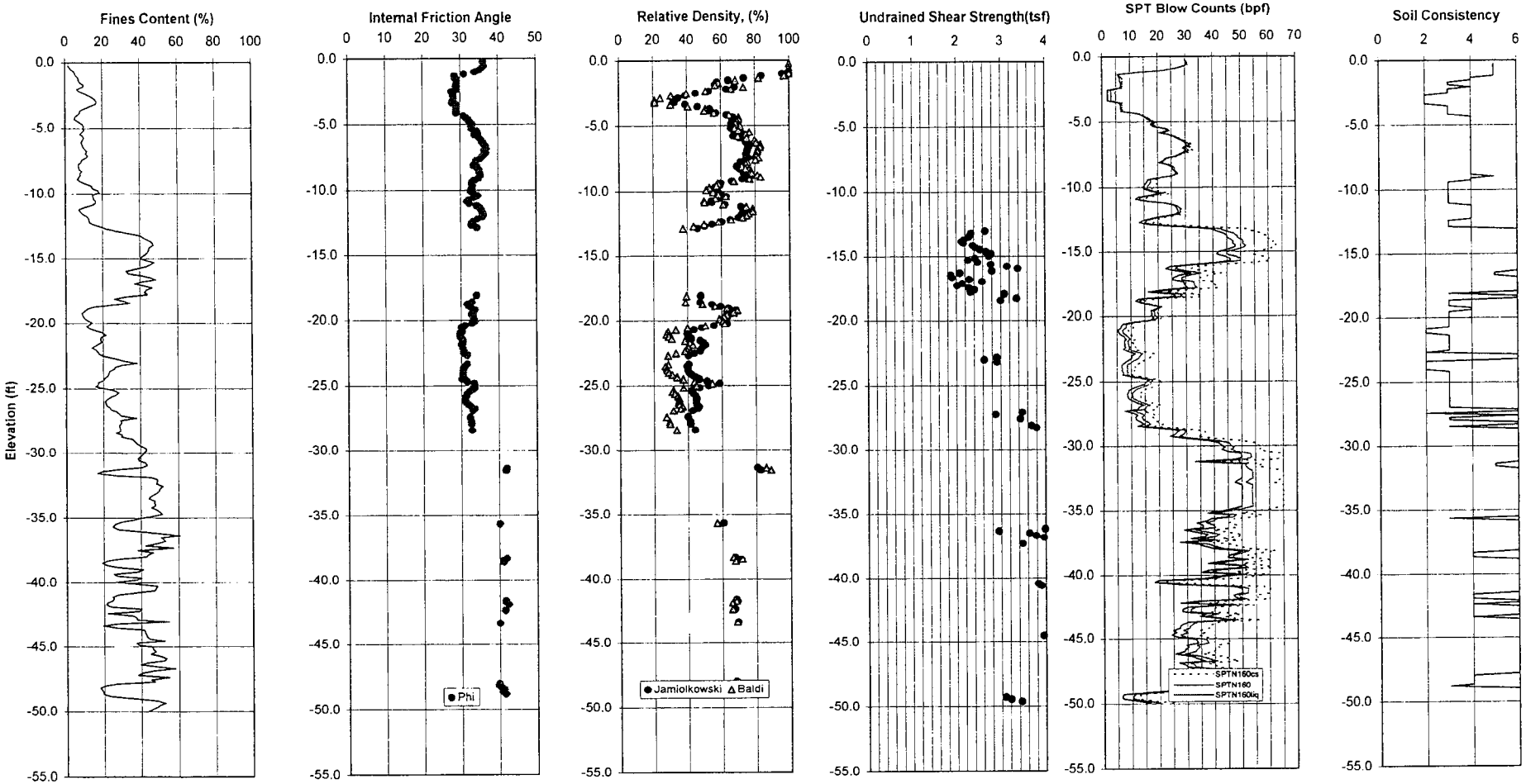
Soil Behavior Type Classification

1. Sensitive Fine Grained
2. Organic soils - peats
3. Clays - silty clay to clay
4. Silt mixtures - clayey silt to silty clay
5. Sand mixtures - silty sand to sandy silt
6. Sands - clean sand to silty sand
7. Gravelly sand to dense sand
8. Very stiff sand to clayey sand*
9. Very stiff, fine grained*

*Heavily overconsolidated or cemented

Soil Characteristics and Engineering Characteristics
Using CPT Data

CPT: CPT2
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G.W. Depth: 60 ft. Elev.: 0
Design G.W. Depth: 60 ft.



CPT ANALYSIS
CPT 2
NO DESIGN GROUNDWATER

GEOLABS-WESTLAKE VILLAGE

"Dry" Sand Seismic Settlement Using CPT Data

CPT: CPT2 W.O.: 8953
G.W. Depth: 60 ft. Elev.: 0
Design G.W. Depth: 60 ft. Ic: 2.6 C:\UOBS\8953_Everest Terrace\6-29-04\CPT-02.cpd
Removal: 0 ft.

Fill Height: 0.0 ft. 125 pcf
Max horizontal acc. @ surface: 0.69 g
Design earthquake magnitude: 6.90
Magnitude Scaling Factor: 0.88

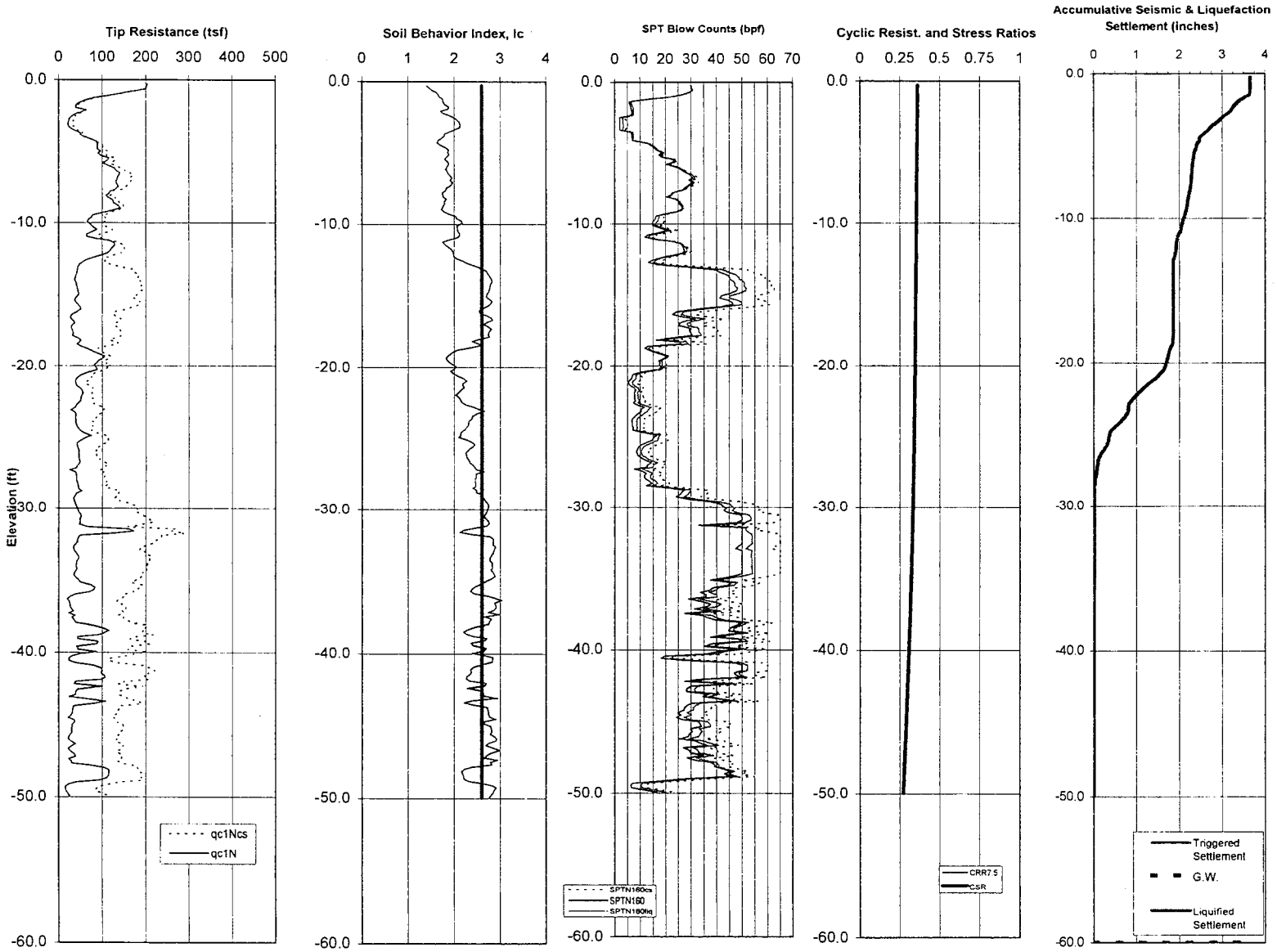
Layer	Layer Bott. (ft)	Layer Thick. (ft)	Avg. Tip Resist qc (tsf)	Avg. Side Fric. fs	Avg. Tip Resist qc1N (tsf)	Norm. Frc. Rt. (%)	Eff. O.B. (tsf)	Soil Behavior Type	Avg. rd	Kc	Kσ	Fines Content (%)	Avg. Dr (%)	Spt N160cs (bpf)	Cyclic Shear Stress τav (psf)	Gmax (ksf)	γeff / (Geff/Gmax)	γeff	Vol. Strain (%)	"Dry" Settle. (in)
1	2.62	2.30	56.9	0.23	92.7	0.3	0.092	Sands - clean sand to silty sand (6)	1.00	1.09	1	7.1	78	14.5	82	4.03E+02	1.97E-04	3.69E-03	1.92E+00	5.31E-01
2	3.28	0.66	14.3	0.01	23.3	0.1	0.184	Sand mixtures - silty sand to sandy silt (5)	0.99	1.47	1	16.0	24	4.9	164	4.94E+02	3.32E-04	3.66E-03	3.01E+00	2.37E-01
3	9.68	6.40	71.1	0.65	104.9	0.8	0.403	Sands - clean sand to silty sand (6)	0.99	1.15	1	9.2	71	21.5	357	1.14E+03	3.13E-04	5.59E-03	9.79E-01	7.52E-01
4	10.01	0.33	54.1	0.84	67.7	1.6	0.613	Sand mixtures - silty sand to sandy silt (5)	0.98	1.59	1	17.9	52	19.5	539	1.42E+03	3.78E-04	4.32E-03	7.94E-01	3.13E-02
5	10.17	0.16	59.2	0.70	73.0	1.2	0.628	Sands - clean sand to silty sand (6)	0.98	1.39	1	14.7	55	18.1	551	1.40E+03	3.93E-04	5.20E-03	1.05E+00	2.07E-02
6	10.83	0.66	63.3	0.88	76.7	1.4	0.653	Sand mixtures - silty sand to sandy silt (5)	0.98	1.45	1	15.7	57	20.6	573	1.49E+03	3.85E-04	4.20E-03	7.66E-01	6.03E-02
7	12.30	1.48	93.7	1.07	108.0	1.1	0.719	Sands - clean sand to silty sand (6)	0.98	1.22	1	11.0	70	24.7	629	1.63E+03	3.87E-04	3.75E-03	6.14E-01	1.09E-01
8	12.96	0.66	56.2	1.00	62.2	1.9	0.785	Sand mixtures - silty sand to sandy silt (5)	0.97	1.85	1	20.8	47	20.4	685	1.65E+03	4.15E-04	3.58E-03	6.42E-01	5.06E-02
9	13.12	0.16	40.7	1.61	44.3	4.0	0.809	Silt mixtures - clayey silt to silty clay (4)	0.97	3.21	1	34.4	---	38.7	706	2.87E+03	2.46E-04	4.62E-04	2.79E-02	5.50E-04
11	16.40	0.66	43.9	1.68	43.2	4.4	0.991	Silt mixtures - clayey silt to silty clay (4)	0.97	3.45	1	36.2	---	40.8	429	1.58E+03	1.36E-04	2.51E-04	1.77E-02	1.39E-03
15	18.04	0.16	47.3	1.56	44.1	3.4	1.104	Silt mixtures - clayey silt to silty clay (4)	0.96	2.91	0.98	32.0	---	31.2	953	3.12E+03	3.05E-04	5.71E-04	5.50E-02	1.08E-03
16	18.21	0.16	55.3	1.38	51.3	2.5	1.114	Sand mixtures - silty sand to sandy silt (5)	0.96	2.30	0.98	26.3	39	22.8	961	2.08E+03	4.62E-04	2.91E-03	4.48E-01	8.82E-03
17	18.54	0.33	48.8	1.74	44.9	3.7	1.129	Silt mixtures - clayey silt to silty clay (4)	0.96	3.02	0.97	32.8	---	35.4	973	3.30E+03	2.95E-04	5.34E-04	4.06E-02	1.60E-03
18	18.70	0.16	55.2	1.16	50.5	2.2	1.144	Sand mixtures - silty sand to sandy silt (5)	0.96	2.13	0.97	24.5	39	18.8	985	1.98E+03	4.99E-04	3.83E-03	7.42E-01	1.46E-02
19	20.51	1.80	95.8	0.88	85.5	0.9	1.205	Sands - clean sand to silty sand (6)	0.96	1.24	0.94	11.6	60	18.4	1035	1.97E+03	5.28E-04	4.85E-03	1.01E+00	2.19E-01
20	21.82	1.31	52.5	0.49	45.1	1.0	1.301	Sand mixtures - silty sand to sandy silt (5)	0.95	1.63	0.94	18.3	33	10.4	1113	1.74E+03	6.39E-04	8.70E-03	3.13E+00	4.94E-01
21	21.98	0.16	66.7	0.49	56.3	0.7	1.345	Sands - clean sand to silty sand (6)	0.95	1.35	0.93	14.0	43	10.2	1148	1.74E+03	6.58E-04	9.33E-03	3.23E+00	6.35E-02
22	22.80	0.82	57.0	0.68	47.6	1.2	1.375	Sand mixtures - silty sand to sandy silt (5)	0.95	1.75	0.93	19.8	36	12.1	1172	1.88E+03	6.23E-04	7.75E-03	2.50E+00	2.46E-01
23	23.29	0.49	43.7	1.15	34.0	2.7	1.414	Silt mixtures - clayey silt to silty clay (4)	0.95	3.08	0.93	33.2	---	17.4	802	1.94E+03	2.75E-04	5.66E-04	1.27E-01	7.51E-03
24	27.07	3.77	59.4	0.99	46.8	1.7	1.542	Sand mixtures - silty sand to sandy silt (5)	0.94	2.02	0.91	23.1	34	15.1	1301	2.15E+03	6.09E-04	5.63E-03	1.60E+00	7.23E-01
25	27.40	0.33	49.4	1.28	33.4	2.7	1.665	Silt mixtures - clayey silt to silty clay (4)	0.93	3.14	0.9	33.7	---	16.7	695	1.63E+03	2.13E-04	4.44E-04	8.38E-02	3.30E-03
26	27.56	0.16	51.6	1.20	39.0	2.4	1.680	Sand mixtures - silty sand to sandy silt (5)	0.93	2.61	0.9	29.3	27	17.0	1405	2.37E+03	5.93E-04	3.66E-03	8.12E-01	1.60E-02
27	27.72	0.16	53.3	1.35	40.1	2.6	1.690	Silt mixtures - clayey silt to silty clay (4)	0.93	2.68	0.9	29.9	---	18.9	1412	3.27E+03	4.31E-04	9.10E-04	1.77E-01	3.48E-03
28	28.05	0.33	54.7	1.30	41.0	2.4	1.705	Sand mixtures - silty sand to sandy silt (5)	0.93	2.56	0.9	28.8	29	18.0	1422	2.43E+03	5.86E-04	3.40E-03	7.04E-01	2.77E-02
29	28.38	0.33	57.9	1.51	43.1	2.7	1.724	Silt mixtures - clayey silt to silty clay (4)	0.93	2.61	0.89	29.2	---	20.8	1437	3.41E+03	4.21E-04	8.76E-04	1.47E-01	5.79E-03
30	28.54	0.16	60.8	1.38	45.1	2.3	1.739	Sand mixtures - silty sand to sandy silt (5)	0.93	2.36	0.9	26.9	33	18.5	1447	2.46E+03	5.88E-04	3.34E-03	6.64E-01	1.31E-02
31	29.53	0.98	67.7	2.58	41.2	3.9	1.774	Silt mixtures - clayey silt to silty clay (4)	0.92	3.33	0.89	35.2	---	35.1	486	1.32E+03	1.23E-04	2.30E-04	2.21E-02	2.61E-03
33	31.33	0.16	92.0	3.27	65.2	3.6	1.907	Silt mixtures - clayey silt to silty clay (4)	0.91	2.44	0.88	27.7	---	42.3	1562	4.54E+03	3.44E-04	6.28E-04	3.40E-02	6.70E-04
34	31.66	0.33	236.2	8.36	166.7	3.6	1.922	Very stiff sand to clayey sand* (8)	0.91	1.60	0.82	18.0	87	56.5	1572	3.55E+03	4.43E-04	1.41E-03	7.80E-02	3.07E-03
37	35.60	0.49	115.0	4.97	69.0	4.4	2.154	Silt mixtures - clayey silt to silty clay (4)	0.89	2.73	0.86	30.2	---	53.9	1145	3.54E+03	2.16E-04	3.75E-04	2.03E-02	1.20E-03
38	35.76	0.16	121.7	4.24	80.8	3.5	2.174	Sand mixtures - silty sand to sandy silt (5)	0.89	2.16	0.86	24.9	57	47.3	1726	3.68E+03	4.69E-04	1.27E-03	6.97E-02	1.37E-03
39	35.93	0.16	105.9	3.98	70.1	3.8	2.183	Silt mixtures - clayey silt to silty clay (4)	0.88	2.43	0.79	27.5	---	47.0	1731	5.E+03	3.44E-04	6.14E-04	3.32E-02	6.54E-04
44	36.71	0.49	167.9	5.42	107.4	3.3	2.341	Sand mixtures - silty sand to sandy silt (5)	0.86	1.82	0.78	20.9	68	53.7	1813	4.E+03	4.60E-04	1.15E-03	6.32E-02	3.73E-03
47	39.37	0.33	125.6	5.60	67.5	4.6	2.386	Silt mixtures - clayey silt to silty clay (4)	0.86	2.96	0.84	31.8	---	54.4	918	3.E+03	1.62E-04	2.43E-04	1.31E-02	5.17E-04
50	40.19	0.49	122.3	5.76	59.5	4.8	2.431	Silt mixtures - clayey silt to silty clay (4)	0.85	3.17	0.84	33.8	---	53.6	618	2.E+03	1.07E-04	1.54E-04	8.32E-03	4.92E-04
52	41.01	0.33	114.5	4.77	59.8	4.2	2.485	Silt mixtures - clayey silt to silty clay (4)	0.84	2.97	0.83	32.2	---	47.7	940	3.E+03	1.63E-04	2.18E-04	1.18E-02	4.63E-04
54	41.83	0.33	171.5	5.78	105.4	3.4	2.535	Sand mixtures - silty sand to sandy silt (5)	0.84	1.87	0.78	21.6	68	55.4	1899	4152.000	4.57E-04	1.06E-03	5.82E-02	2.29E-03
55	41.99	0.16	163.7	6.24	100.3	3.9	2.550	Very stiff sand to clayey sand* (8)	0.83	2.05	0.72	23.6	66	59.4	1905	4272.060	4.46E-04	0.0	0.05488	0.00108
57	42.49	0.16	165.3	5.64	100.7	3.5	2.580	Sand mixtures - silty sand to sandy silt (5)	0.83	1.92	0.83	22.2	66	54.3	1917	4170.580	4.60E-04	0.0	0.05799	0.001142
60	43.31	0.16	113.5	4.05	68.5	3.7	2.629	Silt mixtures - clayey silt to silty clay (4)	0.82	2.39	0.82	27.2	---	43.8	1935	5399.270	3.58E-04	0.0	0.02062	0.000406
61	43.47	0.16	178.9	5.12	107.8	2.9	2.639	Sand mixtures - silty sand to sandy silt (5)	0.82	1.70	0.82	19.5	68	47.1	1938	4013.450	4.83E-04	0.0	0.06381	0.001256
62	43.64	0.16	134.9	5.54	81.1	4.2	2.649	Silt mixtures - clayey silt to silty clay (4)	0.82	2.37	0.71	27.0	---	56.7	1942	5906.430	3.29E-04	0.0	0.01826	0.00036
70	47.90	0.16	127.4	4.67	73.2	3.7	2.905	Silt mixtures - clayey silt to silty clay (4)	0.77	2.34	0.81	26.7	---	47.1	2017	5813.860	3.47E-04	0.0	0.01096	0.000216
71	48.88	0.98	191.5	5.65	109.3	3.0	2.939	Sand mixtures - silty sand to sandy silt (5)	0.77	1.73	0.7	19.7	69	49.5	2026.00	4312.760	4.70E-04	0.0	0.05849	0.006908

Evaluation of Liquefac. Resistance of Soils
Using CPT Data

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CPT:	CPT2		
G.W. Depth:	60 ft.	Elev.:	0
Design G.W. Depth:	60 ft.		
		Ic:	2.6 (Standard Value)

Fill Height:	0.0 ft.	125	pcf
Max horizontal acc. @ surface:	0.69	g	
Design earthquake magnitude:	6.9		
Removal:	0	ft	



*Exclude Settlement from layers thinner than 6 inches

CPT ANALYSIS
CPT 2
DESIGN GROUNDWATER AT 40 FOOT DEPTH

"Dry" Sand Seismic Settlement Using CPT Data

CPT: CPT2 W.O.: 8953
G.W. Depth: 60 ft. Elev.: 0
Design G.W. Depth: 40 ft. Ic: 2.6 C:\JOBS\8953_Everest Terrace\6-29-04\CPT-02.cpd
Removal: 0 ft.

Fill Height: 0.0 ft. 125 pcf
Max horizontal acc. @ surface: 0.69 g
Design earthquake magnitude: 6.90
Magnitude Scaling Factor: 0.88

Layer	Layer Bott. (ft)	Layer Thick. (ft)	Avg. Tip Resist qc (tsf)	Avg. Side Fric. fs	Avg. Tip Resist qc1N (tsf)	Norm. Frc. Rt. (%)	Eff. O.B. (tsf)	Soil Behavior Type	Avg. rd	Kc	Kσ	Fines Content (%)	Avg. Dr (%)	Spt N160cs (bpf)	Cyclic Shear Stress τav (psf)	Gmax (ksf)	γeff / (Geff/Gmax)	γeff	Vol. Strain (%)	"Dry" Settle. (in)
1	2.62	2.30	56.9	0.23	92.7	0.3	0.092	Sands - clean sand to silty sand (6)	1.00	1.09	1	7.1	78	14.5	82	4.03E+02	1.97E-04	3.69E-03	1.92E+00	5.31E-01
2	3.28	0.66	14.3	0.01	23.3	0.1	0.184	Sand mixtures - silty sand to sandy silt (5)	0.99	1.47	1	16.0	24	4.9	164	4.94E+02	3.32E-04	3.66E-03	3.01E+00	2.37E-01
3	9.68	6.40	71.1	0.65	104.9	0.8	0.403	Sands - clean sand to silty sand (6)	0.99	1.15	1	9.2	71	21.5	357	1.14E+03	3.13E-04	5.59E-03	9.79E-01	7.52E-01
4	10.01	0.33	54.1	0.84	67.7	1.6	0.613	Sand mixtures - silty sand to sandy silt (5)	0.98	1.59	1	17.9	52	19.5	539	1.42E+03	3.78E-04	4.32E-03	7.94E-01	3.13E-02
5	10.17	0.16	59.2	0.70	73.0	1.2	0.628	Sands - clean sand to silty sand (6)	0.98	1.39	1	14.7	55	18.1	551	1.40E+03	3.93E-04	5.20E-03	1.05E+00	2.07E-02
6	10.83	0.66	63.3	0.88	76.7	1.4	0.653	Sand mixtures - silty sand to sandy silt (5)	0.98	1.45	1	15.7	57	20.6	573	1.49E+03	3.85E-04	4.20E-03	7.66E-01	6.03E-02
7	12.30	1.48	93.7	1.07	108.0	1.1	0.719	Sands - clean sand to silty sand (6)	0.98	1.22	1	11.0	70	24.7	629	1.63E+03	3.87E-04	3.75E-03	6.14E-01	1.09E-01
8	12.96	0.66	56.2	1.00	62.2	1.9	0.785	Sand mixtures - silty sand to sandy silt (5)	0.97	1.85	1	20.8	47	20.4	685	1.65E+03	4.15E-04	3.58E-03	6.42E-01	5.06E-02
9	13.12	0.16	40.7	1.61	44.3	4.0	0.809	Silt mixtures - clayey silt to silty clay (4)	0.97	3.21	1	34.4	---	38.7	706	2.87E+03	2.46E-04	4.62E-04	2.79E-02	5.50E-04
11	16.40	0.66	43.9	1.88	43.2	4.4	0.991	Silt mixtures - clayey silt to silty clay (4)	0.97	3.45	1	36.2	---	40.8	429	1.58E+03	1.36E-04	2.51E-04	1.77E-02	1.39E-03
15	18.04	0.16	47.3	1.56	44.1	3.4	1.104	Silt mixtures - clayey silt to silty clay (4)	0.96	2.91	0.98	32.0	---	31.2	953	3.12E+03	3.05E-04	5.71E-04	5.50E-02	1.08E-03
16	18.21	0.16	55.3	1.38	51.3	2.5	1.114	Sand mixtures - silty sand to sandy silt (5)	0.96	2.30	0.98	26.3	39	22.8	961	2.08E+03	4.62E-04	2.91E-03	4.48E-01	8.82E-03
17	18.54	0.33	48.8	1.74	44.9	3.7	1.129	Silt mixtures - clayey silt to silty clay (4)	0.96	3.02	0.97	32.8	---	35.4	973	3.30E+03	2.95E-04	5.34E-04	4.06E-02	1.60E-03
18	18.70	0.16	55.2	1.16	50.5	2.2	1.144	Sand mixtures - silty sand to sandy silt (5)	0.96	2.13	0.97	24.5	39	18.8	985	1.98E+03	4.99E-04	3.83E-03	7.42E-01	1.46E-02
19	20.51	1.80	95.8	0.88	85.5	0.9	1.205	Sands - clean sand to silty sand (6)	0.96	1.24	0.94	11.6	60	18.4	1035	1.97E+03	5.28E-04	4.85E-03	1.01E+00	2.19E-01
20	21.82	1.31	52.5	0.49	45.1	1.0	1.301	Sand mixtures - silty sand to sandy silt (5)	0.95	1.63	0.94	18.3	33	10.4	1113	1.74E+03	6.39E-04	8.70E-03	3.13E+00	4.94E-01
21	21.98	0.16	66.7	0.49	56.3	0.7	1.345	Sands - clean sand to silty sand (6)	0.95	1.35	0.93	14.0	43	10.2	1148	1.74E+03	6.58E-04	9.33E-03	3.23E+00	6.35E-02
22	22.80	0.82	57.0	0.68	47.6	1.2	1.375	Sand mixtures - silty sand to sandy silt (5)	0.95	1.75	0.93	19.8	36	12.1	1172	1.88E+03	6.23E-04	7.75E-03	2.50E+00	2.46E-01
23	23.29	0.49	43.7	1.15	34.0	2.7	1.414	Silt mixtures - clayey silt to silty clay (4)	0.95	3.08	0.93	33.2	---	17.4	802	1.94E+03	2.75E-04	5.66E-04	1.27E-01	7.51E-03
24	27.07	3.77	59.4	0.99	46.8	1.7	1.542	Sand mixtures - silty sand to sandy silt (5)	0.94	2.02	0.91	23.1	34	15.1	1301	2.15E+03	6.09E-04	5.63E-03	1.60E+00	7.23E-01
25	27.40	0.33	49.4	1.28	33.4	2.7	1.665	Silt mixtures - clayey silt to silty clay (4)	0.93	3.14	0.9	33.7	---	16.7	695	1.63E+03	2.13E-04	4.44E-04	8.38E-02	3.30E-03
26	27.56	0.16	51.6	1.20	39.0	2.4	1.680	Sand mixtures - silty sand to sandy silt (5)	0.93	2.61	0.9	29.3	27	17.0	1405	2.37E+03	5.93E-04	3.66E-03	8.12E-01	1.60E-02
27	27.72	0.16	53.3	1.35	40.1	2.6	1.690	Silt mixtures - clayey silt to silty clay (4)	0.93	2.68	0.9	29.9	---	18.9	1412	3.27E+03	4.31E-04	9.10E-04	1.77E-01	3.48E-03
28	28.05	0.33	54.7	1.30	41.0	2.4	1.705	Sand mixtures - silty sand to sandy silt (5)	0.93	2.56	0.9	28.8	29	18.0	1422	2.43E+03	5.86E-04	3.40E-03	7.04E-01	2.77E-02
29	28.38	0.33	57.9	1.51	43.1	2.7	1.724	Silt mixtures - clayey silt to silty clay (4)	0.93	2.61	0.89	29.2	---	20.8	1437	3.41E+03	4.21E-04	8.76E-04	1.47E-01	5.79E-03
30	28.54	0.16	60.8	1.38	45.1	2.3	1.739	Sand mixtures - silty sand to sandy silt (5)	0.93	2.36	0.9	26.9	33	18.5	1447	2.46E+03	5.88E-04	3.34E-03	6.64E-01	1.31E-02
31	29.53	0.98	67.7	2.58	41.2	3.9	1.774	Silt mixtures - clayey silt to silty clay (4)	0.92	3.33	0.89	35.2	---	35.1	486	1.32E+03	1.23E-04	2.30E-04	2.21E-02	2.61E-03
33	31.33	0.16	92.0	3.27	65.2	3.6	1.907	Silt mixtures - clayey silt to silty clay (4)	0.91	2.44	0.88	27.7	---	42.3	1562	4.54E+03	3.44E-04	6.28E-04	3.40E-02	6.70E-04
34	31.66	0.33	236.2	8.36	166.7	3.6	1.922	Very stiff sand to clayey sand* (8)	0.91	1.60	0.82	18.0	87	56.5	1572	3.55E+03	4.43E-04	1.41E-03	7.80E-02	3.07E-03
37	35.60	0.49	115.0	4.97	69.0	4.4	2.154	Silt mixtures - clayey silt to silty clay (4)	0.89	2.73	0.86	30.2	---	53.9	1145	3.54E+03	2.16E-04	3.75E-04	2.03E-02	1.20E-03
38	35.76	0.16	121.7	4.24	80.8	3.5	2.174	Sand mixtures - silty sand to sandy silt (5)	0.89	2.16	0.86	24.9	57	47.3	1726	3.68E+03	4.69E-04	1.27E-03	6.97E-02	1.37E-03
39	35.93	0.16	105.9	3.98	70.1	3.8	2.183	Silt mixtures - clayey silt to silty clay (4)	0.88	2.43	0.79	27.5	---	47.0	1731	5.E+03	3.44E-04	6.14E-04	3.32E-02	6.54E-04
44	38.71	0.49	167.9	5.42	107.4	3.3	2.341	Sand mixtures - silty sand to sandy silt (5)	0.86	1.82	0.78	20.9	68	53.7	1813	4.E+03	4.60E-04	1.15E-03	6.32E-02	3.73E-03
47	39.37	0.33	125.6	5.60	67.5	4.6	2.386	Silt mixtures - clayey silt to silty clay (4)	0.86	2.96	0.84	31.8	---	54.4	918	3.E+03	1.62E-04	2.43E-04	1.31E-02	5.17E-04
50	40.19	0.30	122.3	5.76	59.5	4.8	2.431	Silt mixtures - clayey silt to silty clay (4)	0.85	3.17	0.84	33.8	---	53.6	618	2.E+03	1.07E-04	1.54E-04	8.30E-03	4.90E-04

Liquefaction Analysis Using CPT Data

CPT: CPT2 | W.O.: 8953
G.W. Depth: 60 ft. | Elev.: 0
Design G.W. Depth: 40 ft. | Ic: 2.6
Removal: 0 ft. | C:\JOBS\8953_Everest Terrace\6-29-04\CPT-02.cpd

Fill Height: 0.0 ft. | 125 pcf
Max horizontal acc. @ surface: 0.69 g
Design earthquake magnitude: 6.90
Magnitude Scaling Factor: 1.24

0
3.66

Layer	Layer Bott. (ft)	Layer Thick. (ft)	Avg. Tip Resist qc (tsf)	Avg. Side Fric. fs	Avg. Tip Resist qc1N (tsf)	Norm. Frc. Rt. (%)	Eff. O.B. (tsf)	Soil Behavior Type	Avg. rd	Kc	Kσ	Avg. Fines Content (%)	Avg. Dr (%)	Avg. SPT N1(60)liq (bpf)	Min. CRR (M=7.5)	Avg. CSR	Min. Liq. FS	Avg. Strain (%)	Liq Settle. (in)
50	40.19	0.19	122.3	5.76	59.5	4.8	2.431	Silt mixtures - clayey silt to silty clay (4)	0.85	3.17	0.84	33.8	---	66.7	Infin	0.308	Infin	0.0	0
52	41.01	0.33	114.5	4.77	59.8	4.2	2.485	Silt mixtures - clayey silt to silty clay (4)	0.84	2.97	0.84	32.2	---	39.8	Infin	0.309	Infin	0.0	0
53	41.50	0.49	159.0	6.55	98.2	4.2	2.510	Very stiff, fine grained* (9)	0.84	2.16	0.83	24.9	---	52.1	Infin	0.309	Infin	0.0	0
54	41.83	0.33	171.5	5.78	105.4	3.4	2.535	Sand mixtures - silty sand to sandy silt (5)	0.84	1.87	0.78	21.6	68	49.1	Infin	0.309	Infin	0.0	0
55	41.99	0.16	163.7	6.24	100.3	3.9	2.550	Very stiff sand to clayey sand* (8)	0.83	2.05	0.73	23.6	66	52.0	Infin	0.309	Infin	0.0	0
57	42.49	0.16	165.3	5.64	100.7	3.5	2.580	Sand mixtures - silty sand to sandy silt (5)	0.83	1.92	0.83	22.2	66	47.9	Infin	0.309	Infin	0.0	0
60	43.31	0.16	113.5	4.05	68.5	3.7	2.629	Silt mixtures - clayey silt to silty clay (4)	0.82	2.39	0.83	27.2	---	37.0	Infin	0.309	Infin	0.0	0
61	43.47	0.16	178.9	5.12	107.8	2.9	2.639	Sand mixtures - silty sand to sandy silt (5)	0.82	1.70	0.83	19.5	68	42.2	Infin	0.309	Infin	0.0	0
62	43.64	0.16	134.9	5.54	81.1	4.2	2.649	Silt mixtures - clayey silt to silty clay (4)	0.82	2.37	0.72	27.0	---	48.5	Infin	0.309	Infin	0.0	0
70	47.90	0.16	127.4	4.67	73.2	3.7	2.905	Silt mixtures - clayey silt to silty clay (4)	0.77	2.34	0.82	26.7	---	40.0	Infin	0.306	Infin	0.0	0
71	48.88	0.98	191.5	5.65	109.3	3.0	2.939	Sand mixtures - silty sand to sandy silt (5)	0.77	1.73	0.73	19.7	69	44.3	Infin	0.306	Infin	0.0	0

Evaluation of Liquefaction Resistance of Soils
Using CPT Data

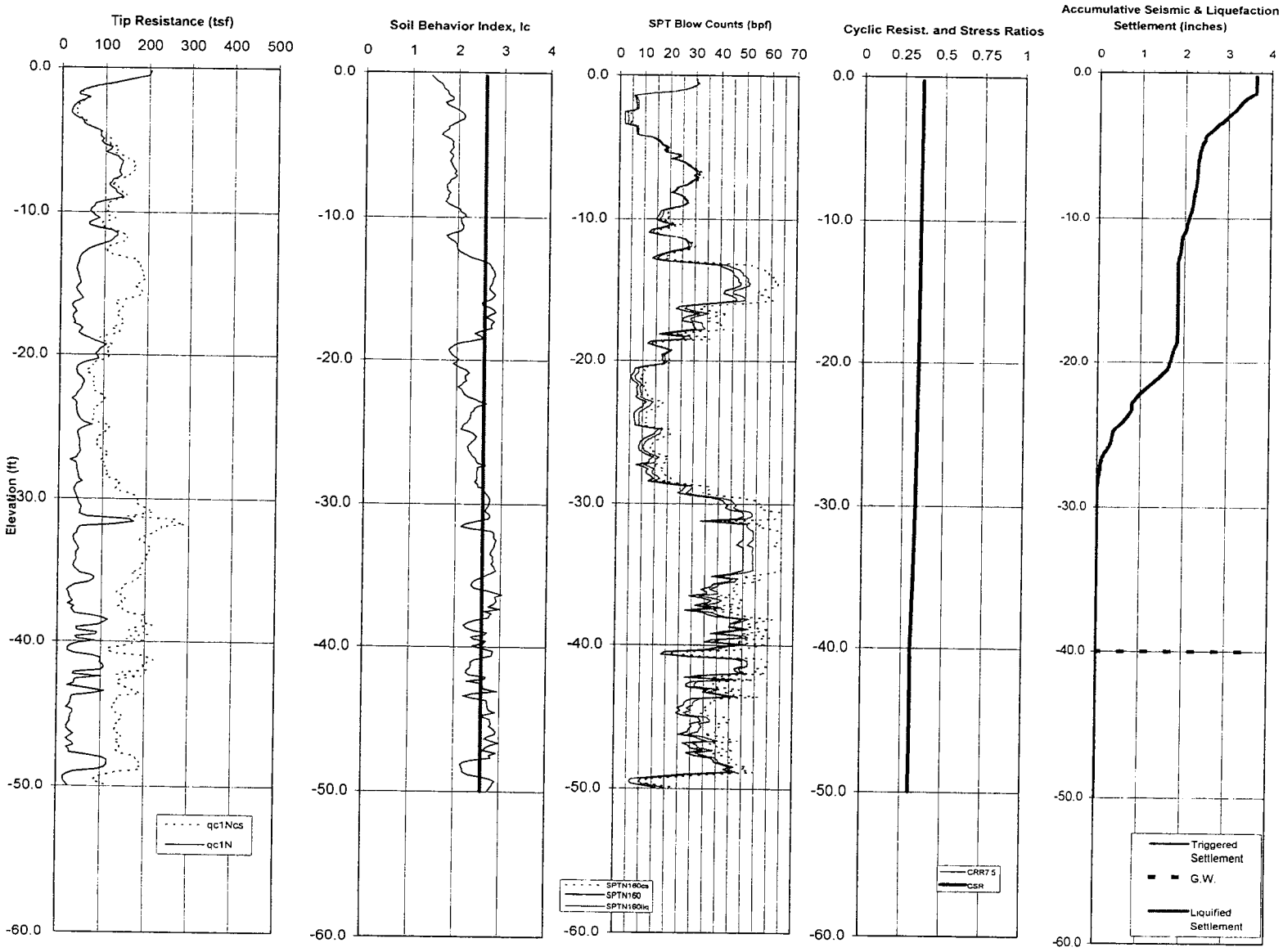
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CPT: CPT2
G.W. Depth: 60 ft.
Design G.W. Depth: 40 ft.

Elev.: 0

Ic: 2.6 (Standard Value)

Fill Height: 0.0 ft. 125 pcf
Max horizontal acc. @ surface: 0.69 g
Design earthquake magnitude: 6.9
Removal: 0 ft



GEOLABS-WESTLAKE VILLAGE

*Exclude Settlement from layers thinner than 6 inches

CPT ANALYSIS
CPT 3

GEOLABS-WESTLAKE VILLAGE

Summary of Analysis of CPT Data

CPT: CPT3 W.O.: 8953
G.W. Depth: 60 ft. Elev.: 0
Design G.W. Depth: 60 ft. Ic: 2.6 C:\JOBS\8953_Everest Terrace\6-29-04\CPT-03.cpd
Removal: 0 ft.

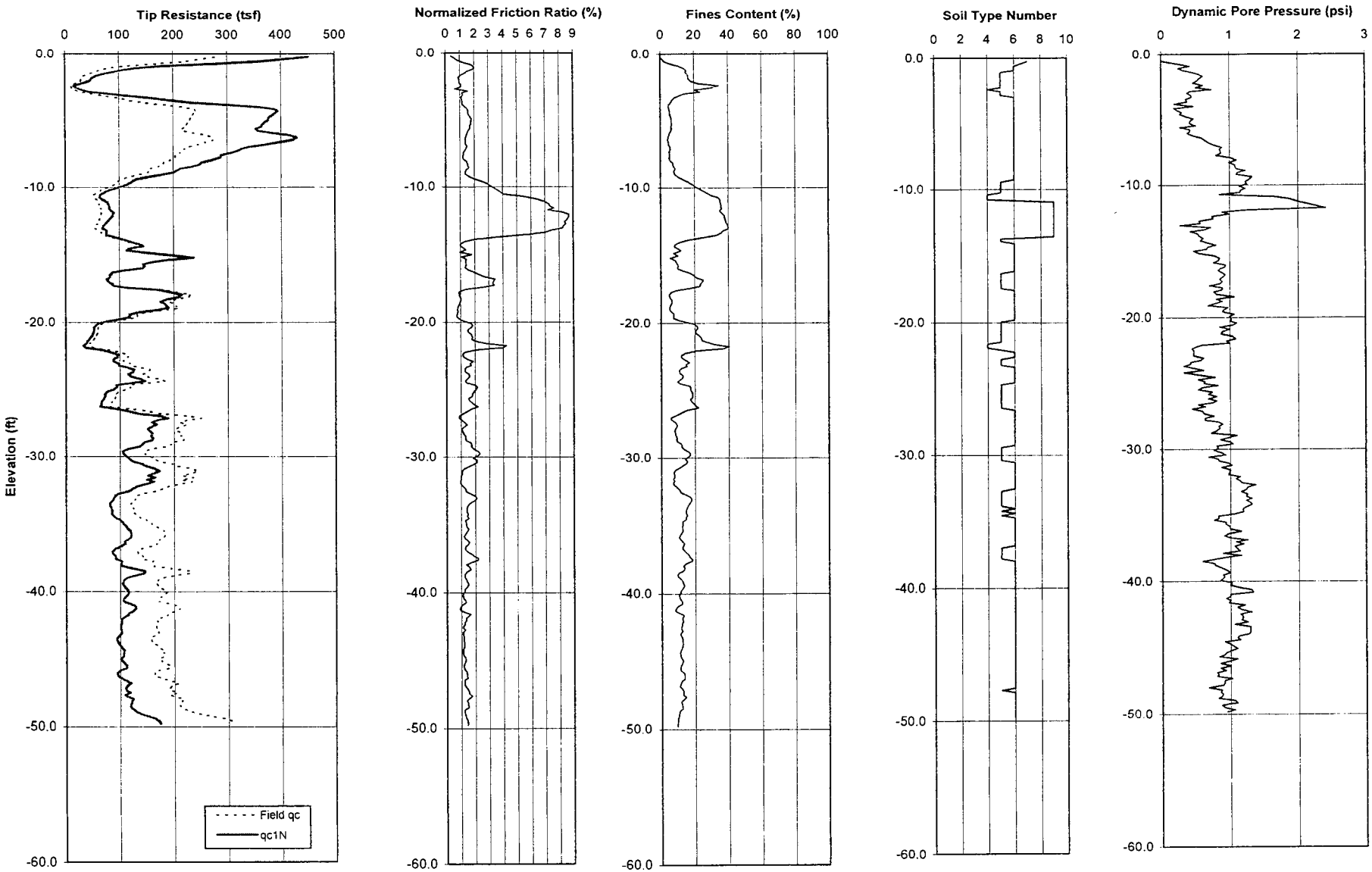
Fill Height: 0.0 ft. 125 pcf
Max horizontal acc. @ surface: 0.69 g
Design earthquake magnitude: 6.90

Layer	Layer Bott. (ft)	Layer Thick. (ft)	Avg. Tip Resist qc (tsf)	Avg. Side Fric. fs	Avg. Tip Resist qc1N (tsf)	Norm. Frc. Rt. (%)	Est. Wet Den. (pcf)	Soil Behavior Type	O.B. (tsf)	Eff. O.B. (tsf)	Norm. Exp. n	Ic Range	Kc	Fines Content (%)	Phi (deg)	Dr (%)	Su (tsf)	SPT N1(60) (bpf)	SPT N1(60)cs (bpf)
1	0.49	0.16	277.3	1.09	451.5	0.4	125	Gravelly sand to dense sand	0.015	0.015	0.5	1.15	1.00	0.0	60	100.0	---	50.0	50
2	0.98	0.49	167.2	2.00	272.3	1.3	125	Sands - clean sand to silty sand	0.046	0.046	0.5	1.46 to 1.92	1.08	6.3	55	100.0	---	48.7	49.5
3	2.30	1.31	44.3	0.66	72.2	1.3	120	Sand mixtures - silty sand to sandy silt	0.101	0.101	0.5	2.04 to 2.29	1.52	16.7	47	79.0	---	15.6	19.3
4	2.46	0.16	10.1	0.11	16.4	1.1	120	Silt mixtures - clayey silt to silty clay	0.145	0.145	0.5	2.58	3.21	34.4	---	---	0.7	3.2	8.7
5	2.95	0.49	19.3	0.22	31.4	1.1	120	Sand mixtures - silty sand to sandy silt	0.165	0.165	0.5	2.24 to 2.49	2.17	24.7	41	38.0	---	5.4	10.1
6	9.35	6.40	197.7	2.90	302.7	1.4	125	Sands - clean sand to silty sand	0.380	0.380	0.5	1.6 to 2.03	1.06	6.6	48	98.0	---	46.4	46.8
7	10.33	0.98	85.8	2.42	107.8	2.9	120	Sand mixtures - silty sand to sandy silt	0.609	0.609	0.5	2.03 to 2.37	1.74	19.6	42	71.0	---	40.0	46.6
8	10.83	0.49	55.0	2.42	66.6	4.5	120	Silt mixtures - clayey silt to silty clay	0.653	0.653	0.5	2.42 to 2.57	2.73	30.3	---	---	3.6	41.9	53.3
9	13.62	2.79	63.1	4.79	78.5	7.7	125	Very stiff, fine grained*	0.755	0.755	0.5 to 1	2.55 to 2.69	3.52	36.8	---	---	4.2	50.0	64.9
10	13.94	0.33	96.3	2.68	102.0	2.9	120	Sand mixtures - silty sand to sandy silt	0.852	0.852	0.5	2.08 to 2.34	1.76	19.7	41	68.0	---	38.1	44.8
11	16.24	2.30	148.9	1.93	150.7	1.3	125	Sands - clean sand to silty sand	0.934	0.934	0.5	1.67 to 2.01	1.16	9.6	43	83.0	---	31.7	33.1
12	17.55	1.31	90.3	2.54	86.4	2.9	120	Sand mixtures - silty sand to sandy silt	1.045	1.045	0.5	2.15 to 2.37	1.88	21.5	40	61.0	---	32.7	39.5
13	19.85	2.30	184.0	1.67	168.0	0.9	125	Sands - clean sand to silty sand	1.156	1.156	0.5	1.63 to 1.9	1.05	6.6	43	88.0	---	29.5	29.9
14	21.49	1.64	60.7	1.00	52.6	1.7	120	Sand mixtures - silty sand to sandy silt	1.277	1.277	0.5	2.07 to 2.44	1.91	21.8	36	40.0	---	11.6	16.5
15	21.98	0.49	46.7	1.69	35.6	3.7	120	Silt mixtures - clayey silt to silty clay	1.341	1.341	0.5 to 1	2.53 to 2.7	3.48	36.5	---	---	3.0	20.4	29.3
16	22.15	0.16	80.6	1.75	67.6	2.2	120	Sand mixtures - silty sand to sandy silt	1.361	1.361	0.5	2.27	1.85	21.3	38	50.0	---	19.7	25.3
17	22.64	0.49	110.3	1.32	91.8	1.2	125	Sands - clean sand to silty sand	1.381	1.381	0.5	1.96 to 2.04	1.29	12.8	39	63.0	---	20.0	22.5
18	23.29	0.66	113.3	1.88	93.2	1.7	120	Sand mixtures - silty sand to sandy silt	1.416	1.416	0.5	2.06 to 2.13	1.43	15.3	39	64.0	---	23.6	27.4
19	24.61	1.31	156.1	2.18	125.7	1.4	125	Sands - clean sand to silty sand	1.477	1.477	0.5	1.87 to 2	1.23	11.4	41	76.0	---	27.9	30
20	26.57	1.97	98.8	1.84	77.1	1.9	120	Sand mixtures - silty sand to sandy silt	1.577	1.577	0.5	2.09 to 2.29	1.63	18.4	38	55.0	---	20.1	24.7
21	29.36	2.79	207.4	2.62	154.7	1.3	125	Sands - clean sand to silty sand	1.723	1.723	0.5	1.68 to 1.98	1.15	9.2	42	84.0	---	30.8	32.1
22	30.51	1.15	158.0	3.27	113.8	2.1	120	Sand mixtures - silty sand to sandy silt	1.845	1.845	0.5	2.04 to 2.15	1.44	15.6	40	71.0	---	31.1	35.3
23	32.64	2.13	212.1	2.48	148.9	1.2	125	Sands - clean sand to silty sand	1.946	1.946	0.5	1.74 to 2	1.14	8.9	41	82.0	---	29.5	30.7
24	33.96	1.31	127.6	2.19	87.2	1.7	120	Sand mixtures - silty sand to sandy silt	2.052	2.052	0.5	2.06 to 2.16	1.48	16.2	38	60.0	---	22.4	26.4
25	34.12	0.16	126.2	1.74	85.3	1.4	125	Sands - clean sand to silty sand	2.096	2.096	0.5	2.06	1.38	14.6	38	59.0	---	19.4	22.7
26	34.28	0.16	126.1	1.86	85.0	1.5	120	Sand mixtures - silty sand to sandy silt	2.106	2.106	0.5	2.08	1.42	15.2	38	59.0	---	20.0	23.5
27	34.45	0.16	130.2	1.84	87.6	1.4	125	Sands - clean sand to silty sand	2.116	2.116	0.5	2.06	1.38	14.5	38	60.0	---	20.3	23.6
28	34.61	0.16	137.5	2.08	92.3	1.5	120	Sand mixtures - silty sand to sandy silt	2.126	2.126	0.5	2.06	1.39	14.6	38	62.0	---	22.3	25.8
29	36.91	2.30	166.6	2.26	109.9	1.4	125	Sands - clean sand to silty sand	2.203	2.203	0.5	1.9 to 2.02	1.27	12.2	39	70.0	---	25.2	27.7
30	37.89	0.98	142.1	2.62	91.6	1.9	120	Sand mixtures - silty sand to sandy silt	2.304	2.304	0.5	2.06 to 2.17	1.50	16.4	38	62.0	---	24.5	28.8
31	47.57	9.68	180.6	2.27	109.0	1.3	125	Sands - clean sand to silty sand	2.636	2.636	0.5	1.79 to 2.03	1.25	11.7	39	69.0	---	24.5	26.7
32	47.74	0.16	191.4	3.30	109.2	1.8	120	Sand mixtures - silty sand to sandy silt	2.944	2.944	0.5	2.05	1.37	14.3	38	69.0	---	27.3	30.8
33	49.70	1.97	236.8	3.25	133.5	1.4	125	Sands - clean sand to silty sand	3.010	3.010	0.5	1.86 to 2.01	1.21	10.8	39	77.0	---	28.8	30.7

Evaluation of Soil Characteristics Using CPT Data

CPT: CPT3
G.W. Depth: 60 ft. Elev.: 0
Design G.W. Depth: 60 ft.

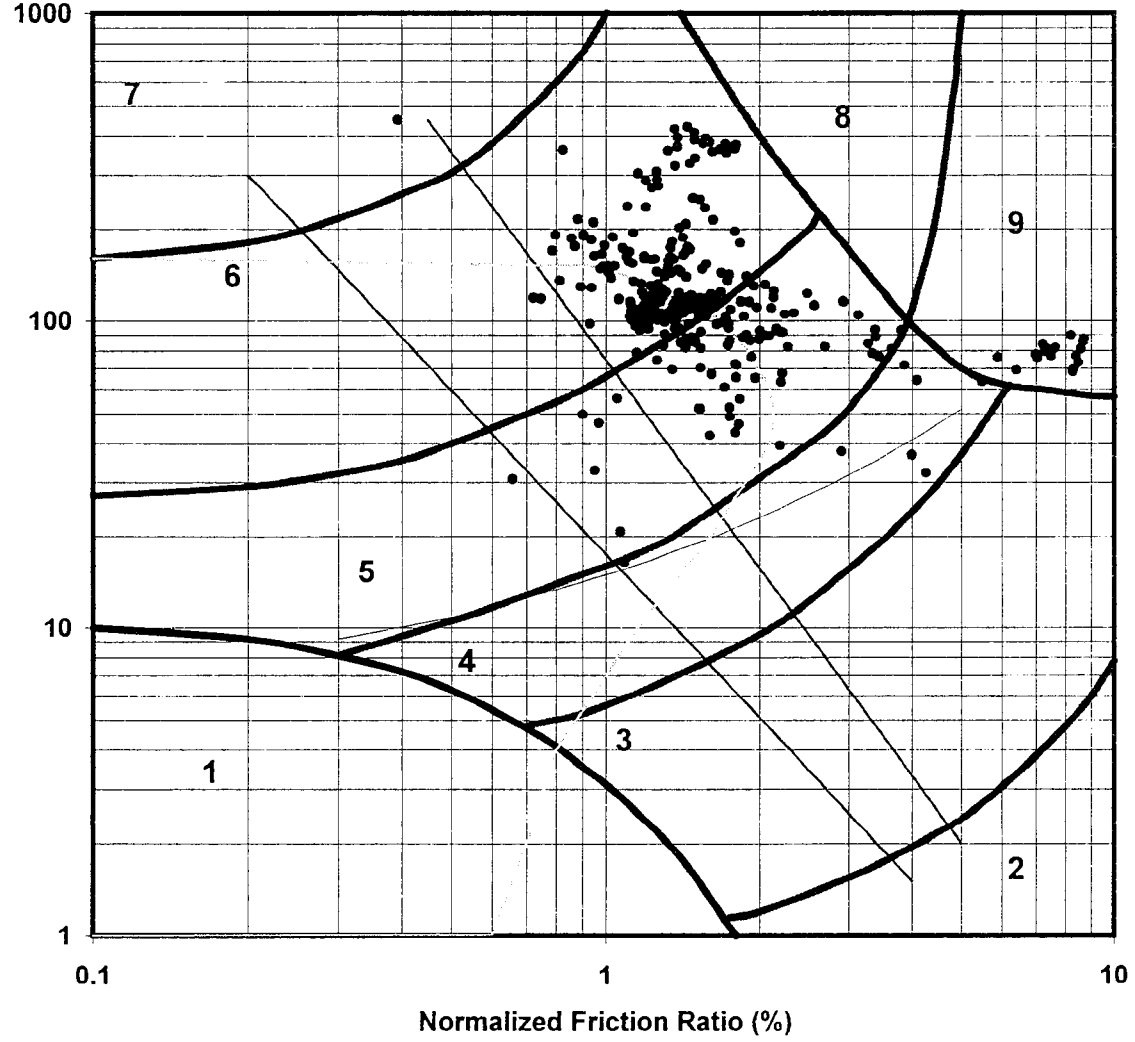
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CPT-Based Soil Behavior Type

CPT: CPT3
G.W. Depth: 60 ft
Ic: 2.6

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Soil Consistency Number

(Sand / Clay)

1 = very loose / very soft
2 = loose / soft
3 = medium dense / medium stiff
4 = dense / stiff
5 = very dense / very stiff
6 = --- / hard

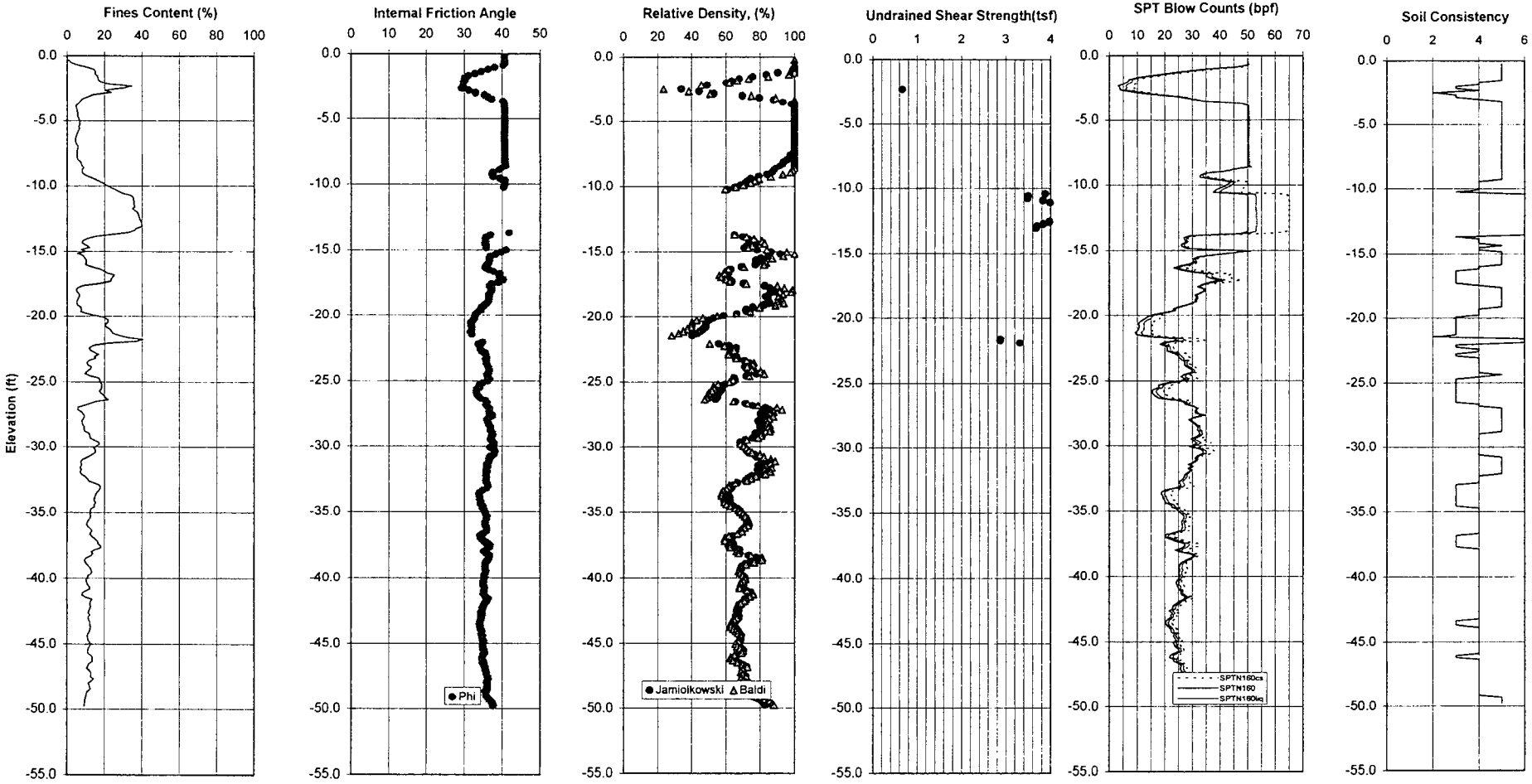
Soil Behavior Type Classification

1. Sensitive Fine Grained
2. Organic soils - peats
3. Clays - silty clay to clay
4. Silt mixtures - clayey silt to silty clay
5. Sand mixtures - silty sand to sandy silt
6. Sands - clean sand to silty sand
7. Gravelly sand to dense sand
8. Very stiff sand to clayey sand*
9. Very stiff, fine grained*

*Heavily overconsolidated or cemented

Soil Characteristics and Engineering Characteristics
Using CPT Data

CPT: CPT3
C:\JOBS\8953_Everest Terrace\6-29-04\CPT-03.cpd
G.W. Depth: 60 ft. Elev.: 0
Design G.W. Depth: 60 ft.



CPT ANALYSIS
CPT 3
NO DESIGN GROUNDWATER

GEOLABS-WESTLAKE VILLAGE

"Dry" Sand Seismic Settlement Using CPT Data

1.64

CPT: CPT3 W.O.: 8953
G.W. Depth: 60 ft. Elev.: 0
Design G.W. Depth: 60 ft. Ic: 2.6 C:\UOBS\8953_Everest Terrace\6-29-04\CPT-03.cpd
Removal: 0 ft.

Fill Height: 0.0 ft. 125 pcf
Max horizontal acc. @ surface: 0.69 g
Design earthquake magnitude: 6.90
Magnitude Scaling Factor: 0.88

Layer	Layer Bott. (ft)	Layer Thick. (ft)	Avg. Tip Resist qc (tsf)	Avg. Side Fric. fs	Avg. Tip Resist qc1N (tsf)	Norm. Frc. Rt. (%)	Eff. O.B. (tsf)	Soil Behavior Type	Avg. rd	Kc	Kσ	Fines Content (%)	Avg. Dr (%)	Spt N160cs (bpf)	Cyclic Shear Stress τav (psf)	Gmax (ksf)	γeff / (Geff/Gmax)	γeff	Vol. Strain (%)	"Dry" Settle. (in)
1	0.49	0.16	277.3	1.09	451.5	0.4	0.015	Gravelly sand to dense sand (7)	1.00	1.00	1	0.0	100	50.0	14	2.66E+02	5.19E-05	7.60E-05	4.07E-03	2.40E-04
2	0.98	0.49	167.2	2.00	272.3	1.3	0.046	Sands - clean sand to silty sand (6)	1.00	1.08	1	6.3	100	49.5	41	4.73E+02	8.68E-05	1.69E-04	9.09E-03	5.37E-04
3	2.30	1.31	44.3	0.66	72.2	1.3	0.101	Sand mixtures - silty sand to sandy silt (5)	1.00	1.52	1	16.7	79	19.3	90	5.14E+02	1.77E-04	1.97E-02	8.01E-01	1.26E-01
4	2.46	0.16	10.1	0.11	16.4	1.1	0.145	Silt mixtures - clayey silt to silty clay (4)	1.00	3.21	1	34.4	---	8.7	130	7.41E+02	1.75E-04	5.31E-04	2.86E-01	5.62E-03
5	2.95	0.49	19.3	0.22	31.4	1.1	0.165	Sand mixtures - silty sand to sandy silt (5)	1.00	2.17	1	24.7	38	10.1	147	5.85E+02	2.53E-04	4.51E-03	1.94E+00	1.14E-01
6	9.35	6.40	197.7	2.90	302.7	1.4	0.380	Sands - clean sand to silty sand (6)	0.99	1.06	1	6.6	98	46.8	336	1.39E+03	2.37E-04	8.15E-03	8.92E-02	6.84E-02
7	10.33	0.98	85.8	2.42	107.8	2.9	0.609	Sand mixtures - silty sand to sandy silt (5)	0.98	1.74	1	19.6	71	46.6	535	1.86E+03	2.88E-04	1.33E-03	7.91E-02	9.34E-03
8	10.83	0.49	55.0	2.42	66.6	4.5	0.653	Silt mixtures - clayey silt to silty clay (4)	0.98	2.73	1	30.3	---	53.3	573	2.87E+03	2.00E-04	3.41E-04	1.84E-02	1.09E-03
10	13.94	0.33	96.3	2.68	102.0	2.9	0.852	Sand mixtures - silty sand to sandy silt (5)	0.97	1.76	1	19.7	68	44.8	742	2.18E+03	3.44E-04	1.61E-03	1.23E-01	4.83E-03
11	16.24	2.30	148.9	1.93	150.7	1.3	0.934	Sands - clean sand to silty sand (6)	0.97	1.16	1	9.6	83	33.1	811	2.04E+03	3.99E-04	2.43E-03	2.40E-01	6.61E-02
12	17.55	1.31	90.3	2.54	86.4	2.9	1.045	Sand mixtures - silty sand to sandy silt (5)	0.96	1.88	0.99	21.5	61	39.5	904	2.35E+03	3.86E-04	1.73E-03	1.31E-01	2.06E-02
13	19.85	2.30	184.0	1.67	168.0	0.9	1.156	Sands - clean sand to silty sand (6)	0.96	1.05	0.95	6.6	88	29.9	995	2.20E+03	4.54E-04	2.94E-03	3.31E-01	9.12E-02
14	21.49	1.64	60.7	1.00	52.6	1.7	1.277	Sand mixtures - silty sand to sandy silt (5)	0.95	1.91	0.94	21.8	40	16.5	1094	2.00E+03	5.48E-04	5.04E-03	1.14E+00	2.24E-01
15	21.98	0.49	46.7	1.69	35.6	3.7	1.341	Silt mixtures - clayey silt to silty clay (4)	0.95	3.48	0.94	36.5	---	29.3	379	9.94E+02	1.27E-04	2.51E-04	4.26E-02	2.51E-03
16	22.15	0.16	80.6	1.75	67.6	2.2	1.361	Sand mixtures - silty sand to sandy silt (5)	0.95	1.85	0.94	21.3	50	25.3	1161	2.36E+03	4.92E-04	3.03E-03	4.12E-01	8.11E-03
17	22.64	0.49	110.3	1.32	91.8	1.2	1.381	Sands - clean sand to silty sand (6)	0.95	1.29	0.91	12.8	63	22.5	1177	2.25E+03	5.22E-04	3.93E-03	6.18E-01	3.65E-02
18	23.29	0.66	113.3	1.88	93.2	1.7	1.416	Sand mixtures - silty sand to sandy silt (5)	0.95	1.43	0.89	15.3	64	27.4	1205	2.43E+03	4.95E-04	3.05E-03	3.74E-01	2.95E-02
19	24.61	1.31	156.1	2.18	125.7	1.4	1.477	Sands - clean sand to silty sand (6)	0.95	1.23	0.87	11.4	76	30.0	1252	2.53E+03	4.94E-04	2.94E-03	3.05E-01	4.81E-02
20	26.57	1.97	98.8	1.84	77.1	1.9	1.577	Sand mixtures - silty sand to sandy silt (5)	0.94	1.63	0.87	18.4	55	24.7	1329	2.50E+03	5.32E-04	3.27E-03	4.80E-01	1.13E-01
21	29.36	2.79	207.4	2.62	154.7	1.3	1.723	Sands - clean sand to silty sand (6)	0.93	1.15	0.81	9.2	84	32.1	1437	2.78E+03	5.16E-04	2.72E-03	2.56E-01	8.55E-02
22	30.51	1.15	158.0	3.27	113.8	2.1	1.845	Sand mixtures - silty sand to sandy silt (5)	0.92	1.44	0.8	15.6	71	35.3	1523	3.02E+03	5.05E-04	2.09E-03	1.63E-01	2.25E-02
23	32.64	2.13	212.1	2.48	148.9	1.2	1.946	Sands - clean sand to silty sand (6)	0.91	1.14	0.77	8.9	82	30.7	1591	2.92E+03	5.44E-04	2.50E-03	2.52E-01	6.46E-02
24	33.96	1.31	127.6	2.19	87.2	1.7	2.052	Sand mixtures - silty sand to sandy silt (5)	0.90	1.48	0.79	16.2	60	26.4	1659	2.92E+03	5.68E-04	2.34E-03	3.07E-01	4.83E-02
25	34.12	0.16	126.2	1.74	85.3	1.4	2.096	Sands - clean sand to silty sand (6)	0.90	1.38	0.79	14.6	59	22.7	1686	2.82E+03	5.98E-04	2.61E-03	4.04E-01	7.96E-03
26	34.28	0.16	126.1	1.86	85.0	1.5	2.106	Sand mixtures - silty sand to sandy silt (5)	0.90	1.42	0.79	15.2	59	23.5	1692	2.86E+03	5.92E-04	2.50E-03	3.73E-01	7.34E-03
27	34.45	0.16	130.2	1.84	87.6	1.4	2.116	Sands - clean sand to silty sand (6)	0.89	1.38	0.79	14.5	60	23.6	1698	2.87E+03	5.92E-04	2.49E-03	3.69E-01	7.27E-03
28	34.61	0.16	137.5	2.08	92.3	1.5	2.126	Sand mixtures - silty sand to sandy silt (5)	0.89	1.39	0.79	14.6	62	25.8	1704	2.95E+03	5.77E-04	2.30E-03	3.06E-01	6.02E-03
29	36.91	2.30	166.6	2.26	109.9	1.4	2.203	Sands - clean sand to silty sand (6)	0.88	1.27	0.76	12.2	70	27.7	1748	3.05E+03	5.72E-04	2.17E-03	2.59E-01	7.14E-02
30	37.89	0.98	142.1	2.62	91.6	1.9	2.304	Sand mixtures - silty sand to sandy silt (5)	0.87	1.50	0.77	16.4	62	28.8	1803	3.19E+03	5.66E-04	1.91E-03	2.20E-01	2.60E-02
31	47.57	9.68	180.6	2.27	109.0	1.3	2.636	Sands - clean sand to silty sand (6)	0.82	1.25	0.72	11.7	69	26.7	1945	3.31E+03	5.88E-04	1.89E-03	2.39E-01	2.78E-01
32	47.74	0.16	191.4	3.30	109.2	1.8	2.944	Sand mixtures - silty sand to sandy silt (5)	0.78	1.37	0.68	14.3	69	30.8	2049	3.69E+03	5.56E-04	1.55E-03	1.52E-01	3.00E-03
33	49.70	1.97	236.8	3.25	133.5	1.4	3.010	Sands - clean sand to silty sand (6)	0.76	1.21	0.67	10.8	77	30.7	2065	4.E+03	5.60E-04	1.58E-03	1.59E-01	3.74E-02

Evaluation of Liquefa[illegible] Resistance of Soils
Using CPT Data

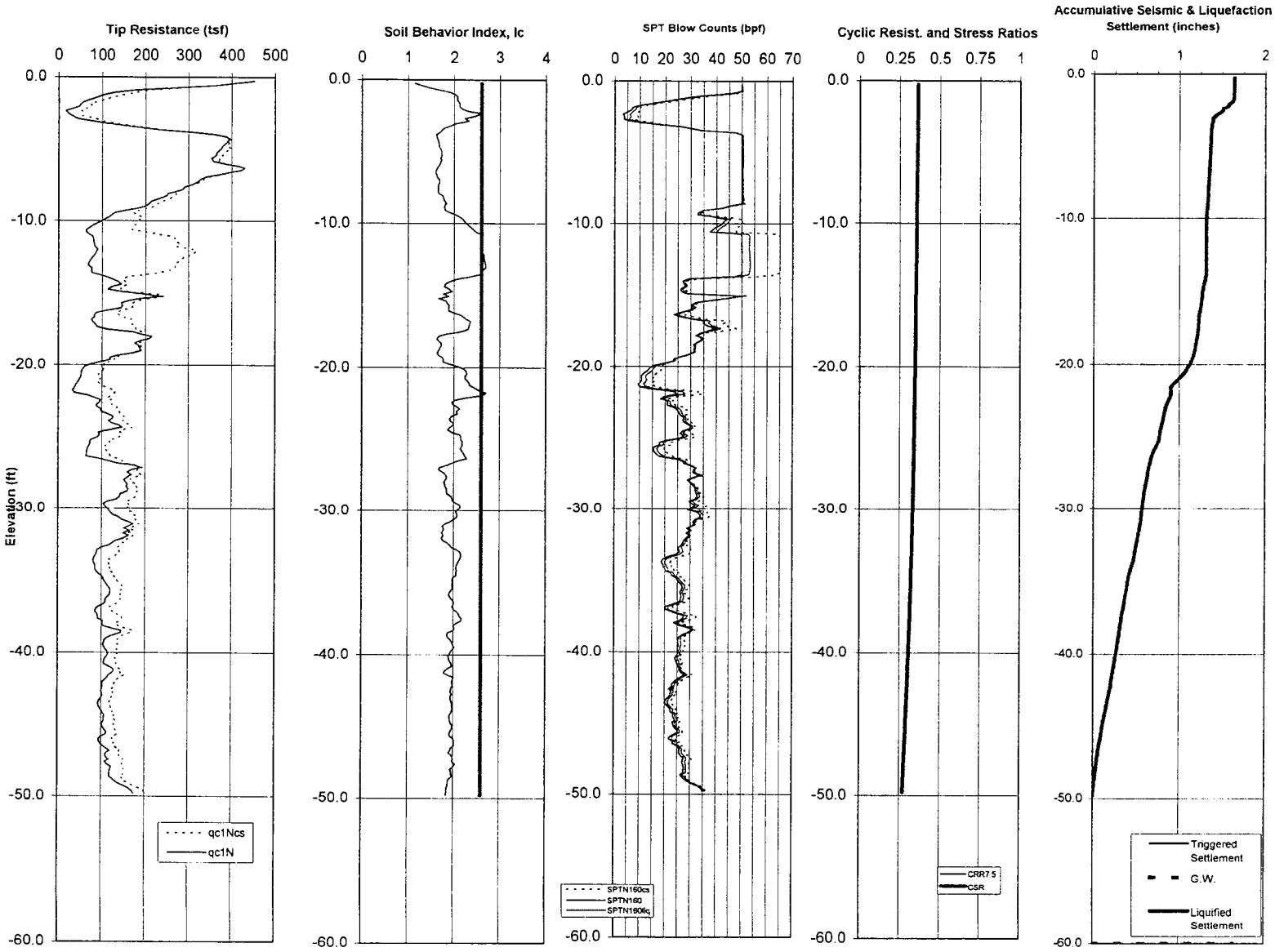
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CPT: CPT3
G.W. Depth: 60 ft.
Design G.W. Depth: 60 ft.

Elev.: 0

Ic: 2.6 (Standard Value)

Fill Height: 0.0 ft. 125 pcf
Max horizontal acc. @ surface: 0.69 g
Design earthquake magnitude: 6.9
Removal: 0 ft



GEOLABS-WESTLAKE VILLAGE

*Exclude Settlement from layers thinner than 6 inches

CPT ANALYSIS
CPT 3
DESIGN GROUNDWATER AT 40 FOOT DEPTH

"Dry" Sand Seismic Settlement Using CPT Data

CPT: CPT3 W.O.: 8953 Fill Height: 0.0 ft. 125 pcf

G.W. Depth: 60 ft. Elev.: 0 Max horizontal acc. @ surface: 0.69 g

Design G.W. Depth: 40 ft. Ic: 2.6 C:\JOBS\8953_Everest Terrace\6-29-04\CPT-03.cpd Design earthquake magnitude: 6.90

Removal: 0 ft. Magnitude Scaling Factor: 0.88

Layer	Layer Bott. (ft)	Layer Thick. (ft)	Avg. Tip Resist qc (tsf)	Avg. Side Fric. fs	Avg. Tip Resist qc1N (tsf)	Norm. Frc. Rt. (%)	Eff. O.B. (tsf)	Soil Behavior Type	Avg. rd	Kc	Kσ	Fines Content (%)	Avg. Dr (%)	Spt N160cs (bpf)	Cyclic Shear Stress τav (psf)	Gmax (ksf)	γeff / (Geff/Gmax)	γeff	Vol. Strain (%)	"Dry" Settle. (in)
1	0.49	0.16	277.3	1.09	451.5	0.4	0.015	Gravelly sand to dense sand (7)	1.00	1.00	1	0.0	100	50.0	14	2.66E+02	5.19E-05	7.60E-05	4.07E-03	2.40E-04
2	0.98	0.49	167.2	2.00	272.3	1.3	0.046	Sands - clean sand to silty sand (6)	1.00	1.08	1	6.3	100	49.5	41	4.73E+02	8.68E-05	1.69E-04	9.09E-03	5.37E-04
3	2.30	1.31	44.3	0.66	72.2	1.3	0.101	Sand mixtures - silty sand to sandy silt (5)	1.00	1.52	1	16.7	79	19.3	90	5.14E+02	1.77E-04	1.97E-02	8.01E-01	1.26E-01
4	2.46	0.16	10.1	0.11	16.4	1.1	0.145	Silt mixtures - clayey silt to silty clay (4)	1.00	3.21	1	34.4	---	8.7	130	7.41E+02	1.75E-04	5.31E-04	2.86E-01	5.62E-03
5	2.95	0.49	19.3	0.22	31.4	1.1	0.165	Sand mixtures - silty sand to sandy silt (5)	1.00	2.17	1	24.7	38	10.1	147	5.85E+02	2.53E-04	4.51E-03	1.94E+00	1.14E-01
6	9.35	6.40	197.7	2.90	302.7	1.4	0.380	Sands - clean sand to silty sand (6)	0.99	1.06	1	6.6	98	46.8	336	1.39E+03	2.37E-04	8.15E-03	8.92E-02	6.84E-02
7	10.33	0.98	85.6	2.42	107.8	2.9	0.609	Sand mixtures - silty sand to sandy silt (5)	0.98	1.74	1	19.6	71	46.6	535	1.86E+03	2.88E-04	1.33E-03	7.91E-02	9.34E-03
8	10.83	0.49	55.0	2.42	66.6	4.5	0.653	Silt mixtures - clayey silt to silty clay (4)	0.98	2.73	1	30.3	---	53.3	573	2.87E+03	2.00E-04	3.41E-04	1.84E-02	1.09E-03
10	13.94	0.33	96.3	2.68	102.0	2.9	0.852	Sand mixtures - silty sand to sandy silt (5)	0.97	1.76	1	19.7	68	44.8	742	2.18E+03	3.44E-04	1.61E-03	1.23E-01	4.83E-03
11	16.24	2.30	148.9	1.93	150.7	1.3	0.934	Sands - clean sand to silty sand (6)	0.97	1.16	1	9.6	83	33.1	811	2.04E+03	3.99E-04	2.43E-03	2.40E-01	6.61E-02
12	17.55	1.31	90.3	2.54	86.4	2.9	1.045	Sand mixtures - silty sand to sandy silt (5)	0.96	1.88	0.99	21.5	61	39.5	904	2.35E+03	3.86E-04	1.73E-03	1.31E-01	2.06E-02
13	19.85	2.30	184.0	1.67	168.0	0.9	1.156	Sands - clean sand to silty sand (6)	0.96	1.05	0.95	6.6	88	29.9	995	2.20E+03	4.54E-04	2.94E-03	3.31E-01	9.12E-02
14	21.49	1.64	60.7	1.00	52.6	1.7	1.277	Sand mixtures - silty sand to sandy silt (5)	0.95	1.91	0.94	21.8	40	16.5	1094	2.00E+03	5.48E-04	5.04E-03	1.14E+00	2.24E-01
15	21.98	0.49	46.7	1.69	35.6	3.7	1.341	Silt mixtures - clayey silt to silty clay (4)	0.95	3.48	0.94	36.5	---	29.3	379	9.94E+02	1.27E-04	2.51E-04	4.26E-02	2.51E-03
16	22.15	0.16	80.6	1.75	67.6	2.2	1.361	Sand mixtures - silty sand to sandy silt (5)	0.95	1.85	0.94	21.3	50	25.3	1161	2.36E+03	4.92E-04	3.03E-03	4.12E-01	8.11E-03
17	22.64	0.49	110.3	1.32	91.8	1.2	1.381	Sands - clean sand to silty sand (6)	0.95	1.29	0.91	12.8	63	22.5	1177	2.25E+03	5.22E-04	3.93E-03	6.18E-01	3.65E-02
18	23.29	0.66	113.3	1.88	93.2	1.7	1.416	Sand mixtures - silty sand to sandy silt (5)	0.95	1.43	0.89	15.3	64	27.4	1205	2.43E+03	4.95E-04	3.05E-03	3.74E-01	2.95E-02
19	24.61	1.31	156.1	2.18	125.7	1.4	1.477	Sands - clean sand to silty sand (6)	0.95	1.23	0.87	11.4	76	30.0	1252	2.53E+03	4.94E-04	2.94E-03	3.05E-01	4.81E-02
20	26.57	1.97	98.8	1.84	77.1	1.9	1.577	Sand mixtures - silty sand to sandy silt (5)	0.94	1.63	0.87	18.4	55	24.7	1329	2.50E+03	5.32E-04	3.27E-03	4.80E-01	1.13E-01
21	29.36	2.79	207.4	2.62	154.7	1.3	1.723	Sands - clean sand to silty sand (6)	0.93	1.15	0.81	9.2	84	32.1	1437	2.78E+03	5.16E-04	2.72E-03	2.56E-01	8.55E-02
22	30.51	1.15	158.0	3.27	113.8	2.1	1.845	Sand mixtures - silty sand to sandy silt (5)	0.92	1.44	0.8	15.6	71	35.3	1523	3.02E+03	5.05E-04	2.09E-03	1.63E-01	2.25E-02
23	32.64	2.13	212.1	2.48	148.9	1.2	1.946	Sands - clean sand to silty sand (6)	0.91	1.14	0.77	8.9	82	30.7	1591	2.92E+03	5.44E-04	2.50E-03	2.52E-01	6.46E-02
24	33.96	1.31	127.6	2.19	87.2	1.7	2.052	Sand mixtures - silty sand to sandy silt (5)	0.90	1.48	0.79	16.2	60	26.4	1659	2.92E+03	5.68E-04	2.34E-03	3.07E-01	4.83E-02
25	34.12	0.16	126.2	1.74	85.3	1.4	2.096	Sands - clean sand to silty sand (6)	0.90	1.38	0.79	14.6	59	22.7	1686	2.82E+03	5.98E-04	2.61E-03	4.04E-01	7.96E-03
26	34.28	0.16	126.1	1.86	85.0	1.5	2.106	Sand mixtures - silty sand to sandy silt (5)	0.90	1.42	0.79	15.2	59	23.5	1692	2.86E+03	5.92E-04	2.50E-03	3.73E-01	7.34E-03
27	34.45	0.16	130.2	1.84	87.6	1.4	2.116	Sands - clean sand to silty sand (6)	0.89	1.38	0.79	14.5	60	23.6	1698	2.87E+03	5.92E-04	2.49E-03	3.69E-01	7.27E-03
28	34.61	0.16	137.5	2.08	92.3	1.5	2.126	Sand mixtures - silty sand to sandy silt (5)	0.89	1.39	0.79	14.6	62	25.8	1704	2.95E+03	5.77E-04	2.30E-03	3.06E-01	6.02E-03
29	36.91	2.30	166.6	2.26	109.9	1.4	2.203	Sands - clean sand to silty sand (6)	0.88	1.27	0.76	12.2	70	27.7	1748	3.05E+03	5.72E-04	2.17E-03	2.59E-01	7.14E-02
30	37.89	0.98	142.1	2.62	91.6	1.9	2.304	Sand mixtures - silty sand to sandy silt (5)	0.87	1.50	0.77	16.4	62	28.8	1803	3.19E+03	5.66E-04	1.91E-03	2.20E-01	2.60E-02
31	47.57	2.11	180.6	2.27	109.0	1.3	2.636	Sands - clean sand to silty sand (6)	0.82	1.25	0.72	11.7	69	26.7	408	7.11E+02	1.26E-04	4.23E-04	4.76E-02	5.53E-02

Liquefaction Analysis Using CPT Data

0.22

1.59

CPT: CPT3 W.O.: 8953
G.W. Depth: 60 ft. Elev.: 0
Design G.W. Depth: 40 ft. Ic: 2.6 C:\JOBS\8953_Everest Terrace\6-29-04\CPT-03.cpd
Removal: 0 ft.

Fill Height: 0.0 ft. 125 pcf
Max horizontal acc. @ surface: 0.69 g
Design earthquake magnitude: 6.90
Magnitude Scaling Factor: 1.24

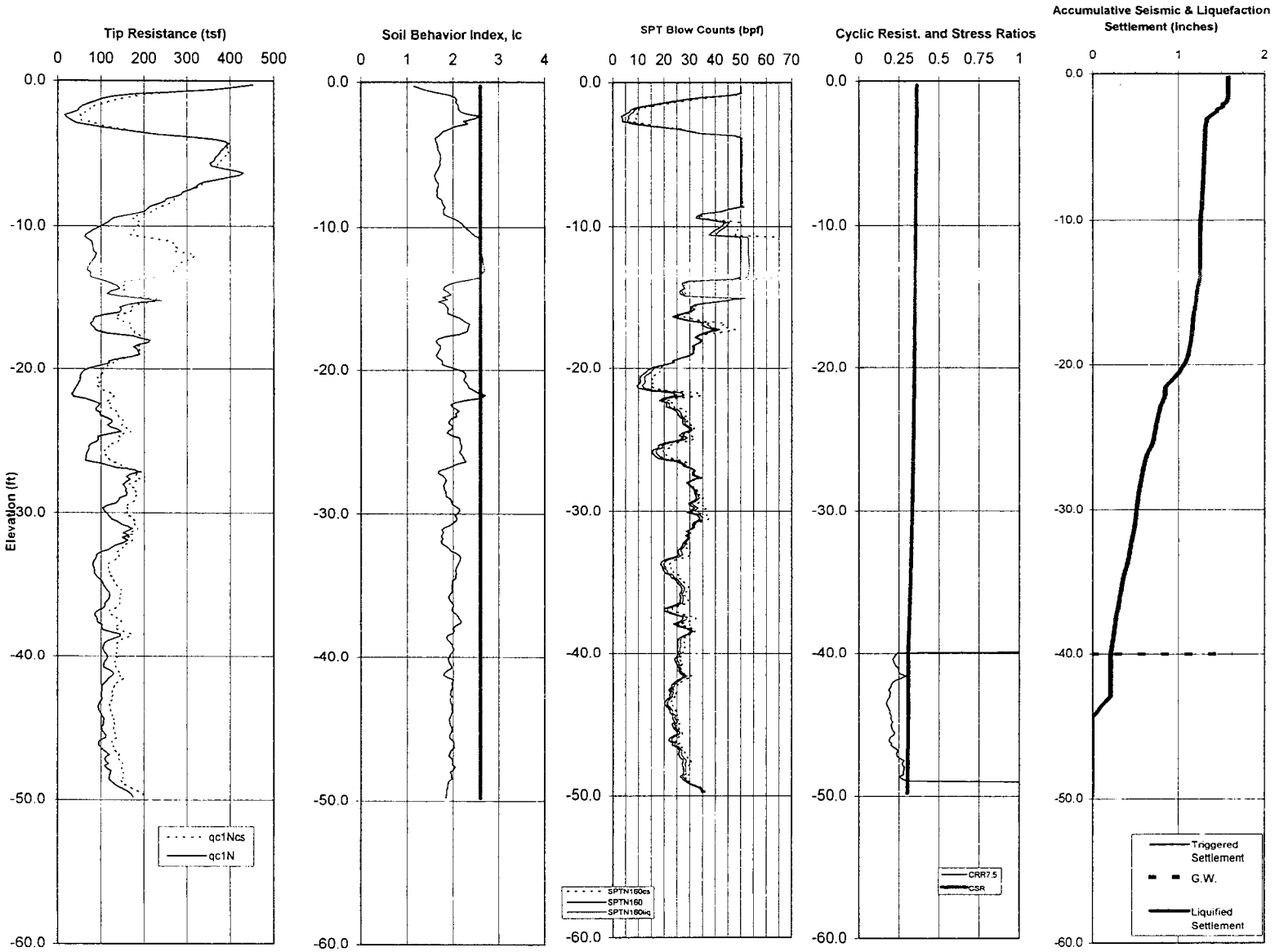
Layer	Layer Bott. (ft)	Layer Thick. (ft)	Avg. Tip Resist qc (tsf)	Avg. Side Fric. fs	Avg. Tip Resist qc1N (tsf)	Norm. Frc. Rt. (%)	Eff. O.B. (tsf)	Soil Behavior Type	Avg. rd	Kc	Kσ	Avg. Fines Content (%)	Avg. Dr (%)	Avg. SPT N1(60)liq (bpf)	Min. CRR (M=7.5)	Avg. CSR	Min. Liq. FS	Avg. Strain (%)	Liq Settle. (in)
31	47.57	7.57	180.6	2.27	109.0	1.3	2.636	Sands - clean sand to silty sand (6)	0.82	1.25	0.72	11.7	69	32.0	0.17	0.309	0.56	0.6	0.22
32	47.74	0.16	191.4	3.30	109.2	1.8	2.944	Sand mixtures - silty sand to sandy silt (5)	0.78	1.37	0.7	14.3	69	28.5	0.27	0.306	0.89	0.0	0
33	49.70	1.97	236.8	3.25	133.5	1.4	3.010	Sands - clean sand to silty sand (6)	0.76	1.21	0.69	10.8	77	29.7	0.25	0.305	0.83	0.0	0

Evaluation of Liquefac . Resistance of Soils
Using CPT Data

C:\JOBS\8953_Everest Terrace\6-29-04\CPT-03.cpd

CPT: CPT3
G.W. Depth: 60 ft. Elev.: 0
Design G.W. Depth: 40 ft.
Ic: 2.6 (Standard Value)

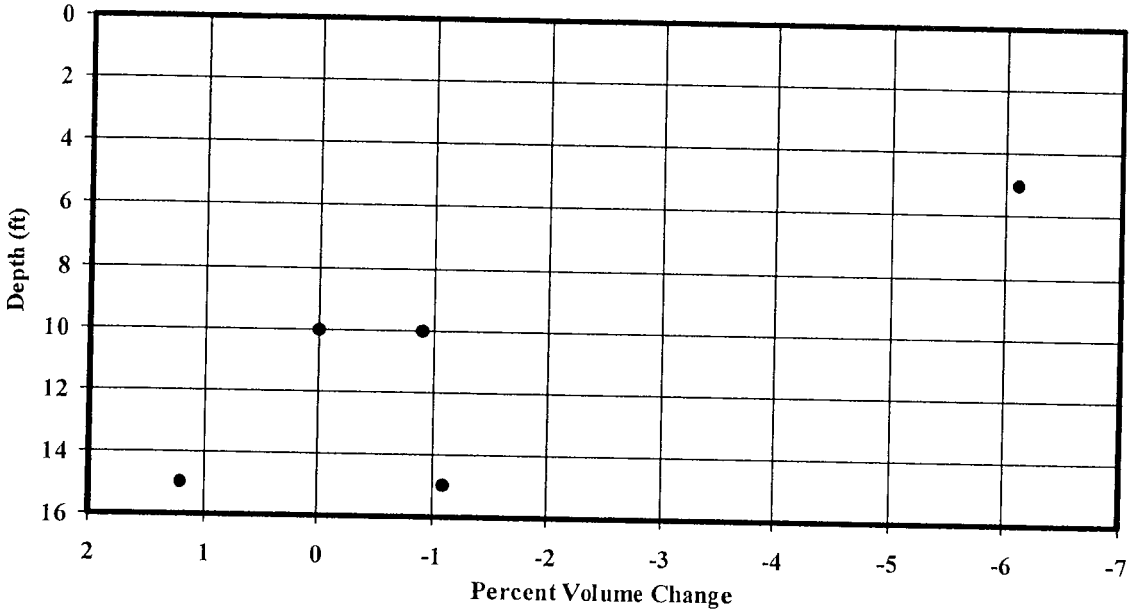
Fill Height: 0.0 ft. 125 pcf
Max horizontal acc. @ surface: 0.69 g
Design earthquake magnitude: 6.9
Removal: 0 ft



*Exclude Settlement from layers thinner than 6 inches

HYDROCONSOLIDATION/EXPANSION VS. DEPTH

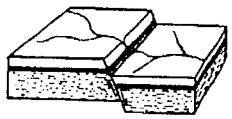
Alluvium



Note: Expansion (+), Collapse (-)

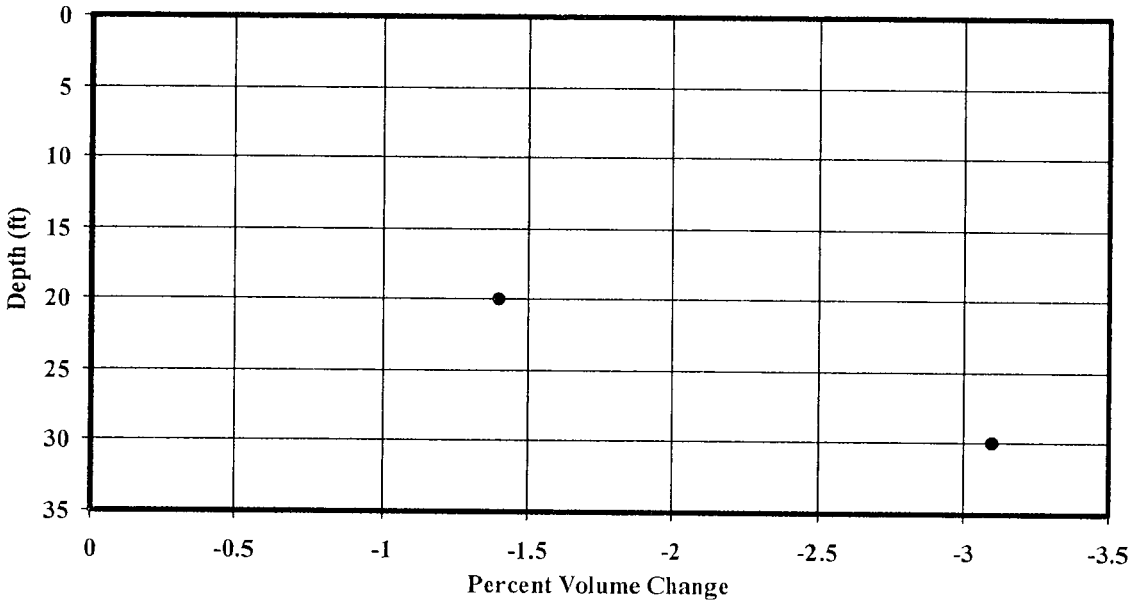
Excavation	Depth (ft)	Field DD (pcf)	M (%)	e	S (%)	Volume Change (%)	Alluvium Material
B3	5	103.7	3.3	0.63	14	-6.1	Silty Sand
B1	10	113.1	8.2	0.48	46.1	0.0	Silty Sand
B4	10	122.5	6.0	0.37	44.1	-0.9	Silty Sand
B1	15	108.5	17.8	0.54	88.1	1.2	Clay
B3	15	107.0	2.7	0.56	13	-1.1	Sand

DD = Field Dry Density, M = Field Moisture, e = initial void ratio, S = initial degree of saturation, Volume Change = percent of hydroconsolidation(-) or expansion (+)



HYDROCONSOLIDATION/EXPANSION VS. DEPTH

Saugus Formation



Note: Expansion (+), Collapse (-)

Excavation	Depth (ft)	Field DD (pcf)	M (%)	e	S (%)	Volume Change (%)	Saugus Formation Material
B6	20	114.1	3.7	0.47	21	-1.4	SANDSTONE
B6	30	102.8	6.0	0.62	26	-3.1	SANDSTONE

DD = Field Dry Density, M = Field Moisture, e = initial void ratio, S = initial degree of saturation, Volume Change = percent of hydroconsolidation(-) or expansion (+)

GEOLABS-WESTLAKE VILLAGE

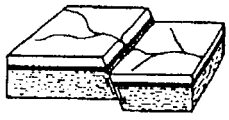
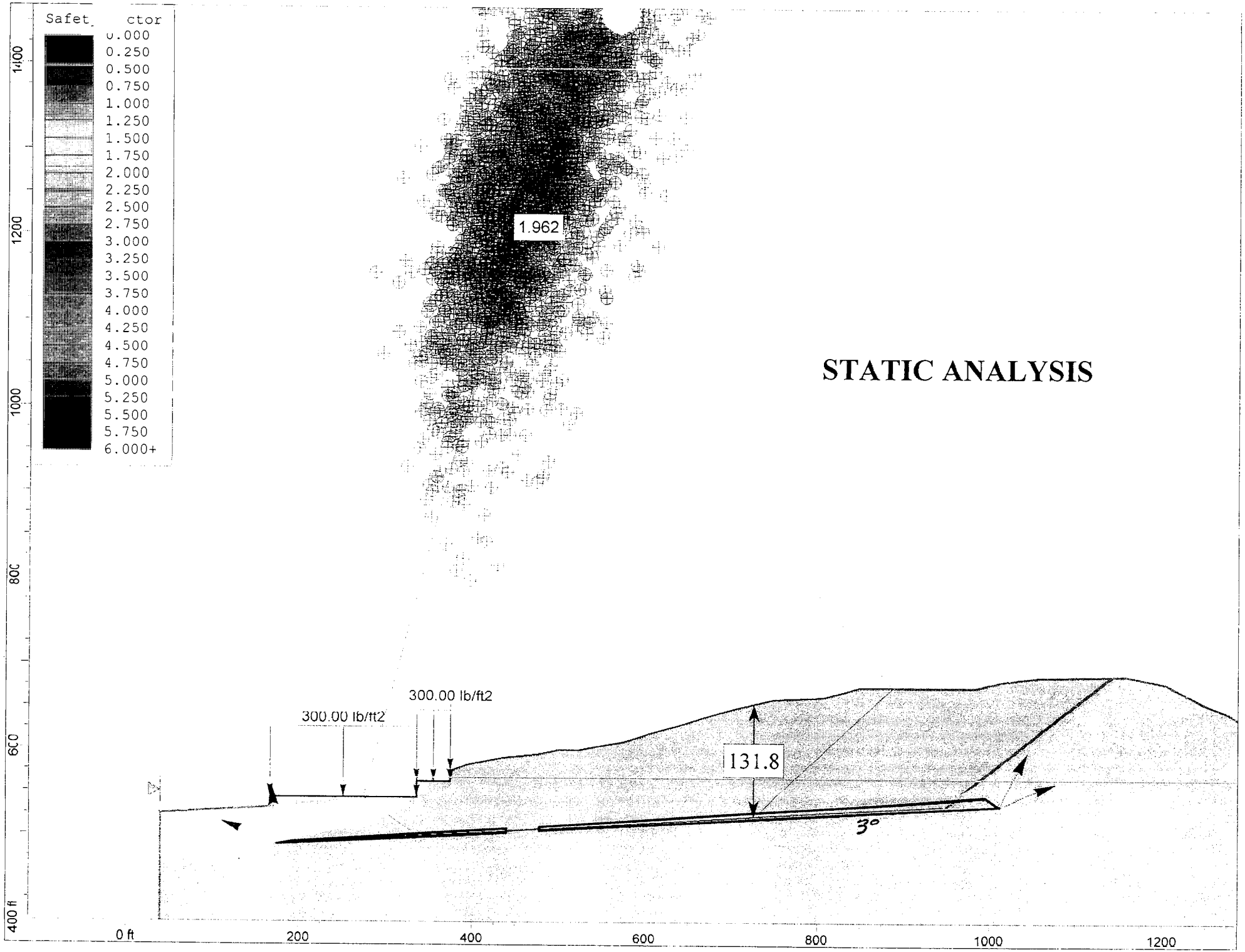


PLATE C-Hydro.TQs.1

APPENDIX D

SLOPE STABILITY ANALYSIS


Safet ctor
0.000
0.250
0.500
0.750
1.000
1.250
1.500
1.750
2.000
2.250
2.500
2.750
3.000
3.250
3.500
3.750
4.000
4.250
4.500
4.750
5.000
5.250
5.500
5.750
6.000+
1.962
STATIC ANALYSIS
300.00 lb/ft2
300.00 lb/ft2
131.8
30°
1400
1200
1000
800
600
400 ft
0 ft
200
400
600
800
1000
1200

Slide Analysis Information

Document Name

File Name: 8953 B-B' 20051130 study.sli

Project Settings

Project Title: Section B-B' Static Analysis
Failure Direction: Right to Left
Units of Measurement: Imperial Units
Pore Fluid Unit Weight: 62.4 lb/ft3
Groundwater Method: Water Surfaces
Data Output: Maximum
Calculate Excess Pore Pressure: Off
Allow Ru with Water Surfaces or Grids: Off
Random Numbers: Pseudo-random Seed
Random Number Seed: 10116
Random Number Generation Method: Park and Miller v.3

Analysis Methods

Analysis Methods used:
Spencer

Number of slices: 25
Tolerance: 0.005
Maximum number of iterations: 50

Surface Options

Surface Type: Non-Circular Block Search
Number of Surfaces: 3000
Pseudo-Random Surfaces: Enabled
Convex Surfaces Only: Enabled
Left Projection Angle (Start Angle): 157
Left Projection Angle (End Angle): 95
Right Projection Angle (Start Angle): 63
Right Projection Angle (End Angle): 22
Minimum Elevation: Not Defined
Minimum Depth: Not Defined

Loading

1 Distributed Load present:
Distributed Load Constant Distribution, Orientation: Vertical, Magnitude: 300 lb/ft2

Material Properties

Material: Qal
Strength Type: Mohr-Coulomb
Unit Weight: 130 lb/ft3
Cohesion: 200 psf
Friction Angle: 38 degrees
Water Surface: None

Material: TQs
Strength Type: Anisotropic function
Unit Weight: 130 lb/ft3
Water Surface: None

Material: TQs (5' Bed)
Strength Type: Shear Normal function
Unit Weight: 130 lb/ft3
Water Surface: None

Material: TQs above Bed
Strength Type: Anisotropic function
Unit Weight: 130 lb/ft3
Water Surface: None

Material: Eng. Fill
Strength Type: Mohr-Coulomb
Unit Weight: 130 lb/ft3
Cohesion: 125 psf
Friction Angle: 32 degrees
Water Surface: None

Global Minimums

Method: spencer
FS: 1.962050
Axis Location: 448.750, 1220.822
Left Slip Surface Endpoint: 274.873, 542.955
Right Slip Surface Endpoint: 886.717, 675.000
Resisting Moment=1.60009e+009 lb-ft
Driving Moment=8.15523e+008 lb-ft
Resisting Horizontal Force=2.0086e+006 lb
Driving Horizontal Force=1.02373e+006 lb

Valid / Invalid Surfaces

Method: spencer
Number of Valid Surfaces: 1757
Number of Invalid Surfaces: 1243
Error Codes:
Error Code -108 reported for 39 surfaces
Error Code -111 reported for 95 surfaces
Error Code -112 reported for 1109 surfaces

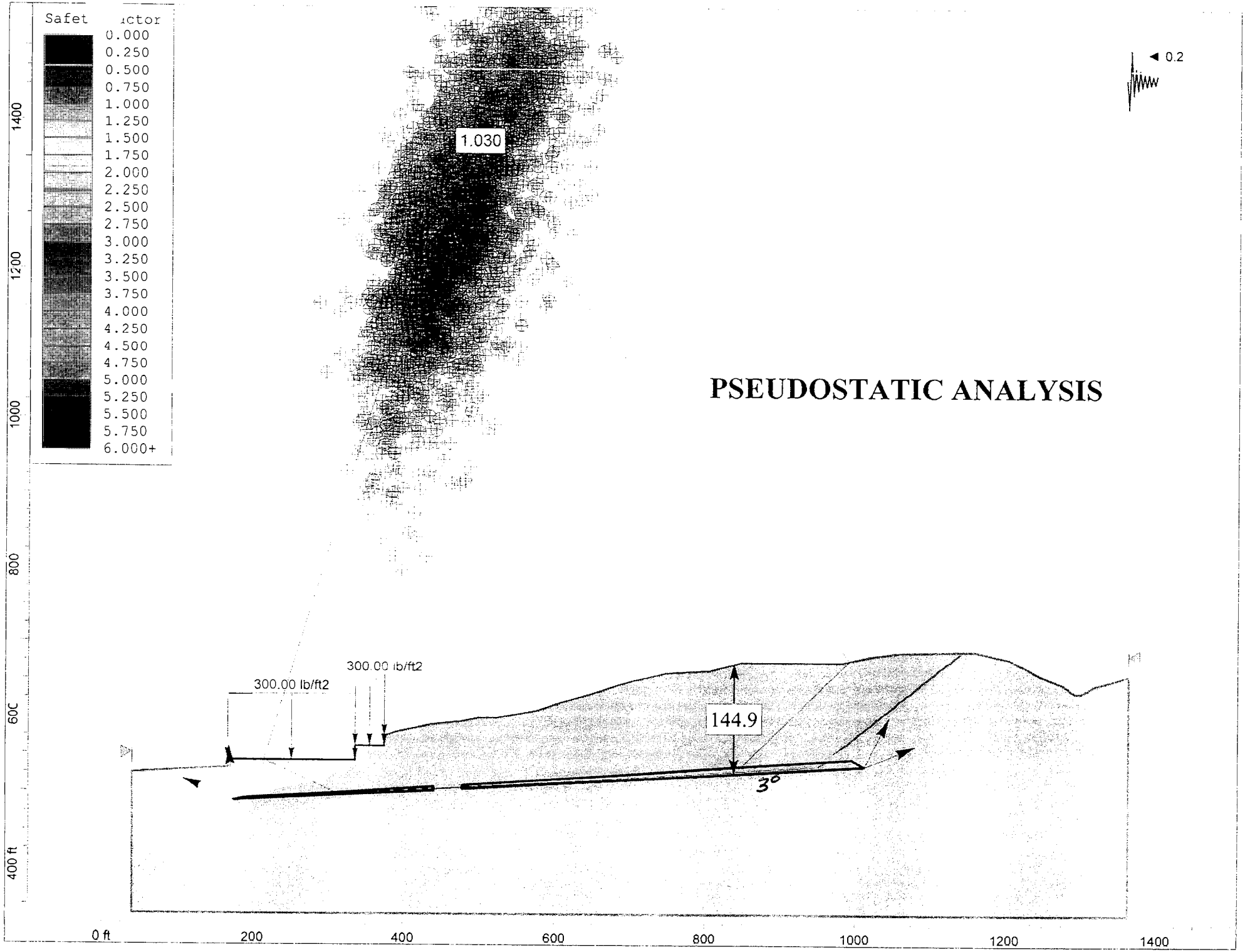
Error Codes

The following errors were encountered during the computation:

-108 = Total driving moment
or total driving force < 0.1. This is to
limit the calculation of extremely high safety
factors if the driving force is very small
(0.1 is an arbitrary number).

-111 = safety factor equation did not converge

-112 = The coefficient M-Alpha =
cos(alpha)(1+tan(alpha)tan(phi)/F)
< 0.2 for the final iteration of the safety factor calculation. This screens out
some slip surfaces which may not be valid in the context of the analysis, in
particular, deep seated slip surfaces with many high negative base angle
slices in the passive zone.


Safet ctor
0.000
0.250
0.500
0.750
1.000
1.250
1.500
1.750
2.000
2.250
2.500
2.750
3.000
3.250
3.500
3.750
4.000
4.250
4.500
4.750
5.000
5.250
5.500
5.750
6.000+
1.030
0.2
PSEUDOSTATIC ANALYSIS
300.00 lb/ft2
300.00 lb/ft2
144.9
30°
1400
1200
1000
800
600
400 ft
0 ft
200
400
600
800
1000
1200
1400

Slide Analysis Information

Document Name

File Name: 8953 B-B' 20051130 study.sli

Project Settings

Project Title: Section B-B' Pseudostatic Analysis
Failure Direction: Right to Left
Units of Measurement: Imperial Units
Pore Fluid Unit Weight: 62.4 lb/ft3
Groundwater Method: Water Surfaces
Data Output: Maximum
Calculate Excess Pore Pressure: Off
Allow Ru with Water Surfaces or Grids: Off
Random Numbers: Pseudo-random Seed
Random Number Seed: 10116
Random Number Generation Method: Park and Miller v.3

Analysis Methods

Analysis Methods used:
Spencer

Number of slices: 25
Tolerance: 0.005
Maximum number of iterations: 50

Surface Options

Surface Type: Non-Circular Block Search
Number of Surfaces: 3000
Pseudo-Random Surfaces: Enabled
Convex Surfaces Only: Enabled
Left Projection Angle (Start Angle): 157
Left Projection Angle (End Angle): 95
Right Projection Angle (Start Angle): 63
Right Projection Angle (End Angle): 22
Minimum Elevation: Not Defined
Minimum Depth: Not Defined

Loading

Seismic Load Coefficient (Horizontal): 0.2
1 Distributed Load present:
Distributed Load Constant Distribution, Orientation: Vertical, Magnitude: 300 lb/ft2

Material Properties

Material: Qal
Strength Type: Mohr-Coulomb
Unit Weight: 130 lb/ft3
Cohesion: 200 psf
Friction Angle: 38 degrees
Water Surface: None

Material: TQs
Strength Type: Anisotropic function
Unit Weight: 130 lb/ft3
Water Surface: None

Material: TQs (5' Bed)
Strength Type: Shear Normal function
Unit Weight: 130 lb/ft3
Water Surface: None

Material: TQs above Bed
Strength Type: Anisotropic function
Unit Weight: 130 lb/ft3
Water Surface: None

Material: Eng. Fill
Strength Type: Mohr-Coulomb
Unit Weight: 130 lb/ft3

Cohesion: 125 psf
Friction Angle: 32 degrees
Water Surface: None

Global Minimums

Method: spencer
FS: 1.029770
Axis Location: 468.828, 1386.596
Left Slip Surface Endpoint: 214.712, 542.955
Right Slip Surface Endpoint: 991.271, 677.119
Resisting Moment=2.56358e+009 lb-ft
Driving Moment=2.48946e+009 lb-ft
Resisting Horizontal Force=2.68726e+006 lb
Driving Horizontal Force=2.60957e+006 lb

Valid / Invalid Surfaces

Method: spencer
Number of Valid Surfaces: 1094
Number of Invalid Surfaces: 1906
Error Codes:
Error Code -108 reported for 7 surfaces
Error Code -111 reported for 107 surfaces
Error Code -112 reported for 1792 surfaces

Error Codes

The following errors were encountered during the computation:

-108 = Total driving moment
or total driving force < 0.1. This is to
limit the calculation of extremely high safety
factors if the driving force is very small
(0.1 is an arbitrary number).

-111 = safety factor equation did not converge

-112 = The coefficient M-Alpha = cos(alpha)(1+tan(alpha)tan(phi)/F)
< 0.2 for the final iteration of the safety factor calculation. This screens out
some slip surfaces which may not be valid in the context of the analysis, in
particular, deep seated slip surfaces with many high negative base angle
slices in the passive zone.

Simplified Bray Procedure for Evaluating Seismic Slope Stability

Everett Terrace, Moorpark — W.O. 8953

INPUT

Soil Type for Mean Period:	Rock		Failure yield acceleration, Ky:	0.213	g
Shear wave velocity, Vs:	360	m/s	Depth of Failure Surface, h:	132.0	ft
Maximum Horizontal Accel, MHA:	0.70	g	Modal (Deaggregated) distance to source, r:	2.0	km
Attenuation Method:	From OFR 2000-007		Modal (Deaggregated) Earthquake Magnitude, M:	6.90	

Note: Modal M and r are determined as the greatest contributors to the 475 -year hazard level for the MHA

ANALYSES

Estimation of Strong Motion Duration (central 90% of Arias Intensity):

For r>10km

$$D=2.33\cdot\left[\left[\frac{\left[\frac{e^{(5.204+0.851\cdot(M-6))}}{10^{(1.5\cdot M+16.05)}}\right]^{\frac{-1}{3}}}{15.7\cdot10^{6}}\right]+0.805\cdot S+0.063\cdot(r-10)\right]$$

For r < 10km

$$D=2.33\cdot\left[\frac{\left[\frac{e^{(5.204+0.851\cdot(M-6))}}{10^{(1.5\cdot M+16.05)}}\right]^{\frac{-1}{3}}}{15.7\cdot10^{6}}+0.805\cdot S\right]$$

Set S= 0 for Rock Material S= 0

For r= 2 and S= 0, Duration D(5-95)= 12.8 sec. Standard Deviation: 0.565 sec.

Estimation of mean-square Period, Tm of input rock motion:

if M<=7.25 then ln(Tm)=ln(C1+C2*(M-6)+C3*r)+Sdev
if 7.25<M<8 then ln(Tm)=ln(C1+1.25*C2+C3*r)+Sdev

For soil Type of Rock the Rathje et.al. (1998) coefficients are:

C1:	0.411
C2:	0.0837
C3:	0.00208
Stand. Dev:	0.437

The mean-square Period, Tm is 0.49 sec. (mean)

Estimation of fundamental period of equivalent 1-D slide mass at small strains, Ts:

$$T_S=4\cdot\frac{H}{V_S}$$

For H= 132 ft and Vs= 360 m/s; Ts= 0.45 sec.

Ratio Ts/Tm is*: 0.91

Non-Linear Response Factor, NRF is 0.82

Maximum Horizontal Equivalent Acceleration over the duration of earthquake shaking, MHEA:

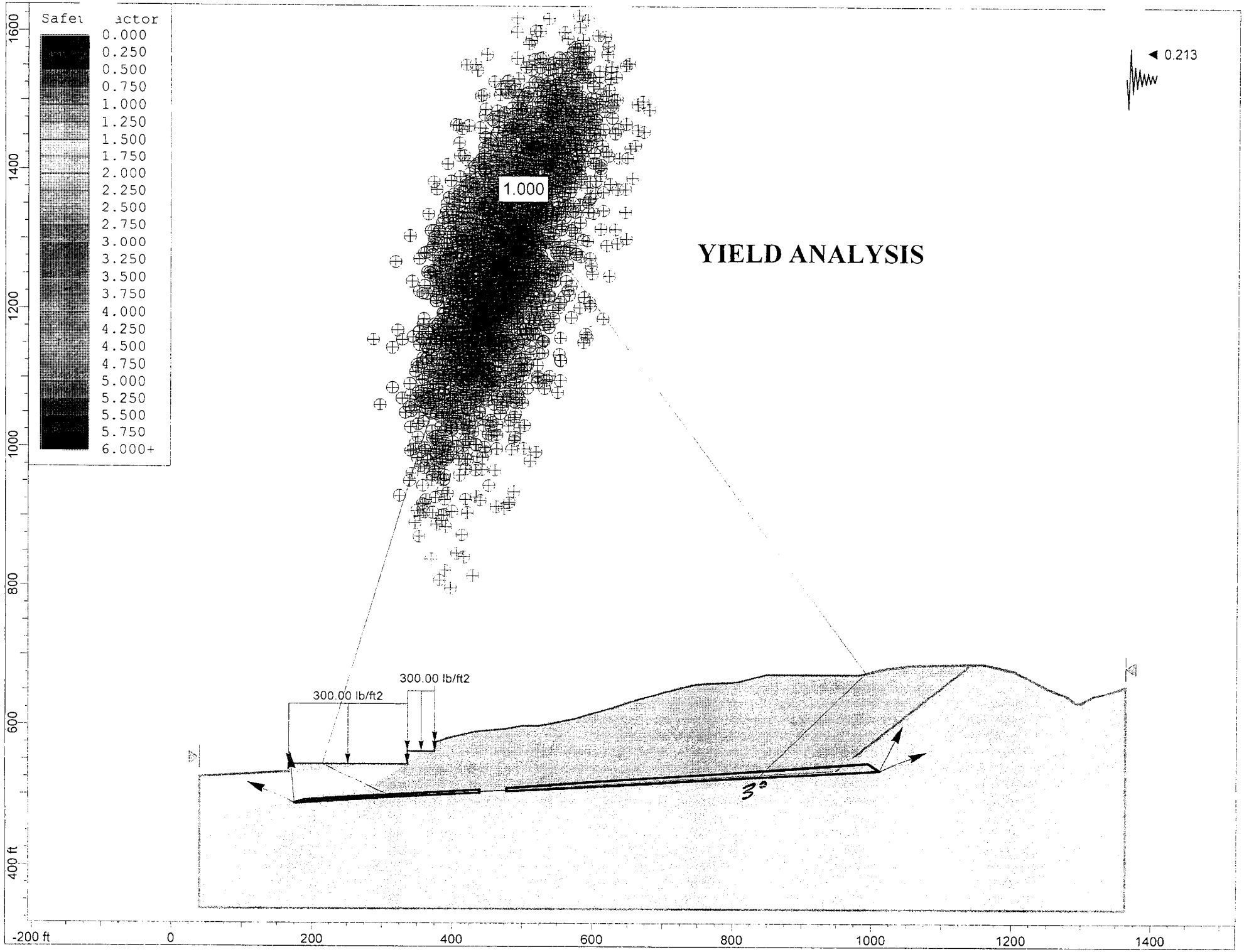
MHEA for the subject slope is 0.33 g

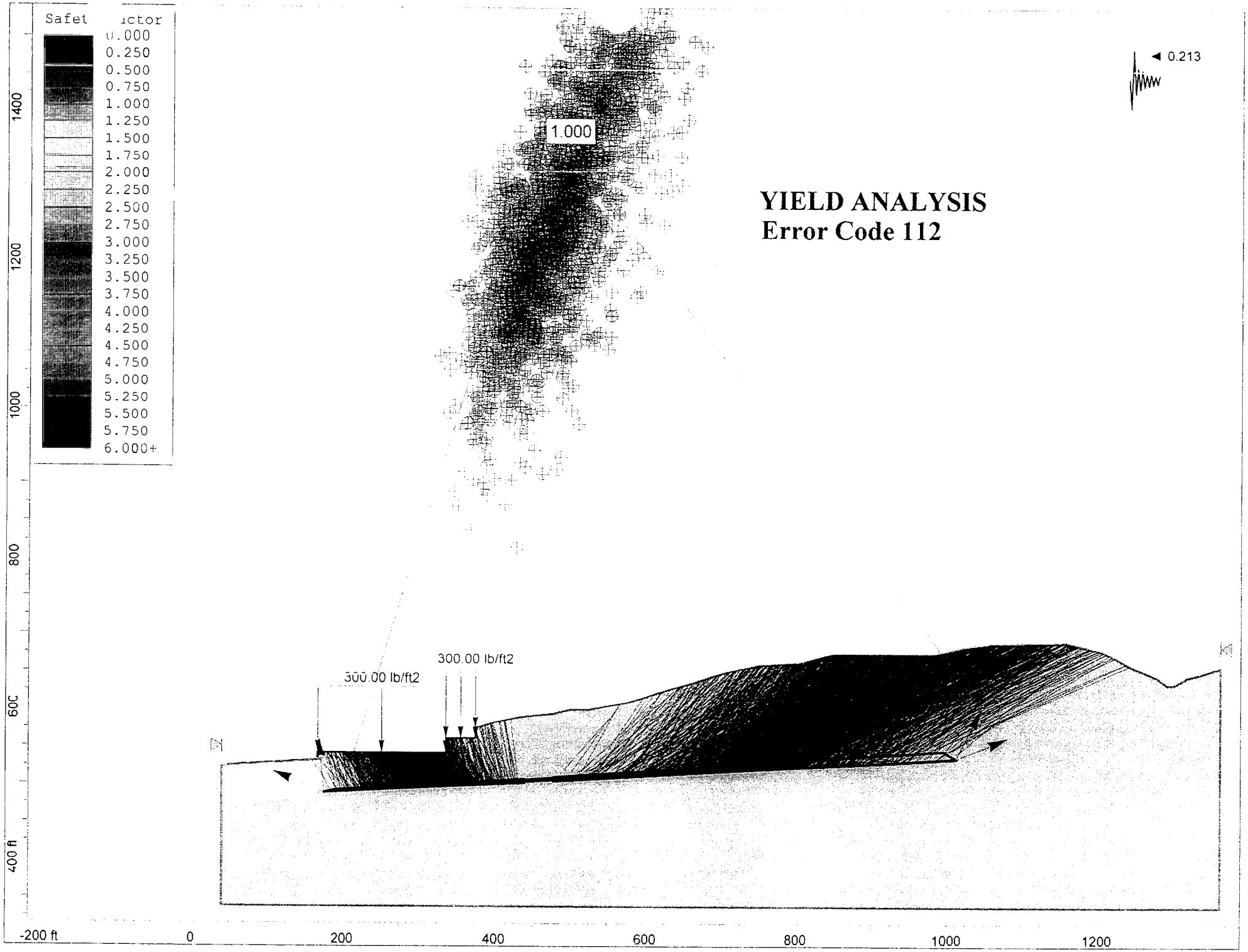
kmax is set to MHEA, therefore, kmax is 0.33 g and ky/kmax is 0.65

Estimated Displacement, μ:

μ (mean):	1.7 cm (1 in)
μ (M+sig):	4 cm (2 in)
μ (M-sig):	1 cm (0 in)

The results of the analyses indicates the estimated mean displacement is about 2 cm of displacement. The estimated mean plus one standard deviation displacement is about 4 cm.


Safet actor
0.000
0.250
0.500
0.750
1.000
1.250
1.500
1.750
2.000
2.250
2.500
2.750
3.000
3.250
3.500
3.750
4.000
4.250
4.500
4.750
5.000
5.250
5.500
5.750
6.000+
0.213
1.000
YIELD ANALYSIS
300.00 lb/ft2
300.00 lb/ft2
3°
1600
1400
1200
1000
800
600
400 ft
-200 ft
0
200
400
600
800
1000
1200
1400


Safet ictor
0.000
0.250
0.500
0.750
1.000
1.250
1.500
1.750
2.000
2.250
2.500
2.750
3.000
3.250
3.500
3.750
4.000
4.250
4.500
4.750
5.000
5.250
5.500
5.750
6.000+
1.000
0.213
YIELD ANALYSIS
Error Code 112
300.00 lb/ft2
300.00 lb/ft2
1400
1200
1000
800
600
400 ft
-200 ft
0
200
400
600
800
1000
1200

Slide Analysis Information

Document Name

File Name: 8953 B-B' 20051130 yield study.sli

Project Settings

Project Title: Section B-B' Pseudostatic Analysis
Failure Direction: Right to Left
Units of Measurement: Imperial Units
Pore Fluid Unit Weight: 62.4 lb/ft3
Groundwater Method: Water Surfaces
Data Output: Maximum
Calculate Excess Pore Pressure: Off
Allow Ru with Water Surfaces or Grids: Off
Random Numbers: Pseudo-random Seed
Random Number Seed: 10116
Random Number Generation Method: Park and Miller v.3

Analysis Methods

Analysis Methods used:
Spencer

Number of slices: 25
Tolerance: 0.005
Maximum number of iterations: 50

Surface Options

Surface Type: Non-Circular Block Search
Number of Surfaces: 3000
Pseudo-Random Surfaces: Enabled
Convex Surfaces Only: Enabled
Left Projection Angle (Start Angle): 157
Left Projection Angle (End Angle): 95
Right Projection Angle (Start Angle): 63
Right Projection Angle (End Angle): 22
Minimum Elevation: Not Defined
Minimum Depth: Not Defined

Loading

Seismic Load Coefficient (Horizontal): 0.213
1 Distributed Load present:
Distributed Load Constant Distribution, Orientation: Vertical, Magnitude: 300 lb/ft2

Material Properties

Material: Qal
Strength Type: Mohr-Coulomb
Unit Weight: 130 lb/ft3
Cohesion: 200 psf
Friction Angle: 38 degrees
Water Surface: None

Material: TQs
Strength Type: Anisotropic function
Unit Weight: 130 lb/ft3
Water Surface: None

Material: TQs (5' Bed)
Strength Type: Shear Normal function
Unit Weight: 130 lb/ft3
Water Surface: None

Material: TQs above Bed
Strength Type: Anisotropic function
Unit Weight: 130 lb/ft3
Water Surface: None

Material: Eng. Fill
Strength Type: Mohr-Coulomb
Unit Weight: 130 lb/ft3
Cohesion: 125 psf

Friction Angle: 32 degrees
Water Surface: None

Global Minimums

Method: spencer
FS: 1.000420
Axis Location: 468.828, 1386.596
Left Slip Surface Endpoint: 214.712, 542.955
Right Slip Surface Endpoint: 991.271, 677.119
Resisting Moment=2.5741e+009 lb-ft
Driving Moment=2.57301e+009 lb-ft
Resisting Horizontal Force=2.70123e+006 lb
Driving Horizontal Force=2.70008e+006 lb

Valid / Invalid Surfaces

Method: spencer
Number of Valid Surfaces: 1056
Number of Invalid Surfaces: 1944
Error Codes:
Error Code -108 reported for 6 surfaces
Error Code -111 reported for 115 surfaces
Error Code -112 reported for 1823 surfaces

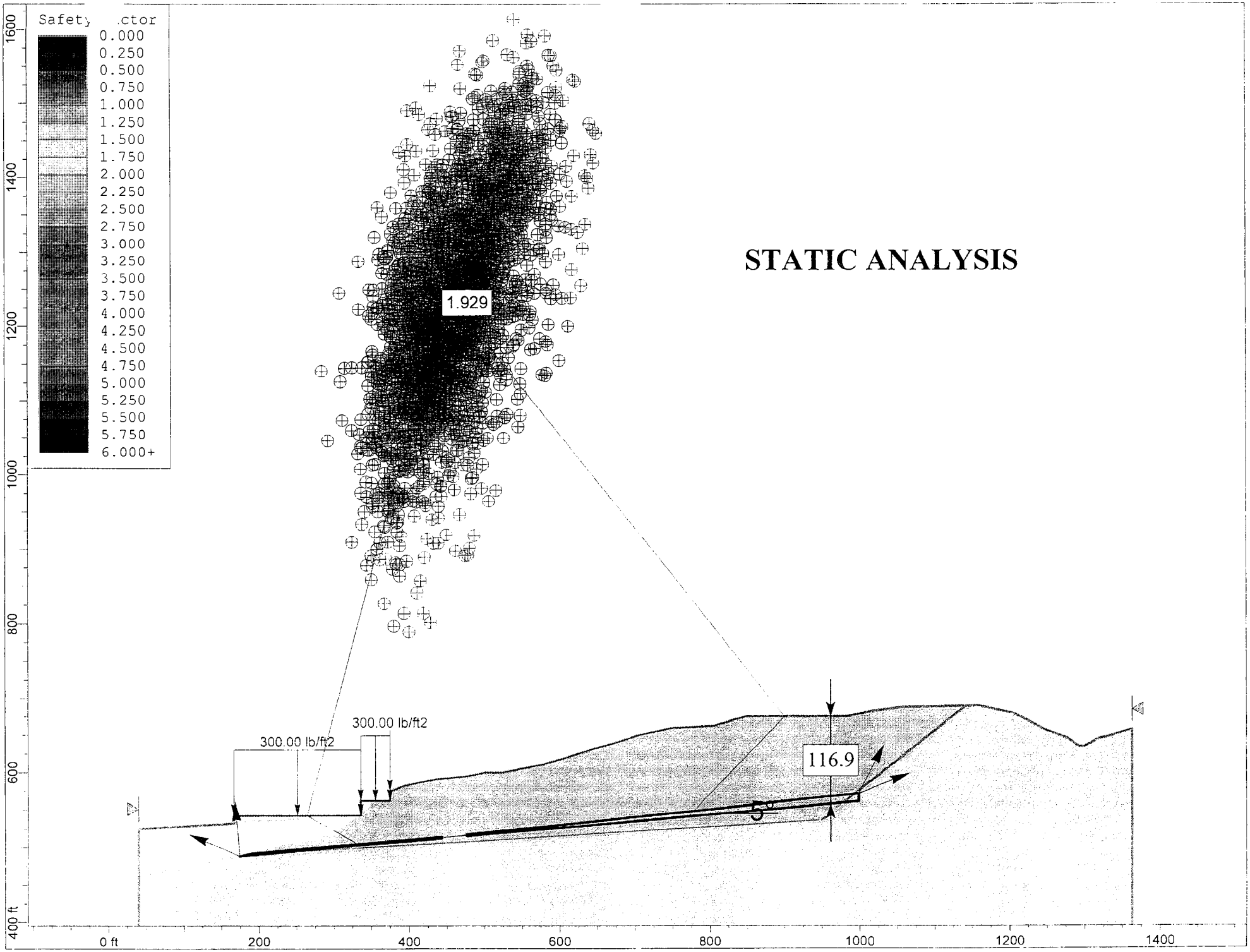
Error Codes

The following errors were encountered during the computation:

-108 = Total driving moment
or total driving force < 0.1. This is to
limit the calculation of extremely high safety
factors if the driving force is very small
(0.1 is an arbitrary number).

-111 = safety factor equation did not converge

-112 = The coefficient M-Alpha =
cos(alpha)(1+tan(alpha)tan(phi)/F)
< 0.2 for the final iteration of the safety factor calculation. This screens out
some slip surfaces which may not be valid in the context of the analysis, in
particular, deep seated slip surfaces with many high negative base angle
slices in the passive zone.



STATIC ANALYSIS

Slide Analysis Information

Document Name

File Name: 8953 B-B' 20051130 5deg study.sli

Project Settings

Project Title: Section B-B' Static Analysis
Failure Direction: Right to Left
Units of Measurement: Imperial Units
Pore Fluid Unit Weight: 62.4 lb/ft3
Groundwater Method: Water Surfaces
Data Output: Maximum
Calculate Excess Pore Pressure: Off
Allow Ru with Water Surfaces or Grids: Off
Random Numbers: Pseudo-random Seed
Random Number Seed: 10116
Random Number Generation Method: Park and Miller v.3

Analysis Methods

Analysis Methods used:
Spencer

Number of slices: 25
Tolerance: 0.005
Maximum number of iterations: 50

Surface Options

Surface Type: Non-Circular Block Search
Number of Surfaces: 3000
Pseudo-Random Surfaces: Enabled
Convex Surfaces Only: Enabled
Left Projection Angle (Start Angle): 157
Left Projection Angle (End Angle): 95
Right Projection Angle (Start Angle): 63
Right Projection Angle (End Angle): 22
Minimum Elevation: Not Defined
Minimum Depth: Not Defined

Loading

1 Distributed Load present:
Distributed Load Constant Distribution, Orientation: Vertical, Magnitude: 300 lb/ft2

Material Properties

Material: Qal
Strength Type: Mohr-Coulomb
Unit Weight: 130 lb/ft3
Cohesion: 200 psf
Friction Angle: 38 degrees
Water Surface: None

Material: TQs
Strength Type: Anisotropic function
Unit Weight: 130 lb/ft3
Water Surface: None

Material: TQs (5' Bed)
Strength Type: Shear Normal function
Unit Weight: 130 lb/ft3
Water Surface: None

Material: TQs above Bed
Strength Type: Anisotropic function
Unit Weight: 130 lb/ft3
Water Surface: None

Material: Eng. Fill
Strength Type: Mohr-Coulomb
Unit Weight: 130 lb/ft3
Cohesion: 125 psf
Friction Angle: 32 degrees
Water Surface: None

Global Minimums

Method: spencer
FS: 1.929270
Axis Location: 450.233, 1244.504
Left Slip Surface Endpoint: 264.514, 542.955
Right Slip Surface Endpoint: 900.040, 675.000
Resisting Moment=1.55239e+009 lb-ft
Driving Moment=8.0465e+008 lb-ft
Resisting Horizontal Force=1.925e+006 lb
Driving Horizontal Force=997785 lb

Valid / Invalid Surfaces

Method: spencer
Number of Valid Surfaces: 1851
Number of Invalid Surfaces: 1149
Error Codes:
Error Code -108 reported for 57 surfaces
Error Code -111 reported for 39 surfaces
Error Code -112 reported for 1053 surfaces

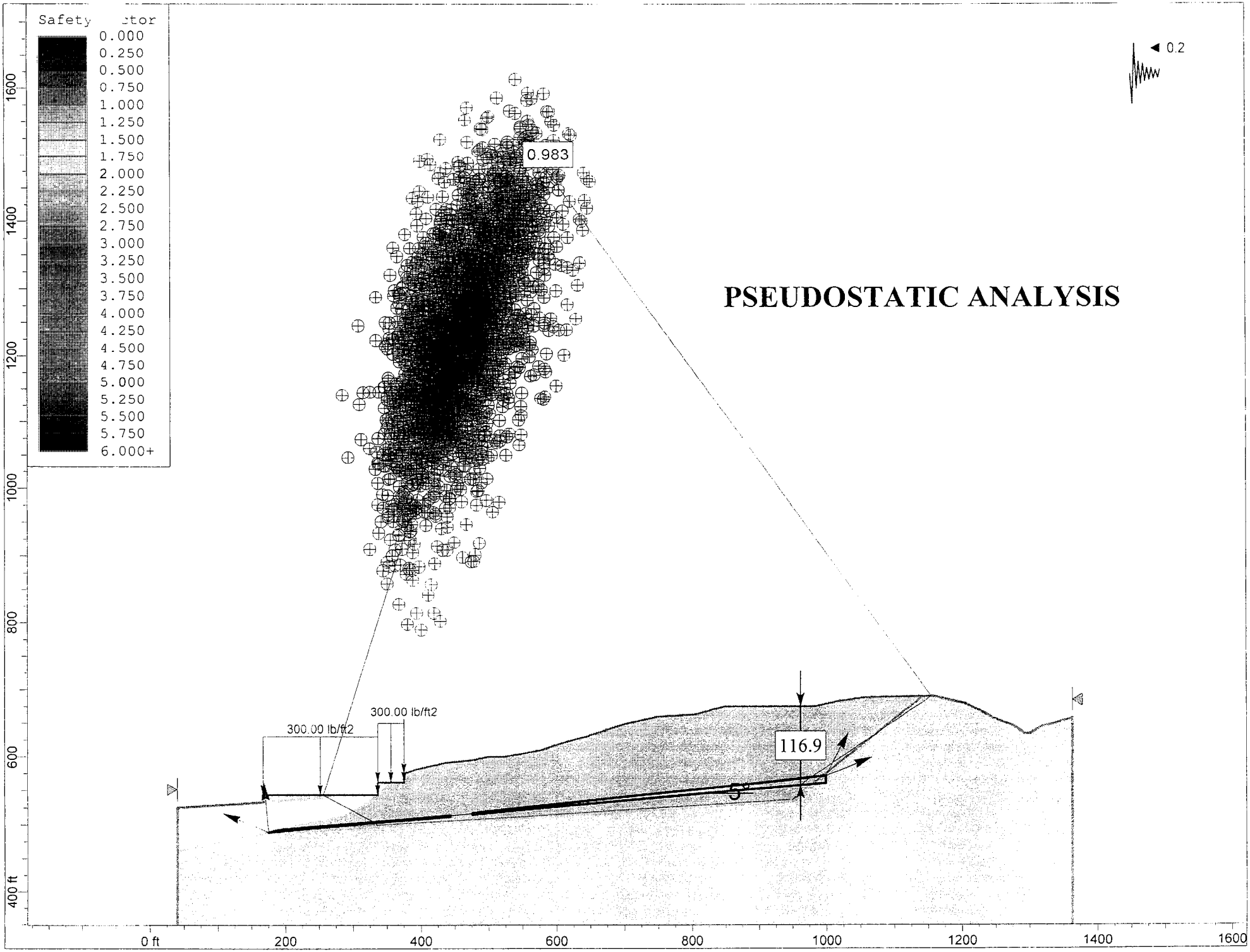
Error Codes

The following errors were encountered during the computation:

-108 = Total driving moment
or total driving force < 0.1. This is to
limit the calculation of extremely high safety
factors if the driving force is very small
(0.1 is an arbitrary number).

-111 = safety factor equation did not converge

-112 = The coefficient M-Alpha = cos(alpha)(1+tan(alpha)tan(phi)/F)
< 0.2 for the final iteration of the safety factor calculation. This screens out
some slip surfaces which may not be valid in the context of the analysis, in
particular, deep seated slip surfaces with many high negative base angle
slices in the passive zone.


Safety Factor
0.000
0.250
0.500
0.750
1.000
1.250
1.500
1.750
2.000
2.250
2.500
2.750
3.000
3.250
3.500
3.750
4.000
4.250
4.500
4.750
5.000
5.250
5.500
5.750
6.000+
0.2
0.983
PSEUDOSTATIC ANALYSIS
300.00 lb/ft2
300.00 lb/ft2
116.9
5°
1600
1400
1200
1000
800
600
400 ft
0 ft
200
400
600
800
1000
1200
1400
1600

Slide Analysis Information

Document Name

File Name: 8953 B-B' 20051130 5deg Pseudostaticstudy.sli

Project Settings

Project Title: Section B-B' Pseudostatic Analysis
Failure Direction: Right to Left
Units of Measurement: Imperial Units
Pore Fluid Unit Weight: 62.4 lb/ft3
Groundwater Method: Water Surfaces
Data Output: Maximum
Calculate Excess Pore Pressure: Off
Allow Ru with Water Surfaces or Grids: Off
Random Numbers: Pseudo-random Seed
Random Number Seed: 10116
Random Number Generation Method: Park and Miller v.3

Analysis Methods

Analysis Methods used:
Spencer

Number of slices: 25
Tolerance: 0.005
Maximum number of iterations: 50

Surface Options

Surface Type: Non-Circular Block Search
Number of Surfaces: 3000
Pseudo-Random Surfaces: Enabled
Convex Surfaces Only: Enabled
Left Projection Angle (Start Angle): 157
Left Projection Angle (End Angle): 95
Right Projection Angle (Start Angle): 63
Right Projection Angle (End Angle): 22
Minimum Elevation: Not Defined
Minimum Depth: Not Defined

Loading

Seismic Load Coefficient (Horizontal): 0.2
1 Distributed Load present:
Distributed Load Constant Distribution, Orientation: Vertical, Magnitude: 300 lb/ft2

Material Properties

Material: Qal
Strength Type: Mohr-Coulomb
Unit Weight: 130 lb/ft3
Cohesion: 200 psf
Friction Angle: 38 degrees
Water Surface: None

Material: TQs
Strength Type: Anisotropic function
Unit Weight: 130 lb/ft3
Water Surface: None

Material: TQs (5' Bed)
Strength Type: Shear Normal function
Unit Weight: 130 lb/ft3
Water Surface: None

Material: TQs above Bed
Strength Type: Anisotropic function
Unit Weight: 130 lb/ft3
Water Surface: None

Material: Eng. Fill
Strength Type: Mohr-Coulomb
Unit Weight: 130 lb/ft3
Cohesion: 125 psf
Friction Angle: 32 degrees
Water Surface: None

Global Minimums

Method: spencer
FS: 0.983370
Axis Location: 557.957, 1514.225
Left Slip Surface Endpoint: 256.025, 542.955
Right Slip Surface Endpoint: 1153.814, 689.917
Resisting Moment=3.08194e+009 lb-ft
Driving Moment=3.13406e+009 lb-ft
Resisting Horizontal Force=2.9217e+006 lb
Driving Horizontal Force=2.97111e+006 lb

Valid / Invalid Surfaces

Method: spencer
Number of Valid Surfaces: 1265
Number of Invalid Surfaces: 1735
Error Codes:
Error Code -108 reported for 17 surfaces
Error Code -111 reported for 47 surfaces
Error Code -112 reported for 1671 surfaces

Error Codes

The following errors were encountered during the computation:

-108 = Total driving moment
or total driving force < 0.1. This is to
limit the calculation of extremely high safety
factors if the driving force is very small
(0.1 is an arbitrary number).

-111 = safety factor equation did not converge

-112 = The coefficient M-Alpha = cos(alpha)(1+tan(alpha)tan(phi)/F)
< 0.2 for the final iteration of the safety factor calculation. This screens out
some slip surfaces which may not be valid in the context of the analysis, in
particular, deep seated slip surfaces with many high negative base angle
slices in the passive zone.

Simplified Bray Procedure for Evaluating Seismic Slope Stability

Tract 5405, Section I-I' W.O. 8623-WL

INPUT

Soil Type for Mean Period:	Rock		Failure yield acceleration, Ky:	0.190	g
Shear wave velocity, Vs:	360	m/s	Depth of Failure Surface, h:	117.0	ft
Maximum Horizontal Accel, MHA:	0.70	g	Modal (Deaggregated) distance to source, r:	2.0	km
Attenuation Method:	From OFR 2000-007		Modal (Deaggregated) Earthquake Magnitude, M:	6.90	

Note: Modal M and r are determined as the greatest contributors to the 475 -year hazard level for the MHA

ANALYSES

Estimation of Strong Motion Duration (central 90% of Arias Intensity):

For r>10km

$$D=2.33\cdot\left[\left[\frac{\left[\frac{e^{(5.204+0.851\cdot(M-6))}}{10^{(1.5\cdot M+16.05)}}\right]^{\frac{-1}{3}}}{15.7\cdot 10^{6}}\right]+0.805\cdot S+0.063\cdot(r-10)\right]$$

For r < 10km

$$D=2.33\cdot\left[\frac{\left[\frac{e^{(5.204+0.851\cdot(M-6))}}{10^{(1.5\cdot M+16.05)}}\right]^{\frac{-1}{3}}}{15.7\cdot 10^{6}}+0.805\cdot S\right]$$

Set S= 0 for Rock Material S= 0

For r= 2 and S= 0, Duration D(5-95)= 12.8 sec. Standard Deviation: 0.565 sec.

Estimation of mean-square Period, Tm of input rock motion:

if M<=7.25 then ln(Tm)=ln(C1+C2*(M-6)+C3*r)+Sdev
if 7.25<M<8 then ln(Tm)=ln(C1+1.25*C2+C3*r)+Sdev

For soil Type of Rock the Rathje et.al. (1998) coefficients are:

C1:	0.411
C2:	0.0837
C3:	0.00208
Stand. Dev:	0.437

The mean-square Period, Tm is 0.49 sec. (mean)

Estimation of fundamental period of equivalent 1-D slide mass at small strains, Ts:

$$T_S=4\cdot\frac{H}{V_S}$$

For H= 117 ft and Vs= 360 m/s; Ts= 0.4 sec.

Ratio Ts/Tm is*: 0.81

Non-Linear Response Factor, NRF is 0.82

Maximum Horizontal Equivalent Acceleration over the duration of earthquake shaking, MHEA:

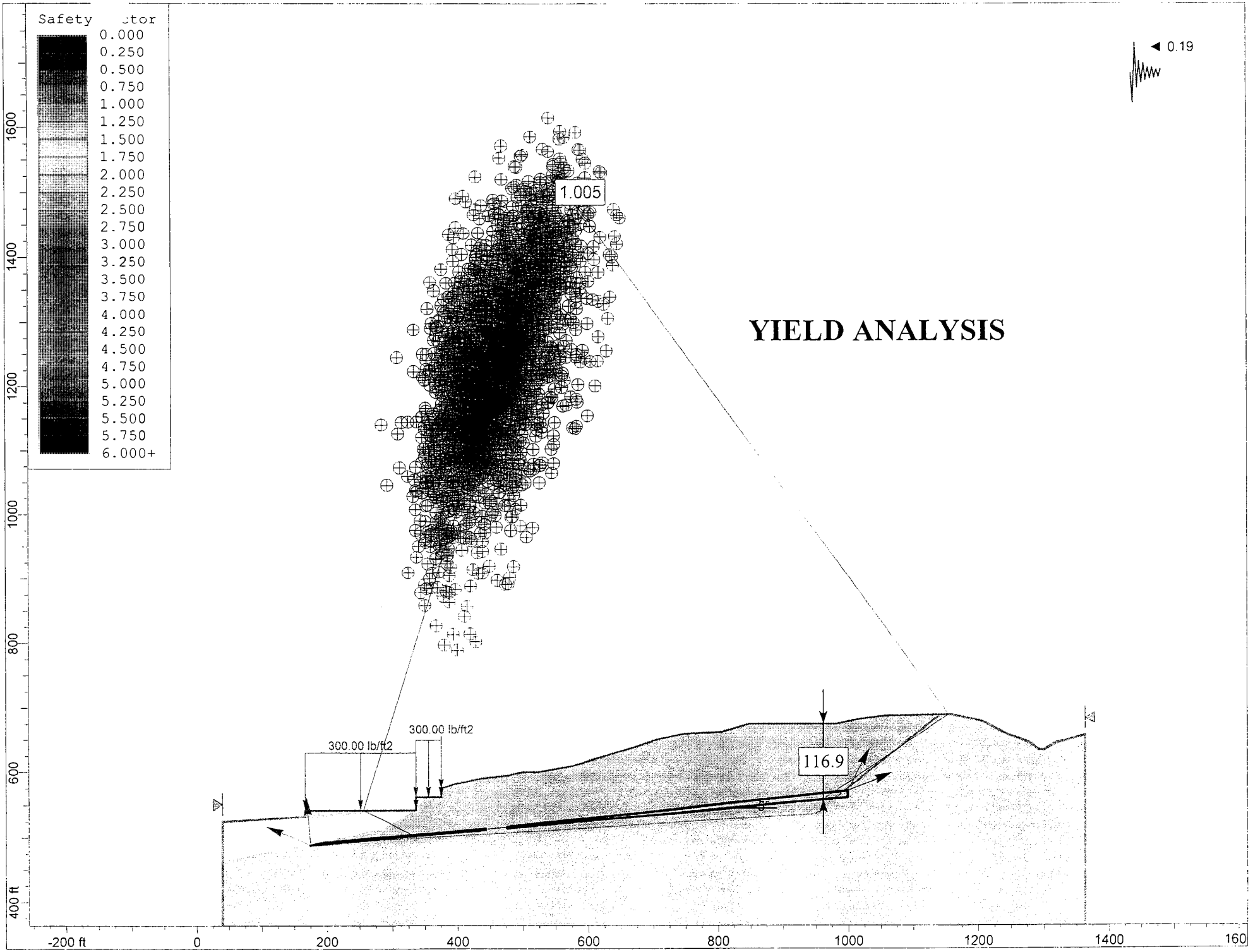
MHEA for the subject slope is 0.36 g

kmax is set to MHEA, therefore, kmax is 0.36 g and ky/kmax is 0.53

Estimated Displacement, μ:

μ (mean):	5.0 cm (2 in)
μ (M+sig):	11 cm (4 in)
μ (M-sig):	2 cm (1 in)

The results of the analyses indicates the estimated mean displacement is about 5 cm of displacement. The estimated mean plus one standard deviation displacement is about 11 cm.


Safety Factor
0.000
0.250
0.500
0.750
1.000
1.250
1.500
1.750
2.000
2.250
2.500
2.750
3.000
3.250
3.500
3.750
4.000
4.250
4.500
4.750
5.000
5.250
5.500
5.750
6.000+
0.19
1.005
YIELD ANALYSIS
300.00 lb/ft2
300.00 lb/ft2
116.9
1600
1400
1200
1000
800
600
400 ft
-200 ft
0
200
400
600
800
1000
1200
1400
160

Slide Analysis Information

Document Name

File Name: 8953 B-B' 20051130 5deg Yield study.sli

Project Settings

Project Title: Section B-B' Pseudostatic Yield Analysis
Failure Direction: Right to Left
Units of Measurement: Imperial Units
Pore Fluid Unit Weight: 62.4 lb/ft3
Groundwater Method: Water Surfaces
Data Output: Maximum
Calculate Excess Pore Pressure: Off
Allow Ru with Water Surfaces or Grids: Off
Random Numbers: Pseudo-random Seed
Random Number Seed: 10116
Random Number Generation Method: Park and Miller v.3

Analysis Methods

Analysis Methods used:
Spencer

Number of slices: 25
Tolerance: 0.005
Maximum number of iterations: 50

Surface Options

Surface Type: Non-Circular Block Search
Number of Surfaces: 3000
Pseudo-Random Surfaces: Enabled
Convex Surfaces Only: Enabled
Left Projection Angle (Start Angle): 157
Left Projection Angle (End Angle): 95
Right Projection Angle (Start Angle): 63
Right Projection Angle (End Angle): 22
Minimum Elevation: Not Defined
Minimum Depth: Not Defined

Loading

Seismic Load Coefficient (Horizontal): 0.19
1 Distributed Load present:
Distributed Load Constant Distribution, Orientation: Vertical, Magnitude: 300 lb/ft2

Material Properties

Material: Qal
Strength Type: Mohr-Coulomb
Unit Weight: 130 lb/ft3
Cohesion: 200 psf
Friction Angle: 38 degrees
Water Surface: None

Material: TQs
Strength Type: Anisotropic function
Unit Weight: 130 lb/ft3
Water Surface: None

Material: TQs (5' Bed)
Strength Type: Shear Normal function
Unit Weight: 130 lb/ft3
Water Surface: None

Material: TQs above Bed
Strength Type: Anisotropic function
Unit Weight: 130 lb/ft3
Water Surface: None

Material: Eng. Fill
Strength Type: Mohr-Coulomb
Unit Weight: 130 lb/ft3
Cohesion: 125 psf
Friction Angle: 32 degrees
Water Surface: None

Global Minimums

Method: spencer
FS: 1.004880
Axis Location: 557.957, 1514.225
Left Slip Surface Endpoint: 256.025, 542.955
Right Slip Surface Endpoint: 1153.814, 689.917
Resisting Moment=3.06634e+009 lb-ft
Driving Moment=3.05145e+009 lb-ft
Resisting Horizontal Force=2.90743e+006 lb
Driving Horizontal Force=2.89331e+006 lb

Valid / Invalid Surfaces

Method: spencer
Number of Valid Surfaces: 1286
Number of Invalid Surfaces: 1714
Error Codes:
Error Code -108 reported for 19 surfaces
Error Code -111 reported for 45 surfaces
Error Code -112 reported for 1650 surfaces

Error Codes

The following errors were encountered during the computation:

-108 = Total driving moment
or total driving force < 0.1. This is to
limit the calculation of extremely high safety
factors if the driving force is very small
(0.1 is an arbitrary number).

-111 = safety factor equation did not converge

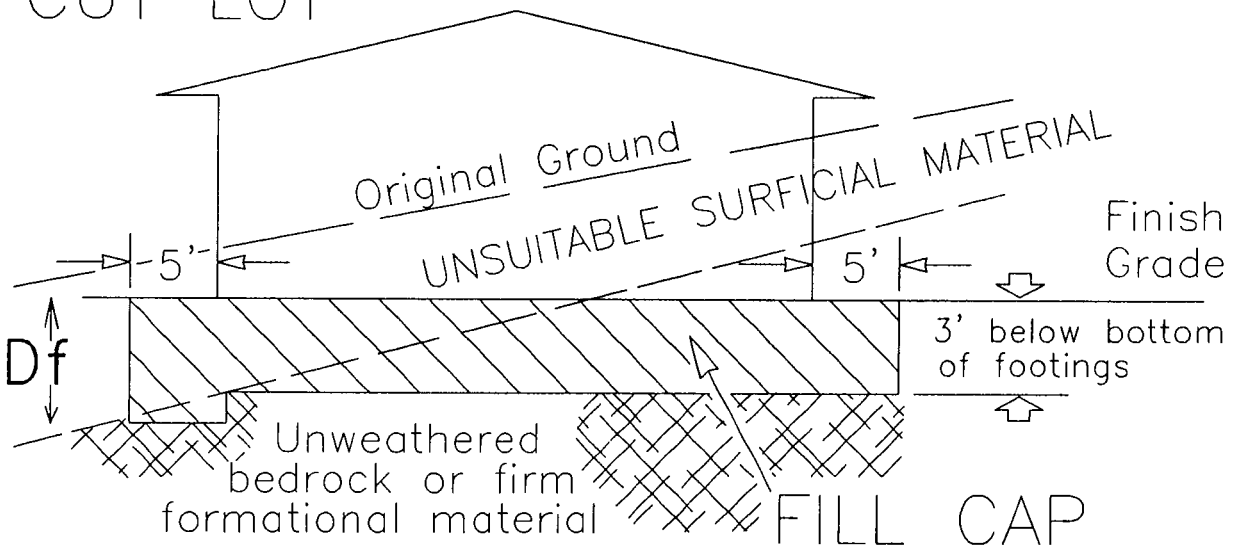
-112 = The coefficient M-Alpha = cos(alpha)(1+tan(alpha)tan(phi)/F)
< 0.2 for the final iteration of the safety factor calculation. This screens out
some slip surfaces which may not be valid in the context of the analysis, in
particular, deep seated slip surfaces with many high negative base angle
slices in the passive zone.

APPENDIX E

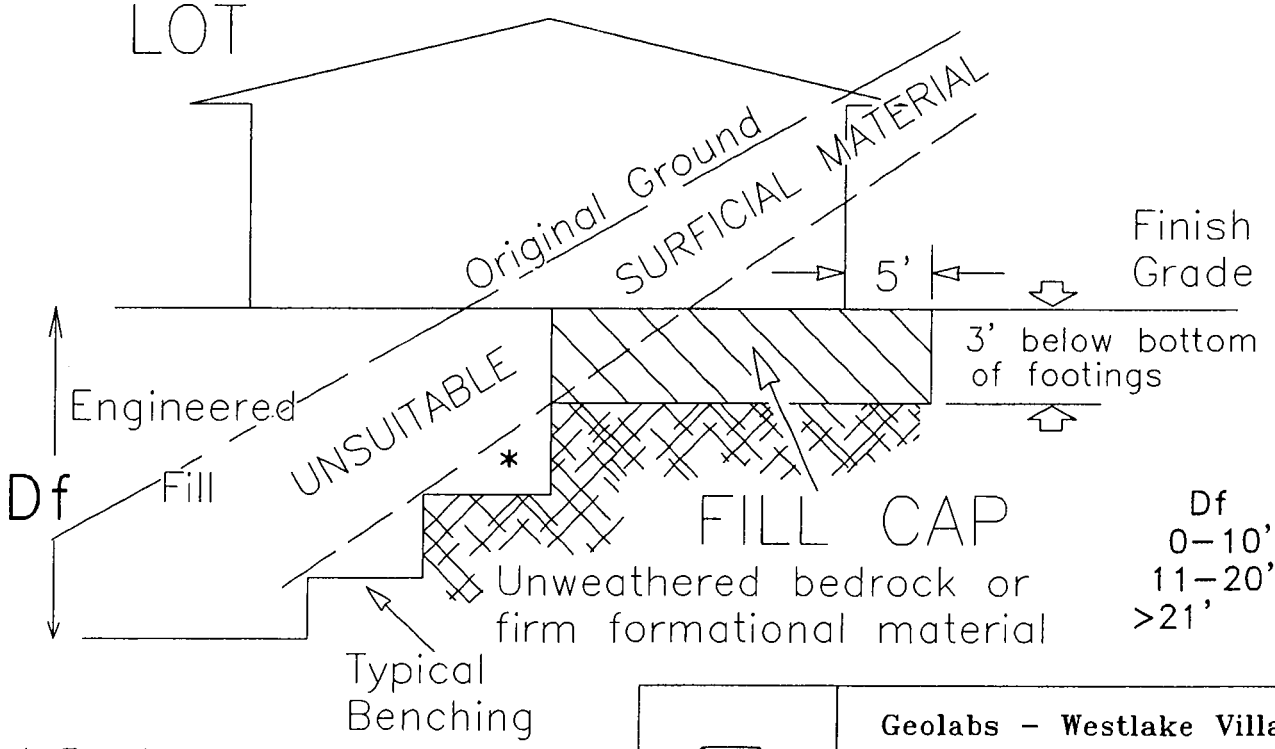
TYPICAL DETAILS

FILL CAP DETAIL

CUT LOT

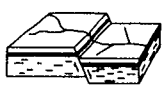


TRANSITION LOT



Df	Dc
0–10'	5'
11–20'	7'
>21'	10'

* For backslopes steeper than 3:1 the uppermost bench is to be 15' wide.



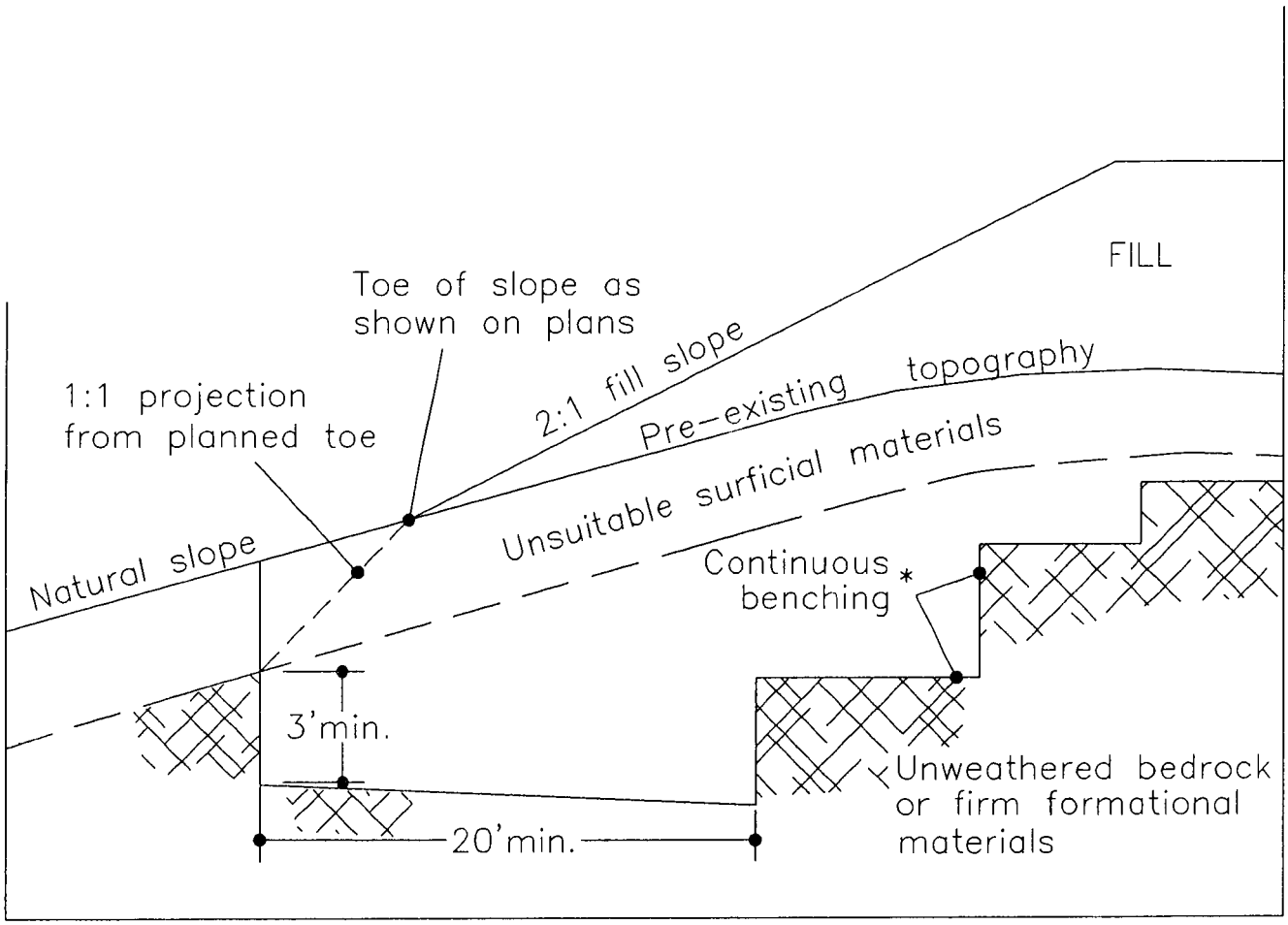
Geolabs – Westlake Village
GEOLOGY AND SOIL ENGINEERING

DATE 12.2.05 BY SBS
SCALE NTS W.O. 8953

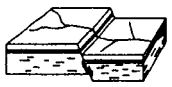
TRANSLOT

PLATE

TYPICAL FILL OVER NATURAL SLOPE



* Where natural slope gradient is 5:1 or less, benching is not necessary except as required to remove unsuitable or compressible surficial material.



Geolabs - Westlake Village
GEOLOGY AND SOIL ENGINEERING

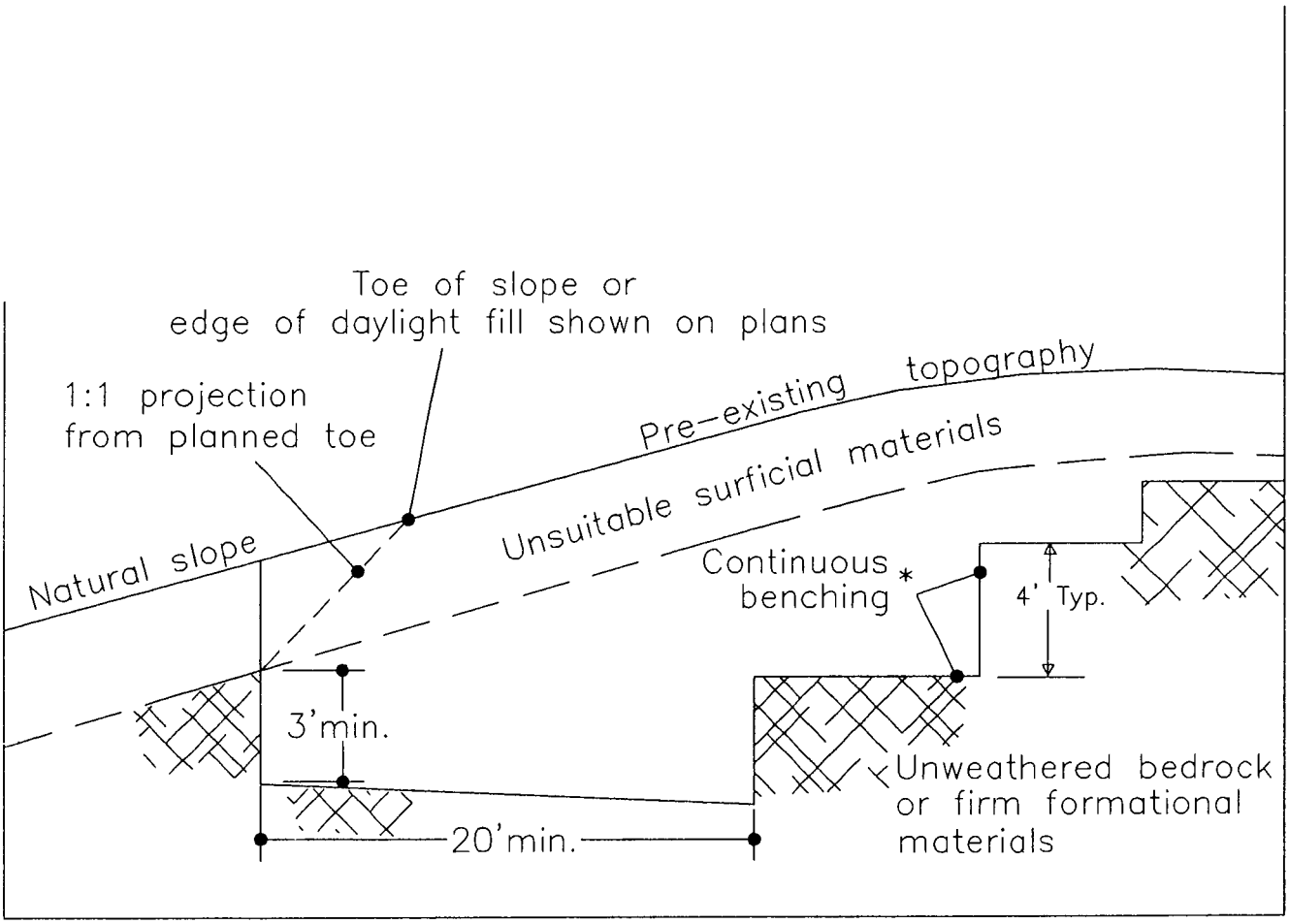
DATE 12.2.05 BY SBS
SCALE NTS W.O. 8953

FILLNAT

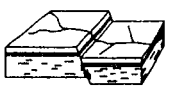
PLATE

E-2

TYPICAL KEYING AND BENCHING



* Where natural slope gradient is 5:1 or less, benching is not necessary except as required to remove unsuitable or compressible surficial material.



Geolabs - Westlake Village
GEOLOGY AND SOIL ENGINEERING

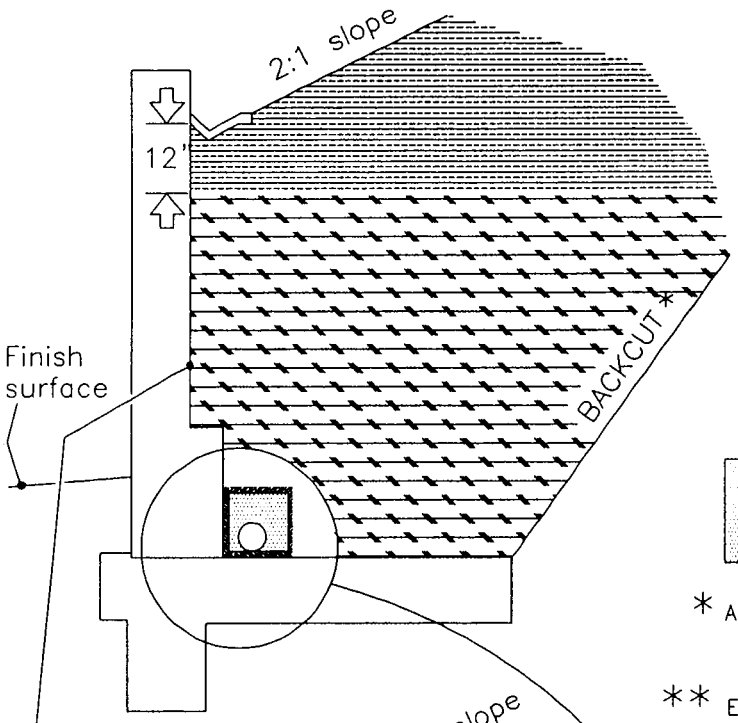
DATE 12.2.05 BY SBS
SCALE NTS W.O. 8953

FILLNAT

PLATE

E-3

TYPICAL RETAINING WALL



Relatively impermeable backfill soil

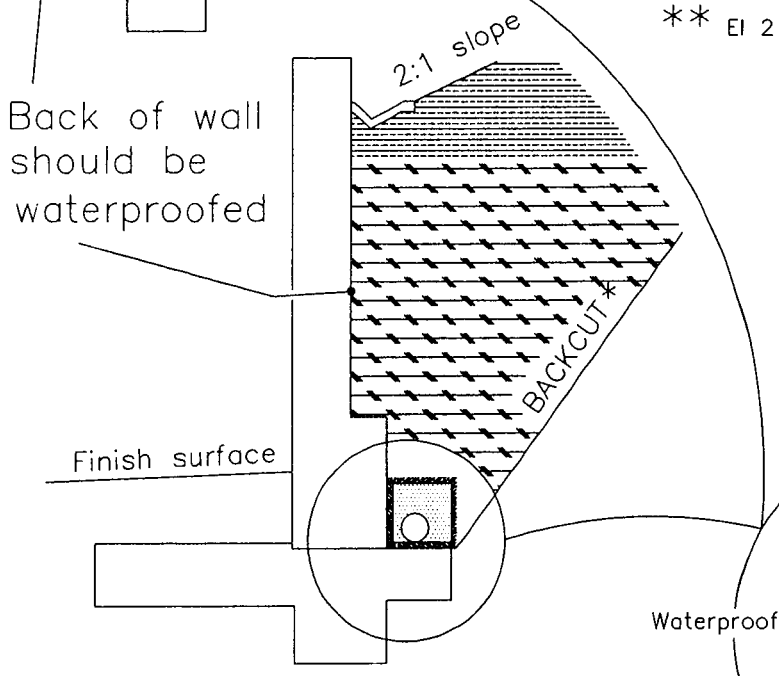
Rock or non-expansive soil backfill (EI <20 or SE>20).**
If rock is used, Filter Cloth is required to separate rock from relatively impermeable soil and backfill. Non-expansive backfill should be placed to the backcut or three feet, whichever is less.

NOTE: All backfill should be compacted to a minimum of 90% relative density.

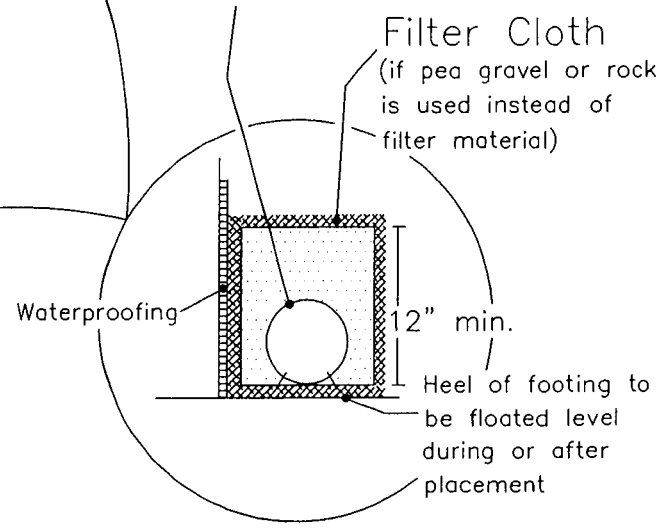
FILTER MATERIAL (see gradation), PEA GRAVEL, OR ROCK – Geotextile should be used to separate Pea Gravel or Rock from backcut and backfill.

* All backcuts shall be in accordance with OSHA standards, unless site-specific backcut and/or backfill recommendations are made by this office.

** EI 21-30 may be used if placed at 2% over optimum



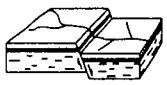
3" (min.) to 4" (max.) perforated pipe (SDR 35 or equivalent) laid level on footing with holes set facing downward. Pipe should outlet to a non-erodable structure or device.



FILTER MATERIAL GRADATION

Sieve Size	% Passing
1"	100
3/4"	90-100
3/8"	40-100
#4	24-50
#8	15-35
#30	5-15
#50	0-7
#200	0-2

Retwal1A



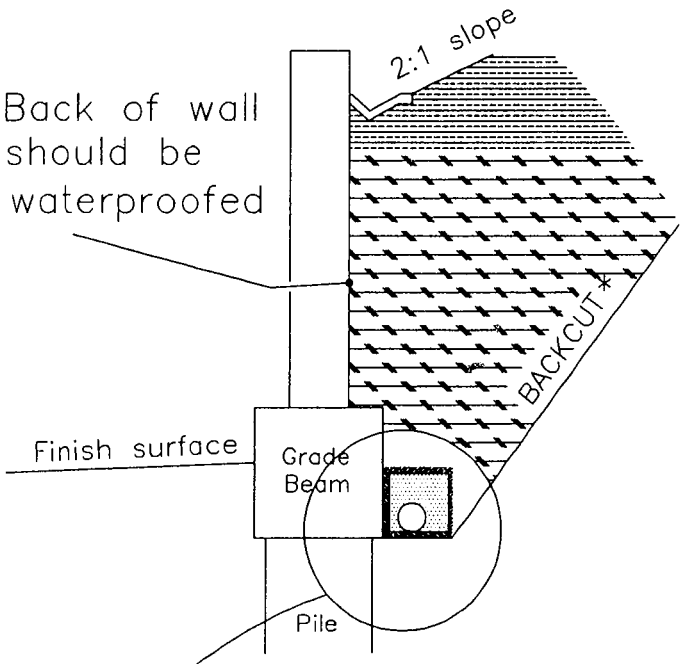
Geolabs – Westlake Village
GEOLOGY AND SOIL ENGINEERING

DATE 12.2.05 BY SBS
SCALE NTS W.O. 8953

PLATE RW

E-4

TYPICAL PILE AND GRADE BEAM RETAINING WALL



Relatively impermeable backfill soil

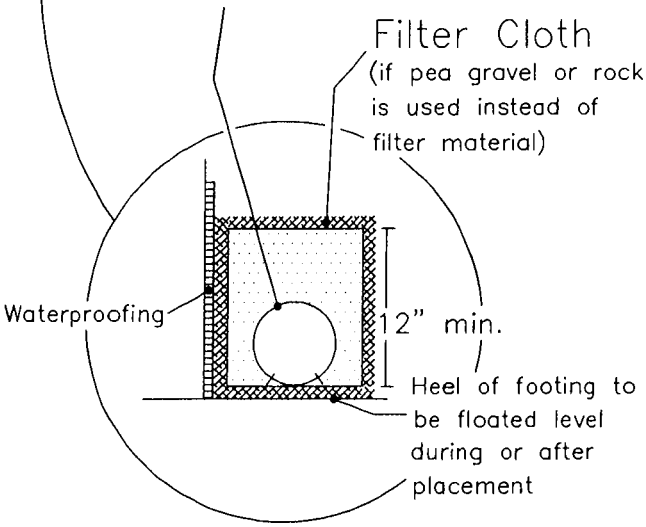
Rock or non-expansive soil backfill (EI <20 or SE>20).**
If rock is used, Filter Cloth is required to separate rock from relatively impermeable soil and backfill. Non-expansive backfill should be placed to the backcut or three feet, whichever is less.
NOTE: All backfill should be compacted to a minimum of 90% relative density.

FILTER MATERIAL (see gradation), PEA GRAVEL, OR ROCK – Geotextile should be used to separate Pea Gravel or Rock from backcut and backfill.

FILTER MATERIAL GRADATION

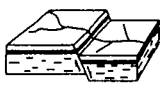
Sieve Size	% Passing
1"	100
3/4"	90-100
3/8"	40-100
#4	24-50
#8	15-35
#30	5-15
#50	0-7
#200	0-2

3" (min.) to 4" (max.) perforated pipe (SDR 35 or equivalent) laid level on footing with holes set facing downward. Pipe should outlet to a non-erodable structure or device.



* All backcuts shall be in accordance with OSHA standards, unless site-specific backcut and/or backfill recommendations are made by this office.

** EI 21-30 may be used if placed at 2% over optimum



Geolabs – Westlake Village
GEOLOGY AND SOIL ENGINEERING

DATE 12.2.05 BY SBS
SCALE NTS W.O. 8953

Retwal3A

PLATE RW3

E-5

GEOLABS-WESTLAKE VILLAGE
Foundation and Soils Engineering, Geology
31119 Via Colinas, Suite 502 • Westlake Village, CA 91362
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Fax: (818) 889-2995 (805) 379-2603
a dba of
R & R Services
Corporation

December 30, 2015
W.O. 8953

John C. Chiu, FLPM
c/o John W. Newton & Associates, Inc.
159 Moonsong Court
P.O. Box 471
Moorpark, California 93020

Attention: Mr. John Newton

SUBJECT: Response to City of Moorpark Incompleteness Letter,
Tentative Tract 5739, Everett Street and Walnut Canyon Road,
Everett Street Terraces Apartment Complex, City of Moorpark, California

Reference: Geolabs-Westlake Village, July 22, 2015; Update Geotechnical Investigation For Proposed Everett Street Terraces Apartment Complex, Everett Street and Walnut Canyon Road, City of Moorpark, California

Mr. Newton

In accordance with your request, we have prepared this letter-report to provide our response to the subject Incompleteness Letter by the City of Moorpark for Tentative Tract Map 5739. This letter, dated November 24, 2015, is attached for your convenience.

INCOMPLETENESS LETTER 11-24-2015

Comment - Page 3:

The requested update geotechnical report, referenced above, was previously submitted to the City of Moorpark. Discussion of Lot 14 can be found on Page 2 of the Proposed Project section. For your convenience, we have attached our updated geotechnical report (dated July 22, 2015).

CLOSURE

This geotechnical report has been prepared in accordance with generally accepted engineering practices at this time and location. No other warranties, either express or implied, are made as to the professional advice provided under terms of our agreement and included in this report.

We appreciate this opportunity to be of service. Please do not hesitate to contact the undersigned if you have any questions regarding this report.

Respectfully submitted,
GEOLABS-WESTLAKE VILLAGE

Joanna Nygren
Staff Geologist

Ronald Z. Shmerling
C.E.G. 1047
R.C.E. 35444

REGISTERED PROFESSIONAL ENGINEER
RONALD Z. SHMERLING
No. 35444
CIVIL
STATE OF CALIFORNIA

CAS: JN: jw

Enclosures: City of Moorpark Review Letter
Geolabs-Westlake Village Report Dated July 22, 2015.....Appendix A

REGISTERED GEOLOGIST
RONALD Z. SHMERLING
NO. 1047
CERTIFIED
ENGINEERING
GEOLOGIST
STATE OF CALIFORNIA

XC: (4) Addressee

CITY OF MOORPARK

COMMUNITY DEVELOPMENT DEPARTMENT | 799 Moorpark Avenue, Moorpark, California 93021
Main City Phone Number (805) 517-6200 | Fax (805) 532-2540 | www.moorparkca.gov

November 24, 2015

Dr. John C. Chiu FLP-N
1001 Newbury Road
Thousand Oaks, CA 91320

RE: INCOMPLETENESS LETTER FOR RESIDENTIAL PLANNED DEVELOPMENT NO. 2005-02, TENTATIVE TRACT MAP 5739, GENERAL PLAN AMENDMENT NO. 2005-02, ZONE CHANGE NO. 2005-02, REQUESTING APPROVAL FOR CONSTRUCTION OF A SIXTY UNIT BUILDING ON 2.4 ACRES LOCATED AT THE NORTHEAST CORNER OF EVERETT STREET AND WALNUT CANYON ROAD, ON THE APPLICATION OF JOHN C. CHIU

Dear Dr. Chiu:

The City of Moorpark has reviewed your application resubmitted on October 27, 2015, for Residential Planned Development No. 2005-02, Tentative Tract Map 5739, General Plan Amendment No. 2005-02, and Zone Change No. 2005-02, requesting approval for construction of a sixty unit building on 2.4 acres located at the northeast corner of Everett Street and Walnut Canyon Road, and finds it remains incomplete at this time. Until such time as the application can be determined to be complete, the City's processing is being suspended.

On August 3, 2010, a list of outstanding completeness items was emailed to you, describing those items required to be submitted in order to determine the application complete for processing. Many of these items do not appear to have been addressed. That list is reiterated as follows:

Planning/Zoning Issues:

1. *Although the City Engineer finds that the drainage feasibility study and plans depict an acceptable concept for the drainage system from a technical perspective, the Community Development Department has determined that the detention basin design is not acceptable from a planning perspective and must be redesigned. This design creates an area for loitering and litter accumulation. A mechanical system which does not create a deep basin should be considered as an alternative. (Conceptual Grading and Drainage Plan)*
2. *An improvement plan for the realignment of Everett Street is needed. Remove Wicks Road realignment from plans and maintain Everett Street opened to Walnut Canyon Road. (Conceptual Grading and Drainage Plan, Site Plan)*

JANICE S. PARVIN, Mayor | ROSEANN MIKOS, Ph.D., Councilmember | KEITH F. MILLHOUSE, Councilmember | DAVID POLLOCK, Councilmember | MARK VAN DAM, Councilmember

3. *HVAC and water heater, locations must be shown on the plan. (Site Plan, Floor Plan, Landscape Plan)*
4. *Detailed, fully dimensioned floor plans are needed for each unit type. (Site Plan, Floor Plan)*
5. *Confirm new ADA accessibility requirements with Moorpark Building Official and show on plan as applicable. (Site Plan)*
6. *Fully dimension the pool and spa areas, including changing rooms. (Conceptual Grading and Drainage Plan, Site Plan)*
7. *Show conceptual lighting locations and types. (Site Plan)*
8. *Remove monument sign and bus shelter from plans. (Site Plan, Landscape Plan)*
9. *Show how standard trash bins will fit and explain how trash hauler will remove and replace bins. (Site Plan)*
10. *Provide details and elevations of gazebo and all other accessory structures including trellises and fountains. (Elevations, Landscape Plan)*
11. *Show building height at several points, including highest overall height of the building, from lowest to highest point. (Elevations)*
12. *Show all roof vents. Use flat vents where possible. (Elevations)*
13. *Provide fencing details, colors, and materials. (Landscape Plan)*
14. *Fully dimension the off-street loading area for residents moving in and out and truck deliveries. (Site Plan)*

City Engineer Issues:

Provide a letter updating the Hydrology and Drainage Study, including Lot 14. Previous comments were provided as follows:

> *The drainage feasibility study and plans depict an acceptable concept for the drainage system on the site plan (See Planning/Zoning comment No. 1). When the project has received approval you will be required at final design to submit a drainage report based on Ventura County design standards showing the site does not produce post development storm water runoff quantities (Q50) that exceed the pre development conditions (Q10) and onsite storm water clarification and the capacity of downstream systems.*

Provide a letter updating the Traffic Study, including Lot 14 and removal of the Wicks Road connection. Previous comments were provided as follows:

1. *The traffic report states, "An extension of Everett Street is planned to be constructed from its current westerly terminus at Moorpark Avenue to Wicks Road. The Everett Street extension is to run parallel along the east side of Moorpark Avenue (Walnut Canyon Road) between its current westerly terminus to Wicks Road. Direct vehicular access to and from Moorpark*

Avenue and Everett Street or Wicks Road will no longer be provided." The entrance/exit is treated as if this is the case in the traffic report. However, this is not how the site is designed. The conceptual plan shows cars entering and exiting the project site in the middle of the merge between Everett Street and Walnut Canyon Road. This is cause for concern on this project.

2. *The traffic report must analyze traffic movements in and out of the site. It must show that traffic movements in and out of the site do not adversely impact traffic movements on Walnut Canyon Road. Include an analysis of potential for causing vehicles to back up into Walnut Canyon Road.*
3. *Include striping and signing plan for the site entrance and exit on Everett Street/Walnut Canyon Road (SR 23).*
4. *Include line of sight exhibits for vertical and horizontal lines of sight on Everett Street/Walnut Canyon Road (SR 23).*
5. *The final design must show that an on-site circulation corridor can accommodate movements necessary for access by a CA fire truck and the site can be entered and exited by a CA fire truck.*
6. *Show all proposed dedications on Everett Street and Walnut Canyon Road (SR 23).*
7. *Show sections extending across Everett Street at the entrance and at mid-block.*

Subdivision Map

1. *Show how lot merges will be accomplished.*
2. *Include legal descriptions.*
3. *Please verify all affected title reports have been submitted, including lot 14.*

Provide a letter updating the Geotechnical Study, including Lot 14. Previous comments were provided as follows:

Review of the geotechnical report did not reveal anything prohibitive to the conceptual design. The geotechnical review addressed the following items which could affect the project design. The following recommendations were included in the review:

1. *Faulting and Seismicity – The closest active fault is 750-feet north of the site and there is no danger that the ground will rupture. The report recommends that minimum structural design be in compliance with the UBC.*
2. *Hydro-consolidation Potential – There is potential for hydro-consolidation in the upper 5-7 feet. Over-excavation is therefore recommended.*
3. *Liquefaction Potential – Potential for liquefaction induced settlement due to a design level earthquake could be on the order of 3-½ inches in the southern portion of the site. Recommendations are made to the foundation system*

because of the potential settlement. Lateral spreading and surface manifestations are not anticipated.

4. *Slope Stability – Over-excavation and removal of the top 5-7 feet of soil and engineered fill is recommended.*

Based on recommendations by your soils engineer in the preliminary geotechnical report, it does not appear to prevent this project from being built as depicted in the conceptual plan as long as the recommendations are followed. As such a more thorough review by the City's geotechnical consultant during this preliminary entitlement process was not warranted based on recommendations asserted in the preliminary report. During final design, review of the geotechnical study will be required by the City's geotechnical consultant and it is possible the recommendations may change.

In your response, please submit a cover letter noting in detail how and where on the plans and supporting documents these comments have been addressed. The following additional corrections and additional information are required to be addressed at this time as well:

1. The project as redesigned (without the Wicks Road realignment) shows driveway access on Walnut Canyon Road. All access must be from Everett Street. The project traffic engineer should evaluate the appropriate distance of the driveways from the intersection of Everett Street and Walnut Canyon Road, since this intersection is to remain open. The existing and proposed street improvements and full driveway plans must be shown on the site plan, including the full right-of-way of all adjacent streets.
2. The redesigned project shows 59 units (previously 60). Please identify and explain all changes to the plan since its last submittal.
3. A brief review of the updated traffic study shows that it is deficient in that it is based on 60 units, not 59, and it is based on the previously proposed alignment of Wicks Road and the closing of Everett Street. The new access needs to be addressed (also see No. 1 above).

Please note that on December 2, 2015, the City Council will be considering your request to extend the timeframe for the validity of the General Plan Amendment Pre-Screening for this project from December 4, 2015 to March 31, 2016. While staff is supportive of this request, the decision will be ultimately be made by the City Council and may affect the timing by which additional information is needed to complete this application.

Sincerely,

Joseph Fiss
Planning Manager

C: Steven Kueny, City Manager
David A. Bobardt, Community Development Director
John Newton, John Newton & Associates, Inc.
Case File: RPD 2005-01
Chron

APPENDIX A

GEOLABS-WESTLAKE VILLAGE REPORT
DATED JULY 22, 2015

December 30, 2015
W.O. 8953

GEOLABS-WESTLAKE VILLAGE
Foundation and Soils Engineering, Geology
31119 Via Colinas, Suite 502 • Westlake Village, CA 91362
Voice: (818) 889-2562 (805) 495-2197
Fax: (818) 889-2995 (805) 379-2603
a dba of
R & R Services
Corporation

July 22, 2015
W.O. 8953

John C. Chiu, FLPM
c/o John W. Newton & Associates, Inc.
159 Moonsong Court
P.O. Box 471
Moorpark, California 93020

Attention: Mr. John Newton

Subject: Update Geotechnical Investigation for Proposed
Everett Street Terraces Apartment Complex,
Everett Street and Walnut Canyon Road
City of Moorpark, California

References: Geolabs-Westlake Village, December 2, 2005; Preliminary Geotechnical Investigation, Proposed Everett Street Terraces Apartment Complex, Northeast Corner of Everett Street and Walnut Canyon City of Moorpark, California

Mr. Chiu

The project site was investigated by Geolabs-Westlake Village in 2005 for entitlement process. The age of the referenced investigation report, which was previously found acceptable, requires an update of information, analyses, or findings that may be outdated due to changes in the site condition, analyses methodology, standard of practice, or building code changes. In accordance with your agent's request, we present herein updated geotechnical criteria to address future construction designs. We are presenting this report to update design criteria using methodologies in the 2013 California Building Code. The updated criteria include seismic ground motion values, conventional foundation and slab on grade (Green Code) design criteria, slope deformation, liquefaction, and retaining wall design criteria. A site geologic map showing the current development plan with previously defined geologic conditions is also included (see Plate1.2).

In order to perform the update, we have visited the project site and observed the surface conditions and reviewed the referenced report, current codes and local practices. The

interested reader may consult the referenced Geolabs-Westlake Village report dated December 2, 2005 for a more thorough characterization of the onsite soil conditions. All recommendations and criteria presented in the referenced report remains applicable unless superseded herein.

SITE CONDITIONS

Based on our recent reconnaissance, the site remains in essentially the same condition as reported in our 2005 report. An exception is that previously observed older residential structures now no longer exist. It appears that concrete retaining walls have been constructed in areas where the previous structures may have retained the hillside.

PROPOSED PROJECT

The project addressed in the referenced report consisted of a terraced complex of 44 apartments with two levels of partially subterranean to subterranean parking. The project was to be accessed from Everett Street. Retaining walls up to 24 feet in height were proposed. The terraced pads were planned for approximate elevations 533 feet, 544 feet, 555 feet, and 564 feet. The highest proposed fill slope was to be approximately 6 feet, fronting Everett Street. No permanent cut slopes were proposed.

The current project is illustrated on the Site Plan prepared by Holmes Enterprises, Inc. (HEI), dated 26 May 2015. The general concept of the project remains the same. The three level project has extended westward approximately 100 feet onto a property that was not a part of the previous project. The project now incorporates a 15 foot rear setback, 5 foot side setbacks, and 10 foot wide utility easement. The terrace elevations differ somewhat from the previous design. Based on elevations noted on the HEI plans, the tallest wall appears to be 15.5 feet in the northwest corner of the project, and adjacent to the northern portion of the utility easement. The new design grade changes are considered to be insignificant, so no additional exploration or changes to our cross sections are deemed warranted at this time.

DISCUSSION AND RECOMMENDATIONS

Based on our review of the site conditions and relevant available documents, many of the previous recommendations and findings remain applicable. In our opinion the liquefaction, slope stability analyses remain applicable. The current California Building Code requires tall retaining walls be designed for seismic lateral earth pressures. We have supplemented our

previous retaining wall recommendations to address this requirement. We offer the following updates to our previous recommendations.

SEISMIC GROUND MOTION VALUES - GENERAL PROCEDURE

For this report we provide seismic ground motion values in accordance with the 2013 CBC (California Building Code). This code addresses seismic design based on response spectra considering an earthquake with a 2% probability of exceedance in 50 years (2475 year return period). Seismic ground motion values were determined in accordance with the procedure within CBC §1613.3 using the U.S. Seismic Design Maps website provided by the USGS.

Output from the analysis is summarized herein.

Latitude: 34.288º Longitude: -118.882º	Factor/Coefficient	Value
Site Profile Type	Site Class	D
Short-Period MCE at 0.2s	S_s	2.760
1.0s Period MCE	S_1	0.966
Site Coefficient	F_a	1.0
Site Coefficient	F_v	1.5
Adjusted MCE Spectral Response Parameters	S_{ms} S_{m1}	2.760 1.448
Design Spectral Acceleration Parameters	S_{DS} S_{D1}	1.840 0.966
Peak Ground Acceleration	PGA_M	1.047

FOUNDATION SYSTEMS

For planning purposes, this section provides preliminary foundation recommendations for conventional foundations. Once specific building types and foundation loads and locations are known, project specific foundation recommendations can be prepared.

Conventional Foundations

Continuous or pad footings may be used to support the proposed structures. In order to achieve the capacities specified below, they should be founded a minimum of 12 inches into engineered fill, with the concrete placed against in-place, undisturbed material. Foundation design criteria are based, in part, upon the expansive properties of the materials anticipated to be present near the finished pad grade. The building pad will contain expansive soils (EI>20).

The parameters provided in the following table are our minimum design values for the pertinent expansion range. Some of these values are empirical in nature. The foundation and

slab designer should evaluate and design the foundations for the effects of expansive soils. The final foundation and slab-on-grade configuration should contain details that are not less than the values provided. Laboratory testing to verify the expansive properties of the near-pad-grade materials should be performed at the completion of rough grading.

Pre-saturation guidelines are presented in the following table. Pre-saturation of the foundation soils should be initiated well before concrete is scheduled to be placed. Care should be taken to see that the water has properly penetrated the soil. Last minute flooding is not a good practice. Excess water remaining in the target pre-saturation zone at the time of concrete placement will penetrate further into the soil, possibly causing additional expansion and uplift of the curing concrete.

Expansion Index Range	**0 - 20**
Pre-moisten	12"
Footings[1]	
Allowable Bearing Capacity	1800 PSF[2]
Lateral Resistance	400 PSF/Ft[2] [3]
Maximum Lateral Resistance	2500 PSF[2] [3]
Coefficient of Friction	0.40
Minimum Embedment Into Foundation Material	12 inches
Minimum Embedment Below Adjacent Grade	24 inches
Minimum Reinforcement	2 #4 bars; 1 near top, 1 near bot.
Slabs-On-Grade	
Thickness	Full 4"
Minimum Reinforcement	#4 bars @ 16" o.c.e.w.

Expansion Index Range	**21 - 90**
Pre-saturation	18" (EI 21-50) 21" (EI 51-90)
Footings[1]	
Allowable Bearing Capacity	1500 PSF[2]
Lateral Resistance	250 PSF/Ft[2] [3]
Maximum Lateral Resistance	1800 PSF [2] [3]
Coefficient of Friction	0.3
Minimum Embedment Into Foundation Material	12 inches
Minimum Embedment Below Adjacent Grade	24 inches
Minimum Reinforcement	2 #4 bars; 1 near top, 1 near bot.
Slabs-On-Grade	
Thickness	Full 4"
Minimum Reinforcement	#4 bars @ 16" o.c.e.w.

(1) Bearing portions of all footings should be at least five feet (measured horizontally) from the face of adjacent, descending slopes. All footings should bear at least three feet below an imaginary plane projected upward at 1.5:1 from the toe of locally over-steepened slopes. Pad footings should be at least 24 inches square. Continuous footings should be at least 12 inches wide for one-story and 15

inches wide for two-story.

(2) May be increased by 1/3 for short duration loading such as by wind or seismic forces.

(3) Decrease by 1/3 when combined with friction.

(4) Applies to exterior footings. Depth must meet the CBC requirements for the specific level of stories supported.

(5) Dowel slab to exterior footing using #3 bars @ 32" on center, bent 3' into slab for EI=51-90..

SLAB-ON-GRADE SUBGRADE

Approximately four inches of sand for EI=21-90, or two inches of sand for EI 0-20, should be placed across the slab subgrade, with a vapor retarder placed on top of the sand in all areas where moisture penetration of the slab is undesirable. The vapor retarder should consist of at least 10 mil thick, polyolefin plastic that complies with specifications in the present version of ASTM E1745. Concrete for the floor slab should be placed directly upon the vapor retarder.

The vapor retarder should be placed in general conformance with ASTM E1643 – 10. The permeance (propensity to transmit water) and strength (i.e. Class A, B or C) of the vapor retarder, as well as the water/cement ratio, mix design and strength of the concrete, will influence a variety of things, including slab finishing, construction schedules, moisture released from the slab, and floor coverings. Project design and construction professionals should consider these factors when developing specifications for, and/or selecting materials for, the vapor retarder, concrete, and floor covering.

RETAINING WALLS

Seismic Increment of Earth Pressure

As required by CBC §1803.5.12 geotechnical reports for structures assigned to Seismic Design Category D, E or F must include information regarding lateral pressures on foundation walls and retaining walls due to earthquake motions. Recent writings such as Lew et al. (2010) and Al Atik et al. (2010) attempt to address the appropriate means to implement this code requirement. These works conclude in part that seismic earth pressures can be neglected when the peak ground acceleration is equal to or less than 0.4g. For this site, the peak ground acceleration PGA_M is considered to be 1.05g .

For retaining walls, the following design criteria are provided considering the general provisional recommendations proposed by Lew et al. (2010) and findings presented in Al Atik (2010) for walls founded on non-saturated, level ground conditions. Lew et al. recommended the seismic earth pressure increment need only be included in design when wall height (H)

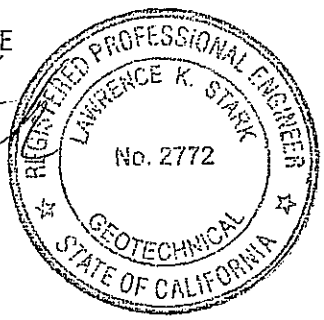
exceeds 12 feet; however, 2013 CBC Section 1803.5.12 indicates that seismic lateral earth pressures be addressed for retaining walls supporting more than six feet of backfill, using design earthquake ground motions. When H meets this criterion, cantilever walls free to move and rotate can be designed for a seismic earth pressure increment considering an equivalent fluid pressure of **33** pcf (triangular pressure distribution). Walls restricted from moving or rotating, such as basement walls, can be designed for a seismic earth pressure increment considering an equivalent fluid pressure of **46** pcf (triangular pressure distribution). The resultant of this seismic earth pressure increment is considered to act at one-third H above the base of the wall. The seismic earth pressure increment should be applied to the active earth pressure for both the free-to-rotate and restrained cases. Often, for the case of walls restricted from moving or rotating, this combination of active earth pressure and seismic earth pressure increment will not exceed the at-rest earth pressure for the static case when considering factored loads used for the basic load combinations prescribed in the California Building Code.

CLOSURE

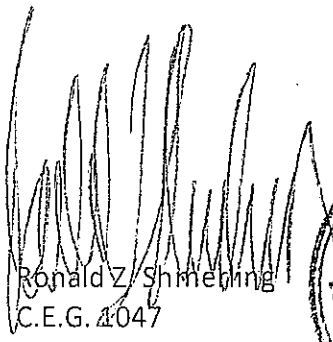
This geotechnical report has been prepared in accordance with generally accepted engineering practices at this time and location. No other warranties, either express or implied, are made as to the professional advice provided under the terms of our agreement and included in this report.

Thank you for this opportunity to be of service. Please do not hesitate to call if you have any questions regarding this report.

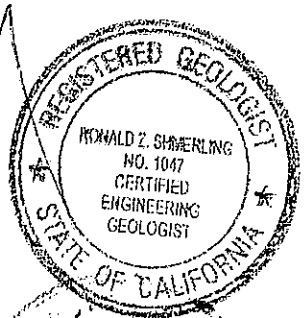
Respectfully submitted,
GEOLABS-WESTLAKE VILLAGE

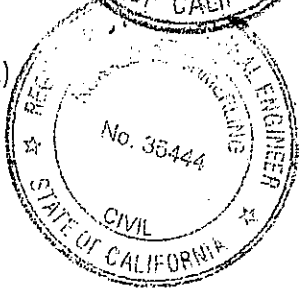


Lawrence K. Stark
G.E. 2772



Ronald Z. Shmerling
C.E.G. 1047
R.C.E. 35444





ENCLOSURE LIST:

Reference List.....Plate R
Geologic Map.....Plate 1.2 (in pocket)

XC: (3) Addressee
LKS:jr

REFERENCES

Geolabs-Westlake Village (2005), "Preliminary Geotechnical Investigation of 2-Acre Parcel, Northeast Corner of Everett Street and Walnut Canyon Road, Moorpark, California.

Al Atik, L, and Sitar, N. (2010). "Seismic Earth Pressures on Cantilever Retaining Structures." J. Geotech. Geoenviron. Eng., 136(10), 1324-1333.

Bray, J.B., Travasarou, T., Zupan, J. (2010). "Seismic Displacement Design of Earth Retaining Structures." Proc., 2010 Earth Retention Conference 3, ASCE, Bellevue, WA., 638-655.

Kramer, S.L. (1996). Geotechnical Earthquake Engineering. Prentice Hall, Upper Saddle River, New Jersey.

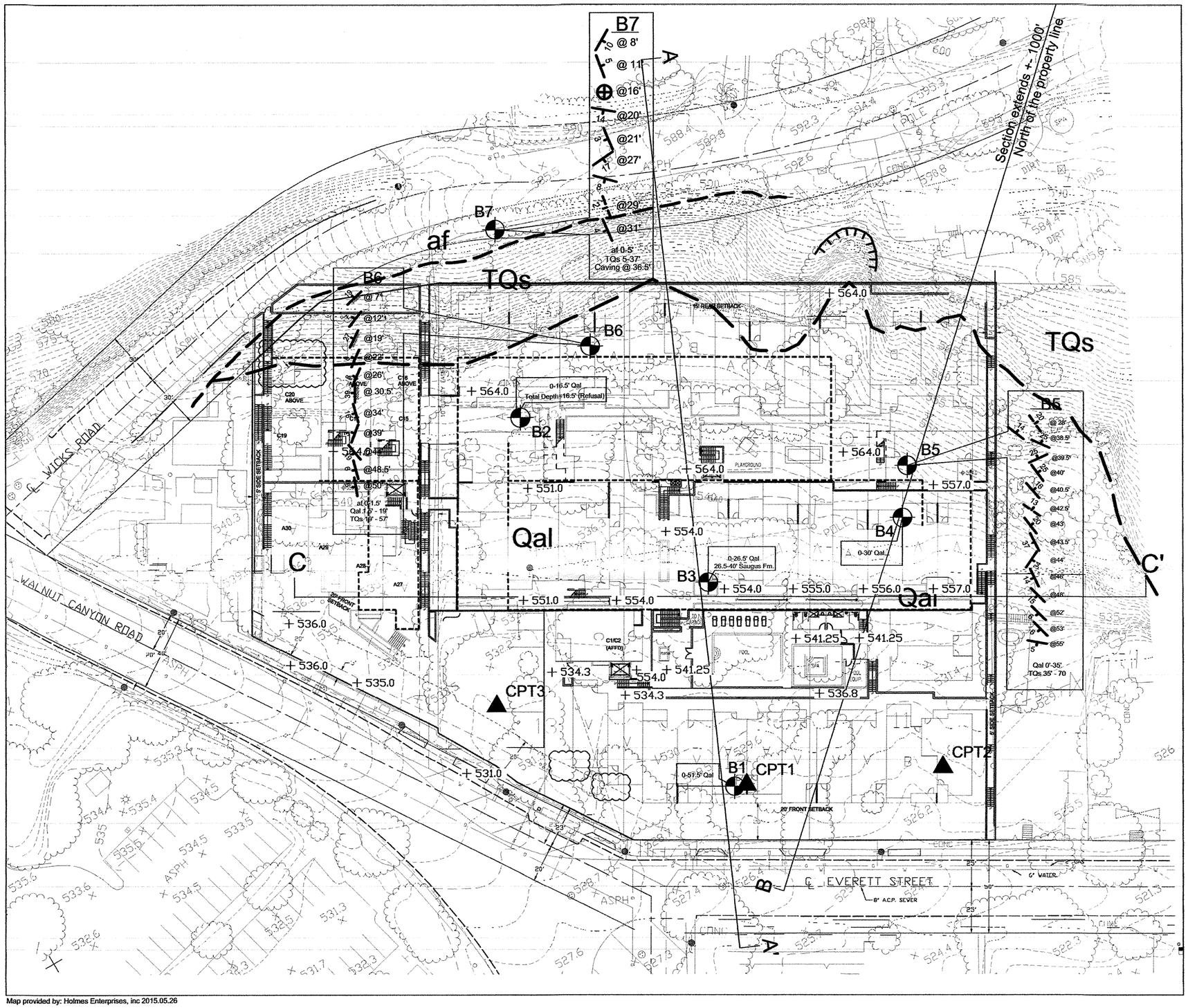
Lew, M., Sitar, N., Al Atik, L. (2010). "Seismic Earth Pressures: Fact or Fiction." Proc., 2010 Earth Retention Conference 3, ASCE, Bellevue, WA., 656-673.

Lew, M., Sitar, N., Al Atik, L., Pourzanjani, M., Hudson, M.B. (2010). "Seismic Earth Pressures on Deep Building Basements." Proc., SEAOC 2010 Convention, SEAOC, Indian Wells, CA.

GEOLOGIC MAP

EVERETT STREET TERRACES

City of Moorpark, CA



Map provided by: Holmes Enterprises, inc 2015.05.26

EXPLANATION

af	Artificial Fill
Qal	Alluvial deposits
TQs	Saugus Formation
— — —	Geologic contact
	Scarp area
B1	Boring location
CPT1	CPT location
45	Strike and dip of bedding
45	Strike and dip of fault/shear
45	Strike and dip of fracture
A — A'	Cross Section

40 20 10 0 40 80 120

1"=40'

Geolabs – Westlake Village
GEOLOGY AND SOIL ENGINEERING

DATE 7/22/15 BY JAR
SCALE 1"=40' W.O. 8953

PLATE 1.2

P:\8953 Everett Terraces\8953 geo Update 2015.dwg (Layout: Geo Map 2015.07.22)

GEOLABS-WESTLAKE VILLAGE
Foundation and Soils Engineering, Geology
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a dba of
R & R Services
Corporation

January 22, 2021
W.O. 8953
Revised February 9, 2021

John C. Chiu, FLPM
C/o John W. Newton & Associates, Inc.
159 Moonsong Court
P.O. Box 471
Moorpark, California 93020

Attention: Mr. John Newton

SUBJECT: *Revised* Response to Third-Party Peer Review and Update Geotechnical Report,
Everett Street Terraces Apartment Complex,
Everett Street and Walnut Canyon Road,
City of Moorpark, California

Mr. Chiu,

In accordance with your agent's request, Geolabs – Westlake Village (GWV) presents herein a *revised* response to the third-party peer review prepared by Haley & Aldrich, Inc. dated 20 November 2020. A copy of the review letter is provided in Appendix A. In addition, GWV presents updated geotechnical design criteria using methodologies addressing the 2019 California Building Code. The updated criteria include seismic ground motion values, conventional foundation design criteria, and retaining wall design criteria. Finally, an evaluation of feasibility of onsite stormwater infiltration is provided. Our finding is that onsite infiltration of stormwater is **not** feasible. A site geologic map showing the current development plan with previously defined geologic conditions is also included (see Plate 1).

This report was revised in response to email comments from the City Planning Department (Farley-Judkins, 2021) to make the response to review portion of the report more distinct from the update portion of the report. Revisions to the text are italicized to facilitate their identification. Note that review comments in the original version of this report were reiterated in bold italics, so though reiterated review comments remain in italics, they are not

revised.

In order to perform the update, we have visited the project site and observed the surface conditions and reviewed the referenced reports, current codes and local practices. The interested reader may consult the referenced GWV report dated 2 December 2005 for a more thorough characterization of the onsite soil conditions. All recommendations and criteria presented in the referenced reports remains applicable unless superseded herein.

RESPONSE TO REVIEW

A copy of the review letter is provided in Appendix A. Review comments are reiterated in bold italics and responses are provided in the following sections.

Comment #1: ***Update Letter, Cover Page: Reference is made to the 2013 California Building Code (CBC). The 2019 CBC was adopted on 1 January 2020. Unless a waiver has been provided, methodologies from the 2019 CBC should be used.***

RESPONSE:

The reviewed report addressed the CBC edition that was current at the time. This report again updates our work to address the current CBC edition (2019). Findings and design criteria in this report supersede that in previous writings. *They are presented below under the "UPDATE REPORT" header. The updated criteria include seismic ground motion values, conventional foundation design criteria, and retaining wall design criteria.* Previous findings and design criteria in previous reports, not specifically addressed in the current writing, remain applicable.

Comment #2: ***Update Letter, Seismic Ground Motion Values: Recommendations for ground motion values were presented based on the 2013 CBC. Those values are derived based on America Society of Civil Engineers (ASCE) 7-10,[1] which has been updated with ASCE 7-16.[2] The methodologies should be updated to reflect current methodologies.***

RESPONSE:

This update report includes updated Seismic Ground Motion Values in accordance with ASCE 7-16 methodologies. Please see *pages 6 and 7* of this report.

Comment #3: ***Update Letter, Foundation Systems: The Update Letter states, "Once specific building types and foundation loads and locations are known, project specific foundation recommendations can be prepared." The Update Letter only includes preliminary recommendations and proposes that a final design-level study should be performed. Haley & Aldrich agrees that physical samples of the exposed soils should be collected after completing the rough grading to confirm the selection of the geotechnical recommendations.***

RESPONSE:

Acknowledged.

Comment #4: ***Update Letter, Conventional Foundations: It is recommended that the concrete be placed against in-place, undisturbed material. This appears to contradict earlier-referenced recommendations for overexcavation to address hydro-consolidation and slope stability, which implies that the foundations would be supported on engineered fill rather than in-place, undisturbed material.***

RESPONSE:

The authors of the reviewed geotechnical report understood that grading was going to occur, replacing native materials with engineered fill in areas to support conventional foundations. To clarify our design criteria, at the time the foundations are to be constructed, the engineered fill will be the in-place material within which the foundations will be embedded. The criteria that concrete is to be placed against in-place, undisturbed material is to be interpreted that foundations are to be constructed in excavations with compacted, undisturbed side walls consisting of engineered fill, as opposed to being constructed using forms and then backfilled against.

Comment #5: ***Update Letter, Conventional Foundations: Recommendations are provided that the expansive properties of the near-pad grade materials should be evaluated after completing the rough grading. The section then provides two separate sets of recommendations for various expansive conditions, including differing allowable bearing capacities, lateral resistance, and coefficients of friction. Haley & Aldrich agrees that physical samples of the exposed soils should be collected after completing the rough grading to confirm the selection of the geotechnical recommendations.***

RESPONSE:

Acknowledged.

Comment #6: ***Update Letter, Slab-on-Grade: The proposed 2- to 4-inch thickness of sand below the slab does not appear to be sufficiently thick enough to mitigate the potential for swell if the soils have a high expansive index. A detailed discussion should be provided.***

RESPONSE:

The design criterion for the sand below the slab-on-grade has been our standard for nearly four decades, and has been used successfully for hundreds of structures in Moorpark. This is based on Table 18-1-D-2 (formerly Table 29-A-2) that has been incorporated into ordinances for several jurisdictions within Ventura County. In the Moorpark Municipal Code it is

Table 1809.7 (http://qcode.us/codes/moorpark/misc/pdf-code/title15.pdf). The table has been attached to this response letter for your convenience.

Comment #7: ***Preliminary Report, Liquefaction-Induced Settlement Potential: Liquefaction analysis resulted in an estimated 3½ inches of settlement from a seismic event. This is a significant amount of potential settlement for a residential structure. New methodologies for evaluating earthquake parameters have also been developed that may modify the presented findings by Geolabs-Westlake Village. These are discussed under comments for Seismic Ground Motion Values above.***

RESPONSE:

Acknowledged.

Comment #8: ***Preliminary Report, Settlement: Total settlement of up to 4 ½ inches and differential settlement of up to 2 ¼ inches, including static and seismic conditions, were reported. These values exceed conventional limits of 1 inch of total settlement and ½ inch of differential settlement for most structures. Mitigation measures should be provided to reduce the settlement or the structural engineer should confirm that the proposed structures are capable of tolerating such excessive movement.***

RESPONSE:

For this writing we have updated both the ground motion parameters and the seismic settlement analyses considering new methodologies. Based on these updated evaluations, post-grading seismic settlement is estimated to be in the range of one to two inches. Differential seismic settlement can be assumed to be half the total settlement, ½ to 1 inch. For design purposes, this differential seismic settlement can be assumed to act over the horizontal distance 30 feet. This equates to distortion ratios of less than 0.003L (where "L" is the horizontal distance). This is within the 0.010L distortion ratio upper limit presented in the most recent guide, Table 12.13-3 of ASCE 7-16, for use to prevent structure collapse when designing shallow foundations for multi-story structures in risk Category II without concrete or masonry wall systems.

For the static condition, for planning purposes, structural foundation designs should consider total static settlement from foundation loads to be on the order of one inch, with differential settlement on the order of ½ inch over a horizontal distance of 30 feet. The combined anticipated static & seismic differential settlement equates to a distortion ratio of 0.004L which remains well below the upper limits of Table 12.13-3. We concur with the

reviewer; the structural engineer should confirm the proposed structures are capable of tolerating this movement.

Comment #9: ***Preliminary Report, Retaining Wall Recommendations: An allowable passive resistance of 600 pounds per square foot per foot with a factor of safety of 1.5 was provided. Based on the laboratory testing provided, this value exceeds the engineering properties of the soils. Additional justification should be provided for the recommended passive pressure.***

RESPONSE:

To clarify, retaining walls with conventional shallow foundations would use the 400 psf/ft lateral resistance provided on page 28 of the reviewed report. The 600 psf/ft lateral resistance applies to pile supported retaining walls. As noted in Caltrans Trenching and Shoring Manual (pages 6-9, 6-10), "passive resistance in front of an isolated pile is a three dimensional problem" and "the passive resistance in front of a pile calculated by classical earth pressure theories shall be multiplied by the adjusted pile width." The manual continues, "(F) or granular soils, if the pile spacing is 3 times the effective width (d) or less the arching capability factor may be taken as 3." This produces an adjusted pile width equal to the effective pile width (pile diameter) multiplied by the arching capability factor. The passive resistance provided for the piles in the reviewed report takes into account the adjusted pile width.

For example, using a soil with an internal friction, phi, of 27 degrees, the passive resistance estimated using the log spiral solution would be about 290 psf/ft considering a factor of safety of 1.5. Multiplying this value by the arching capability factor of 3 results in a passive resistance of over 850 psf/ft, well in excess of the recommended 600 psf/ft.

This concludes the response to review portion of this report.

UPDATE REPORT

The remaining portions of this report provide updates to our previous work that may be outdated due to changes in site condition, analysis methodology, standard of practice, or building code changes.

SITE CONDITIONS

Based on our recent reconnaissance, the site remains in essentially the same condition as reported in our 2015 report *(GWV, 22 July 2015)*.

PROPOSED PROJECT

The current project is illustrated on the Site Plan prepared by Holmes Enterprises, Inc. (HEI), dated 1 June 2020 (see Plate 1). It consists of a terraced complex of 60 condominium units with two levels of partially subterranean to subterranean parking. The project is to be accessed from Everett Street. Retaining walls up to 17 feet in height are proposed. The tallest wall is located in the northeast corner of the project. The terraced pads are planned for approximate elevations 535 feet, 541 feet, 554 feet, and 564 feet. The highest proposed fill slope is approximately 8 feet, fronting Everett Street. No permanent cut slopes are proposed. A 15-foot rear setback and 5-foot side setbacks are incorporated, as well as a north-south oriented, 10-foot-wide utility easement in the western portion of the site.

The general concept of the project remains the same as that described in our previous Update Report (GWV, 22 July 2015). The new design grade changes are considered to be insignificant, so no additional exploration or changes to our cross sections are deemed warranted at this time.

DISCUSSION AND RECOMMENDATIONS

Based on our review of the site conditions and relevant available documents, many of the previous recommendations and findings remain applicable. In our opinion the liquefaction and slope stability analyses remain applicable. Local policy has changed regarding the calculation of seismic earth pressures on retaining walls. We have revised our previous retaining wall recommendations to address this policy change. We offer the following updates to our previous recommendations *for seismic ground motion values, foundation systems, and retaining walls.*

Seismic Ground Motion Values – General Procedure

This report includes preliminary seismic ground motion values in accordance with the methodology of ASCE Standard 7-16. Seismic ground motion values were determined using the U.S. Seismic Design Maps website (https://seismicmaps.org) provided by OSHPD and SEA. These seismic design maps present data for a maximum considered earthquake ground motion, defined by an earthquake with a 2 percent probability of exceedance within a 50-year return period (recurrence interval of 2475 years). Output from these analyses are provided in Appendix B and summarized herein.

Latitude: 34.2880º Longitude: -118.8821º	**Factor/Coefficient**	**Value**
Site Profile Type	Site Class	D – Stiff Soil
Short-Period MCE at 0.2s	S_s	1.9
1.0s Period MCE	S_1	0.701
Site Coefficient	F_a	1.0
Site Coefficient	F_v	null
Adjusted MCE Spectral Response Parameters	S_{ms} S_{m1}	1.9 null
Design Spectral Acceleration Parameters	S_{DS} S_{D1}	1.266 null
Long-Period Transition Period	T_L	8.0 sec
Peak Ground Acceleration	PGA_M	0.911

Structures on soil profiles designated as Site Class D with S_1 values greater than or equal to 0.2, need not use site-specific ground motion values provided the value of the seismic response coefficient C_S is determined in accordance with the procedures in ASCE 7-16 §12.8.1.1 (per exception 2 of §11.4.8). The following parameters are considered appropriate for use in determining C_S per exception 2.

F_a	1.0	Site amplification factor at 0.2	
F_v	1.7	Site amplification factor at 1.0	
S_{MS}	1.9	Site-modified spectral acceleration value	(11.4-1)
S_{M1}	1.192	Site-modified spectral acceleration value	(11.4-2)
S_{DS}	1.266	Numeric seismic design value at 0.2 second SA	(11.4-3)
S_{D1}	0.795	Numeric seismic design value at 1.0 second SA	(11.4-4)

If the designer uses the simplified lateral force analysis procedure, §12.14.8 allows F_a to be taken as 1.0 for rock sites, or 1.4 for soil sites, for development of S_{DS}. Also, the value of S_S can be capped at 1.5 for development of parameters in accordance with §11.4.4. Sites are permitted to be considered rock if the soil thickness is no greater than 10 feet below the footing.

Foundation Systems

For planning purposes, this section provides preliminary foundation recommendations for conventional foundations. Once specific building types and foundation loads and locations are known, project specific foundation recommendations can be prepared.

Conventional Foundations

Continuous or pad footings may be used to support the proposed structures. In order to achieve the capacities specified below, they should be founded a minimum of 12 inches into engineered fill, with the concrete placed against in-place, undisturbed material. Foundation design criteria are based, in part, upon the expansive properties of the materials anticipated to be present near the finished pad grade. The building pad will contain expansive soils (EI>20).

The parameters provided in the following table are our minimum design values for the pertinent expansion range. Some of these values are empirical in nature. The foundation and slab designer should evaluate and design the foundations for the effects of expansive soils. The final foundation and slab-on-grade configuration should contain details that are not less than the values provided. Laboratory testing to verify the expansive properties of the near-pad-grade materials should be performed at the completion of rough grading.

Pre-saturation guidelines are presented in the following table. Pre-saturation of the foundation soils should be initiated well before concrete is scheduled to be placed. Care should be taken to see that the water has properly penetrated the soil. Last minute flooding is not a good practice. Excess water remaining in the target pre-saturation zone at the time of concrete placement will penetrate further into the soil, possibly causing additional expansion and uplift of the curing concrete.

FOUNDATION DESIGN PARAMETER	**DESIGN CRITERIA**			**UNITS**	**NOTES**
	EI = 0-20	**EI=21-50**	**EI=51-90**		
Pre-Saturation depth	12	18	21	in	
Allowable Bearing Capacity (net) (FS>3)	1800	1500	1500	psf	1,2
Allowable Lateral Resistance (FS=1.5)	400	250	250	psf/ft	2,3
Maximum Allowable Lateral Resistance	2500	1800	1800	psf	2,3
Coefficient of Friction (FS=1.0)	0.40	0.30	0.30		
Minimum Embedment Below Adjacent Grade	24	24	24	in	4
Minimum Embedment Into Supporting Material	12	12	12	in	
Minimum Reinforcement	2 - #4, 1 near top and 1 near bottom	2 - #4, 1 near top and 1 near bottom	2 - #4, 1 near top and 1 near bottom		
SLAB-ON-GRADE DESIGN PARAMETER					

FOUNDATION DESIGN PARAMETER	DESIGN CRITERIA			UNITS	NOTES
	EI = 0-20	EI=21-50	EI=51-90		
Minimum Concrete Thickness	4	4	4	in	
Minimum Reinforcement (On-Center-Each-Way)	#4 @ 16"	#4 @ 16"	#4 @ 16"		5
NOTES					
1) Bearing portions of all footings should be at least five feet (measured horizontally) from the face of adjacent descending slopes. All footings should bear at least three feet below an imaginary plane projected upward at 1.5:1 from the toe of locally over-steepened slopes. Pad footings should be at least 24 inches square. Continuous footings should be at least 12-inches wide for on-story and 15-inches wide for two-story construction.					
2) May be increased by 1/3 for short duration loading such as by wind or seismic forces.					
3) Decrease by 1/3 when combined with friction.					
4) Applies to exterior footings.					
5) For EI>50, dowel slab to exterior footing using #3 bars @ 24" on-center each way bent 12" into footing, 36" into slab.					

Slab-on-Grade Subgrade

Approximately four inches of sand for EI=21-90, or two inches of sand for EI=0-21, should be placed across the slab subgrade, with a vapor retarder placed on top of the sand in all areas where moisture penetration of the slab is undesirable. The vapor retarder should consist of at least 10 mil thick, polyolefin plastic that complies with specifications in the present version of ASTM E1745. Concrete for the floor slab should be placed directly upon the vapor retarder.

The vapor retarder should be placed in general conformance with ASTM E1643 – 10. The permeance (propensity to transmit water) and strength (i.e. Class A, B or C) of the vapor retarder, as well as the water/cement ratio, mix design and strength of the concrete, will influence a variety of things, including slab finishing, construction schedules, moisture released from the slab, and floor coverings. Project design and construction professionals should consider these factors when developing specifications for, and/or selecting materials for, the vapor retarder, concrete, and floor covering.

Retaining Walls

Seismic Increment of Earth Pressure

As required by CBC §1803.5.12 geotechnical reports for structures assigned to Seismic Design Category D, E or F must include information regarding lateral pressures on foundation walls and retaining walls due to earthquake motions. Recent writings such as Lew et al. (2010), Al Atik

et al. (2010), and Agusti and Sitar (2013) attempt to address the appropriate means to implement this code requirement. These works conclude in part that seismic earth pressures can be neglected when the peak ground acceleration is equal to or less than 0.4g. For this site, the peak ground acceleration PGA_M is considered to be 0.911g.

For retaining walls, the following design criteria are provided considering the findings presented in Agusti and Sitar (2013) for walls founded on non-saturated, level ground conditions. Per CBC §1803.5.12 item 1, the seismic earth pressure increment need only be included in design when walls support more than six feet of backfill. When this criterion is met, cantilever walls free to move and rotate can be designed for a seismic earth pressure increment considering an equivalent fluid pressure of **27** pcf (triangular pressure distribution). Walls restricted from moving or rotating, such as basement walls, can be designed for a seismic earth pressure increment considering an equivalent fluid pressure of **43** pcf (triangular pressure distribution). The resultant of this seismic earth pressure increment is considered to act at one-third H above the base of the wall. The seismic earth pressure increment should be applied to the active earth pressure for both the free-to-rotate and restrained cases. Often, for the case of walls restricted from moving or rotating, this combination of active earth pressure and seismic earth pressure increment will not exceed the at-rest earth pressure for the static case when considering factored loads used for the basic load combinations prescribed in the California Building Code.

STORMWATER INFILTRATION

As discussed in the response to review comment 8 above, post-grading seismic settlement is estimated to be in the range of one to two inches. Saturation of the onsite soils by use of stormwater infiltration Best Management Practices (BMPs) may increase the potential magnitude of seismic settlement, which the reviewer has already pointed out to be significant in their comments 7 and 8. Due to the potential to cause increased seismic settlements, we consider onsite infiltration of stormwater to be infeasible.

CLOSURE

This geotechnical report has been prepared in accordance with generally accepted engineering practices at this time and location. No other warranties, either express or implied,

are made as to the professional advice provided under the terms of our agreement and included in this report.

Thank you for this opportunity to be of service. Please do not hesitate to call if you have any questions regarding this report.

Respectfully submitted,
GEOLABS-WESTLAKE VILLAGE

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Lawrence K. Stark
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REGISTERED PROFESSIONAL ENGINEER
LAWRENCE K. STARK
No. 2772
GEOTECHNICAL
STATE OF CALIFORNIA

LKS:RP:af

ENCLOSURE LIST:

Reference List	R
Geologic Map	Plate 1 (in pocket)
MMC Table 1809.7	Plate 2.1-2.2
Review Letter	Appendix A
Seismicity	Appendix B

XC: (3) Addressee

REFERENCES

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Agusti, G.C. and Sitar, N. (2013). "Seismic Earth Pressures on Retaining Structures in Cohesive Soils." Report submitted to the California Department of Transportation (Caltrans) under Contract No. 65A0367 and NSF-NEES-CR Grant No. CMMI-0936376. Report No. UCB GT 13-02.

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..., December 30, 2015; Response to City of Moorpark Incompleteness Letter, Tentative Tract 5739, Everett Street and Walnut Canyon Road, Everett Street Terraces Apartment Complex, City of Moorpark, California.

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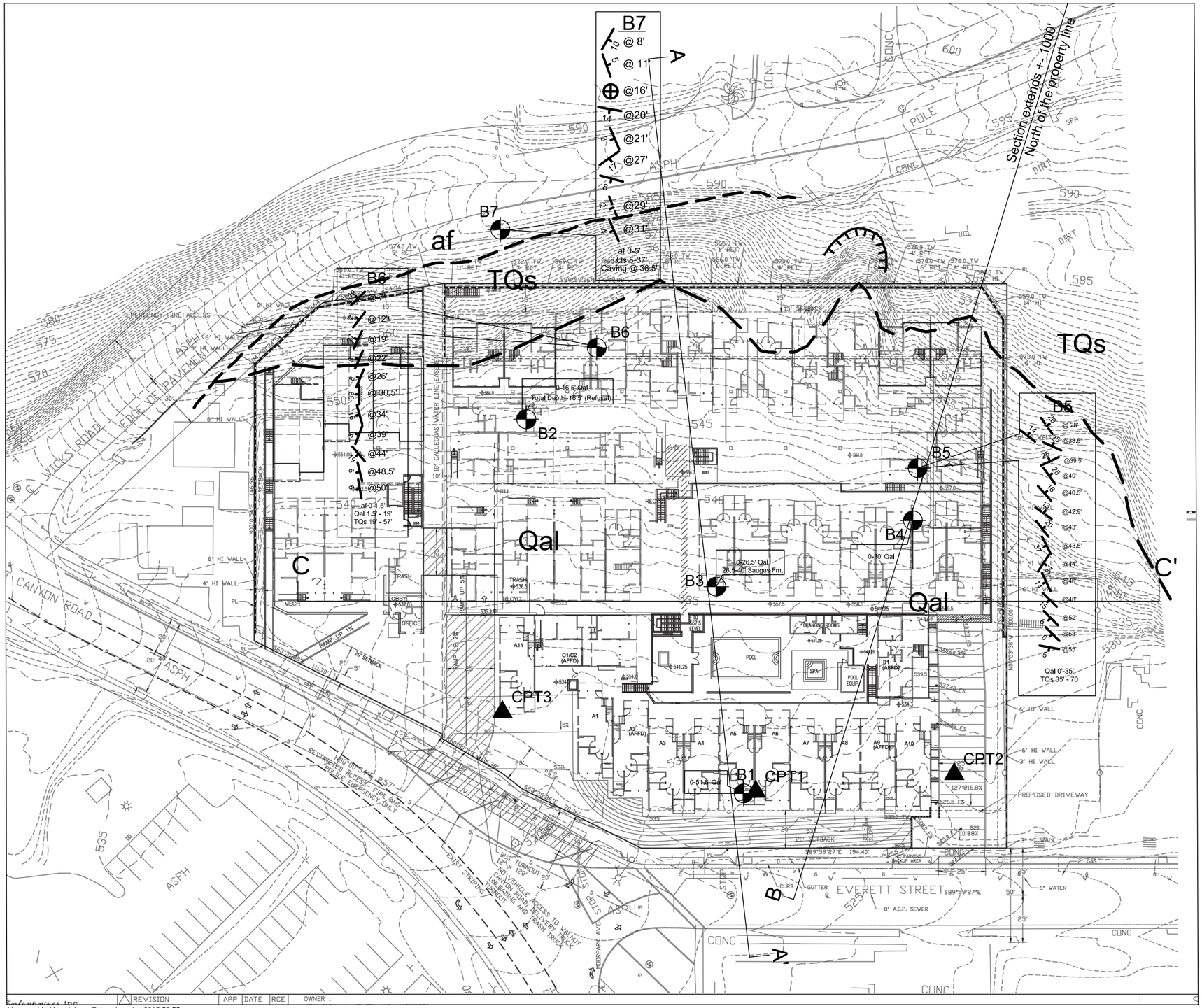
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GEOLOGIC MAP

EVERETT STREET TERRACES

City of Moorpark, CA



Map provided by: Holmes Enterprises, inc 2015.05.26

EXPLANATION

af	Artificial Fill
Qal	Alluvial deposits
TQs	Saugus Formation
	Geologic contact
	Scarp area
B1	Boring location
CPT1	CPT location
45	Strike and dip of bedding
45	Strike and dip of fault/shear
45	Strike and dip of fracture
A — A'	Cross Section

40 20 10 0 40 80 120

1"=40'

Revised 2/9/2021

Geolabs – Westlake Village
GEOLOGY AND SOIL ENGINEERING

DATE 1/22/2021 BY RMP
SCALE 1"=40' W.O. 8953

PLATE 1

P:\8953 Everett Terraces\8953 geo Update 2015.dwg (Layout: Geo Map 2015.07.22)

Table 1809.7—Foundations for Stud Bearing Walls—Minimum Requirements[1,10,11,12]

Weighted expansion index	Foundation for slab and raised floor systems[2,5,7]							Concrete slabs		Pre-moistening of soils under footings, piers and slabs [5,6]	Restrictions on piers under raised floors
	No. of stories	Stem Thickness[8]	Footing width[9]	Footing thickness	All perimeter footings[6]	Interior footings for slab and raised floors[6]	Reinforcement for continuous foundations[3,8]	3-1/2″ minimum thickness 4″ with E.I. over 51			
					Depth below natural surface of ground and finish grade			Reinforcement[4]	Total thickness of sand		
		Inches									
0—20 Very low non expansive	1 2 3	6 6 10	12 15 18	6 7 8	12 18 24	12 18 24	1-#4 Top and bottom	#4 @ 48″ o.c. each way or #3 @ 36″ o.c. each way	2″	Moistening of ground prior to placing concrete is recommended	Piers allowed for single floor loads only
21—50 Low	1 2 3	6 8 10	12 15 18	6 7 8	15 18 24	12 18 24	1-#4 Top and bottom		4″	3% over optimum moisture required to a depth of 18″ below lowest adjacent grade. Testing required.	Piers allowed for single floor loads only
51—90 Medium	1 2 3	6 8 10	12 15 18	8 8 8	21 21 24	12 18 24	1-#4 top and bottom #3 bars @ 24″ o.c. each way 12″ into footing, 36″ into slab[10]	#3 @ 24″ o.c. each way	4″	3% over optimum moisture required to a depth of 18″ below lowest adjacent grade. Testing required.	Piers not allowed
91—130 High	1 2 3	6 8 10	12 15 18	8 8 8	27 27 27	12 18 24	2-#4 top and bottom #3 bars @ 24″ o.c. each way 12″ into footing, 36″ into slab[10]	#3 @ 24″ o.c. each way	4″	3% over optimum moisture required to a depth of 18″ below lowest adjacent grade. Testing required.	Piers not allowed
Above 130 Very high	Special design by a licensed Architect or Engineer required										

Footnotes to Table 1809.7:

1. Pre-moistening is required where specified in Table CBC 1809.7 in order to achieve maximum and uniform expansion of the soil prior to construction and thus limit structural distress caused by uneven expansion and shrinkage. Other systems, which do not include pre-moistening, may be approved by the building official, when such alternatives are shown to provide equivalent safeguards against the adverse effects of expansive soil.
2. Under-floor access crawl holes shall be provided with curbs extending not less than six (6) inches above adjacent grade to prevent surface water from entering the foundation area.
3. Reinforcement for continuous foundations shall be placed not less than three (3) inches above the bottom of the footing and not less than three (3) inches below the top of the stem.
4. Slab reinforcement shall be placed at mid-depth and continue to within two (2) inches of the exterior face of the exterior face of the exterior footing walls.
5. Moisture content of soils shall be maintained until foundations and piers are poured and a vapor barrier is installed. Test shall be taken within twenty-four (24) hours of each slab pour.
6. Crawl spaces under raised floors need not be pre-moistened except under interior footings. Interior footings which are not enclosed by a continuous perimeter foundation system or equivalent concrete or masonry moisture barrier shall be designed and constructed as specified for perimeter footings in Table CBC 1809.7.

7. A grade beam not less than twelve (12) inches by twelve (12) inches in cross-sectional area, reinforced as specified for continuous foundations in Table CBC 1809.7, shall be provided at garage door openings.
8. Foundation stem walls which exceed a height of three (3) times the stem thickness above lowest adjacent grade shall be reinforced in accordance with Sections 18 and 19 in the CBC, or as required by engineering design, whichever is more restrictive.
9. Footing widths may be reduced upon submittal of calculations by a registered civil or structural engineer or licensed architect, but shall be a minimum of twelve (12) inches for one and two-story structures and fifteen (15) inches for three-story structures.
10. Bent reinforcing bar between exterior footing and slab shall be omitted when floor is designed as an independent, "floating" slab.
11. Fireplace footings shall be reinforced with a horizontal grid located three (3) inches above the bottom of the footing and consisting of not less than No. 4 bars at twelve (12) inches on center each way. Vertical chimney reinforcing bars shall be hooked under the grid.
12. Underground utility conduits shall be installed prior to foundation inspection and shall extend beyond the foundation.

(Ord. 474 § 3, 2019)

PLATE 2.2

APPENDIX A
Review Letter

January 22, *2021*
W.O. 8953
Revised February 9, 2021

HALEY & ALDRICH, INC.
5333 Mission Center Road
Suite 300
San Diego, CA 92108
619.280.9210

20 November 2020
File No. 135537-002

Chambers Group, Inc.
5 Hutton Centre Drive, Suite 750
Santa Ana, California 92707

Attention: Meghan Gibson
Project Manager/Senior Environmental Planner

Subject: Third-Party Peer Review of Preliminary Geotechnical Investigation and Update Letter
Everett Street Terraces Apartment Complex
City of Moorpark, California

Ladies and Gentlemen:

This letter summarizes Haley & Aldrich, Inc.'s (Haley & Aldrich) third-party review of the following geotechnical investigation documents prepared by Geolabs-Westlake Village, both completed under file 8953:

- "Preliminary Geotechnical Investigation, Proposed Everett Street Terraces Apartment Complex, Northeast Corner of Everett Street and Walnut Canyon Road, Moorpark, California," dated 2 December 2005 (Preliminary Report); and
- "Update Geotechnical Investigation for Proposed Everett Street Terraces Apartment Complex, Everette Street and Walnut Canyon Road, City of Moorpark, California," dated 22 July 2015 (Update Letter).

These documents were prepared to provide geotechnical considerations for the proposed development in Everett Street and Walnut Canyon in the City of Moorpark, California (the "Site"). A letter prepared by the City of Moorpark dated 24 November 2015 was also provided, including comments regarding the incompleteness of a development application.

The proposed development includes construction of a sixty-unit complex on a sloped, 2.4-acre property. The development is anticipated to include multi-story residential structures with subterranean basements. The residential structures are expected to be podium-style (wood frame over a reinforced concrete ground level) with slab-on-grade concrete floors and shallow, spread foundations. The preliminary investigation included advancing three cone penetration tests to unreported depths and seven borings of unreported methods and depths. The Update Letter addresses seismic ground motions, foundation systems, slabs-on-grade, and seismic parameters for retaining walls. As stated in the Update Letter, Geolabs-Westlake Village concluded that the primary concerns for the Site development include the potential for liquefaction induced settlement, the potential for settlement from collapsible soil, the presence of expansive soils, and slope stability.

Haley & Aldrich reviewed the Update Letter, and we have several comments as presented below:

- Update Letter, Cover Page: Reference is made to the 2013 California Building Code (CBC). The 2019 CBC was adopted on 1 January 2020. Unless a waiver has been provided, methodologies from the 2019 CBC should be used.
- Update Letter, Seismic Ground Motion Values: Recommendations for ground motion values were presented based on the 2013 CBC. Those values are derived based on America Society of Civil Engineers (ASCE) 7-10,[1] which has been updated with ASCE 7-16.[2] The methodologies should be updated to reflect current methodologies.
- Update Letter, Foundation Systems: The Update Letter states, "Once specific building types and foundation loads and locations are known, project specific foundation recommendations can be prepared." The Update Letter only includes preliminary recommendations and proposes that a final design-level study should be performed. Haley & Aldrich agrees that physical samples of the exposed soils should be collected after completing the rough grading to confirm the selection of the geotechnical recommendations.
- Update Letter, Conventional Foundations: It is recommended that the concrete be placed against in-place, undisturbed material. This appears to contradict earlier-referenced recommendations for overexcavation to address hydro-consolidation and slope stability, which implies that the foundations would be supported on engineered fill rather than in-place, undisturbed material.
- Update Letter, Conventional Foundations: Recommendations are provided that the expansive properties of the near-pad grade materials should be evaluated after completing the rough grading. The section then provides two separate sets of recommendations for various expansive conditions, including differing allowable bearing capacities, lateral resistance, and coefficients of friction. Haley & Aldrich agrees that physical samples of the exposed soils should be collected after completing the rough grading to confirm the selection of the geotechnical recommendations.
- Update Letter, Slab-on-Grade: The proposed 2- to 4-inch thickness of sand below the slab does not appear to be sufficiently thick enough to mitigate the potential for swell if the soils have a high expansive index. A detailed discussion should be provided.
- Preliminary Report, Liquefaction-Induced Settlement Potential: Liquefaction analysis resulted in an estimated 3½ inches of settlement from a seismic event. This is a significant amount of potential settlement for a residential structure. New methodologies for evaluating earthquake parameters have also been developed that may modify the presented findings by Geolabs-Westlake Village. These are discussed under comments for Seismic Ground Motion Values above.

[1] ASCE (2010) Minimum Design Loads for Buildings and Other Structures. ASCE/SEI Standard 7-10
[2] ASCE (2016) Minimum Design Loads and Associated Criteria for Buildings and Other Structures. ASCE/SEI Standard 7-16

- Preliminary Report, Settlement: Total settlement of up to 4 ½ inches and differential settlement of up to 2 ¼ inches, including static and seismic conditions, were reported. These values exceed conventional limits of 1 inch of total settlement and ½ inch of differential settlement for most structures. Mitigation measures should be provided to reduce the settlement or the structural engineer should confirm that the proposed structures are capable of tolerating such excessive movement.
- Preliminary Report, Retaining Wall Recommendations: An allowable passive resistance of 600 pounds per square foot per foot with a factor of safety of 1.5 was provided. Based on the laboratory testing provided, this value exceeds the engineering properties of the soils. Additional justification should be provided for the recommended passive pressure.

In summary, Haley & Aldrich recommends that additional services be performed. Design-level information should be updated to include current building codes and methodologies to evaluate the seismic hazards at the Site. In addition, laboratory testing should be performed after completing the rough grading to verify the properties of the near-pad grade materials. Finally, the structural engineer should confirm that the anticipated settlement under static and seismic conditions are within the tolerance of the structures or mitigation measures should be developed.

We appreciate the opportunity to provide our services to you on this project. If you have any questions or require any additional information, please call.

Sincerely yours,
HALEY & ALDRICH, INC.

Catherine H. Ellis, PE, GE
Senior Associate, Geotechnical Engineer

Nancy E. Gardiner, CPESC, QSD, QISP
Senior Associate

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APPENDIX B
Seismicity

January 22, *2021*
W.O. 8953
Revised February 9, 2021

Everett Street Terraces

Latitude, Longitude: 34.2880, -118.8821



Date	12/29/2020, 2:58:08 PM
Design Code Reference Document	ASCE7-16
Risk Category	II
Site Class	D - Stiff Soil

Type	Value	Description
S_S	1.9	MCE_R ground motion. (for 0.2 second period)
S_1	0.701	MCE_R ground motion. (for 1.0s period)
S_{MS}	1.9	Site-modified spectral acceleration value
S_{M1}	null -See Section 11.4.8	Site-modified spectral acceleration value
S_{DS}	1.266	Numeric seismic design value at 0.2 second SA
S_{D1}	null -See Section 11.4.8	Numeric seismic design value at 1.0 second SA

Type	Value	Description
SDC	null -See Section 11.4.8	Seismic design category
F_a	1	Site amplification factor at 0.2 second
F_v	null -See Section 11.4.8	Site amplification factor at 1.0 second
PGA	0.828	MCE_G peak ground acceleration
F_{PGA}	1.1	Site amplification factor at PGA
PGA_M	0.911	Site modified peak ground acceleration
T_L	8	Long-period transition period in seconds
SsRT	1.9	Probabilistic risk-targeted ground motion. (0.2 second)
SsUH	2.129	Factored uniform-hazard (2% probability of exceedance in 50 years) spectral acceleration
SsD	2.358	Factored deterministic acceleration value. (0.2 second)
S1RT	0.701	Probabilistic risk-targeted ground motion. (1.0 second)
S1UH	0.786	Factored uniform-hazard (2% probability of exceedance in 50 years) spectral acceleration.
S1D	0.76	Factored deterministic acceleration value. (1.0 second)
PGAd	0.962	Factored deterministic acceleration value. (Peak Ground Acceleration)
C_{RS}	0.892	Mapped value of the risk coefficient at short periods

Type	Value	Description
C_{R1}	0.892	Mapped value of the risk coefficient at a period of 1 s

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https://earthquake.usgs.gov/hazards/interactive/ ••• Search

Summary statistics for, Deaggregation: Total

Deaggregation targets

Return period: 2475 yrs
Exceedance rate: 0.0004040404 yr^{-1}
PGA ground motion: 0.85416217 g

Recovered targets

Return period: 2920.1363 yrs
Exceedance rate: 0.00034244977 yr^{-1}

Totals

Binned: 100 %
Residual: 0 %
Trace: 0.04 %

Mean (over all sources)

m: 6.97
r: 8.31 km
ε_0: 1.28 σ

Mode (largest m-r bin)

m: 7.52
r: 9.29 km
ε_0: 1.07 σ
Contribution: 19.06 %

Mode (largest m-r-ε_0 bin)

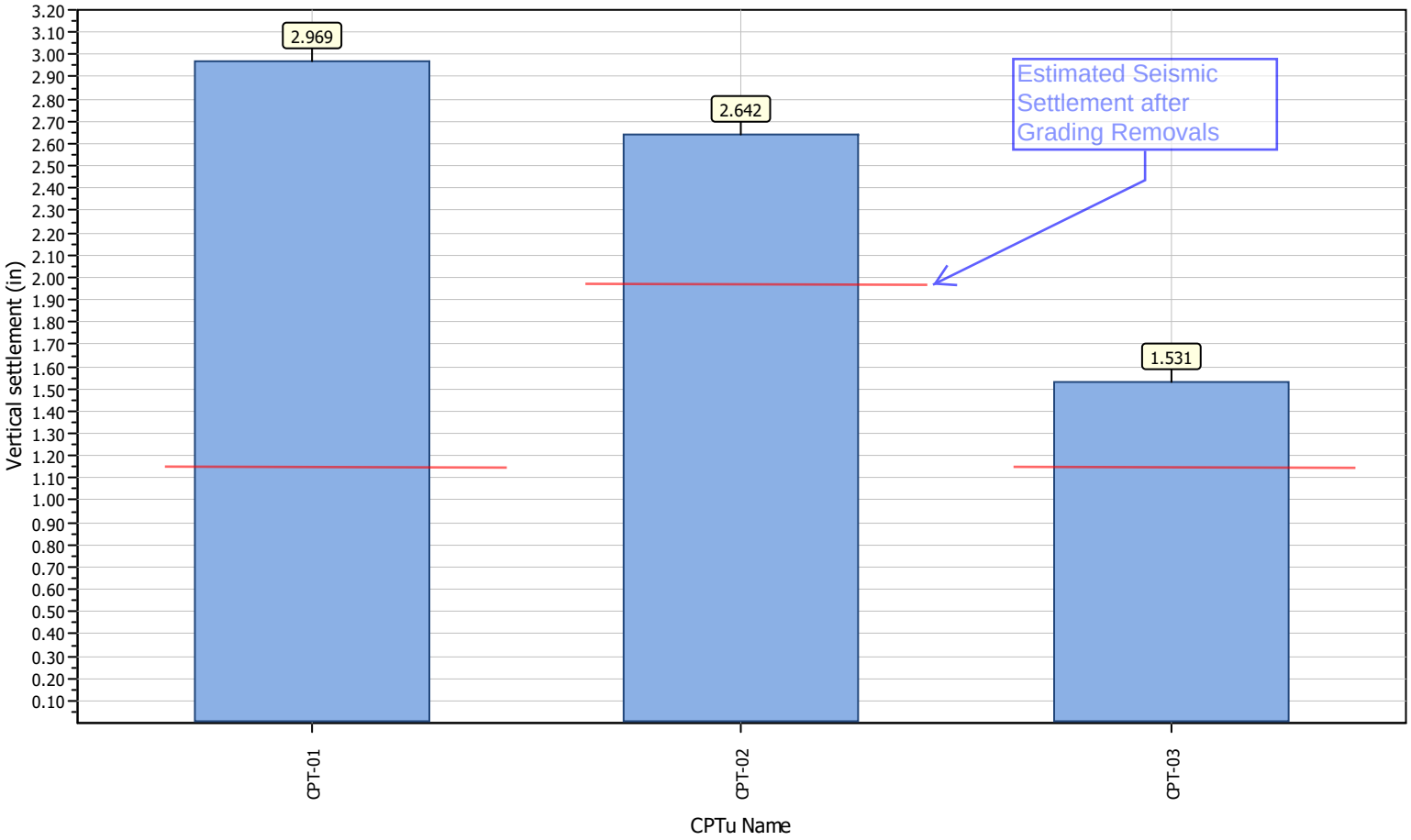
m: 7.52
r: 8.66 km
ε_0: 0.82 σ
Contribution: 10.99 %

GEOLABS - WESTLAKE VILLAGE
Engineering Geology and Soils Engineering
31119 Via Colinas, Suite 502
(818) 889-2562

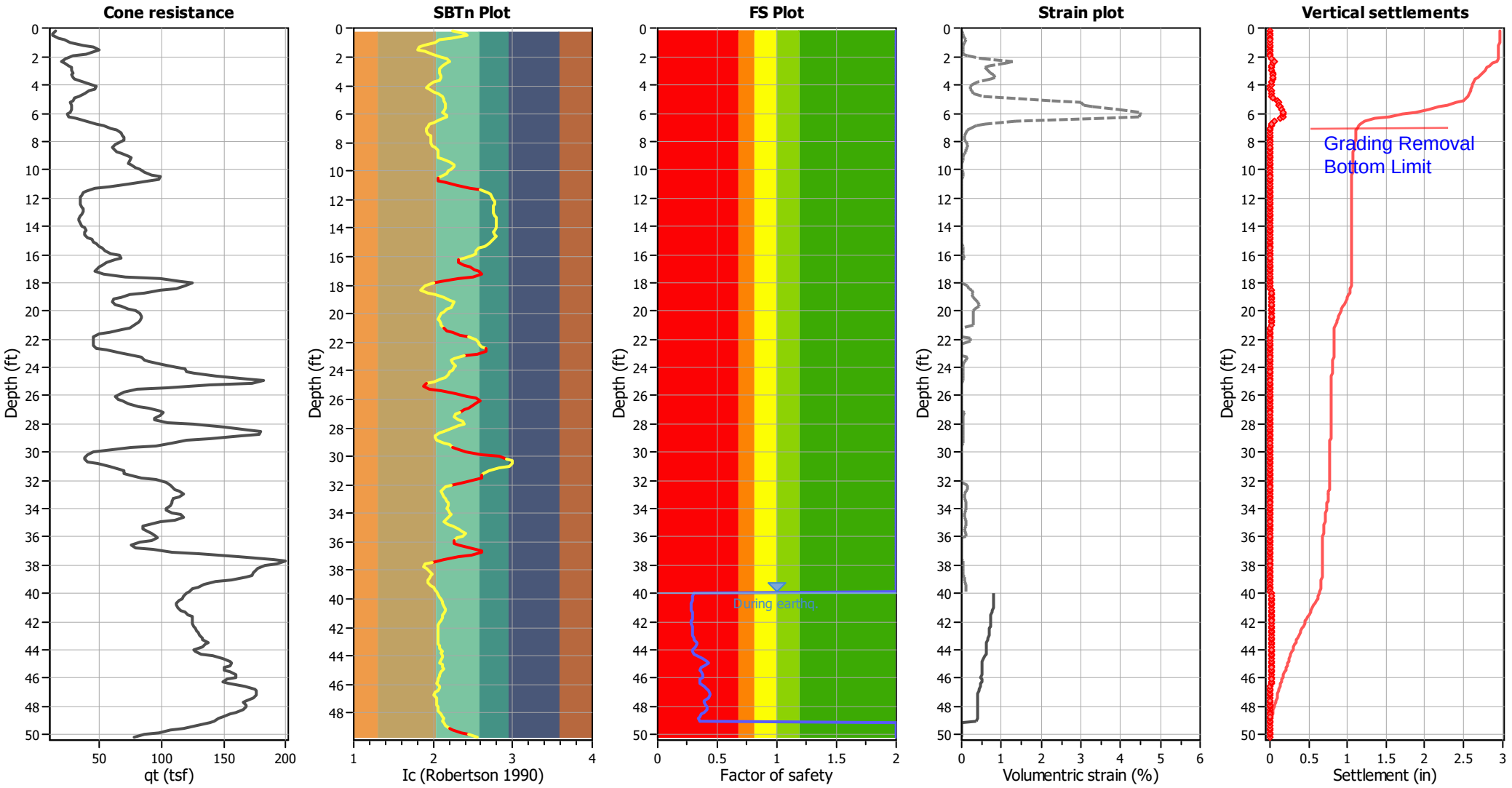
Project title :

Location :

Overall vertical settlements report



Estimation of post-earthquake settlements



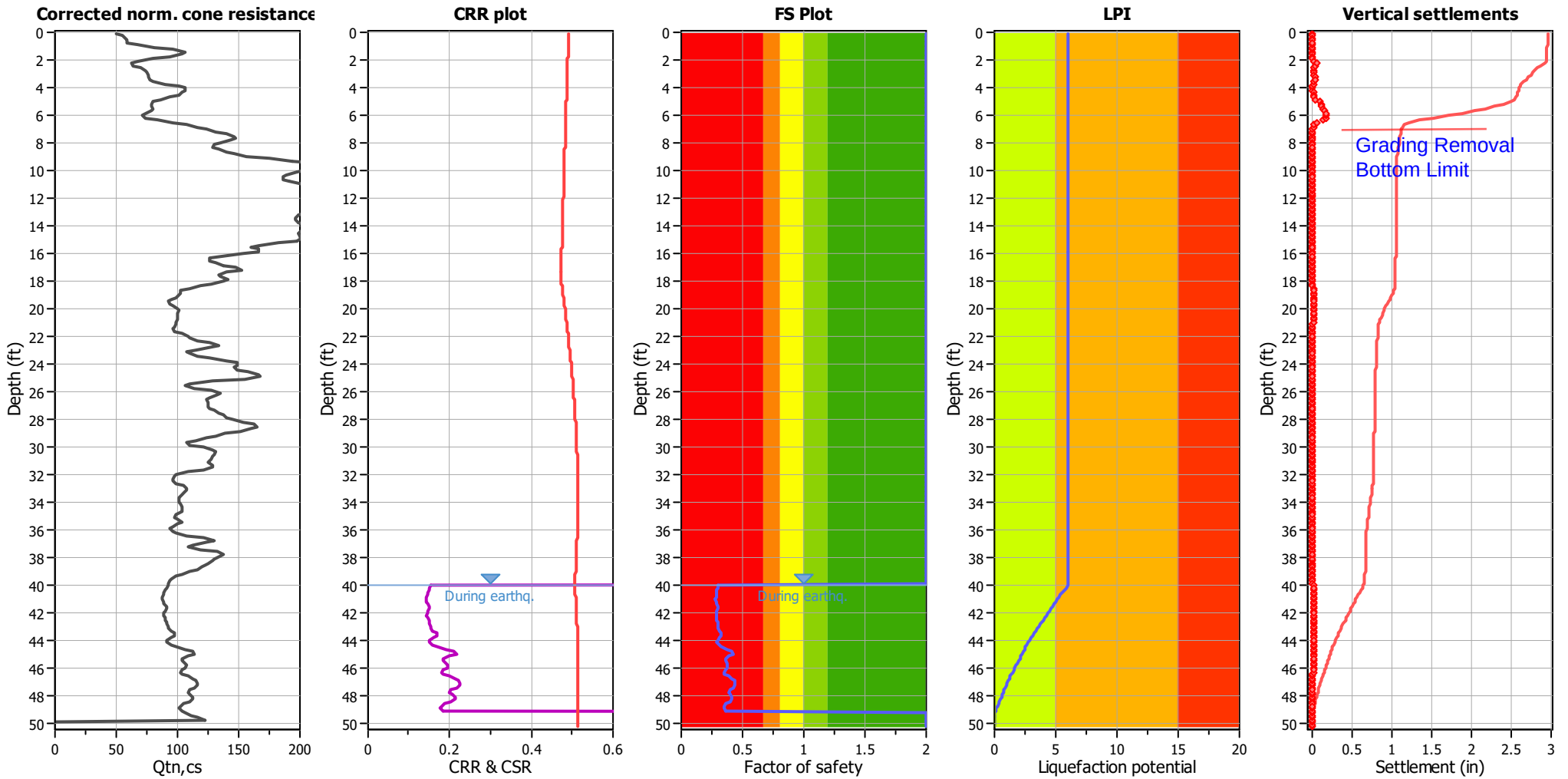
Abbreviations

q_t:	Total cone resistance (cone resistance q_c corrected for pore water effects)
I_c:	Soil Behaviour Type Index
FS:	Calculated Factor of Safety against liquefaction
Volumentric strain:	Post-liquefaction volumentric strain

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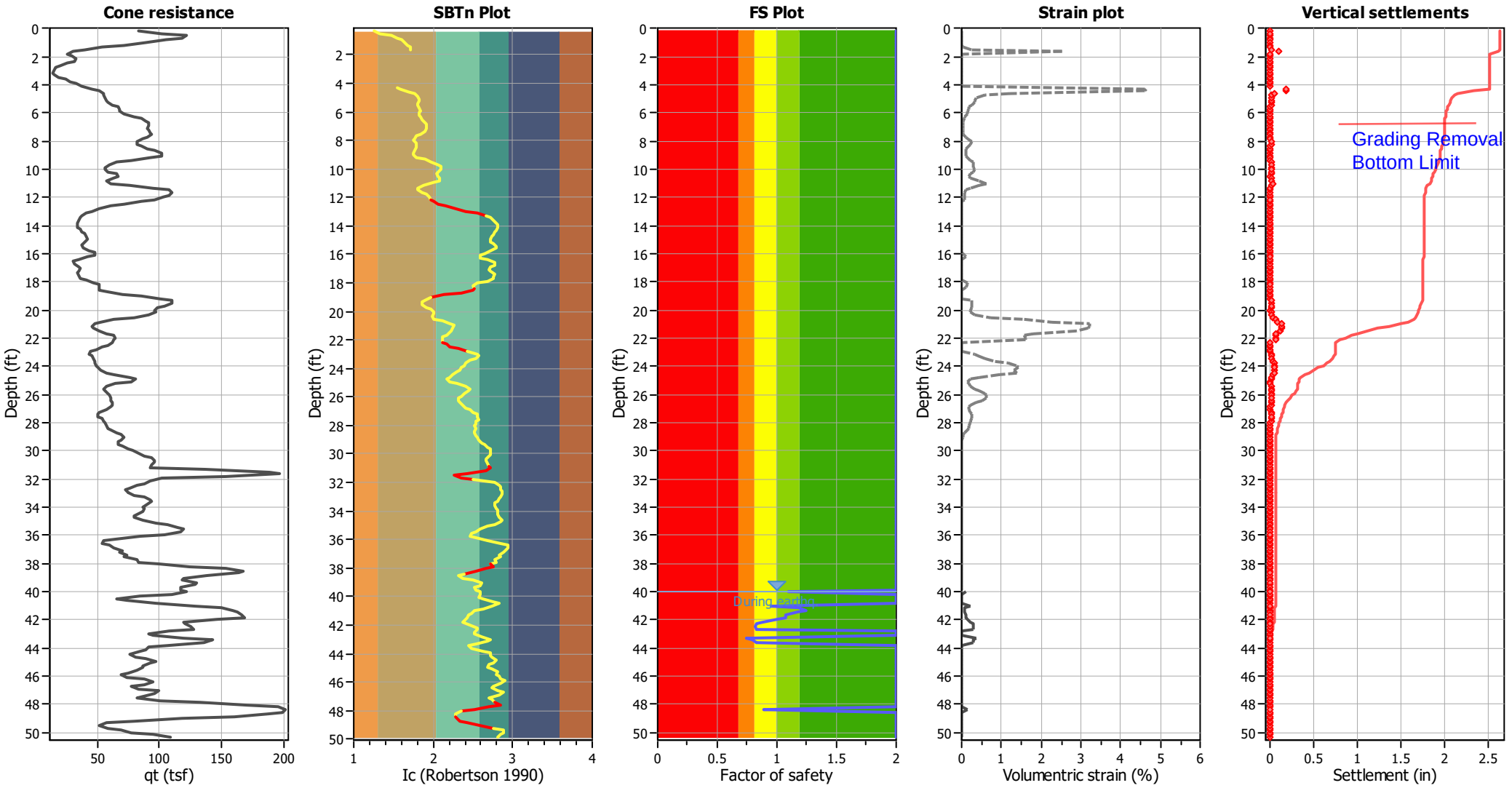
Project:
Location:

CPT: CPT-01
Total depth: 50.20 ft



Analysis method:	NCEER (1998)	G.W.T. (in-situ):	60.00 ft	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	NCEER (1998)	G.W.T. (earthq.):	40.00 ft	Fill height:	N/A	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	50.00 ft
Earthquake magnitude M_w:	6.97	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	0.91	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

Estimation of post-earthquake settlements



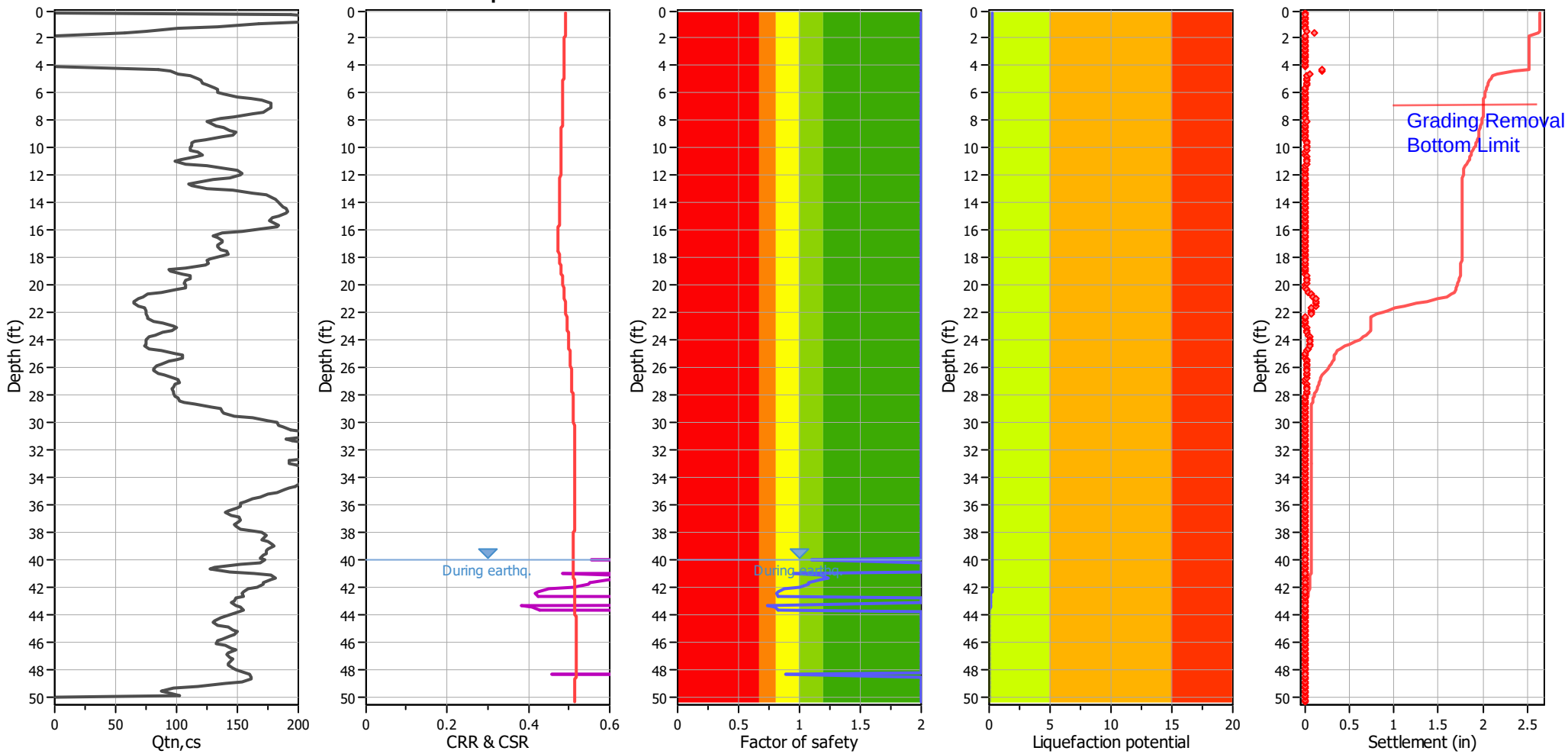
Abbreviations

q_t:	Total cone resistance (cone resistance q_c corrected for pore water effects)
I_c:	Soil Behaviour Type Index
FS:	Calculated Factor of Safety against liquefaction
Volumentric strain:	Post-liquefaction volumentric strain

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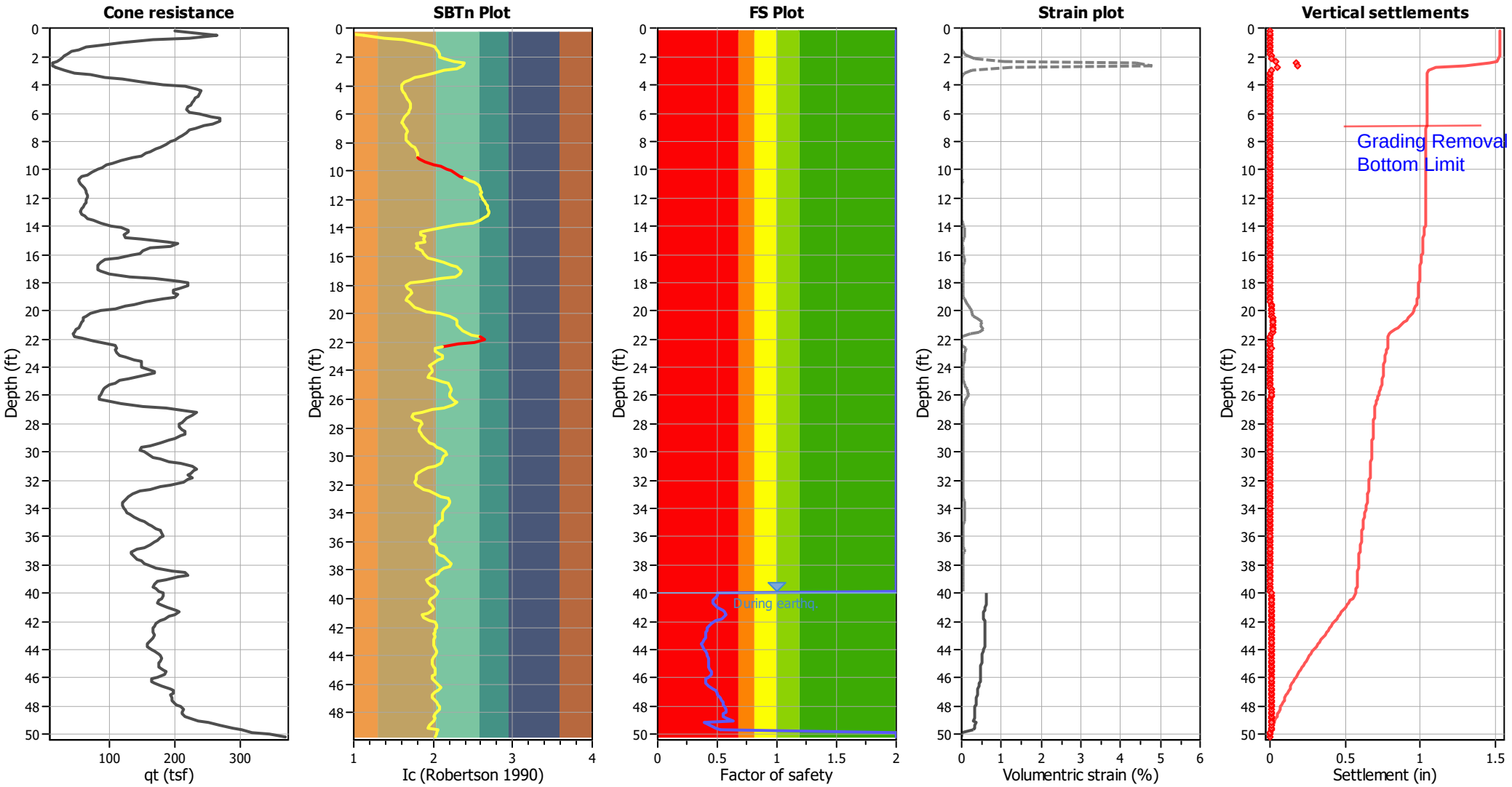
Project:
Location:

CPT: CPT-02
Total depth: 50.36 ft



Analysis method:	NCEER (1998)	G.W.T. (in-situ):	60.00 ft	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	NCEER (1998)	G.W.T. (earthq.):	40.00 ft	Fill height:	N/A	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	50.00 ft
Earthquake magnitude M_w:	6.97	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	0.91	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

Estimation of post-earthquake settlements



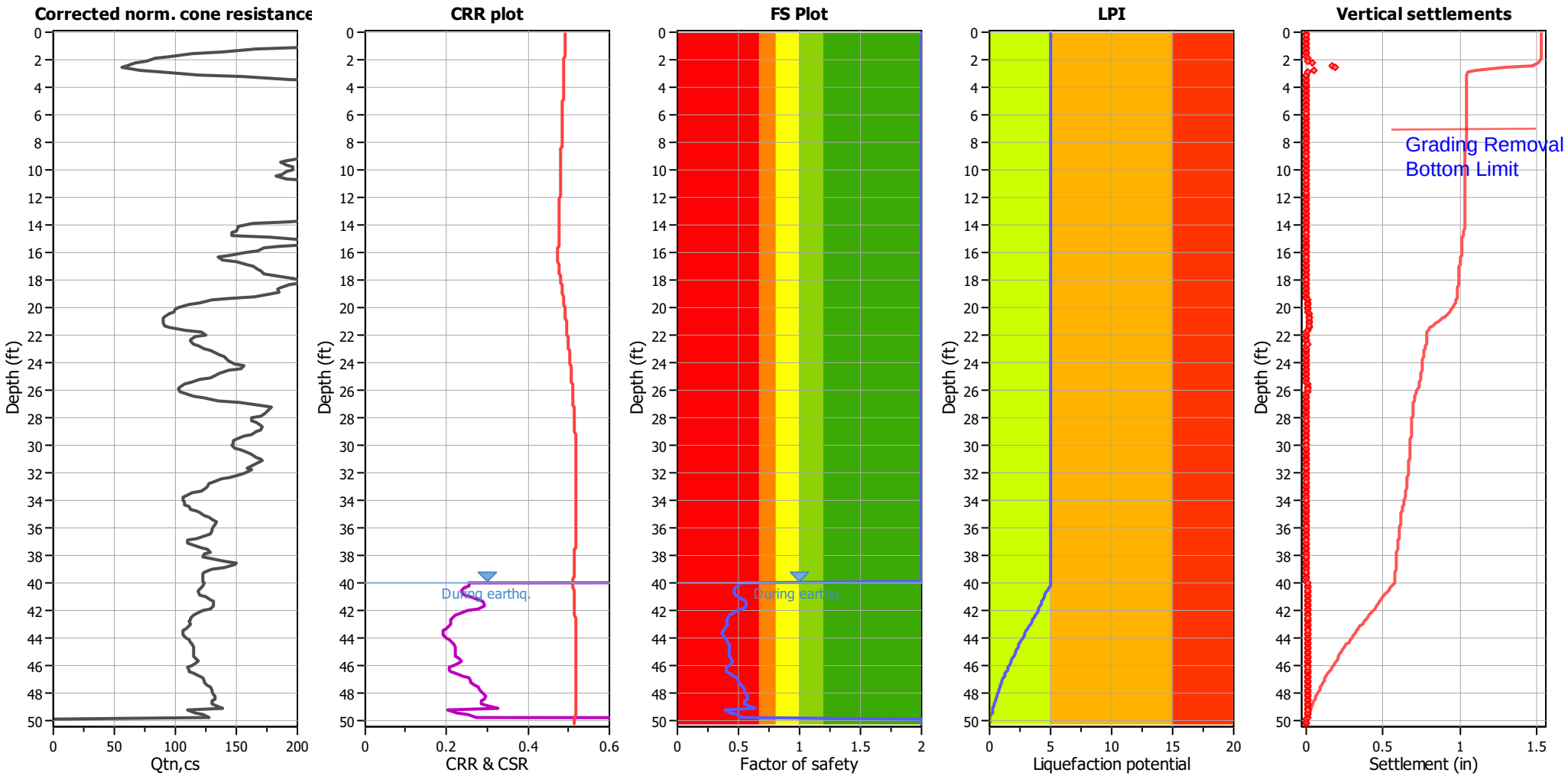
Abbreviations

q_t:	Total cone resistance (cone resistance q_c corrected for pore water effects)
I_c:	Soil Behaviour Type Index
FS:	Calculated Factor of Safety against liquefaction
Volumentric strain:	Post-liquefaction volumentric strain

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Project:
Location:

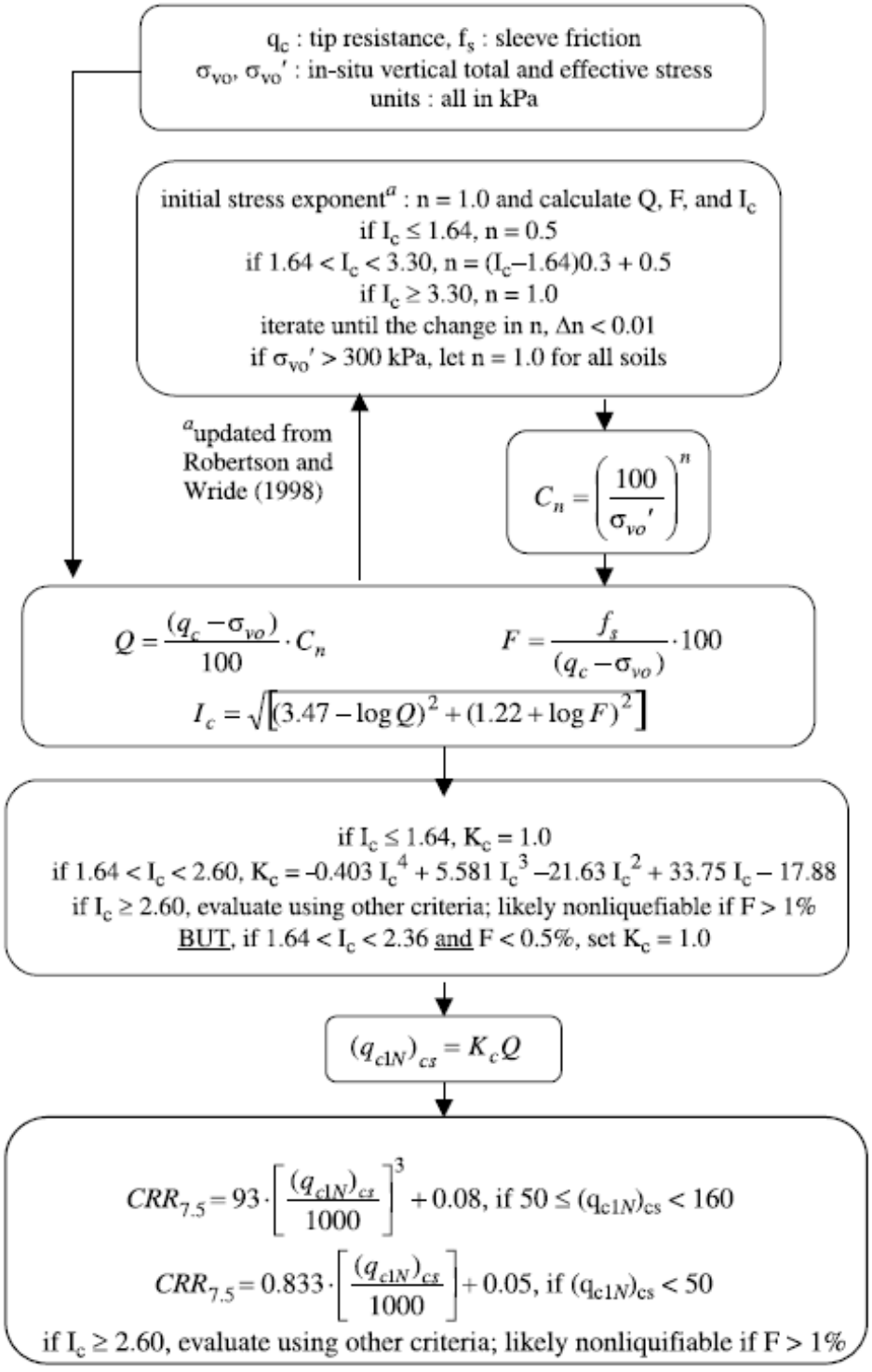
CPT: CPT-03
Total depth: 50.20 ft



Analysis method:	NCEER (1998)	G.W.T. (in-situ):	60.00 ft	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	NCEER (1998)	G.W.T. (earthq.):	40.00 ft	Fill height:	N/A	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	50.00 ft
Earthquake magnitude M_w:	6.97	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	0.91	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

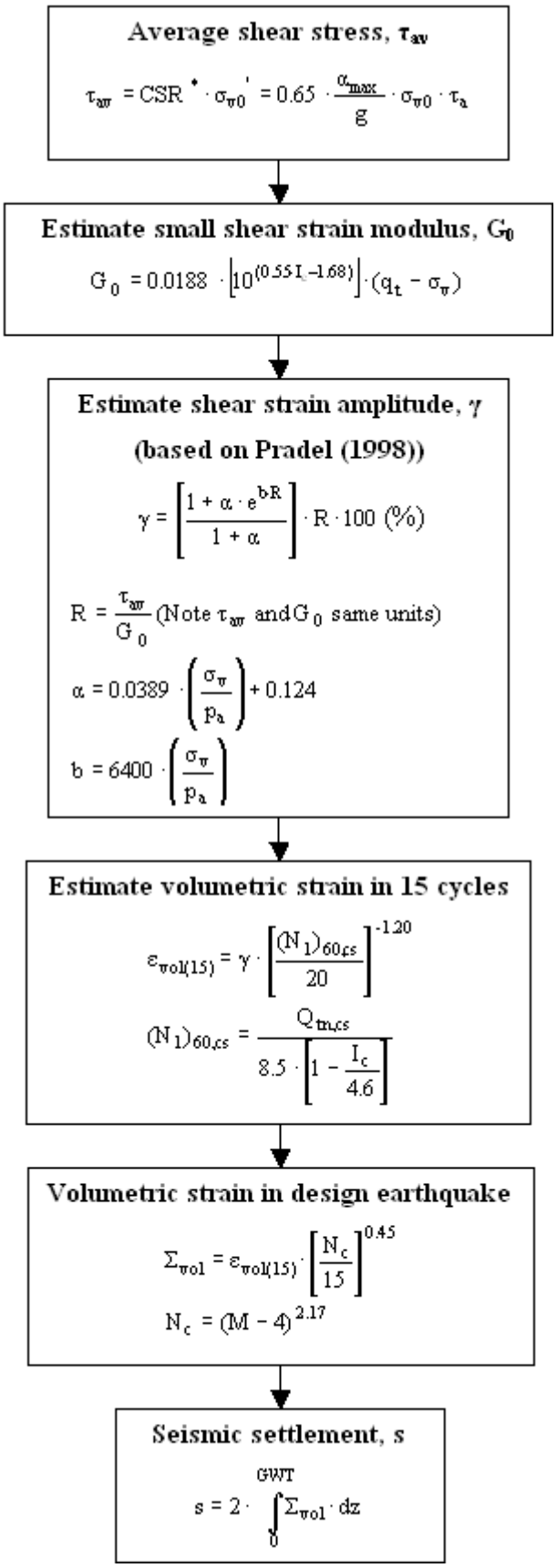
Procedure for the evaluation of soil liquefaction resistance, NCEER (1998)

Calculation of soil resistance against liquefaction is performed according to the Robertson & Wride (1998) procedure. The procedure used in the software, slightly differs from the one originally published in NCEER-97-0022 (Proceedings of the NCEER Workshop on Evaluation of Liquefaction Resistance of Soils). The revised procedure is presented below in the form of a flowchart[1]:



[1] "Estimating liquefaction-induced ground settlements from CPT for level ground", G. Zhang, P.K. Robertson, and R.W.I. Brachman

Procedure for the estimation of seismic induced settlements in dry sands



Robertson, P.K. and Lisheng, S., 2010, "Estimation of seismic compression in dry soils using the CPT" FIFTH INTERNATIONAL CONFERENCE ON RECENT ADVANCES IN GEOTECHNICAL EARTHQUAKE ENGINEERING AND SOIL DYNAMICS, Symposium in honor of professor I. M. Idriss, San Diego, CA

Liquefaction Potential Index (LPI) calculation procedure

Calculation of the Liquefaction Potential Index (LPI) is used to interpret the liquefaction assessment calculations in terms of severity over depth. The calculation procedure is based on the methology developed by Iwasaki (1982) and is adopted by AFPS.

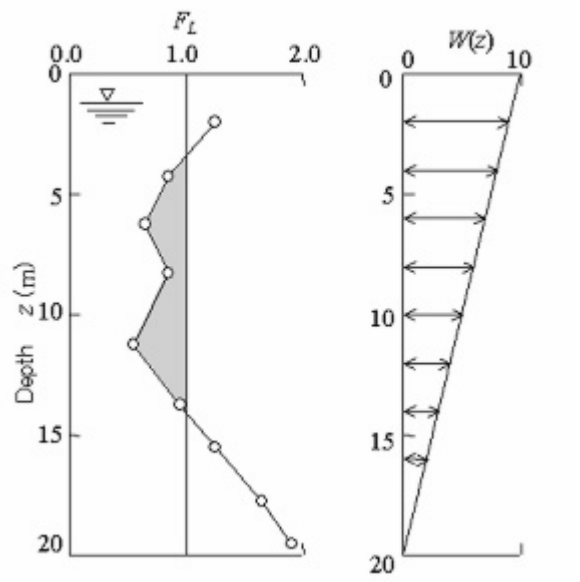
To estimate the severity of liquefaction extent at a given site, LPI is calculated based on the following equation:

$$\mathbf{LPI} = \int_0^{20} (10 - 0{,}5z) \times F_L \times dz$$

where:
F_L = 1 - F.S. when F.S. less than 1
F_L = 0 when F.S. greater than 1
z depth of measurment in meters

Values of LPI range between zero (0) when no test point is characterized as liquefiable and 100 when all points are characterized as susceptible to liquefaction. Iwasaki proposed four (4) discrete categories based on the numeric value of LPI:

- LPI = 0 : Liquefaction risk is very low
- 0 < LPI <= 5 : Liquefaction risk is low
- 5 < LPI <= 15 : Liquefaction risk is high
- LPI > 15 : Liquefaction risk is very high



Graphical presentation of the LPI calculation procedure

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APPENDIX G – PALEONTOLOGICAL RESOURCES REPORT

PALEONTOLOGICAL RECORDS SEARCH AND LITURATURE REVIEW SUMMARY REPORT FOR THE EVERETT STREET TERRACES PROJECT

City of Moorpark

February 7, 2022
5 Hutton Centre Drive, Suite 750
Santa Ana, CA 92707

Shanna Farley-Judkins
Principal Planner
Community Development Department
City of Moorpark
799 Moorpark Ave.
Moorpark, CA 93021

Subject: Everett Street Terraces Project Paleontological Records Search and Literature Review Summary Letter Report

Dear Ms. Farley-Judkins,

Chambers Group, Inc. (Chambers Group) provides this report for paleontological resources services to City of Moorpark in support of the Everett Street Terraces Project (Project, Proposed Project), in the City of Moorpark, Ventura County, California. Chambers Group has completed a Desktop Assessment of Paleontological Resources. This assessment included paleontological resources record search and literature review for the study area (Figure 1). The purpose of the review was to gather and analyze information needed to assess the potential for impacts to paleontological resources within the Proposed Project area.

Location and Geologic Setting

The proposed Everett Street Terraces Project in Moorpark is located within Little Simi Valley, an area with a complex geologic history. As part of the Transverse Ranges geomorphic province, the region is comprised of east-west trending sequence of mountain ranges and valleys. The province itself can be divided into over a dozen smaller regions including the late Cenozoic Ventura basin, an elongated sedimentary trough in which Moorpark is located (Squires 1997). The western portion of the basin is covered by the Pacific Ocean while the eastern boundary of the basin is the San Gabriel fault. The Ventura basin is bound by the Santa Ynez Mountains and Topatopa Mountains to the north and by the Santa Monica Mountains to the south.

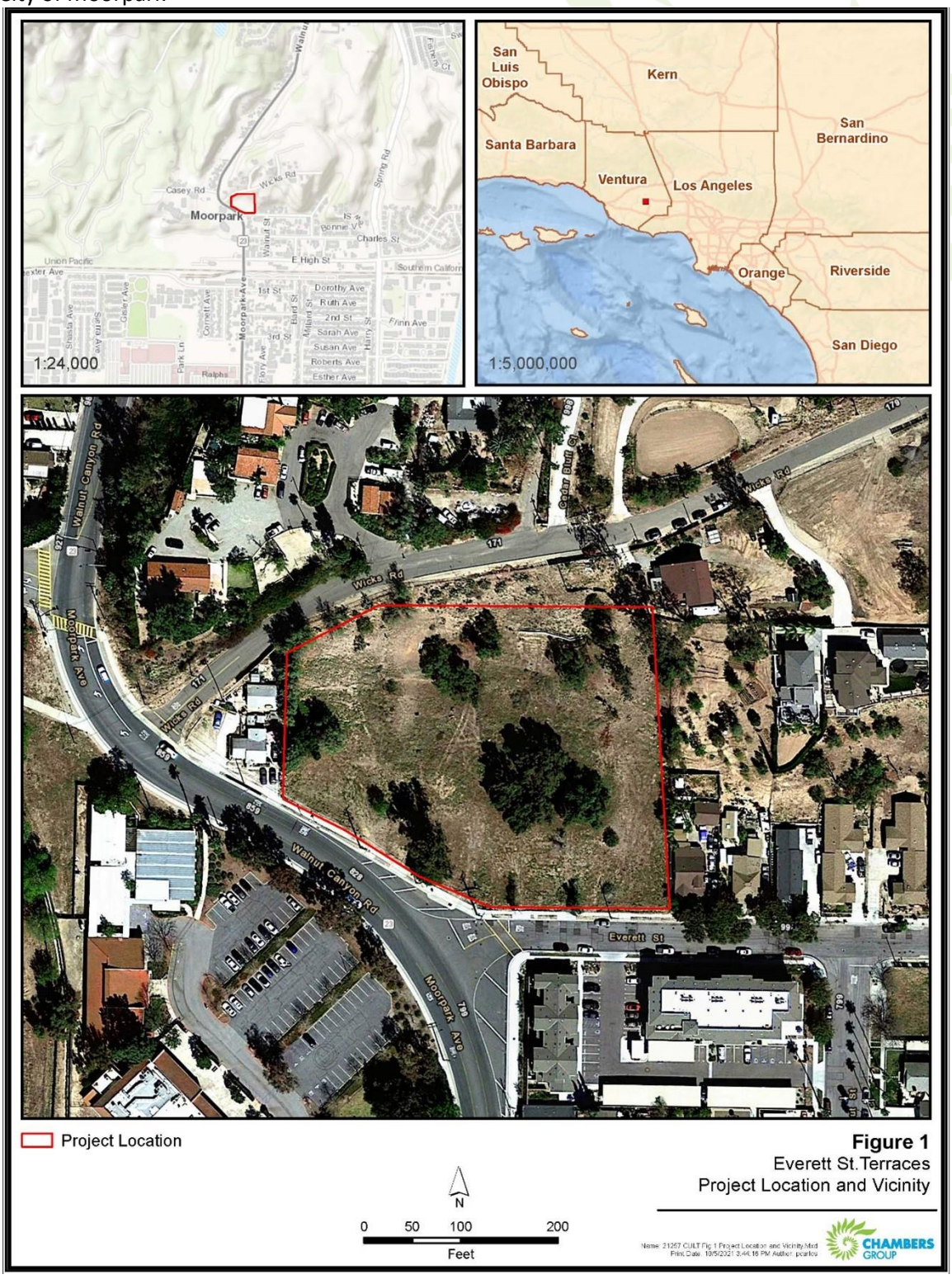
Methods of Review

A paleontological record search was conducted by the Natural History Museum of Los Angeles County on October 1, 2021. The search produced no known fossil localities that lie within the Proposed Project site, but localities have been documented nearby within the same sedimentary deposits found within the Project site (Bell 2021). A fossil horse (*Equus occidentalis*) ([locality] LACM VP 6107) was found at the surface in Pleistocene terrace deposits east of Alamos Canyon and north of Hwy 118, Strathearn, two Pleistocene-aged Mastodons (Mammut) (LACM VP 7455 and LACM VP 7594) from unknown depths were found near Legacy Drive/north of Simi Valley and north of Presidio Drive in Simi Valley, respectively. In addition, scoter (*Melanitta*), albatross (*Diomedea*), shearwater (*Puffinus*), auk (*Mancalla*), cormorant (*Phalacrocorax*), baleen whale (*Balaenidae*), rorquals (*Balaenopteridae*), eared seal (*Otariidae*), sea snake (*Hydrosphiisae*), rock bass (*Paralabax*), sturgeon (*Acipenser*) were all discovered from unknown depths within the Saugus Formation near the intersection of Mine Road and Tapo Canyon Road in the Santa Susana Mountains. Bivalves were identified from unknown depths of the marine facies of the Saugus Formation west of the Los Posas Country Club.

A self-search was also conducted through the University of California Museum of Paleontology Berkeley (UCMP) database. A tooth from a fossil horse (*Equus occidentalis*) (#32958) dating to the Pleistocene/Pliocene was discovered from the Saugus Formation in Camarillo, Ventura County.

PALEONTOLOGICAL RECORDS SEARCH AND LITURATURE REVIEW SUMMARY REPORT FOR THE EVERETT STREET TERRACES PROJECT

City of Moorpark



Discussion

As evident above, the occurrences of paleontological resources are closely tied to the geologic units (formations or members) that contain them. With this in mind, a detailed literature search was conducted on the geologic units underlying the Project site as well as their paleontological sensitivity to produce paleontological resources. Geologic mapping by Jennings and Strand (1969) indicates that Holocene alluvium (last 10,000 years) and upper Pleistocene (500,000 to 10,000 years) nonmarine terrace deposits have been mapped within the proposed Project. Given that paleontological resources have been documented nearby in deeper units, there is the potential to impact the marine to nonmarine Saugus Formation (upper Pliocene to lower Pleistocene (3 to 1 million years) as well. Below is a brief description of each geologic unit in the Project site.

Holocene Alluvium (Qaf)

Holocene alluvium surficial deposits cover the valley floor. This alluvium is composed of unconsolidated sandy, silty, clay materials representing alluvial fan and valley deposits, colluvium, active alluvial fans, and active stream deposits. These deposits are generally void of fossils due to their relatively young age.

Upper Pleistocene Nonmarine Terrace Deposits (Qt)

Quaternary terrace deposits appear mainly as soil-like varying from fine sandy clays to clayey sands to reddish-brown medium to very coarse sands and gravels (City of Moorpark 1994). As fossil vertebrates have been identified from Pleistocene deposits in the past, there is a likelihood of encountering similar fossils during Project construction.

Upper Pliocene to Lower Pleistocene Saugus Formation (Pu, Puc, Pc, Qp, Qc, Qm)

The Plio-Pleistocene Saugus Formation can be divided into a lower marine portion and a nonmarine upper portion. The lower portion is composed of interfingering sandstone, coquinite, and conglomerate deposits with occurrences of limestone and laminated mudstone representing a shallow marine environment (White 1985). The sandstone in this lower unit is very rich in macrofossils including snails, clams, sea urchins, sand dollars, great-white shark teeth, whale, and land plants (Squire 1997). The upper portion of the Saugus Formation consists of poorly indurated, medium to coarse sandstone interbedded with pebble-boulder conglomerate representing a river floodplain deposit (White 1985). The sandstone and conglomerate within this upper portion have yielded fossil remains of horse, tapir, deer, and mastodons (Squire 1997). The contact between the lower and upper is gradational and is represented by interfingering of shallow-marine beds with river deposits.

Recommendations

Due to the sensitivity of the Project site and surrounding area to produce paleontological resources during ground disturbing activities, mitigation measures that are in line with standards set by the City of Moorpark and will serve to reduce potential impacts are recommended prior to ground disturbance. As well as following the County of Ventura's goals pertaining to paleontological resources outlined in Sections 1.8.1 & 1.8.2 of the Resources element of the County of Ventura General Plan, these mitigation measures are recommended to ensure that the Guidelines of the Society of Vertebrate Paleontology (SVP) and the Guidelines of the State Office of Historic Preservation are fulfilled and shall be performed in consultation with professional archaeologists and paleontologists. The following mitigation measures should be considered and implemented in support of this Project with the intent to reduce potential impacts to paleontological resources to less than significant:

MM PAL-01: Prior to issuance of a Zoning Clearance for a grading permit, the applicant shall be required to obtain the services of a qualified project paleontologist to remain on-call for the duration of the proposed ground disturbing construction activity. The paleontologist selected must be

approved in writing by the Community Development Director. Upon approval or request by the Community Development Director, a paleontological mitigation plan (PMP) outlining procedures for paleontological data recovery shall be prepared for the Proposed Project and submitted to the Community Development Director for review and approval. The development and implementation of the PMP shall include consultations with the Applicant's engineering geologist as well as a requirement that the curation of all specimens recovered under any scenario shall be through the Los Angeles County Museum of Natural History (LACMNH). All specimens become the property of the City of Moorpark unless the City chooses otherwise. If the City accepts ownership, the curation location may be revised. The PMP shall include developing a multilevel ranking system, or Potential Fossil Yield Classification (PFYC), as a tool to demonstrate the potential yield of fossils within a given stratigraphic unit. The PMP shall outline the monitoring and salvage protocols to address paleontological resources encountered during ground disturbing activities. As well as the appropriate recording, collection, and processing protocols to appropriately address any resources discovered. The cost of data recovery is limited to the discovery of a reasonable sample of available material. The interpretation of reasonableness rests with the Community Development Director.

MM-PAL-2 At the completion of all ground-disturbing activities, the project paleontologist shall prepare a final paleontological mitigation report summarizing all monitoring efforts and observations, as performed in line with the PMP, and all paleontological resources encountered, if any. As well as providing follow-up reports of any specific discovery, if necessary.

Chambers Group is available to assist with any further support, document preparation, or consultation related to Paleontological resources. Please contact the Chambers Group Project Manager/Planner, Meghan Gibson, or the Chambers Group Principal Investigator for Paleontology and author of this report at the contact information below if you have any questions or comments regarding this report.

Sincerely,
CHAMBERS GROUP, INC.

NKottachchi

Niranjala Kottachchi
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References

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APPENDIX H – GREENHOUSE GAS MODEL RUN OUTPUTS

Everett Street Terraces - Ventura County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Everett Street Terraces

Ventura County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Enclosed Parking with Elevator	156.00	Space	1.40	28,080.00	0
Recreational Swimming Pool	5.00	1000sqft	0.11	5,000.00	0
Condo/Townhouse High Rise	60.00	Dwelling Unit	0.94	71,423.00	184

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.6	**Precipitation Freq (Days)**	31
Climate Zone	8			**Operational Year**	2024
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	390.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - 60 condos 71,423 sqft. 156 parking spaces 28,080 sqft. 5.0 TSF Rec Swim Pool (Common Area) (Lobby 225 sqft+Office 137 sqft+Change Rooms 330 sqft) Lot Size 2.438 acres

Construction Phase - Site Prep extended to 10 days and Grading extended to 40 days. Paving and Architectural Coating would occur concurrently over 50 days

Grading - Export of 1,174 cu yds of dirt

Vehicle Trips - Daily Trip Rate set to match TIA

Mobile Land Use Mitigation - Improve Ped Network Onsite and Connecting Offsite. 250 feet (0.05 mile) from Civic Center Bus Stop

Energy Mitigation - Solar PV System = 3.6 kW System. 8 hr per day. 1.2 DC to AC conversion. Total 24 kWh per day = 8,760 kWhr per year

Water Mitigation - Install Low-Flow fixtures and Use Water-Efficient Irrigation Systems

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	10.00	50.00
tblConstructionPhase	NumDays	6.00	40.00
tblConstructionPhase	NumDays	10.00	50.00
tblConstructionPhase	NumDays	3.00	10.00
tblGrading	MaterialExported	0.00	1,174.00
tblLandUse	LandUseSquareFeet	62,400.00	28,080.00
tblLandUse	LandUseSquareFeet	60,000.00	71,423.00
tblVehicleTrips	ST_TR	4.91	5.82
tblVehicleTrips	ST_TR	9.10	0.00
tblVehicleTrips	SU_TR	4.09	5.82
tblVehicleTrips	SU_TR	13.60	0.00
tblVehicleTrips	WD_TR	5.44	5.82
tblVehicleTrips	WD_TR	28.82	0.00

2.0 Emissions Summary

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2.1 Overall Construction

Unmitigated 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	0.1520	1.2586	1.2188	2.5400e-003	0.1866	0.0536	0.2402	0.0793	0.0507	0.1300	0.0000	218.4927	218.4927	0.0414	3.4100e-003	220.5437
2024	0.4812	0.8705	1.0934	2.0300e-003	0.0309	0.0373	0.0681	8.2900e-003	0.0354	0.0437	0.0000	174.6441	174.6441	0.0321	2.1100e-003	176.0747
Maximum	**0.4812**	**1.2586**	**1.2188**	**2.5400e-003**	**0.1866**	**0.0536**	**0.2402**	**0.0793**	**0.0507**	**0.1300**	**0.0000**	**218.4927**	**218.4927**	**0.0414**	**3.4100e-003**	**220.5437**

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	0.1520	1.2586	1.2188	2.5400e-003	0.1866	0.0536	0.2402	0.0793	0.0507	0.1300	0.0000	218.4925	218.4925	0.0414	3.4100e-003	220.5435
2024	0.4812	0.8705	1.0934	2.0300e-003	0.0309	0.0373	0.0681	8.2900e-003	0.0354	0.0437	0.0000	174.6439	174.6439	0.0321	2.1100e-003	176.0745
Maximum	**0.4812**	**1.2586**	**1.2188**	**2.5400e-003**	**0.1866**	**0.0536**	**0.2402**	**0.0793**	**0.0507**	**0.1300**	**0.0000**	**218.4925**	**218.4925**	**0.0414**	**3.4100e-003**	**220.5435**

Everett Street Terraces - Ventura County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule 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	N20	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

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	4-2-2023	7-1-2023	0.3691	0.3691
2	7-2-2023	10-1-2023	0.5286	0.5286
3	10-2-2023	1-1-2024	0.5293	0.5293
4	1-2-2024	4-1-2024	0.4932	0.4932
5	4-2-2024	7-1-2024	0.6799	0.6799
6	7-2-2024	9-30-2024	0.1805	0.1805
		Highest	0.6799	0.6799

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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	0.3340	5.1400e-003	0.4468	2.0000e-005		2.4700e-003	2.4700e-003		2.4700e-003	2.4700e-003	0.0000	0.7306	0.7306	7.1000e-004	0.0000	0.7483
Energy	3.6100e-003	0.0308	0.0131	2.0000e-004		2.4900e-003	2.4900e-003		2.4900e-003	2.4900e-003	0.0000	106.3474	106.3474	6.6500e-003	1.3800e-003	106.9240
Mobile	0.1788	0.2132	1.6591	3.3400e-003	0.3634	2.6800e-003	0.3661	0.0970	2.5000e-003	0.0995	0.0000	313.7011	313.7011	0.0216	0.0149	318.6768
Waste						0.0000	0.0000		0.0000	0.0000	11.3878	0.0000	11.3878	0.6730	0.0000	28.2128
Water						0.0000	0.0000		0.0000	0.0000	1.3340	14.9231	16.2572	0.1383	3.3900e-003	20.7238
Total	**0.5164**	**0.2492**	**2.1191**	**3.5600e-003**	**0.3634**	**7.6400e-003**	**0.3710**	**0.0970**	**7.4600e-003**	**0.1045**	**12.7218**	**435.7022**	**448.4240**	**0.8402**	**0.0197**	**475.2855**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2.2 Overall Operational

Mitigated 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	0.3340	5.1400e-003	0.4468	2.0000e-005		2.4700e-003	2.4700e-003		2.4700e-003	2.4700e-003	0.0000	0.7306	0.7306	7.1000e-004	0.0000	0.7483
Energy	3.6100e-003	0.0308	0.0131	2.0000e-004		2.4900e-003	2.4900e-003		2.4900e-003	2.4900e-003	0.0000	104.7938	104.7938	6.5200e-003	1.3600e-003	105.3624
Mobile	0.1574	0.1713	1.3395	2.5500e-003	0.2745	2.0900e-003	0.2766	0.0733	1.9500e-003	0.0752	0.0000	238.9941	238.9941	0.0181	0.0121	243.0498
Waste						0.0000	0.0000		0.0000	0.0000	11.3878	0.0000	11.3878	0.6730	0.0000	28.2128
Water						0.0000	0.0000		0.0000	0.0000	1.0672	12.6631	13.7303	0.1107	2.7200e-003	17.3073
Total	**0.4950**	**0.2072**	**1.7994**	**2.7700e-003**	**0.2745**	**7.0500e-003**	**0.2816**	**0.0733**	**6.9100e-003**	**0.0802**	**12.4550**	**357.1816**	**369.6366**	**0.8090**	**0.0162**	**394.6806**

	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	**4.15**	**16.84**	**15.09**	**22.19**	**24.45**	**7.72**	**24.11**	**24.45**	**7.37**	**23.24**	**2.10**	**18.02**	**17.57**	**3.71**	**17.75**	**16.96**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	4/29/2023	5/12/2023	5	10	
2	Grading	Grading	5/13/2023	7/8/2023	5	40	
3	Building Construction	Building Construction	7/9/2023	5/10/2024	5	220	

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

4	Paving	Paving	5/11/2024	7/21/2024	5	50	
5	Architectural Coating	Architectural Coating	5/11/2024	7/21/2024	5	50	

Acres of Grading (Site Preparation Phase): 15

Acres of Grading (Grading Phase): 40

Acres of Paving: 1.4

Residential Indoor: 144,632; Residential Outdoor: 48,211; Non-Residential Indoor: 1,038; Non-Residential Outdoor: 346; Striped Parking Area: 1,685 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
	Air Compressors	1	6.00	78	0.48
	Cement and Mortar Mixers	1	8.00	9	0.56
	Cranes	1	8.00	231	0.29
	Forklifts	2	7.00	89	0.20
	Generator Sets	1	8.00	84	0.74
	Graders	1	8.00	187	0.41
	Graders	1	8.00	187	0.41
	Pavers	1	8.00	130	0.42
	Paving Equipment	1	8.00	132	0.36
	Rollers	2	8.00	80	0.38
	Rubber Tired Dozers	1	8.00	247	0.40
	Scrapers	1	8.00	367	0.48
	Tractors/Loaders/Backhoes	1	6.00	97	0.37
	Tractors/Loaders/Backhoes	2	7.00	97	0.37
	Tractors/Loaders/Backhoes	1	8.00	97	0.37
	Tractors/Loaders/Backhoes	1	7.00	97	0.37
	Welders	3	8.00	46	0.45
Site Preparation	Graders	1	8.00	187	0.41

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Site Preparation	Scrapers	1	8.00	367	0.48
Site Preparation	Tractors/Loaders/Backhoes	1	7.00	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	8.00	231	0.29
Building Construction	Forklifts	2	7.00	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	8.00	9	0.56
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	1	8.00	132	0.36
Paving	Rollers	2	8.00	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

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
Site Preparation	3	8.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	0.00	147.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	8	57.00	12.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	11.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 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					7.9500e-003	0.0000	7.9500e-003	8.6000e-004	0.0000	8.6000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.5100e-003	0.0714	0.0489	1.2000e-004		2.7100e-003	2.7100e-003		2.4900e-003	2.4900e-003	0.0000	10.7722	10.7722	3.4800e-003	0.0000	10.8593
Total	**6.5100e-003**	**0.0714**	**0.0489**	**1.2000e-004**	**7.9500e-003**	**2.7100e-003**	**0.0107**	**8.6000e-004**	**2.4900e-003**	**3.3500e-003**	**0.0000**	**10.7722**	**10.7722**	**3.4800e-003**	**0.0000**	**10.8593**

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	0.0000	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	0.0000	0.0000
Worker	1.1000e-004	8.0000e-005	1.0000e-003	0.0000	3.2000e-004	0.0000	3.2000e-004	9.0000e-005	0.0000	9.0000e-005	0.0000	0.2508	0.2508	1.0000e-005	1.0000e-005	0.2532
Total	**1.1000e-004**	**8.0000e-005**	**1.0000e-003**	**0.0000**	**3.2000e-004**	**0.0000**	**3.2000e-004**	**9.0000e-005**	**0.0000**	**9.0000e-005**	**0.0000**	**0.2508**	**0.2508**	**1.0000e-005**	**1.0000e-005**	**0.2532**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Site Preparation - 2023

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					7.9500e-003	0.0000	7.9500e-003	8.6000e-004	0.0000	8.6000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.5100e-003	0.0714	0.0489	1.2000e-004		2.7100e-003	2.7100e-003		2.4900e-003	2.4900e-003	0.0000	10.7722	10.7722	3.4800e-003	0.0000	10.8593
Total	**6.5100e-003**	**0.0714**	**0.0489**	**1.2000e-004**	**7.9500e-003**	**2.7100e-003**	**0.0107**	**8.6000e-004**	**2.4900e-003**	**3.3500e-003**	**0.0000**	**10.7722**	**10.7722**	**3.4800e-003**	**0.0000**	**10.8593**

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	0.0000	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	0.0000	0.0000
Worker	1.1000e-004	8.0000e-005	1.0000e-003	0.0000	3.2000e-004	0.0000	3.2000e-004	9.0000e-005	0.0000	9.0000e-005	0.0000	0.2508	0.2508	1.0000e-005	1.0000e-005	0.2532
Total	**1.1000e-004**	**8.0000e-005**	**1.0000e-003**	**0.0000**	**3.2000e-004**	**0.0000**	**3.2000e-004**	**9.0000e-005**	**0.0000**	**9.0000e-005**	**0.0000**	**0.2508**	**0.2508**	**1.0000e-005**	**1.0000e-005**	**0.2532**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 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					0.1417	0.0000	0.1417	0.0685	0.0000	0.0685	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0267	0.2894	0.1741	4.1000e-004		0.0121	0.0121		0.0111	0.0111	0.0000	36.2078	36.2078	0.0117	0.0000	36.5006
Total	**0.0267**	**0.2894**	**0.1741**	**4.1000e-004**	**0.1417**	**0.0121**	**0.1538**	**0.0685**	**0.0111**	**0.0796**	**0.0000**	**36.2078**	**36.2078**	**0.0117**	**0.0000**	**36.5006**

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	1.4000e-004	9.1900e-003	2.5200e-003	4.0000e-005	1.2600e-003	6.0000e-005	1.3300e-003	3.5000e-004	6.0000e-005	4.1000e-004	0.0000	4.1750	4.1750	2.8000e-004	6.7000e-004	4.3802
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	0.0000	0.0000
Worker	5.7000e-004	4.0000e-004	4.9800e-003	1.0000e-005	1.6100e-003	1.0000e-005	1.6200e-003	4.3000e-004	1.0000e-005	4.4000e-004	0.0000	1.2541	1.2541	4.0000e-005	4.0000e-005	1.2660
Total	**7.1000e-004**	**9.5900e-003**	**7.5000e-003**	**5.0000e-005**	**2.8700e-003**	**7.0000e-005**	**2.9500e-003**	**7.8000e-004**	**7.0000e-005**	**8.5000e-004**	**0.0000**	**5.4290**	**5.4290**	**3.2000e-004**	**7.1000e-004**	**5.6463**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 Grading - 2023

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					0.1417	0.0000	0.1417	0.0685	0.0000	0.0685	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0267	0.2894	0.1741	4.1000e-004		0.0121	0.0121		0.0111	0.0111	0.0000	36.2078	36.2078	0.0117	0.0000	36.5005
Total	**0.0267**	**0.2894**	**0.1741**	**4.1000e-004**	**0.1417**	**0.0121**	**0.1538**	**0.0685**	**0.0111**	**0.0796**	**0.0000**	**36.2078**	**36.2078**	**0.0117**	**0.0000**	**36.5005**

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	1.4000e-004	9.1900e-003	2.5200e-003	4.0000e-005	1.2600e-003	6.0000e-005	1.3300e-003	3.5000e-004	6.0000e-005	4.1000e-004	0.0000	4.1750	4.1750	2.8000e-004	6.7000e-004	4.3802
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	0.0000	0.0000
Worker	5.7000e-004	4.0000e-004	4.9800e-003	1.0000e-005	1.6100e-003	1.0000e-005	1.6200e-003	4.3000e-004	1.0000e-005	4.4000e-004	0.0000	1.2541	1.2541	4.0000e-005	4.0000e-005	1.2660
Total	**7.1000e-004**	**9.5900e-003**	**7.5000e-003**	**5.0000e-005**	**2.8700e-003**	**7.0000e-005**	**2.9500e-003**	**7.8000e-004**	**7.0000e-005**	**8.5000e-004**	**0.0000**	**5.4290**	**5.4290**	**3.2000e-004**	**7.1000e-004**	**5.6463**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 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	0.1071	0.8515	0.8884	1.5600e-003		0.0384	0.0384		0.0368	0.0368	0.0000	129.8138	129.8138	0.0246	0.0000	130.4275
Total	**0.1071**	**0.8515**	**0.8884**	**1.5600e-003**		**0.0384**	**0.0384**		**0.0368**	**0.0368**	**0.0000**	**129.8138**	**129.8138**	**0.0246**	**0.0000**	**130.4275**

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	0.0000	0.0000
Vendor	7.3000e-004	0.0295	0.0102	1.4000e-004	5.0000e-003	1.7000e-004	5.1700e-003	1.4400e-003	1.6000e-004	1.6000e-003	0.0000	13.6810	13.6810	5.6000e-004	2.0500e-003	14.3054
Worker	0.0102	7.1400e-003	0.0887	2.4000e-004	0.0287	1.6000e-004	0.0289	7.6300e-003	1.5000e-004	7.7800e-003	0.0000	22.3381	22.3381	7.1000e-004	6.6000e-004	22.5514
Total	**0.0109**	**0.0367**	**0.0989**	**3.8000e-004**	**0.0337**	**3.3000e-004**	**0.0341**	**9.0700e-003**	**3.1000e-004**	**9.3800e-003**	**0.0000**	**36.0191**	**36.0191**	**1.2700e-003**	**2.7100e-003**	**36.8568**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Building Construction - 2023

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	0.1071	0.8515	0.8884	1.5600e-003		0.0384	0.0384		0.0368	0.0368	0.0000	129.8136	129.8136	0.0246	0.0000	130.4274
Total	**0.1071**	**0.8515**	**0.8884**	**1.5600e-003**		**0.0384**	**0.0384**		**0.0368**	**0.0368**	**0.0000**	**129.8136**	**129.8136**	**0.0246**	**0.0000**	**130.4274**

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	0.0000	0.0000
Vendor	7.3000e-004	0.0295	0.0102	1.4000e-004	5.0000e-003	1.7000e-004	5.1700e-003	1.4400e-003	1.6000e-004	1.6000e-003	0.0000	13.6810	13.6810	5.6000e-004	2.0500e-003	14.3054
Worker	0.0102	7.1400e-003	0.0887	2.4000e-004	0.0287	1.6000e-004	0.0289	7.6300e-003	1.5000e-004	7.7800e-003	0.0000	22.3381	22.3381	7.1000e-004	6.6000e-004	22.5514
Total	**0.0109**	**0.0367**	**0.0989**	**3.8000e-004**	**0.0337**	**3.3000e-004**	**0.0341**	**9.0700e-003**	**3.1000e-004**	**9.3800e-003**	**0.0000**	**36.0191**	**36.0191**	**1.2700e-003**	**2.7100e-003**	**36.8568**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 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	0.0759	0.6091	0.6698	1.1900e-003		0.0256	0.0256		0.0245	0.0245	0.0000	98.6641	98.6641	0.0184	0.0000	99.1235
Total	**0.0759**	**0.6091**	**0.6698**	**1.1900e-003**		**0.0256**	**0.0256**		**0.0245**	**0.0245**	**0.0000**	**98.6641**	**98.6641**	**0.0184**	**0.0000**	**99.1235**

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	0.0000	0.0000
Vendor	5.4000e-004	0.0223	7.7400e-003	1.0000e-004	3.8000e-003	1.3000e-004	3.9300e-003	1.1000e-003	1.2000e-004	1.2200e-003	0.0000	10.2407	10.2407	4.4000e-004	1.5300e-003	10.7084
Worker	7.2300e-003	4.8700e-003	0.0629	1.8000e-004	0.0218	1.2000e-004	0.0220	5.8000e-003	1.1000e-004	5.9000e-003	0.0000	16.5872	16.5872	5.0000e-004	4.6000e-004	16.7381
Total	**7.7700e-003**	**0.0272**	**0.0706**	**2.8000e-004**	**0.0256**	**2.5000e-004**	**0.0259**	**6.9000e-003**	**2.3000e-004**	**7.1200e-003**	**0.0000**	**26.8280**	**26.8280**	**9.4000e-004**	**1.9900e-003**	**27.4466**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Building Construction - 2024

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	0.0759	0.6091	0.6698	1.1900e-003		0.0256	0.0256		0.0245	0.0245	0.0000	98.6640	98.6640	0.0184	0.0000	99.1234
Total	**0.0759**	**0.6091**	**0.6698**	**1.1900e-003**		**0.0256**	**0.0256**		**0.0245**	**0.0245**	**0.0000**	**98.6640**	**98.6640**	**0.0184**	**0.0000**	**99.1234**

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	0.0000	0.0000
Vendor	5.4000e-004	0.0223	7.7400e-003	1.0000e-004	3.8000e-003	1.3000e-004	3.9300e-003	1.1000e-003	1.2000e-004	1.2200e-003	0.0000	10.2407	10.2407	4.4000e-004	1.5300e-003	10.7084
Worker	7.2300e-003	4.8700e-003	0.0629	1.8000e-004	0.0218	1.2000e-004	0.0220	5.8000e-003	1.1000e-004	5.9000e-003	0.0000	16.5872	16.5872	5.0000e-004	4.6000e-004	16.7381
Total	**7.7700e-003**	**0.0272**	**0.0706**	**2.8000e-004**	**0.0256**	**2.5000e-004**	**0.0259**	**6.9000e-003**	**2.3000e-004**	**7.1200e-003**	**0.0000**	**26.8280**	**26.8280**	**9.4000e-004**	**1.9900e-003**	**27.4466**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 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	0.0211	0.2026	0.2927	4.5000e-004		9.8900e-003	9.8900e-003		9.1300e-003	9.1300e-003	0.0000	38.7867	38.7867	0.0123	0.0000	39.0941
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0211**	**0.2026**	**0.2927**	**4.5000e-004**		**9.8900e-003**	**9.8900e-003**		**9.1300e-003**	**9.1300e-003**	**0.0000**	**38.7867**	**38.7867**	**0.0123**	**0.0000**	**39.0941**

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	0.0000	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	0.0000	0.0000
Worker	1.0000e-003	6.7000e-004	8.7100e-003	2.0000e-005	3.0200e-003	2.0000e-005	3.0400e-003	8.0000e-004	1.0000e-005	8.2000e-004	0.0000	2.2974	2.2974	7.0000e-005	6.0000e-005	2.3183
Total	**1.0000e-003**	**6.7000e-004**	**8.7100e-003**	**2.0000e-005**	**3.0200e-003**	**2.0000e-005**	**3.0400e-003**	**8.0000e-004**	**1.0000e-005**	**8.2000e-004**	**0.0000**	**2.2974**	**2.2974**	**7.0000e-005**	**6.0000e-005**	**2.3183**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Paving - 2024

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	0.0211	0.2026	0.2927	4.5000e-004		9.8900e-003	9.8900e-003		9.1300e-003	9.1300e-003	0.0000	38.7867	38.7867	0.0123	0.0000	39.0940
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0211**	**0.2026**	**0.2927**	**4.5000e-004**		**9.8900e-003**	**9.8900e-003**		**9.1300e-003**	**9.1300e-003**	**0.0000**	**38.7867**	**38.7867**	**0.0123**	**0.0000**	**39.0940**

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	0.0000	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	0.0000	0.0000
Worker	1.0000e-003	6.7000e-004	8.7100e-003	2.0000e-005	3.0200e-003	2.0000e-005	3.0400e-003	8.0000e-004	1.0000e-005	8.2000e-004	0.0000	2.2974	2.2974	7.0000e-005	6.0000e-005	2.3183
Total	**1.0000e-003**	**6.7000e-004**	**8.7100e-003**	**2.0000e-005**	**3.0200e-003**	**2.0000e-005**	**3.0400e-003**	**8.0000e-004**	**1.0000e-005**	**8.2000e-004**	**0.0000**	**2.2974**	**2.2974**	**7.0000e-005**	**6.0000e-005**	**2.3183**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.6 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	0.3702					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.5200e-003	0.0305	0.0453	7.0000e-005		1.5200e-003	1.5200e-003		1.5200e-003	1.5200e-003	0.0000	6.3831	6.3831	3.6000e-004	0.0000	6.3921
Total	**0.3748**	**0.0305**	**0.0453**	**7.0000e-005**		**1.5200e-003**	**1.5200e-003**		**1.5200e-003**	**1.5200e-003**	**0.0000**	**6.3831**	**6.3831**	**3.6000e-004**	**0.0000**	**6.3921**

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	0.0000	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	0.0000	0.0000
Worker	7.3000e-004	4.9000e-004	6.3900e-003	2.0000e-005	2.2200e-003	1.0000e-005	2.2300e-003	5.9000e-004	1.0000e-005	6.0000e-004	0.0000	1.6848	1.6848	5.0000e-005	5.0000e-005	1.7001
Total	**7.3000e-004**	**4.9000e-004**	**6.3900e-003**	**2.0000e-005**	**2.2200e-003**	**1.0000e-005**	**2.2300e-003**	**5.9000e-004**	**1.0000e-005**	**6.0000e-004**	**0.0000**	**1.6848**	**1.6848**	**5.0000e-005**	**5.0000e-005**	**1.7001**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.6 Architectural Coating - 2024

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	0.3702					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.5200e-003	0.0305	0.0453	7.0000e-005		1.5200e-003	1.5200e-003		1.5200e-003	1.5200e-003	0.0000	6.3831	6.3831	3.6000e-004	0.0000	6.3921
Total	**0.3748**	**0.0305**	**0.0453**	**7.0000e-005**		**1.5200e-003**	**1.5200e-003**		**1.5200e-003**	**1.5200e-003**	**0.0000**	**6.3831**	**6.3831**	**3.6000e-004**	**0.0000**	**6.3921**

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	0.0000	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	0.0000	0.0000
Worker	7.3000e-004	4.9000e-004	6.3900e-003	2.0000e-005	2.2200e-003	1.0000e-005	2.2300e-003	5.9000e-004	1.0000e-005	6.0000e-004	0.0000	1.6848	1.6848	5.0000e-005	5.0000e-005	1.7001
Total	**7.3000e-004**	**4.9000e-004**	**6.3900e-003**	**2.0000e-005**	**2.2200e-003**	**1.0000e-005**	**2.2300e-003**	**5.9000e-004**	**1.0000e-005**	**6.0000e-004**	**0.0000**	**1.6848**	**1.6848**	**5.0000e-005**	**5.0000e-005**	**1.7001**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Increase Transit Accessibility

Improve Pedestrian Network

	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	0.1574	0.1713	1.3395	2.5500e-003	0.2745	2.0900e-003	0.2766	0.0733	1.9500e-003	0.0752	0.0000	238.9941	238.9941	0.0181	0.0121	243.0498
Unmitigated	0.1788	0.2132	1.6591	3.3400e-003	0.3634	2.6800e-003	0.3661	0.0970	2.5000e-003	0.0995	0.0000	313.7011	313.7011	0.0216	0.0149	318.6768

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Condo/Townhouse High Rise	349.20	349.20	349.20	964,865	728,900
Enclosed Parking with Elevator	0.00	0.00	0.00		
Recreational Swimming Pool	0.00	0.00	0.00		
Total	349.20	349.20	349.20	964,865	728,900

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	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
Condo/Townhouse High Rise	10.80	7.30	7.50	32.90	18.00	49.10	86	11	3
Enclosed Parking with Elevator	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	Miles			Trip %			Trip Purpose %		
Land Use	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
Recreational Swimming Pool	9.50	7.30	7.30	33.00	48.00	19.00	52	39	9

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Condo/Townhouse High Rise	0.548670	0.058343	0.171689	0.130773	0.027316	0.007545	0.011806	0.006161	0.000681	0.000392	0.029028	0.000637	0.006958
Enclosed Parking with Elevator	0.548670	0.058343	0.171689	0.130773	0.027316	0.007545	0.011806	0.006161	0.000681	0.000392	0.029028	0.000637	0.006958
Recreational Swimming Pool	0.548670	0.058343	0.171689	0.130773	0.027316	0.007545	0.011806	0.006161	0.000681	0.000392	0.029028	0.000637	0.006958

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Kilowatt Hours of Renewable Electricity Generated

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule 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
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	69.0946	69.0946	5.8300e-003	7.1000e-004	69.4511
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	70.6482	70.6482	5.9600e-003	7.2000e-004	71.0127
NaturalGas Mitigated	3.6100e-003	0.0308	0.0131	2.0000e-004		2.4900e-003	2.4900e-003		2.4900e-003	2.4900e-003	0.0000	35.6992	35.6992	6.8000e-004	6.5000e-004	35.9113
NaturalGas Unmitigated	3.6100e-003	0.0308	0.0131	2.0000e-004		2.4900e-003	2.4900e-003		2.4900e-003	2.4900e-003	0.0000	35.6992	35.6992	6.8000e-004	6.5000e-004	35.9113

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
Land Use	kBTU/yr	tons/yr										MT/yr					
Condo/Townhouse High Rise	668977	3.6100e-003	0.0308	0.0131	2.0000e-004		2.4900e-003	2.4900e-003		2.4900e-003	2.4900e-003	0.0000	35.6992	35.6992	6.8000e-004	6.5000e-004	35.9113
Enclosed Parking with Elevator	0	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
Recreational Swimming Pool	0	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
Total		**3.6100e-003**	**0.0308**	**0.0131**	**2.0000e-004**		**2.4900e-003**	**2.4900e-003**		**2.4900e-003**	**2.4900e-003**	**0.0000**	**35.6992**	**35.6992**	**6.8000e-004**	**6.5000e-004**	**35.9113**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

5.2 Energy by Land Use - NaturalGas

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					
Condo/Townhouse High Rise	668977	3.6100e-003	0.0308	0.0131	2.0000e-004		2.4900e-003	2.4900e-003		2.4900e-003	2.4900e-003	0.0000	35.6992	35.6992	6.8000e-004	6.5000e-004	35.9113
Enclosed Parking with Elevator	0	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
Recreational Swimming Pool	0	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
Total		**3.6100e-003**	**0.0308**	**0.0131**	**2.0000e-004**		**2.4900e-003**	**2.4900e-003**		**2.4900e-003**	**2.4900e-003**	**0.0000**	**35.6992**	**35.6992**	**6.8000e-004**	**6.5000e-004**	**35.9113**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Condo/Townhouse High Rise	245609	43.5577	3.6800e-003	4.5000e-004	43.7824
Enclosed Parking with Elevator	152755	27.0905	2.2900e-003	2.8000e-004	27.2302
Recreational Swimming Pool	0	0.0000	0.0000	0.0000	0.0000
Total		**70.6482**	**5.9700e-003**	**7.3000e-004**	**71.0127**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Condo/Townhouse High Rise	242689	43.0399	3.6300e-003	4.4000e-004	43.2619
Enclosed Parking with Elevator	149835	26.5726	2.2400e-003	2.7000e-004	26.7097
Recreational Swimming Pool	-2920	-0.5179	0.0000	0.0000	-0.5205
Total		**69.0946**	**5.8300e-003**	**7.0000e-004**	**69.4511**

6.0 Area Detail

6.1 Mitigation Measures Area

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule 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
Category	tons/yr										MT/yr					
Mitigated	0.3340	5.1400e-003	0.4468	2.0000e-005		2.4700e-003	2.4700e-003		2.4700e-003	2.4700e-003	0.0000	0.7306	0.7306	7.1000e-004	0.0000	0.7483
Unmitigated	0.3340	5.1400e-003	0.4468	2.0000e-005		2.4700e-003	2.4700e-003		2.4700e-003	2.4700e-003	0.0000	0.7306	0.7306	7.1000e-004	0.0000	0.7483

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	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0370					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.2835					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	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
Landscaping	0.0135	5.1400e-003	0.4468	2.0000e-005		2.4700e-003	2.4700e-003		2.4700e-003	2.4700e-003	0.0000	0.7306	0.7306	7.1000e-004	0.0000	0.7483
Total	**0.3340**	**5.1400e-003**	**0.4468**	**2.0000e-005**		**2.4700e-003**	**2.4700e-003**		**2.4700e-003**	**2.4700e-003**	**0.0000**	**0.7306**	**0.7306**	**7.1000e-004**	**0.0000**	**0.7483**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

6.2 Area by SubCategory

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	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0370					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.2835					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	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
Landscaping	0.0135	5.1400e-003	0.4468	2.0000e-005		2.4700e-003	2.4700e-003		2.4700e-003	2.4700e-003	0.0000	0.7306	0.7306	7.1000e-004	0.0000	0.7483
Total	**0.3340**	**5.1400e-003**	**0.4468**	**2.0000e-005**		**2.4700e-003**	**2.4700e-003**		**2.4700e-003**	**2.4700e-003**	**0.0000**	**0.7306**	**0.7306**	**7.1000e-004**	**0.0000**	**0.7483**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

Use Water Efficient Irrigation System

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	13.7303	0.1107	2.7200e-003	17.3073
Unmitigated	16.2572	0.1383	3.3900e-003	20.7238

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Condo/Townhouse High Rise	3.90924 / 2.46452	15.1234	0.1286	3.1500e-003	19.2759
Enclosed Parking with Elevator	0 / 0	0.0000	0.0000	0.0000	0.0000
Recreational Swimming Pool	0.295716 / 0.181245	1.1338	9.7200e-003	2.4000e-004	1.4479
Total		**16.2572**	**0.1383**	**3.3900e-003**	**20.7237**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Condo/Townhouse High Rise	3.12739 / 2.31419	12.7737	0.1029	2.5300e-003	16.0992
Enclosed Parking with Elevator	0 / 0	0.0000	0.0000	0.0000	0.0000
Recreational Swimming Pool	0.236573 / 0.170189	0.9567	7.7800e-003	1.9000e-004	1.2082
Total		**13.7304**	**0.1107**	**2.7200e-003**	**17.3073**

8.0 Waste Detail

8.1 Mitigation Measures Waste

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	11.3878	0.6730	0.0000	28.2128
Unmitigated	11.3878	0.6730	0.0000	28.2128

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Condo/Townhouse High Rise	27.6	5.6026	0.3311	0.0000	13.8801
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000
Recreational Swimming Pool	28.5	5.7852	0.3419	0.0000	14.3327
Total		**11.3878**	**0.6730**	**0.0000**	**28.2128**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Condo/Townhouse High Rise	27.6	5.6026	0.3311	0.0000	13.8801
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000
Recreational Swimming Pool	28.5	5.7852	0.3419	0.0000	14.3327
Total		**11.3878**	**0.6730**	**0.0000**	**28.2128**

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

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

11.0 Vegetation

APPENDIX I – HYDROLOGY ANALYSIS

HYDROLOGY ANALYSIS

for

EVERETT STREET CONDOMINIUMS

EVERETT STREET & WALNUT CANYON ROAD

MOORPARK, CA

by

HOLMES ENTERPRISES, INC.
200 WICKS ROAD
MOORPARK, CA 93021

Updated May 17, 2021

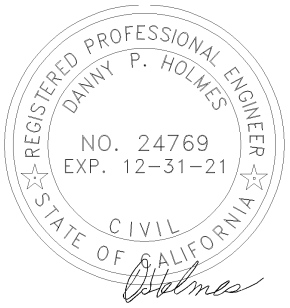


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EXHIBIT A- Subject Property
EXHIBIT B- Offsite Runoff Area
EXHIBIT C- Site Runoff Areas
EXHIBIT D- Proposed Site Runoff Area Proportions
EXHIBIT E and F- Proposed Biofilters
EXHIBIT G- Detention Volume Calculation
EXHIBIT H- and I- FEMA Map Flood Zones
EXHIBIT J- City of Moorpark Letter date November 9, 2011
EXHIBIT K- Revised Flood Zone Designation Map
EXHIBIT L- FEMA Approval Letter Dated 03/01/2012
EXHIBIT M- Revised FEMA Flood Map

INTRODUCTION:
The project consist of constructing 60 condominium terraced units with underground parking on 2.46 acres at the north side of the intersection of Everett Street and Walnut Canyon in Moorpark, California. Stormwater will be collected by pipes which will direct the stormwater to 44 inch detention chambers, then to biofiltration chambers and ultimately to an existing storm drain in Walnut Canyon Road.

SITE DESCRIPTION:
The subject property ("property") consists of 107,285 square feet (2.46 acres) with approximately 195 feet of frontage along the North side of Everett Street and 231 feet of frontage on the East side of Walnut Canyon Road and partially bounded by Wicks Road on the North as shown on **EXHIBIT A**. The prior use of the property consisted of approximately seven bungalows which were perilously removed. There is approximately 0.87 acres of private property north of Wicks Road draining onto the subject property. The southerly 70% of the property slopes from 2% to 10% southerly while the north 30% of the property slopes up to 60% southerly with a total elevation difference of 48 feet from north to south. It is proposed to construct a 60 condominiums units, terraced on three levels with two levels of underground parking.

OFF SITE DRAINAGE:
As shown in **EXHIBIT B** there is approximately 14.7 acres northeast of the property which drains on to Wicks Road, Wicks Road doe not contain a storm drain resulting in the runoff running down Wicks Road to Walnut Canyon Road. As shown in **EXHIBIT B** the upper portion of Wicks Road consisting of 3.2 acres of runoff enters a canyon on the south side of Wicks Road just below 180 Wicks Road. The remaining 11.5 acres draining onto Wicks Road flows along the north side of Wicks Road along a 6 inch asphalt curb (Wicks Road is only a partial width road with a cross slope 2% to the north). From Flow Data **Appendix A1**, the peak Q_{100} of the 11.5 acres is 42.91 cfs.
As shown by the arrows in **EXHIBIT B**, the runoff flows to the north side of Wicks Road. Additionally, there is a 6" curb on the south side of Wicks directly above the property that deflects any runoff to the north side of Wicks where Wicks is 24 feet wide. Using the equation for street flow of Q= 0.56*Sx^.167*S^.5*T^2.67/n or 0.56*.02^1.67*0.1*.5*24^2.67/ .015, the north side of Wicks (24 feet wide) can flow 83 cfs at a 10% slope and 53 cfs at a 4% slope which exceeds 42.9 cfs anticipated. Inspection of the south side of Wicks Road shows no sign of erosion, nor has it shown any erosion in the 22 years this author has lived on Wicks Road. This results in only that portion between the north property line and Wicks Road contributing to runoff onto the property. From Flow Data **A1 of Appendix A**, the peak Q_{100} of the .086 acres is 3.38 cfs. Using the formula of Q=1.486*A^1.67*S^.5/(n*p^.67) a v-ditch 1.5 feet wide and .675 feet deep with a slope of 5% and an n of 0.012 has a capacity of 4.02 cfs. To accomplish a 5% slope, four catch basins will be placed behind the north retaining wall at the four low points, one of which will be at the northwest corner of the property. The catch basins will be fitted with drainage pipes which will exit through the retaining wall footings and connect to building drainage system.

ON SITE DRAINAGE:
On site stormwater time of concentration (minutes) and peak flows (cfs) for Q_{10}, Q_{25}, Q_{50} and Q_{100}, for both pre-developed (**A3 to A6 Appendix A**) and pos-developed conditions were determined using Ventura County Hydrology Manual's VCRat are shown in **Appendix A (A7 through A10)**.

Since the pre-developed site consisted of seven bungalows, the undeveloped condition of 1/3 acre per acre was used with an impervious value of 20%.
For the developed site consisting of sixty units, a condition of CONDO was used with an impervious value of 76.3%. The results are summarized below:

TABLE 1	Q_{10}		Q_{25}		Q_{50}		Q_{100}	
	Tc	Peak Q	Tc	Peak Q	Tc	Peak Q	Tc	Peak Q
Tc UNDEVELOPED	6.43	4.34	5.57	6.62	5.03	8.70	5.01	9.37
Tc DEVELOPED	6.43	4.62	5.57	6.87	5.03	8.86	5.01	9.51
90% of UNDEVELOPED		3.90		5.95		7.83		8.43

POST CONSTRUCTION STORMWATER MANAGEMENT:
The Ventura County Guidelines for stormwater management require that the first 3/4 inch of stormwater be infiltrated back into the soil, if possible, and if not, be cleaned prior to leaving the property. Upon recent recommendations by the soils engineer it was determined infeasible to infiltrate the stormwater due to clayey soil conditions. Additionally, due to the density of development there is insufficient room to utilize the standard filtering systems prescribed by said guidelines such as grass swales and vegetated filter strips. Consequently, a proprietary system has been selected in the form of biofilter. It is required to filter to filtrate 1.5 times the standard 0.2 cfs of that portion not infiltrated (in this case 100%). Therefore the required flow (SQDF) of AxCx0.30 where A = area of site in acres, C = the site impervious coefficient and 0.3 is the amount of flow to be filtered. C = .95xI+c(1-I) where c = .1 and I = % impervious which is 76.3% for this site. Therefore, C=.95x.763+.1(0.763)=0.75 and SQDF = 2.47x.75x.3 = 0.556 cfs..
Due to limited space, two biofilters will be used requiring the site runoff to be split between the two biofilters as shown in **EXHIBIT E and F**. The two biofilters have a combined filtering capacity of 0.577cfs (0.231+0.346). The site runoff will be split into two sections as shown in **EXHIBIT C** with AREA1 consisting of 1.46 acres (=0.330 cfs) and AREA 2 consisting of 1.0 acres (=0.225 cfs).
In both AREAs 1 and 2, the runoff from roofs, planters and hardscape will be collected by catch basins leading to a main drain line suspended rom the garage ceiling and underground to the biofilters. The MWS-L-8-8-C is a curb inlet filter and will be placed at the southeast corner of the main driveway entrance and will collect the runoff from AREA 2 and the driveway. The MLS-L-8_12-V will be located southeasterly of the emergency driveway, accepts stormwater from a below grade pipe and will accept the runoff from AREA 1. A catch basin will be placed at the southeast corner of the emergency driveway to collect stormwater from the driveway and surrounding area and connect to the inlet pipe of the biofilter. Both biofilters are designed to internally bypass flows exceeding the filtering capacity via an outlet pipe which will connect the City/County/State storm drain system in Everett Street and Walnut Canyon Road.

As shown on **A11 of Appendix A**, the Q_{100} developed peak flow including the 0.86 acres to the north is 12.77 cfs, an increase of 3.26 cfs from the developed property. 80% of the increase will be directed to the east end of the property via a pipe, southerly along the east edge of the property to the main drain line for AREA 1. The remaining 20% will be directed similarly to the west to the main drain line for AREA 1. This results in AREA 1 flowing 9.51x1.46/2.46 + 0.2x3.26, or 6.29 cfs (and 6.48 cfs for AREA 2). This will require a 14" drain pipe at a 1.5% slope minimum.

Q_{100} DEVELOPED vs Q_{10} UNDEVELOPED:
The Ventura County Watershed Protection District requires new development to design a project so that the Q_{100} developed stormwater runoff from the site does not exceed 90% of the Q_{10} undeveloped condition. The 90% condition (see **TABLE 1**). In accordance with **EXHIBIT G** detaining 1936 cubic feet of stormwater will be required. Detention will be accomplished using 44 inch diameter pipes installed under the lower parking levels as shown in **EXHIBIT D**.
The area of a 44" pipe 75% full is 8.5 square feet, thus requiring 230 linear feet of pipe (we will add 20% for safety = 276 lf). The detention pipes lengths will be proportioned in relation to the biofilter filtration rates as shown on **EXHIBIT D**. AREA 2 will be proportioned with its respective areas 1A and 1B resulting in 42% (116 LF), 17% (47 LF) and 41% (113 LF), for AREAs 1A, 1B and 2, respectively.
Using the equation of minimum orifice area A=storage volume/(60.19xD^.5xT) where D is depth of water and T is 24 hours maximum drawdown time, the minimum area is 0.164 sq. in. (.46 diameter), 0.393 sq. in. (.707 diameter), 0.381 sq. in. (.697 diameter) for Areas 1A, 1B, and 2, respectively. Using the equation of Q= AxCxhxSQRT2g, and assuming a maximum head of 3.6 feet in the retention pipe, a maximum of 6.3 inch diameter outflow pipe is required to restrict the flow to 3.90 cfs, a 2" pipe will be used resulting in a maximum outflow of 0.16 cfs and a drawdown time of 4 hours. An overflow outlet will be placed at the top of the detention pipe. Using a pipe slope of 1.5% and Q_{100} of 3.98, 1.66 and 3.87cfs requires a 12", 10" and 12" diameter pipe for Areas 1A, 1B and 2, respectively. To include the runoff from the 0.86 acres north of the property, the maximum flows will be 1.85, 4.43 and 6.48 cfs, or 14", 10" and 14", for Areas A1, A2 and 2, respectively.

EXISTING CALLEGUAS EASEMENT:
There is a 10 foot wide water line easement running south to north between Areas 1 and 2 containing a 24 inch water line with approximately ten feet of cover. Although it is allowed to cross the easement with paving and utilities with adequate separation between utilities and the existing 24 inch water line, the easement must be kept from structures clear to the sky. The v-ditch mention in th off-ste portion of this report will collect stormwater from north of the property while the easement from the north property line to the south face of the proposed parking garages will be left natural and or landscaped.

FEMA FLOOD HAZARD:
Per the FEMA Map No. 06111C0817E (**EXHIBITS H and I**), the site is with a flood zone "AO" which indicates a 100 year flood depth of one foot. However, the City of Moorpark, in a letter dated November 9, 2011 (a portion of which is shown in **EXHIBIT J)** requested a change in the flood designation from "AO" to "X" (which included the subject site) thus removing the site from a 100 year flood zone. A conclusion by MRC LLC in the third and fourth paragraphs of page 5 of said letter states that "Results of the updated analysis of the study area indicate that the peak discharges are contained within the Walnut Canyon Channel. There is no left or right overbank flows that breakout from the main Walnut Canyon Channel system, eliminating the need for a left and right overbank effective HEC-RAS models. As a result, the flood plain mapping to the east of Walnut Canyon Road has been removed...

MRC LLC proposes that the above noted changes be incorporated into Panel No. 0817E as the 100 year peak discharges are contained within the Walnut Canyon Channel system. "Since the base flood event is contained within the channel banks we further recommend that BFE values be

removed and a zone designation changed to Zone A. If the zone designation is changed to Zone A. There is no need to publish BFE values on the map or to develop and publish profile panels." A map showing the change in flood zone designation is shown in **EXHIBIT K**. The attached **EXHIBIT L** shows the FEMA approval of the change dated 03/01/2012 with a caveat that FEMA will not revise the FIRM Map No. 06111C0817E at this time. **EXHIBIT M** shows the FEMA revised FIRM Map Panel 0817E depicting the subject area revised from "AO" to "X".

CONCLUSION:

The project can be built as shown on **EXHIBIT A** in accordance with the City of Moorpark and County of Ventura stormwater requirements.

APPENDIX A

Tc Calculator Data Sheet V6.1

Project Name and Number: EVERETT TERRACES 11.5 Ac.

USER INPUT IN BLUE FIELDS:		
Subarea Name =	PROPERTY NORTH	User Input
Watershed Area ac =	11.5	Calculated from flowpath data
% Imperviousness =	50	User Input
Land Use Description =	LowRes1	DropMenu
Storm Frequency	100	DropMenu
Storm Zone =	K	DropMenu
Zone ID =	K_100	Calculated
District Soil Number (1-7) =	1	DropMenu- Rev for Revised C Coefficients
Tc for Intensity Calc min =	8.00	Rounded, Use for Peak Flow Calc.
Intensity in/hr =	3.950	Calculated
C_undeveloped =	0.924	Calculated
C_composite =	0.937	Calculated
Peak cfs =	42.91	Calculated
Calculated Tc=	8.31	Calculated

Instructions:

1. Set to manual calculations with File->Options->Formulas
2. Set max iterative calculations to 50
3. Enter required subarea and flowpath data in blue fields
4. Use site-specific topo or District 2005 LiDAR data for elevations
5. LiDAR and rain zone data at: http://vcwatershed.net/publicMaps/data
6. Clear any unnessary flowpath data from blue fields
7. Manually calculate with F9 or Formulas->Calculate Now
8. If error or comments appear, revise input data accordingly
9. Tc's in cells C12 and C17 should converge to the nearest minute.
10. Use result in C12 for peak flow calculation.
11. Print area is set for printing this page on one sheet.

FLOWPATH DATA- UPSTREAM TO DOWNSTREAM

Flowpath Number	Type- Selected with DropMenus	Type#	Flowpath Area ac	Upper Elev. Ft	Bott. Elev. Ft	Length ft	Map Slope ft/ft	Mtn Chan. Eff. Slope ft/ft	Diam/ Width ft	n value	Side-slope X; XH:1V	% Area	Q cfs	Cum. Q cfs
1	Overland-Undeveloped	1	7.00	701	650	500	0.102					60.9%	26.1	26.1
2	Street-32'Wide8"Curbs	7	4.50	650	589	800	0.076					39.1%	16.8	42.9
3	None	0										0.0%	-	42.9
4	None	0										0.0%	-	42.9
5	None	0										0.0%	-	42.9
6	None	0										0.0%	-	42.9
7	None	0										0.0%	-	42.9
8	None	0										0.0%	-	42.9
9	None	0										0.0%	-	42.9
10	None	0										0.0%	-	42.9
Sum			11.5									100%	42.9	

VCRat Single Subarea Hydrograph, Mitigation, and Detention Basin Routing Calculations

Project Information: EVERETT 0.86 Ac. NORTH OF PROPERTY

DEVELOPED CONDITION INPUT DATA		
Watershed Area ac =	0.87	User Input
Time of Concentration Tc min =	5	User Input
% Imperviousness =	100	User Input
Land Use Description =	OPEN BREUS	User Input
Storm Zone =	Jp	Dropdown List
Storm Frequency =	100	Dropdown List
District Soil Number =	1	Dropdown List
NRCS Curve Number Yield in =	0.28	User Input
MITIGATION INPUT DATA		
Mitigation Level	100	User Input
Time of Concentration Tc min =	5	User Input
Storm Frequency =	100	Dropdown List
% Effective Imperviousness =	5	User Input
Land Use Description =	OPEN BRUSH	User Input
CALCULATION RESULTS		
Iteration Volume Difference cf =	0.142	
Dev. Subarea Outflow Peak cfs =	3.38	
FLOW THROUGH BASIN RESULTS		
Basin Inflow Peak cfs =	3.38	
Mitigated Hydrograph Peak cfs =	3.30	
Routed Hydrograph Peak cfs =	0.94	
Max Basin Storage af =	0.0152	
Max Basin Elevation ft =	0.76	
BYPASS BASIN RESULTS		
Inflow Hydrograph Peak cfs =	3.38	
Mitigation Hydrograph Peak cfs =	3.30	
Peak Flow into Bypass Basin cfs =	0.08	
Volume into Bypass Basin cf =	5	

INSTRUCTIONS

1. Under File-Options-Formulas
Check Iterative Calculations
200 iterations
0.001 tolerance
2. Input data in blue fields
3. Press F9 to manually
calculate the hydrology data
if Volume Difference in
B19 is not 0.
4. Choose rain zone at:
vcwatershed.net/publicMaps/data/

Flow-Through Basin Data

Elev. ft	Storage af	Disch. cfs
0.0	0.00	0.00
0.5	0.01	0.54
1.0	0.02	1.31
1.5	0.04	1.83
2.0	0.05	2.22
2.5	0.06	2.53
3.0	0.10	2.83
3.5	0.15	3.09
4.0	1.0	5.0

Tc Calculator Data Sheet V6.1

Project Name and Number: EVERETT Q10 UNDEVELOPED

USER INPUT IN BLUE FIELDS:		
Subarea Name =	2.46 AC PROP UND	User Input
Watershed Area ac =	2.5	Calculated from flowpath data
% Imperviousness =	20	User Input
Land Use Description =	LowRes1/3	DropMenu
Storm Frequency	10	DropMenu
Storm Zone =	Jp	DropMenu
Zone ID =	Jp_10	Calculated
District Soil Number (1-7) =	1	DropMenu- Rev for Revised C Coefficients
Tc for Intensity Calc min =	6.00	**Rounded, Use for Peak Flow Calc.**
Intensity in/hr =	2.010	Calculated
C_undeveloped =	0.851	Calculated
C_composite =	0.870	Calculated
Peak cfs =	4.34	Calculated
Calculated Tc=	6.43	**Calculated**

Instructions:

1. Set to manual calculations with File->Options->Formulas
2. Set max iterative calculations to 50
3. Enter required subarea and flowpath data in blue fields
4. Use site-specific topo or District 2005 LiDAR data for elevations
5. LiDAR and rain zone data at: http://vcwatershed.net/publicMaps/data
6. Clear any unnessary flowpath data from blue fields
7. Manually calculate with F9 or Formulas->Calculate Now
8. If error or comments appear, revise input data accordingly
9. Tc's in cells C12 and C17 should converge to the nearest minute.
10. Use result in C12 for peak flow calculation.
11. Print area is set for printing this page on one sheet.

FLOWPATH DATA- UPSTREAM TO DOWNSTREAM

Flowpath Number	Type- Selected with DropMenus	Type#	Flowpath Area ac	Upper Elev. Ft	Bott. Elev. Ft	Length ft	Map Slope ft/ft	Mtn Chan. Eff. Slope ft/ft	Diam/ Width ft	n value	Side-slope X; XH:1V	% Area	Q cfs	Cum. Q cfs
1	Overland-Undeveloped	1	2.46	565	525	322	0.124					100.0%	4.3	4.3
2	None	0					#VALUE!	#VALUE!				0.0%	-	4.3
3	None	0										0.0%	-	4.3
4	None	0										0.0%	-	4.3
5	None	0										0.0%	-	4.3
6	None	0										0.0%	-	4.3
7	None	0										0.0%	-	4.3
8	None	0										0.0%	-	4.3
9	None	0										0.0%	-	4.3
10	None	0										0.0%	-	4.3
Sum			2.5									100%	4.3	

Tc Calculator Data Sheet V6.1

Project Name and Number: EVERETT Q25 UNDEVELOPED

USER INPUT IN BLUE FIELDS:		
Subarea Name =	2.46 AC PROP UND	User Input
Watershed Area ac =	2.5	Calculated from flowpath data
% Imperviousness =	20	User Input
Land Use Description =	LowRes1/3	DropMenu
Storm Frequency	25	DropMenu
Storm Zone =	Jp	DropMenu
Zone ID =	Jp_25	Calculated
District Soil Number (1-7) =	1	DropMenu- Rev for Revised C Coefficients
Tc for Intensity Calc min =	**6.00**	**Rounded, Use for Peak Flow Calc.**
Intensity in/hr =	2.940	Calculated
C_undeveloped =	0.898	Calculated
C_composite =	0.908	Calculated
Peak cfs =	6.62	Calculated
Calculated Tc=	**5.57**	**Calculated**

Instructions:

1. Set to manual calculations with File->Options->Formulas
2. Set max iterative calculations to 50
3. Enter required subarea and flowpath data in blue fields
4. Use site-specific topo or District 2005 LiDAR data for elevations
5. LiDAR and rain zone data at: http://vcwatershed.net/publicMaps/data
6. Clear any unnessary flowpath data from blue fields
7. Manually calculate with F9 or Formulas->Calculate Now
8. If error or comments appear, revise input data accordingly
9. Tc's in cells C12 and C17 should converge to the nearest minute.
10. Use result in C12 for peak flow calculation.
11. Print area is set for printing this page on one sheet.

FLOWPATH DATA- UPSTREAM TO DOWNSTREAM

Flowpath Number	Type- Selected with DropMenus	Type#	Flowpath Area ac	Upper Elev. Ft	Bott. Elev. Ft	Length ft	Map Slope ft/ft	Mtn Chan. Eff. Slope ft/ft	Diam/ Width ft	n value	Side-slope X; XH:1V	% Area	Q cfs	Cum. Q cfs
1	Overland-Undeveloped	1	2.46	565	525	322	0.124					100.0%	6.6	6.6
2	None	0					#VALUE!	#VALUE!				0.0%	-	6.6
3	None	0										0.0%	-	6.6
4	None	0										0.0%	-	6.6
5	None	0										0.0%	-	6.6
6	None	0										0.0%	-	6.6
7	None	0										0.0%	-	6.6
8	None	0										0.0%	-	6.6
9	None	0										0.0%	-	6.6
10	None	0										0.0%	-	6.6
Sum			**2.5**									**100%**	**6.6**	

Tc Calculator Data Sheet V6.1

Project Name and Number: EVERETT Q50 UNDEVELOPED

USER INPUT IN BLUE FIELDS:		
Subarea Name =	2.46 AC PROP UND	User Input
Watershed Area ac =	2.5	Calculated from flowpath data
% Imperviousness =	20	User Input
Land Use Description =	LowRes1/3	DropMenu
Storm Frequency	50	DropMenu
Storm Zone =	Jp	DropMenu
Zone ID =	Jp_50	Calculated
District Soil Number (1-7) =	1	DropMenu- Rev for Revised C Coefficients
Tc for Intensity Calc min =	**5.00**	**Rounded, Use for Peak Flow Calc.**
Intensity in/hr =	3.790	Calculated
C_undeveloped =	0.920	Calculated
C_composite =	0.926	Calculated
Peak cfs =	8.70	Calculated
Calculated Tc=	**5.03**	**Calculated**

Instructions:

1. Set to manual calculations with File->Options->Formulas
2. Set max iterative calculations to 50
3. Enter required subarea and flowpath data in blue fields
4. Use site-specific topo or District 2005 LiDAR data for elevations
5. LiDAR and rain zone data at: http://vcwatershed.net/publicMaps/data
6. Clear any unnessary flowpath data from blue fields
7. Manually calculate with F9 or Formulas->Calculate Now
8. If error or comments appear, revise input data accordingly
9. Tc's in cells C12 and C17 should converge to the nearest minute.
10. Use result in C12 for peak flow calculation.
11. Print area is set for printing this page on one sheet.

FLOWPATH DATA- UPSTREAM TO DOWNSTREAM

Flowpath Number	Type- Selected with DropMenus	Type#	Flowpath Area ac	Upper Elev. Ft	Bott. Elev. Ft	Length ft	Map Slope ft/ft	Mtn Chan. Eff. Slope ft/ft	Diam/ Width ft	n value	Side-slope X; XH:1V	% Area	Q cfs	Cum. Q cfs
1	Overland-Undeveloped	1	2.46	565	525	322	0.124					100.0%	8.7	8.7
2	None	0					#VALUE!	#VALUE!				0.0%	-	8.7
3	None	0										0.0%	-	8.7
4	None	0										0.0%	-	8.7
5	None	0										0.0%	-	8.7
6	None	0										0.0%	-	8.7
7	None	0										0.0%	-	8.7
8	None	0										0.0%	-	8.7
9	None	0										0.0%	-	8.7
10	None	0										0.0%	-	8.7
Sum			2.5									100%	8.7	

Tc Calculator Data Sheet V6.1

Project Name and Number: EVERETT Q100 UNDEVELOPED

USER INPUT IN BLUE FIELDS:		
Subarea Name =	2.46 AC PROP UND	User Input
Watershed Area ac =	2.5	Calculated from flowpath data
% Imperviousness =	20	User Input
Land Use Description =	LowRes1/3	DropMenu
Storm Frequency	100	DropMenu
Storm Zone =	Jp	DropMenu
Zone ID =	Jp_100	Calculated
District Soil Number (1-7) =	1	DropMenu- Rev for Revised C Coefficients
Tc for Intensity Calc min =	5.00	Rounded, Use for Peak Flow Calc.
Intensity in/hr =	4.060	Calculated
C_undeveloped =	0.926	Calculated
C_composite =	0.931	Calculated
Peak cfs =	9.37	Calculated
Calculated Tc=	5.01	Calculated

Instructions:

1. Set to manual calculations with File->Options->Formulas
2. Set max iterative calculations to 50
3. Enter required subarea and flowpath data in blue fields
4. Use site-specific topo or District 2005 LiDAR data for elevations
5. LiDAR and rain zone data at: http://vcwatershed.net/publicMaps/data
6. Clear any unnessary flowpath data from blue fields
7. Manually calculate with F9 or Formulas->Calculate Now
8. If error or comments appear, revise input data accordingly
9. Tc's in cells C12 and C17 should converge to the nearest minute.
10. Use result in C12 for peak flow calculation.
11. Print area is set for printing this page on one sheet.

FLOWPATH DATA- UPSTREAM TO DOWNSTREAM

Flowpath Number	Type- Selected with DropMenus	Type#	Flowpath Area ac	Upper Elev. Ft	Bott. Elev. Ft	Length ft	Map Slope ft/ft	Mtn Chan. Eff. Slope ft/ft	Diam/ Width ft	n value	Side-slope X; XH:1V	% Area	Q cfs	Cum. Q cfs
1	Overland-Undeveloped	1	2.46	565	525	360	0.111					100.0%	9.4	9.4
2	None	0					#VALUE!	#VALUE!				0.0%	-	9.4
3	None	0										0.0%	-	9.4
4	None	0										0.0%	-	9.4
5	None	0										0.0%	-	9.4
6	None	0										0.0%	-	9.4
7	None	0										0.0%	-	9.4
8	None	0										0.0%	-	9.4
9	None	0										0.0%	-	9.4
10	None	0										0.0%	-	9.4
Sum			2.5									100%	9.4	

Tc Calculator Data Sheet V6.1

Project Name and Number: EVERETT Q10 DEVELOPED

USER INPUT IN BLUE FIELDS:		
Subarea Name =	2.46 AC PROP DEV	User Input
Watershed Area ac =	2.5	Calculated from flowpath data
% Imperviousness =	76.3	User Input
Land Use Description =	HiRes	DropMenu
Storm Frequency	10	DropMenu
Storm Zone =	Jp	DropMenu
Zone ID =	Jp_10	Calculated
District Soil Number (1-7) =	1	DropMenu- Rev for Revised C Coefficients
Tc for Intensity Calc min =	6.00	**Rounded, Use for Peak Flow Calc.**
Intensity in/hr =	2.010	Calculated
C_undeveloped =	0.851	Calculated
C_composite =	0.926	Calculated
Peak cfs =	4.62	Calculated
Calculated Tc=	6.43	**Calculated**

Instructions:

1. Set to manual calculations with File->Options->Formulas
2. Set max iterative calculations to 50
3. Enter required subarea and flowpath data in blue fields
4. Use site-specific topo or District 2005 LiDAR data for elevations
5. LiDAR and rain zone data at: http://vcwatershed.net/publicMaps/data
6. Clear any unnessary flowpath data from blue fields
7. Manually calculate with F9 or Formulas->Calculate Now
8. If error or comments appear, revise input data accordingly
9. Tc's in cells C12 and C17 should converge to the nearest minute.
10. Use result in C12 for peak flow calculation.
11. Print area is set for printing this page on one sheet.

FLOWPATH DATA- UPSTREAM TO DOWNSTREAM

Flowpath Number	Type- Selected with DropMenus	Type#	Flowpath Area ac	Upper Elev. Ft	Bott. Elev. Ft	Length ft	Map Slope ft/ft	Mtn Chan. Eff. Slope ft/ft	Diam/ Width ft	n value	Side-slope X; XH:1V	% Area	Q cfs	Cum. Q cfs
1	Overland-Undeveloped	1	2.46	565	525	322	0.124					100.0%	4.6	4.6
2	None	0					#VALUE!	#VALUE!				0.0%	-	4.6
3	None	0										0.0%	-	4.6
4	None	0										0.0%	-	4.6
5	None	0										0.0%	-	4.6
6	None	0										0.0%	-	4.6
7	None	0										0.0%	-	4.6
8	None	0										0.0%	-	4.6
9	None	0										0.0%	-	4.6
10	None	0										0.0%	-	4.6
Sum			2.5									100%	4.6	

Tc Calculator Data Sheet V6.1

Project Name and Number: EVERETT Q25 DEVELOPED

USER INPUT IN BLUE FIELDS:		
Subarea Name =	2.46 AC PROP DEV	User Input
Watershed Area ac =	2.5	Calculated from flowpath data
% Imperviousness =	76.3	User Input
Land Use Description =	HiRes	DropMenu
Storm Frequency	25	DropMenu
Storm Zone =	Jp	DropMenu
Zone ID =	Jp_25	Calculated
District Soil Number (1-7) =	1	DropMenu- Rev for Revised C Coefficients
Tc for Intensity Calc min =	6.00	**Rounded, Use for Peak Flow Calc.**
Intensity in/hr =	2.940	Calculated
C_undeveloped =	0.898	Calculated
C_composite =	0.938	Calculated
Peak cfs =	6.87	Calculated
Calculated Tc=	5.57	Calculated

Instructions:

1. Set to manual calculations with File->Options->Formulas
2. Set max iterative calculations to 50
3. Enter required subarea and flowpath data in blue fields
4. Use site-specific topo or District 2005 LiDAR data for elevations
5. LiDAR and rain zone data at: http://vcwatershed.net/publicMaps/data
6. Clear any unnessary flowpath data from blue fields
7. Manually calculate with F9 or Formulas->Calculate Now
8. If error or comments appear, revise input data accordingly
9. Tc's in cells C12 and C17 should converge to the nearest minute.
10. Use result in C12 for peak flow calculation.
11. Print area is set for printing this page on one sheet.

FLOWPATH DATA- UPSTREAM TO DOWNSTREAM

Flowpath Number	Type- Selected with DropMenus	Type#	Flowpath Area ac	Upper Elev. Ft	Bott. Elev. Ft	Length ft	Map Slope ft/ft	Mtn Chan. Eff. Slope ft/ft	Diam/ Width ft	n value	Side-slope X; XH:1V	% Area	Q cfs	Cum. Q cfs
1	Overland-Undeveloped	1	2.47	565	525	322	0.124					100.0%	6.9	6.9
2	None	0					#VALUE!	#VALUE!				0.0%	-	6.9
3	None	0										0.0%	-	6.9
4	None	0										0.0%	-	6.9
5	None	0										0.0%	-	6.9
6	None	0										0.0%	-	6.9
7	None	0										0.0%	-	6.9
8	None	0										0.0%	-	6.9
9	None	0										0.0%	-	6.9
10	None	0										0.0%	-	6.9
Sum			2.5									100%	6.9	

Tc Calculator Data Sheet V6.1

Project Name and Number: EVERETT Q50 DEVELOPED

USER INPUT IN BLUE FIELDS:		
Subarea Name =	2.46 AC PROP DEV	User Input
Watershed Area ac =	2.5	Calculated from flowpath data
% Imperviousness =	76.3	User Input
Land Use Description =	HiRes	DropMenu
Storm Frequency	50	DropMenu
Storm Zone =	Jp	DropMenu
Zone ID =	Jp_50	Calculated
District Soil Number (1-7) =	1	DropMenu- Rev for Revised C Coefficients
Tc for Intensity Calc min =	**5.00**	**Rounded, Use for Peak Flow Calc.**
Intensity in/hr =	3.790	Calculated
C_undeveloped =	0.920	Calculated
C_composite =	0.943	Calculated
Peak cfs =	8.86	Calculated
Calculated Tc=	**5.03**	**Calculated**

Instructions:

1. Set to manual calculations with File->Options->Formulas
2. Set max iterative calculations to 50
3. Enter required subarea and flowpath data in blue fields
4. Use site-specific topo or District 2005 LiDAR data for elevations
5. LiDAR and rain zone data at: http://vcwatershed.net/publicMaps/data
6. Clear any unnessary flowpath data from blue fields
7. Manually calculate with F9 or Formulas->Calculate Now
8. If error or comments appear, revise input data accordingly
9. Tc's in cells C12 and C17 should converge to the nearest minute.
10. Use result in C12 for peak flow calculation.
11. Print area is set for printing this page on one sheet.

FLOWPATH DATA- UPSTREAM TO DOWNSTREAM

Flowpath Number	Type- Selected with DropMenus	Type#	Flowpath Area ac	Upper Elev. Ft	Bott. Elev. Ft	Length ft	Map Slope ft/ft	Mtn Chan. Eff. Slope ft/ft	Diam/ Width ft	n value	Side-slope X; XH:1V	% Area	Q cfs	Cum. Q cfs
1	Overland-Undeveloped	1	2.46	565	525	322	0.124					100.0%	8.9	8.9
2	None	0					#VALUE!	#VALUE!				0.0%	-	8.9
3	None	0										0.0%	-	8.9
4	None	0										0.0%	-	8.9
5	None	0										0.0%	-	8.9
6	None	0										0.0%	-	8.9
7	None	0										0.0%	-	8.9
8	None	0										0.0%	-	8.9
9	None	0										0.0%	-	8.9
10	None	0										0.0%	-	8.9
Sum			**2.5**									**100%**	**8.9**	

Tc Calculator Data Sheet V6.1

Project Name and Number: EVERETT Q100 DEVELOPED

USER INPUT IN BLUE FIELDS:		
Subarea Name =	2.46 AC PROP DEV	User Input
Watershed Area ac =	2.5	Calculated from flowpath data
% Imperviousness =	76.3	User Input
Land Use Description =	HiRes	DropMenu
Storm Frequency	100	DropMenu
Storm Zone =	Jp	DropMenu
Zone ID =	Jp_100	Calculated
District Soil Number (1-7) =	1	DropMenu- Rev for Revised C Coefficients
Tc for Intensity Calc min =	**5.00**	**Rounded, Use for Peak Flow Calc.**
Intensity in/hr =	4.060	Calculated
C_undeveloped =	0.926	Calculated
C_composite =	0.944	Calculated
Peak cfs =	9.51	Calculated
Calculated Tc=	**5.01**	**Calculated**

Instructions:

1. Set to manual calculations with File->Options->Formulas
2. Set max iterative calculations to 50
3. Enter required subarea and flowpath data in blue fields
4. Use site-specific topo or District 2005 LiDAR data for elevations
5. LiDAR and rain zone data at: http://vcwatershed.net/publicMaps/data
6. Clear any unnessary flowpath data from blue fields
7. Manually calculate with F9 or Formulas->Calculate Now
8. If error or comments appear, revise input data accordingly
9. Tc's in cells C12 and C17 should converge to the nearest minute.
10. Use result in C12 for peak flow calculation.
11. Print area is set for printing this page on one sheet.

FLOWPATH DATA- UPSTREAM TO DOWNSTREAM

Flowpath Number	Type- Selected with DropMenus	Type#	Flowpath Area ac	Upper Elev. Ft	Bott. Elev. Ft	Length ft	Map Slope ft/ft	Mtn Chan. Eff. Slope ft/ft	Diam/ Width ft	n value	Side-slope X; XH:1V	% Area	Q cfs	Cum. Q cfs
1	Overland-Undeveloped	1	2.46	565	525	360	0.111					100.0%	9.5	9.5
2	None	0					#VALUE!	#VALUE!				0.0%	-	9.5
3	None	0										0.0%	-	9.5
4	None	0										0.0%	-	9.5
5	None	0										0.0%	-	9.5
6	None	0										0.0%	-	9.5
7	None	0										0.0%	-	9.5
8	None	0										0.0%	-	9.5
9	None	0										0.0%	-	9.5
10	None	0										0.0%	-	9.5
Sum			2.5									100%	9.5	

Tc Calculator Data Sheet V6.1

Project Name and Number: EVERETT Q100 DEVELOPED WITH NORTHERLY 0.86 Ac.

USER INPUT IN BLUE FIELDS:		
Subarea Name =	3.32 AC PROP DEV	User Input
Watershed Area ac =	3.3	Calculated from flowpath data
% Imperviousness =	56.6	User Input
Land Use Description =	HiRes	DropMenu
Storm Frequency	100	DropMenu
Storm Zone =	Jp	DropMenu
Zone ID =	Jp_100	Calculated
District Soil Number (1-7) =	1	DropMenu- Rev for Revised C Coefficients
Tc for Intensity Calc min =	5.00	**Rounded, Use for Peak Flow Calc.**
Intensity in/hr =	4.060	Calculated
C_undeveloped =	0.926	Calculated
C_composite =	0.940	Calculated
Peak cfs =	12.77	Calculated
Calculated Tc=	5.01	**Calculated**

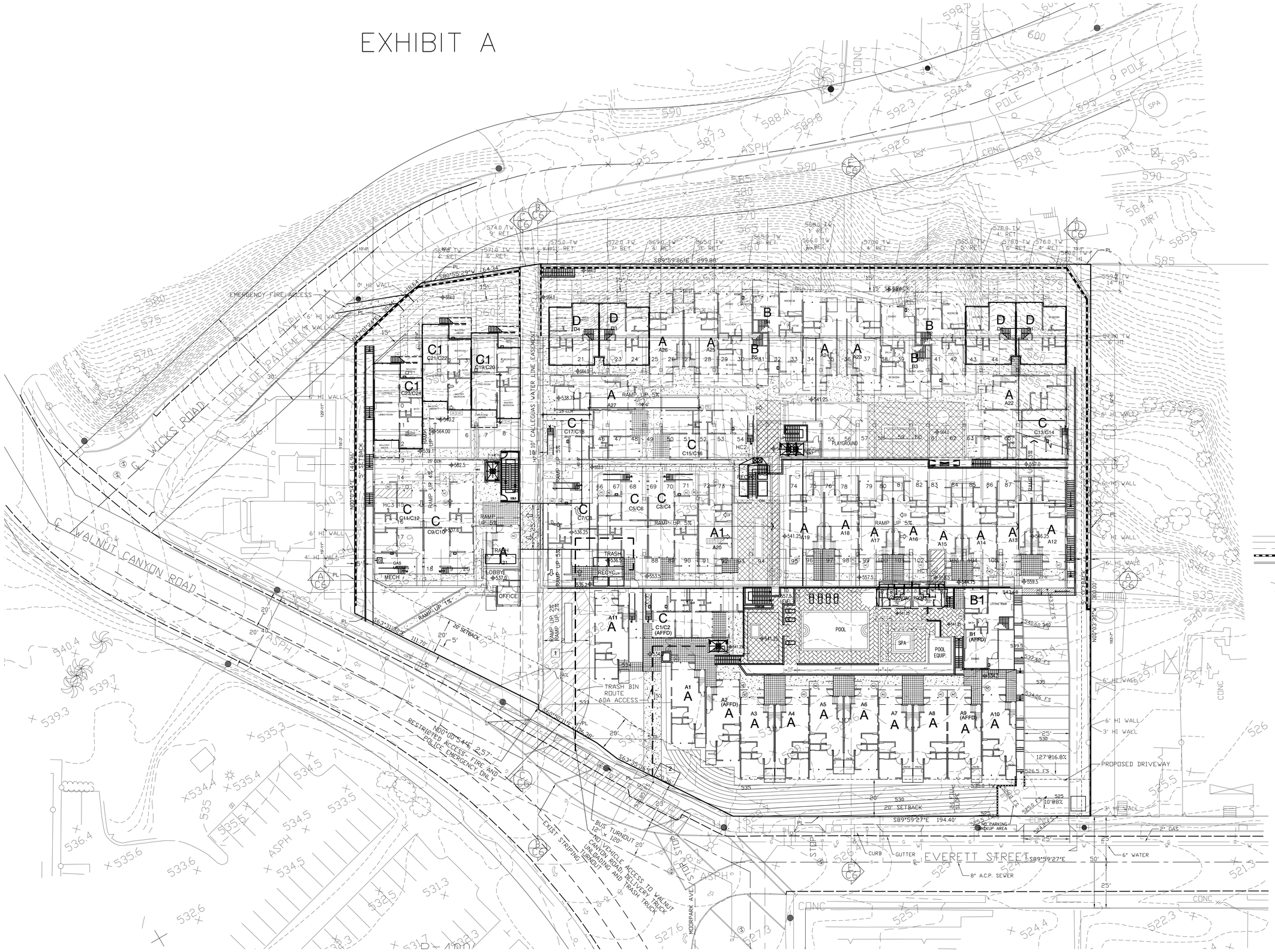
Instructions:

1. Set to manual calculations with File->Options->Formulas
2. Set max iterative calculations to 50
3. Enter required subarea and flowpath data in blue fields
4. Use site-specific topo or District 2005 LiDAR data for elevations
5. LiDAR and rain zone data at: http://vcwatershed.net/publicMaps/data
6. Clear any unnessary flowpath data from blue fields
7. Manually calculate with F9 or Formulas->Calculate Now
8. If error or comments appear, revise input data accordingly
9. Tc's in cells C12 and C17 should converge to the nearest minute.
10. Use result in C12 for peak flow calculation.
11. Print area is set for printing this page on one sheet.

FLOWPATH DATA- UPSTREAM TO DOWNSTREAM

Flowpath Number	Type- Selected with DropMenus	Type#	Flowpath Area ac	Upper Elev. Ft	Bott. Elev. Ft	Length ft	Map Slope ft/ft	Mtn Chan. Eff. Slope ft/ft	Diam/ Width ft	n value	Side-slope X; XH:1V	% Area	Q cfs	Cum. Q cfs
1	Overland-Undeveloped	1	3.32	565	525	360	0.111					100.0%	12.8	12.8
2	None	0					#VALUE!	#VALUE!				0.0%	-	12.8
3	None	0										0.0%	-	12.8
4	None	0										0.0%	-	12.8
5	None	0										0.0%	-	12.8
6	None	0										0.0%	-	12.8
7	None	0										0.0%	-	12.8
8	None	0										0.0%	-	12.8
9	None	0										0.0%	-	12.8
10	None	0										0.0%	-	12.8
Sum			3.3									100%	12.8	

EXHIBIT A



LEGEND

- EXISTING GAS LINE
- EXISTING SEWER LINE
- EXISTING WATER LINE
- PROPOSED 8" SLUMPSTONE BOUNDARY WALL
- PROPOSED 8" CONCRETE WALL
- PROPOSED EXITS STAIRS AND STAIR LADDER LANDING
- EXISTING 5' MAJOR CONTOURS
- EXISTING 1' MINOR CONTOURS
- EG EXISTING GRADE
- F.F. FINISH FLOOR
- FG FINISH GRADE
- FS FINISH SURFACE
- INV INVERT ELEVATION
- RET. RETAINED
- TG TOP OF GRATE
- TW TOP OF WALL
- 564.0 PROPOSED FINISH ELEVATION
- 698.1+ EXISTING SPOT ELEVATION
- 7622.10 PROPOSED FINISH ELEVATION
- EXISTING STORM DRAIN MANHOLE
- EXISTING SEWER MANHOLE
- EXISTING POWER POLE
- EXISTING STREET LIGHT
- 6'Ø x 25' DEEP SEEPAGE PIT

REGISTERED PROFESSIONAL ENGINEER
DANNY P. HOLMES
NO. 24769
EXP. 12-31-21
CIVIL
STATE OF CALIFORNIA

N
W E
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GRAPHIC SCALE
0 10 20 60
SCALE: 1"=20'

6-1-20

Holmes Enterprises, inc.
Structural and Civil Engineering
200 Wicks Rd. Moorpark, CA. 93021
(805) 532-1571 (805) 532-1596

	REVISION	APP	DATE	RCE
1				
2				

OWNER :
JOHN CHIU c/o NEWTON AND ASSOCIATES
P. O. BOX 471
MOORPARK, CA 91021
805 529 3494

LOWER LEVEL PLAN
EVERETT STREET TERRACES
MOORPARK, CA

C-3 OF C-6


EXHIBIT B
RIDGE
RIDGE
AREA 1
11.5 AC.
AREA 2
3.2 AC.
Walnut Canyon Rd
Cedar Bluff Dr
Oak Bluff Dr
Wicks Rd
6" CURB
160 WICKS
180 WICKS
Moorpark
Valley Rd
Google

EXHIBIT C

CATCH BASIN
CATCH BASIN
CATCH BASIN
CATCH BASIN

AREA 1B
0.43 Ac.

AREA 1A
1.03 Ac.

AREA 1
1.46 Ac.

AREA 2
1.00 Ac.

AREA 2

BIOFILTER

BIOFILTER
PROPOSED DRIVEWAY

AREA 1B (47 LF OF 44")
AREA 1A (116 LF OF 44" PIPE)
AREA 2 (413 LF OF 44" PIPE)

EMERGENCY FIRE ACCESS
WICKS ROAD - EDGE OF PAVEMENT
WALNUT CANYON ROAD
EVERETT STREET
MOORPARK AVE.
10' CALLEGUAS WATER LINE EASEMENT
TRASH BIN ROUTE
ADA ACCESS
BUS TURNOUT 20' x 120'
NO VEHICLE ACCESS TO WALNUT CANYON ROAD, DELIVERY TRUCK UNLOADING AND TRASH TRUCK TURNOUT
EXIST STRIPING
RESTRICTED ACCESS, FIRE AND POLICE EMERGENCY ONLY
N00°00'54"E 257'
S89°59'27"E 194.40'
127'@16.8%
10'@8%
20' SETBACK
15' SETBACK
RAMP UP 5%
RAMP UP 8.3%
RAMP UP 12%
RAMP UP 22%
RAMP UP 25%
POOL
SPA
POOL EQUIP.
CLUBHOUSE
LOBBY
OFFICE
TRASH
RECYC.
MECH.
GAS
LAUNDRY ROOM
PLAYGROUND
GUTTER
CURB
8" A.C.P. SEWER
6" WATER
2" GAS
3' HI WALL
6' HI WALL
4' HI WALL
9' HI WALL
ASPH
CONC
DIRT
POLE
SPA

LEGEND

- EXISTING GAS LINE
- EXISTING SEWER LINE
- EXISTING WATER LINE
- PROPOSED 8" SLUMPSTONE BOUNDARY WALL
- PROPOSED 8" CONCRETE WALL
- PROPOSED EXITS STAIRS AND STAIR LADDER LANDING
- EXISTING 5' MAJOR CONTOURS
- EXISTING 1' MINOR CONTOURS
- EG EXISTING GRADE
- F.F. FINISH FLOOR
- FG FINISH GRADE
- FS FINISH SURFACE
- INV INVERT ELEVATION
- RET. RETAINED
- TG TOP OF GRATE
- TW TOP OF WALL
- 564.0 PROPOSED FINISH ELEVATION
- 698.1+ EXISTING SPOT ELEVATION
- 7623.10 / 7628.00 PROPOSED FINISH ELEVATION
- EXISTING STORM DRAIN MANHOLE
- EXISTING SEWER MANHOLE
- EXISTING POWER POLE
- EXISTING STREET LIGHT
- 6'Øx25' DEEP SEEPAGE PIT

REGISTERED PROFESSIONAL ENGINEER
DANNY P. HOLMES
NO. 24769
EXP. 12-31-21
CIVIL
STATE OF CALIFORNIA

N
W E
S

GRAPHIC SCALE
0 10 20 60
SCALE: 1"=20'

6-1-20

Holmes Enterprises, inc.
Structural and Civil Engineering
200 Wicks Rd. Moorpark, CA. 93021
(805) 532-1571 (805) 532-1596

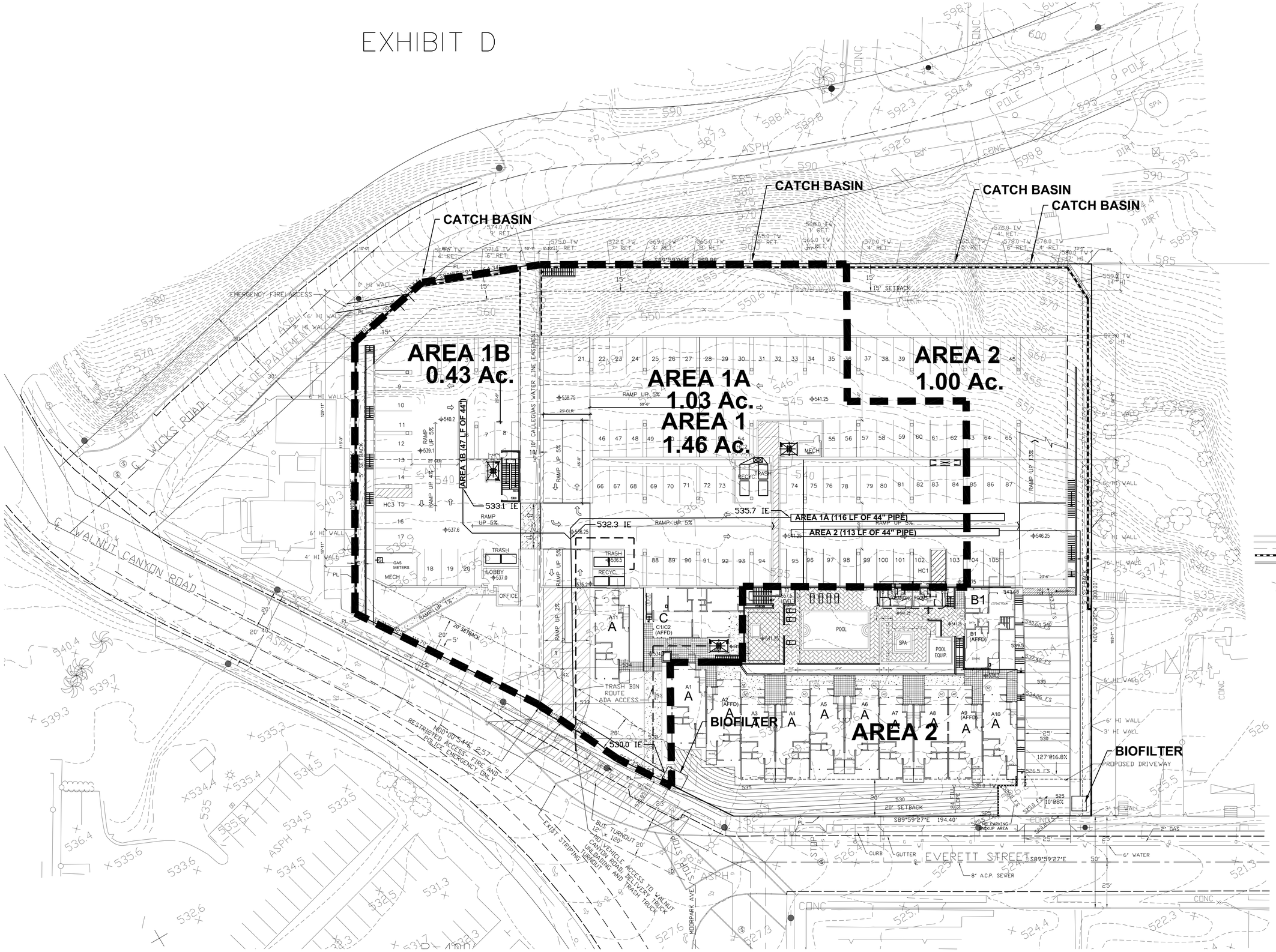
	REVISION	APP	DATE	RCE
1				
2				

OWNER :
JOHN CHIU c/o NEWTON AND ASSOCIATES
P. O. BOX 471
MOORPARK, CA 91021
805 529 3494

LOWER LEVEL PLAN
EVERETT STREET TERRACES
MOORPARK, CA

C-3 OF C-6

EXHIBIT D



LEGEND

- EXISTING GAS LINE
- EXISTING SEWER LINE
- EXISTING WATER LINE
- PROPOSED 8" SLUMPSTONE BOUNDARY WALL
- PROPOSED 8" CONCRETE WALL
- PROPOSED EXITS STAIRS AND STAIR LADDER LANDING
- EXISTING 5' MAJOR CONTOURS
- EXISTING 1' MINOR CONTOURS
- EG EXISTING GRADE
- F.F. FINISH FLOOR
- FG FINISH GRADE
- FS FINISH SURFACE
- INV INVERT ELEVATION
- RET. RETAINED
- TG TOP OF GRATE
- TW TOP OF WALL
- 564.0 PROPOSED FINISH ELEVATION
- 698.7+ EXISTING SPOT ELEVATION
- 7633.15 / 7629.99 PROPOSED FINISH ELEVATION
- EXISTING STORM DRAIN MANHOLE
- EXISTING SEWER MANHOLE
- EXISTING POWER POLE
- EXISTING STREET LIGHT
- 6'ø x 25' DEEP SEEPAGE PIT

REGISTERED PROFESSIONAL ENGINEER
DANNY P. HOLMES
NO. 24769
EXP. 12-31-21
CIVIL
STATE OF CALIFORNIA

N
W E
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GRAPHIC SCALE
0 10 20 60
SCALE: 1"=20'

6-1-20

Holmes Enterprises, inc.
Structural and Civil Engineering
200 Wicks Rd. Moorpark, CA. 93021
(805) 532-1571 (805) 532-1596

	REVISION	APP	DATE	RCE
1				
2				

OWNER :
JOHN CHIU c/o NEWTON AND ASSOCIATES
P. O. BOX 471
MOORPARK, CA 91021
805 529 3494

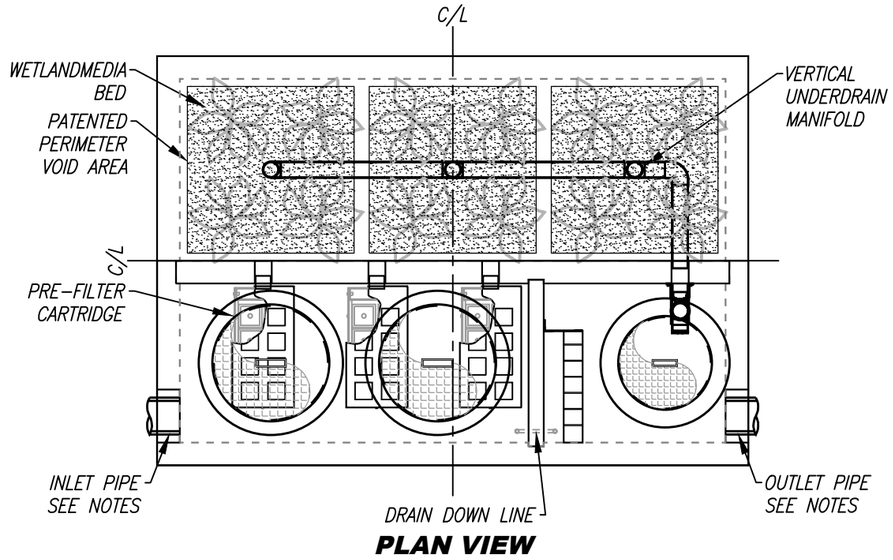
LOWER LEVEL PLAN
EVERETT STREET TERRACES
MOORPARK, CA

C-3 OF C-6

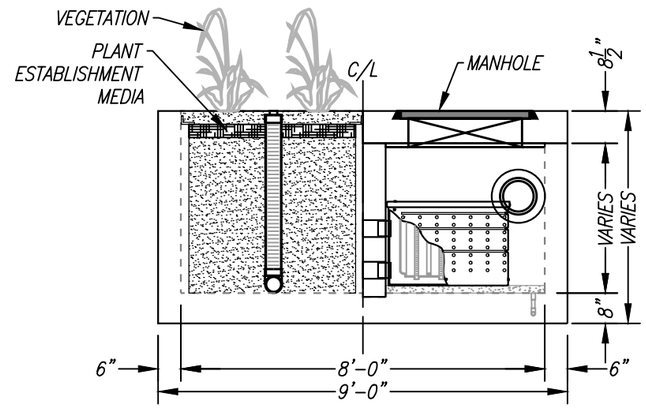
EXHIBIT E

SITE SPECIFIC DATA			
PROJECT NUMBER			
PROJECT NAME			
PROJECT LOCATION			
STRUCTURE ID			
TREATMENT REQUIRED			
VOLUME BASED (CF)		FLOW BASED (CFS)	
N/A		0.346	
PEAK BYPASS REQUIRED (CFS) – IF APPLICABLE			OFFLINE
PIPE DATA	I.E.	MATERIAL	DIAMETER
INLET PIPE 1			
INLET PIPE 2	N/A	N/A	N/A
OUTLET PIPE			
	PRETREATMENT	BIOFILTRATION	DISCHARGE
RIM ELEVATION			
SURFACE LOAD	PEDESTRIAN		
FRAME & COVER	2EA ø30"	OPEN PLANTER	ø24"
NOTES:			

* PRELIMINARY NOT FOR CONSTRUCTION



PLAN VIEW



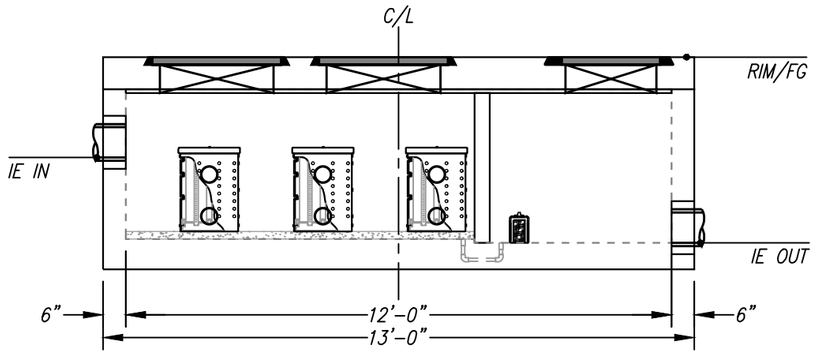
LEFT END VIEW

INSTALLATION NOTES

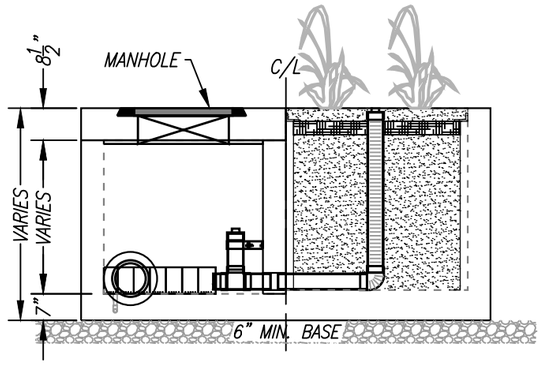
1. CONTRACTOR TO PROVIDE ALL LABOR, EQUIPMENT, MATERIALS AND INCIDENTALS REQUIRED TO OFFLOAD AND INSTALL THE SYSTEM AND APPURTENANCES IN ACCORDANCE WITH THIS DRAWING AND THE MANUFACTURERS SPECIFICATIONS, UNLESS OTHERWISE STATED IN MANUFACTURERS CONTRACT.
2. UNIT MUST BE INSTALLED ON LEVEL BASE. MANUFACTURER RECOMMENDS A MINIMUM 6" LEVEL ROCK BASE UNLESS SPECIFIED BY THE PROJECT ENGINEER. CONTRACTOR IS RESPONSIBLE TO VERIFY PROJECT ENGINEERS RECOMMENDED BASE SPECIFICATIONS.
4. CONTRACTOR TO SUPPLY AND INSTALL ALL EXTERNAL CONNECTING PIPES. ALL PIPES MUST BE FLUSH WITH INSIDE SURFACE OF CONCRETE. (PIPES CANNOT INTRUDE BEYOND FLUSH). INVERT OF OUTFLOW PIPE MUST BE FLUSH WITH DISCHARGE CHAMBER FLOOR. ALL PIPES SHALL BE SEALED WATER TIGHT PER MANUFACTURERS STANDARD CONNECTION DETAIL.
5. CONTRACTOR RESPONSIBLE FOR INSTALLATION OF ALL RISERS, MANHOLES, AND HATCHES. CONTRACTOR TO GROUT ALL MANHOLES AND HATCHES TO MATCH FINISHED SURFACE UNLESS SPECIFIED OTHERWISE.
6. VEGETATION SUPPLIED AND INSTALLED BY OTHERS. ALL UNITS WITH VEGETATION MUST HAVE DRIP OR SPRAY IRRIGATION SUPPLIED AND INSTALLED BY OTHERS.
7. CONTRACTOR RESPONSIBLE FOR CONTACTING BIO CLEAN FOR ACTIVATION OF UNIT. MANUFACTURERS WARRANTY IS VOID WITH OUT PROPER ACTIVATION BY A BIO CLEAN REPRESENTATIVE.

GENERAL NOTES

1. MANUFACTURER TO PROVIDE ALL MATERIALS UNLESS OTHERWISE NOTED.
2. ALL DIMENSIONS, ELEVATIONS, SPECIFICATIONS AND CAPACITIES ARE SUBJECT TO CHANGE. FOR PROJECT SPECIFIC DRAWINGS DETAILING EXACT DIMENSIONS, WEIGHTS AND ACCESSORIES PLEASE CONTACT BIO CLEAN.



ELEVATION VIEW



RIGHT END VIEW

TREATMENT FLOW (CFS)	0.346
OPERATING HEAD (FT)	3.4
PRETREATMENT LOADING RATE (GPM/SF)	2.0
WETLAND MEDIA LOADING RATE (GPM/SF)	1.0

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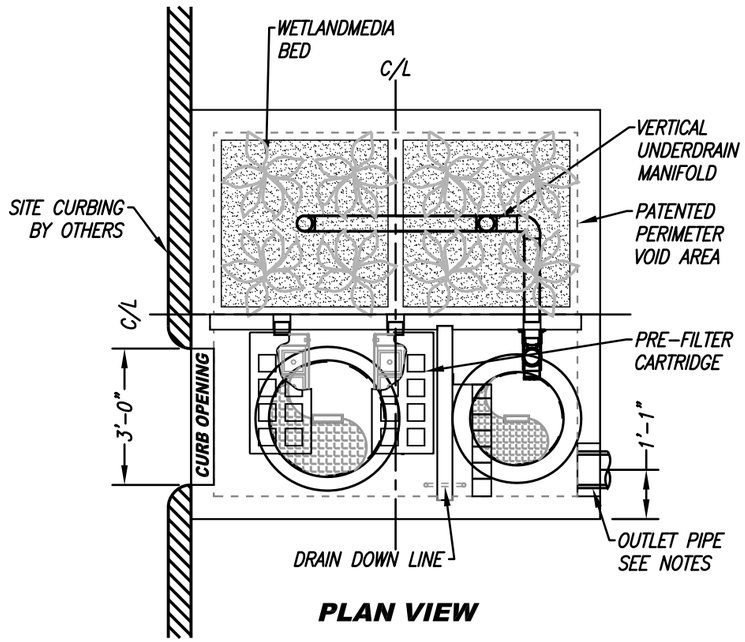
Bio Clean
A Forterra Company

MWS-L-8-12-V
STORMWATER BIOFILTRATION SYSTEM
STANDARD DETAIL

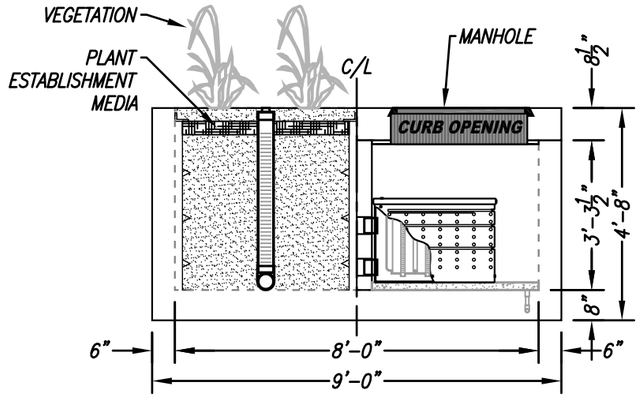
5/23/19 10 LEF

EXHIBIT F

SITE SPECIFIC DATA			
PROJECT NUMBER			
ORDER NUMBER			
PROJECT NAME			
PROJECT LOCATION			
STRUCTURE ID			
TREATMENT REQUIRED			
VOLUME BASED (CF)		FLOW BASED (CFS)	
TREATMENT HGL AVAILABLE (FT)			
PEAK BYPASS REQUIRED (CFS) – IF APPLICABLE			
PIPE DATA	I.E.	MATERIAL	DIAMETER
INLET PIPE 1			
INLET PIPE 2			
OUTLET PIPE			
	PRETREATMENT	BIOFILTRATION	DISCHARGE
RIM ELEVATION			
SURFACE LOAD	PEDESTRIAN	OPEN PLANTER	PEDESTRIAN
FRAME & COVER	ø30"	N/A	ø24"
WETLANDMEDIA VOLUME (CY)			TBD
ORIFICE SIZE (DIA. INCHES)			TBD
NOTES: PRELIMINARY NOT FOR CONSTRUCTION.			



PLAN VIEW



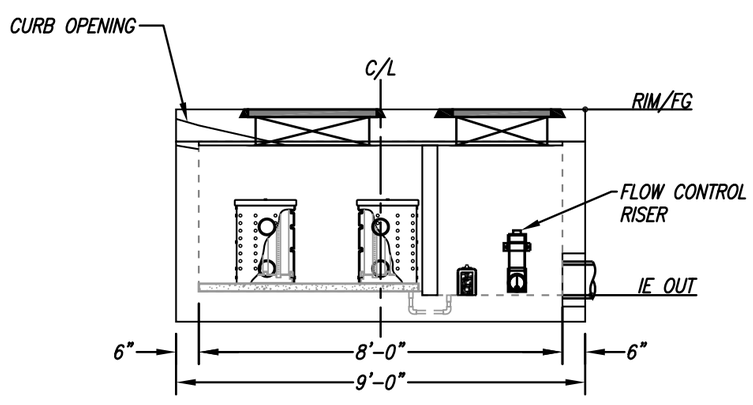
LEFT END VIEW

INSTALLATION NOTES

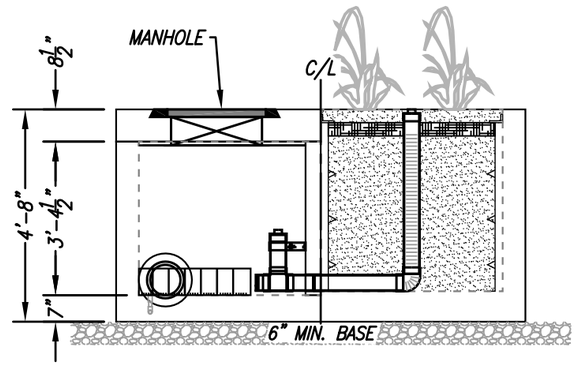
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5. CONTRACTOR RESPONSIBLE FOR INSTALLATION OF ALL RISERS, MANHOLES, AND HATCHES. CONTRACTOR TO GROUT ALL MANHOLES AND HATCHES TO MATCH FINISHED SURFACE UNLESS SPECIFIED OTHERWISE.
6. VEGETATION SUPPLIED AND INSTALLED BY OTHERS. ALL UNITS WITH VEGETATION MUST HAVE DRIP OR SPRAY IRRIGATION SUPPLIED AND INSTALLED BY OTHERS.
7. CONTRACTOR RESPONSIBLE FOR CONTACTING BIO CLEAN FOR ACTIVATION OF UNIT. MANUFACTURERS WARRANTY IS VOID WITH OUT PROPER ACTIVATION BY A BIO CLEAN REPRESENTATIVE.

GENERAL NOTES

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ELEVATION VIEW



RIGHT END VIEW

TREATMENT FLOW (CFS)	0.231
OPERATING HEAD (FT)	3.4
PRETREATMENT LOADING RATE (GPM/SF)	2.0
WETLAND MEDIA LOADING RATE (GPM/SF)	1.0

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Bio Clean
A Forterra Company

MWS-L-8-8-C
STORMWATER BIOFILTRATION SYSTEM
STANDARD DETAIL

EXHIBIT G

Detention Volume for Attenuating Peak Runoff from Small Developed Areas

	Undeveloped	Developed
100-yr 1-d Rain in	6.3	6.3
Soil Type	1	1
Land Use	3 UNIT/ACRE	CONDO
CN Exhibit 14	86	93
S = 1000/CN-10	1.63	0.75
Yield in	4.70	5.48
Volume Calculation		
Yield Difference in		0.78
Surface Storage		0.50
Net Yield		0.28
Impervious Area ac		1.880
Vol Increase CF- Max Basin Size Req'd		1936.46
Basin Vol / acre		1,030

EXHIBIT H

NOTES TO USERS

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The **community map repository** should be consulted for possible updated or additional flood hazard information.

To obtain more detailed information in areas where **Base Flood Elevations** (BFEs) and/or **floodways** have been determined, users are encouraged to consult the Flood Profiles and Floodway Data and/or Summary of Stillwater Elevations tables contained within the Flood Insurance Study (FIS) report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole-foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS report should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

Coastal Base Flood Elevations shown on this map apply only landward of 0.0' North American Vertical Datum of 1988 (NAVD 88). Users of this FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations tables in the Flood Insurance Study report for this jurisdiction. Elevations shown in the Summary of Stillwater Elevations tables should be used for construction and/or floodplain management purposes when they are higher than the elevations shown on this FIRM.

Boundaries of the **floodways** were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study report for this jurisdiction.

Certain areas not in Special Flood Hazard Areas may be protected by **flood control structures**. Refer to Section 2.4 "Flood Protection Measures" of the Flood Insurance Study report for information on flood control structures for this jurisdiction.

The **projection** used in the preparation of this map was Universal Transverse Mercator (UTM) zone 11. The **horizontal datum** was NAD 83, GRS80 spheroid. Differences in datum, spheroid, projection or UTM zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

Flood elevations on this map are referenced to the North American Vertical Datum of 1988. These flood elevations must be compared to structure and ground elevations referenced to the same **vertical datum**. For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at http://www.ngs.noaa.gov or contact the National Geodetic Survey at the following address:

Spatial Reference System Division
National Geodetic Survey, NOAA
Silver Spring Metro Center
1315 East-West Highway
Silver Spring, Maryland 20910
(301) 713-3191

To obtain current elevation, description, and/or location information for **bench marks** shown on this map, please contact the Information Services Branch of the National Geodetic Survey at **(301) 713-3242**, or visit its website at http://www.ngs.noaa.gov.

Base map information shown on this FIRM was derived from U.S. Geological Survey Digital Orthophoto Quadrangles produced at a scale of 1:12,000 from photography dated 1994 or later.

This map reflects more detailed and up-to-date **stream channel configurations** than those shown on the previous FIRM for this jurisdiction. The floodplains and floodways that were transferred from the previous FIRM may have been adjusted to confirm to these new stream channel configurations. As a result, the Flood Profiles and Floodway Data tables in the Flood Insurance Study Report (which contains authoritative hydraulic data) may reflect stream channel distances that differ from what is shown on this map.

Corporate limits shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

Please refer to the separately printed **Map Index** for an overview map of the county showing the layout of map panels; community map repository addresses; and a Listing of Communities table containing National Flood Insurance Program dates for each community as well as a listing of the panels on which each community is located.

Contact the **FEMA Map Service Center** at 1-800-358-9616 for information on available products associated with this FIRM. Available products may include previously issued Letters of Map Change, a Flood Insurance Study report, and/or digital versions of this map. The FEMA Map Service Center may also be reached by Fax at 1-800-358-9620 and its website at http://www.mcs.fema.gov.

If you have **questions about this map** or questions concerning the National Flood Insurance Program in general, please call **1-877-FEMA MAP** (1-877-336-2627) or visit the FEMA website at http://www.fema.gov.



LEGEND

SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V, and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

ZONE A	No Base Flood Elevations determined.
ZONE AE	Base Flood Elevations determined.
ZONE AH	Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.
ZONE AO	Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
ZONE AR	Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
ZONE A99	Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.
ZONE V	Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.
ZONE VE	Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

ZONE X	Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

ZONE X	Areas determined to be outside the 0.2% annual chance floodplain.
ZONE D	Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

	1% annual chance floodplain boundary
	0.2% annual chance floodplain boundary
	Floodway boundary
	Zone D boundary
	CBRS and OPA boundary
	Boundary dividing Special Flood Hazard Area Zones and boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or flood velocities.
513	Base Flood Elevation line and value; elevation in feet*
(EL 987)	Base Flood Elevation value where uniform within zone; elevation in feet*

* Referenced to the North American Vertical Datum of 1988

A — A	Cross section line
23 — 23	Transect line
87°07'45", 32°22'30"	Geographic coordinates referenced to the North American Datum of 1983 (NAD 83), Western Hemisphere
3776000mN	1000-meter Universal Transverse Mercator grid values, zone 11
600000 FT	5000-foot grid ticks: California State Plane coordinate system, zone V (FIPSZONE 0405), Lambert Conformal Conic projection
DX5510 ×	Bench mark (see explanation in Notes to Users section of this FIRM panel)
● M1.5	River Mile

MAP REPOSITORY
Refer to listing of Map Repositories on Map Index

EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP
January 20, 2010

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL

For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your Insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

MAP SCALE 1" = 500'
250 0 500 1000 FEET
150 0 150 300 METERS

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0817E

FIRM

FLOOD INSURANCE RATE MAP

VENTURA COUNTY, CALIFORNIA
AND INCORPORATED AREAS

PANEL 817 OF 1275
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
MOORPARK, CITY OF	060712	0817	E
VENTURA COUNTY	060413	0817	E

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
06111C0817E

EFFECTIVE DATE
JANUARY 20, 2010

Federal Emergency Management Agency

ZONE AE
564
EW4611
E
560
ZONE X
ZONE X
EXHIBIT I
K BLUFF DRIVE
WICKS ROAD
CHANCE FLOOD
NTAINED IN CULVERT
555
WALNUT CANYON ROAD
PROJECT AREA
E
549
EVERETT STREET
VALLEY ROAD
MAGNOLIA
540
ZONE AO
(DEPTH 1')
BONNIE V
534
531
ZONE
AE
524
ZONE X
ZONE X
517
W HIGH ST
ZONE AO
(DEPTH 1')
511
503
508
BARD STREET
ZONE X
Moorpark City Drain
ZONE X
ZONE X
POINDEXTER AVENUE
METROLINK
608
EN AVENUE
1ST STREET
EET
DOROTHY
AVENUE

EXHIBIT J

City of Moorpark

CITY ENGINEERING/PUBLIC WORKS DEPARTMENT
799 Moorpark Avenue, Moorpark, California 93021 (805) 517-6256 fax (805) 532-2555

November 9, 2011

Sheila Norlin, CFM
Michael Baker Corporation
3602 Eisenhower Avenue, #600
Alexandria, VA 22303

Subject: Request for Letter of Map Revision - Walnut Canyon Channel DFIRM Effective January 20, 2010

Dear Ms. Norlin:

We wish to inform you that the City has conducted a detailed review and analysis for a portion of Walnut Canyon Channel within City of Moorpark corporate limits. As a result of the study we have determined various revisions to the Digital Flood Insurance Rate Map (DFIRM) that would remove structures from the 100-year floodplain. As the study area is located within City corporate limits, community concurrence is not needed from the County of Ventura.

Please find the enclosed technical and scientific supporting documentation for a Letter of Map Revision to the DFIRM effective January 20, 2010.

The City would appreciate a speedy review of this study. Should you have any questions or need any clarifications, please contact me at (805) 517-6285, or our consultant, Mr. Massoud Rezakhani at (602) 317-4303.

Thank you,

David Klotzle, P.E.
City Engineer/Public Works Director

S:\Public Works\Everyone\Agencies\FEMA\Walnut Canyon Channel\Walnut Canyon LOMR\Walnut Canyon Channel Request.docx

JANICE S. PARVIN Mayor | KEITH F. MILLHOUSE Mayor Pro Tem | ROSEANN MIKOS, Ph.D. Councilmember | DAVID POLLOCK Councilmember | MARK VAN DAM Councilmember

TSDN

City of Moorpark
Walnut Canyon Channel

Request for Letter of Map Revision

OCTOBER 18th, 2011



Submitted by

MRC LLC
29830 North 78th Way
Scottsdale, AZ 85266

Prepared for:
City of Moorpark, CA



Summary of Report Revisions

Date	Summary of Changes	Notes
01/11/2012	Appendix F updated based upon coordination with FEMA dated January 11, 2012. Additionally, Exhibit 3 and 5 were updated.	
02/21/2012	Appendix G added to TSDN documenting correspondence with FEMA.	

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Appendices

Appendix A – Walnut Canyon Channel As-builts
Appendix B – Nolte Associates, Inc. Files
Appendix C – PACE Hydrology Analysis Files
Appendix D – MT-2 Forms
Appendix E – MRC LLC Additional Survey Data
Appendix F – Hydraulic Model Output

Exhibits

Exhibit 1 – Vicinity Map
Exhibit 2 – Effective FEMA Flood Insurance Rate Map (FIRM) Panel(s)
Exhibit 3 – Walnut Canyon Channel Workmap
Exhibit 4 – Annotated effective FIRM Panel
Exhibit 5 – Revised Flood Profile Panel(s)
Exhibit 6 – Site Photos



1. INTRODUCTION

1.1. Purpose of Study

The City of Moorpark, CA (Community No. 060712) retained the services of MRC LLC to obtain a Letter of Map Revision for the floodplain for a portion of Walnut Canyon Channel. The study area runs from the most upstream end of Walnut Canyon Channel (XS113446) to just upstream of the intersection of Walnut Canyon Road and the UPRR Trestle (XS 109444), based on stationing in the effective HEC-RAS model. Figure 1 is a Project Location Map showing the study area. A more detailed map is included on Exhibit 1.

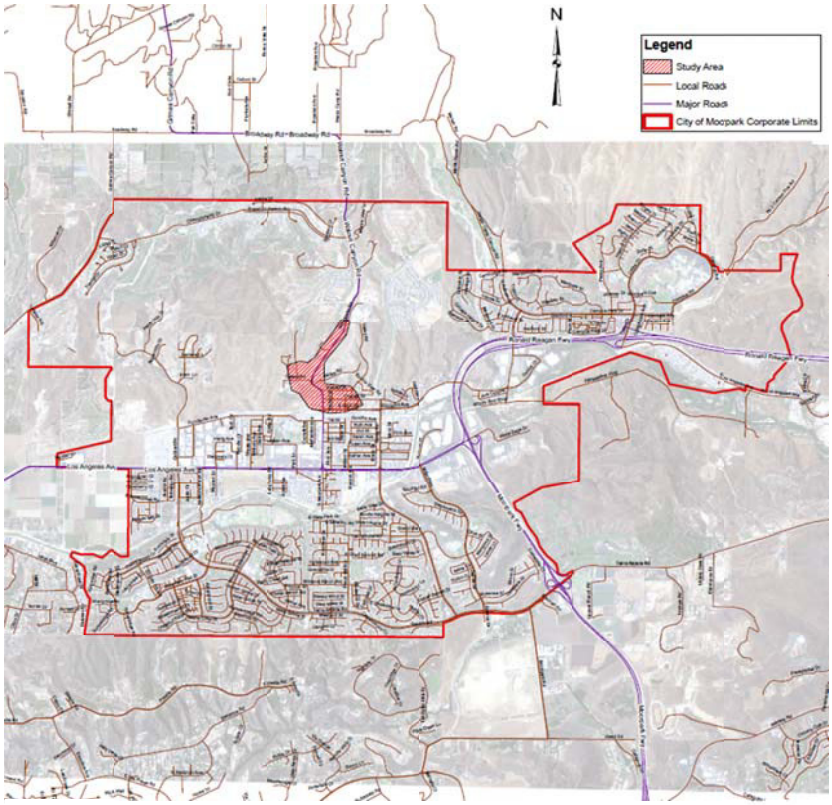


Figure 1 - Project Location Map

Portions of the study area are currently shown within the 1 percent annual chance (100-year) floodplain on the effective Digital Flood Insurance Rate Map (DFIRM) Panel No. 0817E for Ventura County and Incorporated Areas dated January 20, 2010.

The purpose of this Letter of Map Revision (LOMR) is to revise the effective floodplain along the above noted portion of Walnut Canyon Channel within City of Moorpark corporate limits. This LOMR request is based upon additional and more detailed HEC-RAS modeling, additional topographic information, updated hydrologic modeling by others, recognition of local drainage facilities and design intent, and site visits by MRC LLC.

1.2. Authority for Study

MRC LLC has been retained by the City of Moorpark to prepare this LOMR Request.

1.3. Location of Study Reach

The study reach is Walnut Canyon Channel which ultimately discharges into the Arroyo Simi. The first study area runs from the most upstream end of Walnut Canyon Channel (XS113446) to just upstream of the intersection of Walnut Canyon Road and the UPRR Trestle (XS 109444), based on stationing in the effective HEC-RAS model.

1.4. Methodology and Results

Walnut Canyon Channel is a reinforced concrete rectangular channel designed for supercritical flow. The channel was constructed in the 1960's by the U.S. Department of Agriculture, Soil Conservation Service (SCS). The basic modeling methodology was to incorporate more detailed hydrologic and hydraulic information into the effective HEC-RAS model, initially prepared by Nolte Associates, Inc. (Nolte). The effective HEC-RAS model was updated with revised hydrologic information, taking into account a coincident peak analysis, a refined analysis of the crossing at Casey Road and changing the flow regime from mixed to supercritical. HEC-RAS Version 4.1.0 was used for all updates to the effective hydraulic model.

Study Area

In analyzing the study area there are three effective HEC-RAS models; one for the main channel, one for the left overbank, and one for the right overbank. The effective HEC-RAS model for the main channel was run using the mixed flow regime method even though the channel was constructed to be in supercritical flow. The hydraulic capacity of Walnut Canyon Channel is limited at the crossing with Casey Road and the junction of two box culverts. The Walnut Canyon Channel crossing with Casey Road is an 8'x 6' concrete lined box culvert. The crossing to the west of the Walnut Canyon Channel crossing with Casey Road is an approximate 11' x 6' concrete lined box culvert. The box culverts are structurally connected just downstream of Casey Road and at their junction are approximately 15'x6' and gradually taper into a 6'x6' channel.



Figure 2 – Walnut Canyon Channel Box Culvert (on left), West Tributary Box Culvert (on right)

The western most box culvert is fed by a tributary canyon. The source of Walnut Canyon Channel and the tributary canyon have similar drainage areas (West Tributary ~276 acres & Walnut Canyon ~433 acres) and are considered to have coincident peaks.

Ventura County provided the initial hydrologic analysis to Nolte for their study in 2004. The hydrology was not reviewed by FEMA and took into account ultimate conditions as opposed to existing conditions hydrology, as required by FEMA. As a result, further studies indicated that the hydrology used in the Nolte study was in error and overestimated the peak discharge within Walnut Canyon Channel. PACE performed a restudy of the existing conditions hydrology in 2009. Not

taking into account detention basins constructed upstream of the study area, the existing condition peak discharges are significantly lower than those provided by Ventura County and used by Nolte in the effective HEC-RAS model. A more detailed description of hydrology is included in Section 4.

The effective hydraulic model was revised by MRC LLC using PACE hydrology and by taking into account a coincident peak analysis of all confluences. The revised hydraulic model was run using a supercritical flow regime. As the Nolte study did not model the confluence and junction of the two box culvert crossings at Casey Road, the lid function was added to correctly model the split flows and corresponding confluence downstream of Casey Road. Field reconnaissance and a field survey were performed in order to determine the upstream inverts of the Casey Road box culverts and to verify their sizes. The junction of the two box culverts was modeled according to Walnut Canyon Channel as-builts. More specifically, Sheet 14 and Sheet 28 of the Walnut Canyon Channel as-builts by SCS identify this area. These sheets have been included for reference in Appendix A.

Results of the updated analysis of the study area indicate that peak discharges are contained within the Walnut Canyon Channel. There is no left or right overbank flows that breakout from the main Walnut Canyon Channel system, eliminating the need for the left and right overbank effective HEC-RAS models. As a result, the floodplain mapping to the east of Walnut Canyon Road has been removed. This was previously mapped by Nolte and included on Panel No. 0817E as Zone AO, Depth 1'. Similarly, the floodplain mapping to the west of Walnut Canyon Channel (right overbank looking downstream) has been removed. This was previously mapped by Nolte and included on Panel No. 0817E as Zone AO, Depth 1'.

MRC LLC proposes that the above noted changes be incorporated onto Panel No. 0817E as the 100-year peak discharges are contained within the Walnut Canyon Channel system. Since the base flood event is contained within the channel banks we further recommend that BFE values be removed and the zone designation changed to Zone A. If the zone designation is changed to Zone A, there is no need to publish BFE values on the map or to develop and publish the profile panels.

2. FEMA FORMS

Form 1 – Overview & Concurrence Form, Form 2 – Riverine Hydrology & Hydraulics Form, Form 3 – Riverine Structures Form, and Form 7 – Payment Information Form are included within the TSDN. The forms are located in Appendix D.

Form 1 – Overview and Concurrence Form

The "Overview and Concurrence Form" is provided per FEMA requirements for submittals. The basis for this revision request is additional/refined hydraulic analysis along with updated hydrology. A form has been included for City concurrence since this project is located within the City of Moorpark. No changes are proposed outside of City of Moorpark Corporate Limits.

Form 2 – Riverine Hydrology and Hydraulics Form

The "Riverine Hydrology and Hydraulics Form" is provided per FEMA requirements for submittals.

Form 3 – Riverine Structures Form

The "Riverine Structures Form" is provided per FEMA requirements for LOMR submittals.

Please refer to Appendix D for additional bridge information.

3. SURVEY AND MAPPING INFORMATION

3.1. Field Survey Information

MRC LLC obtained the effective model and supporting documentation from Michael Baker Engineering Library and coordinated with Nolte Associates, Inc (Nolte). It should be noted that Nolte was the author of the effective hydraulic models for Walnut Canyon Channel.

MRC LLC made multiple site visits to Walnut Canyon Channel. These site visits included verification of channel sizes and box culvert crossings at Casey Road, analyzing the flooding source, and walking the entire study area.

3.2. Mapping

The topographic mapping used for the purpose of this study consists of two foot contour interval digital mapping from the effective model. LiDAR data was developed by Airborne1 under a contract with the County of Ventura and submitted to FEMA Study Contractors prior to the FIS in early 2000. Subsequently, TetraTech verified the model cross sections against new topographic DTM of 2005 LiDAR that was used in the FLO-2D simulation for Arroyo Simi and its overland flows. The mapping datum is NAVD88 for the project area.

Additional survey information was collected at Casey Road in order to update the culvert crossings and analyze hydraulic capacity of the culvert system. This survey information is included in Appendix E.

4. HYDROLOGY

The effective discharges from the Flood Insurance Study were not used for this submittal. Ventura County Watershed Protection District (VCWPD) provided hydrology to Nolte in a report entitled *Calleguas Creek Watershed Hydrology Study*, dated March 2003. This study utilized a hydrologic model known as VCRAT. After evaluation of hydrology used by Nolte in the effective HEC-RAS model, it appears that there were key over cites made in hydrologic evaluation of Walnut Canyon by VCWPD.

PACE analyzed the 2003 VCWPD hydrology study and provided updates to it in 2009 for existing, interim and ultimate conditions. Without getting into specific details, the 2003 VCWPD study included ultimate hydrologic conditions instead of existing hydrologic conditions as required with FEMA studies. The PACE study existing condition results were used for updating the effective HEC-RAS model for the study area after further considering a coincident peak analysis. A comparison of effective hydrology

(2003 VCWPD) and revised hydrology (PACE) is included in Table 1. Appendix C contains information form the PACE study.

Table 1 – Comparison of Peak Discharge Values without Coincident Peak Analysis

	2003 VCWPD Model		2009 PACE Model	
Location	Concentration Point	100-YR Peak Discharge (cfs)	Concentration Point	100-YR Peak Discharge (cfs)
Study Area 1	1566B	823	5A	391
Study Area 1	1567B	900	7A	431
Study Area 1	1574BC	1368	14AB	696

Study Area

According to *FEMA Appendix A, Guidelines and Specifications, 2003*, the assumption of coincident peaks is appropriate if all of the following conditions are met:

- The ratio of the drainage areas lies between 0.6 and 1.4;
- The arrival times of flood peaks are similar for the two combining watersheds; and
- The likelihood of both watersheds being covered by the storm being modeled is high.

Upstream of Casey Road flows are separated into two distinct watersheds; one which contains Walnut Canyon Channel and a tributary watershed to the west of Walnut Canyon Channel. The two watersheds confluence underneath Casey Road via box culverts and emerge (daylight) downstream of Casey Road, near the City Hall building. The two watersheds are considered to be coincident as they meet the above noted criteria. Using the PACE 2009 Existing Conditions Hydrology, at the confluence of the two watersheds the peak 100-year discharge is 696 cfs. The 2003 VCWPD study incorrectly established the peak 100-year discharge at this confluence as 1,368 cfs due to the over cites indicated above.

PACE Existing Condition hydrology was used in the revised hydraulic model up to XS 109794, at which point in time effective model hydrology was used to tie the study area into the effective model and associated DFIRM mapping.

5. HYDRAULICS

5.1. Effective Model

The basis for hydraulic calculations for Walnut Canyon Channel and its breakout flows were the following Nolte study effective HEC-RAS models:

1. "FEMA Ventura FIS", filename Calleguas_Drain2.prj;
2. "WalnutSpillROB1", filename WalnutSpillROB.prj; and
3. "110640lobspill", filename 110640LOBspill.prj

The "FEMA Ventura FIS" file was intended solely for analysis of the main channel. The "110640lobspill" file is intended to analyze the left overbank, looking downstream, of breakout flows upstream of Casey Road. The "WalnutSpillROB1" file was intended to analyze breakout flows stemming from a tributary canyon west of Walnut Canyon Channel and any right overbank flows occurring in the Walnut Canyon Channel downstream of Casey Road.

5.2. Duplicate Effective Model

The "FEMA Ventura FIS" model was truncated to the study area. The following is a listing of the study area's duplicate effective model.

1. "Walnut Canyon_SA1", filename WalnutCanyon_SA1.prj

Duplicate effective model file names and plan names are also indicated on MT-2 Form 2. A comparison between the Effective model and Duplicate effective model for the study area can be seen below in Table 2.

Table 2 Comparison of Effective vs. Duplicate Effective HEC-RAS results for Study Area

EFFECTIVE HEC-RAS MODEL			DUPLICATE EFFECTIVE HEC-RAS MODEL			COMPARISON
Station	Q Total	W.S. Elev	River Sta	Q Total	W.S. Elev	W.S. Difference
	(cfs)	(ft)		(cfs)	(ft)	Eff. - Dup. Eff (ft)
113446	823	645.25	113446	823	645.25	0.00
113345	823	642.52	113345	823	642.52	0.00
113290	Culvert		113290	Culvert		0.00
111910	900	594.32	111910	900	594.32	0.00
111496	900	577.10	111496	900	577.10	0.00
111188	900	567.45	111188	900	567.45	0.00
110890	900	562.12	110890	900	562.12	0.00
110788	900	560.15	110788	900	560.15	0.00
110640	530	555.65	110640	530	555.65	0.00
110635	Culvert		110635	Culvert		0.00
110422	530	549.20	110422	530	549.20	0.00
110263	530	540.08	110263	530	540.08	0.00
110091	530	533.94	110091	530	533.94	0.00
109794	530	515.67	109794	530	515.67	0.00
109646	530	512.13	109646	530	512.13	0.00
109444	300	509.20	109444	300	509.20	0.00

5.3. Revised Model

The Duplicate effective HEC-RAS model for the study area was revised as outlined in Section 1.4. The following is a listing of the study area's revised model.

1. "Walnut_SA1_withlid", filename Walnut_SA1_withlid.prj

A comparison of the Duplicate effective and Revised HEC-RAS models can be seen below in Table 3.

Table 3 Comparison of Duplicate Effective vs Revised HEC-RAS results for Study Area

DUPLICATE EFFECTIVE HEC-RAS			REVISED HEC-RAS MODEL			COMPARISON
River Sta	Q Total	W.S. Elev	River Sta	Q Total	W.S. Elev	W.S. Difference
	(cfs)	(ft)		(cfs)	(ft)	Eff. - Dup. Eff (ft)
113446	823	645.25	113446	891	643.66	1.59
113345	823	642.52	113345	891	640.92	1.60
113290	Culvert		113290	Culvert		
111910	900	594.32	111910	890	588.9	5.42
111496	900	577.10	111496	890	575.75	1.35
111188	900	567.45	111188	890	565.68	1.77
110890	900	562.12	110890	890	560.13	1.99
110788	900	560.15	110788	890	558.11	2.04
110640	530	555.65	110640	431	556.07	-0.42
			110585	431	550.92	N/A
			110545	431	549.59	N/A
			110488	696	547.96	N/A
			110366	696	548.56	N/A
110263	530	540.08	110263	696	541.79	-1.71
110091	530	533.94	110091	696	534.85	-0.91
109794	530	515.67	109794	696	516.17	-0.50
109646	530	512.13	109646	530	511.92	0.21
109444	300	509.20	109444	300	509.18	0.02

As can be seen above in Table 3, the revised hydraulic model generally showed a reduction in BFE values in Walnut Canyon Channel. The only increases occurred at the crossing with Casey Road until just before tie-in at the downstream limit of study; however, the base flood event was still contained within the channel. The increase in BFE values at these locations was in large part due to increased flow rates (from 530 cfs to 696 cfs) as can be seen in the table above. The revised model ties-in to the duplicate effective model at the downstream limit of study (XS 109444).

5.4. CHECK-RAS

CHECK-RAS output files were reviewed. Notes were resolved where applicable. CHECK-RAS output can be seen in Appendix F.

6. EROSION AND SEDIMENT TRANSPORT

No additional erosion and sediment transport information is used in this submittal.

7. DRAFT FIS REPORT DATA

7.1. Summary of Discharges

Peak discharge values were revised from the upstream limit of study (XS 113446) to just upstream of the downstream study limit (XS 109794). The peak discharge value at XS 109646 and XS 109444 remain as used in to the 2005 Nolte study so that the study area could tie-in to the effective model. Effective and revised discharges can be located in tables above in Section 4 and Section 5.

7.2. Floodway Data

There is no floodway data associated with Walnut Canyon Channel. As a result, no floodway was modeled.

7.3. Annotated Flood Insurance Rate Map

The floodplain boundaries were adjusted /relocated based on the updated maps and topographic information from the effective study. Exhibit 4 contains the Annotated FIRM map.

7.4. Flood Profiles

Flood Panels 198P and 199P were revised as a result of this study. The revised flood profile panel(s) is enclosed as Exhibit 5.

REFERENCES

1. Flood Insurance Study Report "Appeal of Preliminary Flood Insurance Study and Flood Insurance Rate Map (Dated September 16, 2005) In the City of Moorpark, California", Prepared for: City of Moorpark, CA; Prepared by: Tetra Tech, Inc.17770 Cartwright Road, Suite 500, Irvine, CA 92614, August 31, 2007.

2. Preliminary Flood Insurance Study (FIS) and Digital Flood Insurance Rate Map (DFIRM) for Ventura County, CA, and its incorporated areas, stamped 'Preliminary-September 16, 2005', Nolte Associates, Inc., San Diego, CA.

3. "Open-Channel Hydraulics", V.T. Chow, McGraw-Hill, 1959.

4. "City of Moorpark Master Plan of Drainage", Hawks and Associates, April 1995.

5. "Walnut Canyon Channel As-builts, Drawing No. 7-E-15518", U.S. Department of Agriculture, Soil Conservation Service, 1962.

6. "Gabbert/Walnut Canyon Channels Revised Flood Control Study", PACE, 2009.

PROVIDED TO FEMA ON JAN. 11, 2012. SUPERCEDES PREVIOUS WORKMAP(S).

EXHIBIT K

N

0 200 400 600 Feet

Legend

- Flowline
- Cross Sections
- Zone X Shaded from Case No. 10-09-2904P
- Revised Zone AE
- Revised Zone X Shaded
- Effective Flood Zones
- Lettered Cross Sections
- Revised BFE
- Major Roads
- Local Roads
- 2' Contours

NOTE:
TOPOGRAPHIC DATA: 2' CONTOUR INTERVAL
HORIZONTAL CONTROL: NORTH AMERICAN DATUM 1983 (NAD83), ZONE 5 CALIFORNIA, US SURVEY FEET
VERTICAL CONTROL: NORTH AMERICAN VERTICAL DATUM 1988 (NAVD88)

XS113345
XS111910
XS111496
XS111188
XS110890
XS110788
XS110585 & XS110605
XS110640
XS110545
XS110488
XS110366
XS110263
XS110091
XS109794
XS109646
XS109444
XS109326
XS108948
XS108648
XS 108363

Walnut Canyon Rd
Wicks Rd
Casey Rd
Everett St
Bonnie View Rd
Valley Rd
Warren Ct
Lucille Ct
Lucille Cir
Hedyland Ct
Sir George Ct
Magnolia Ave
Walnut St
Bard St
Charles St
W High St
E High St
Princeton Ave
Reyes St
Poindexter Ave
1st St
Dorothy Ave
Fitch Ave
Ruth Ave
Denali Ct
Sierra Ave
Gister Rd
Cornell Ave
McFadden Ave
Moorpark Ave
Flory Ave
Miard St
Harry St
Spring Rd
Mingo St

WALNUT CANYON DRAIN

DOWNSTREAM TIE-IN AT XS 108363

AREA REVISED TO ZONE X (SHADED) WITH LOMR CASE NO. 10-09-2904P

PREPARED BY: CR
CHECKED BY: MR/IO
DATE: 10/2011

MR Consulting

WORKMAP

EXHIBIT L

Page 1 of 4	Issue Date: 03/01/2012	Effective Date: 07/18/2012	Case No.: 12-09-0985P	LOMR-APP

Federal Emergency Management Agency

Washington, D.C. 20472

LETTER OF MAP REVISION DETERMINATION DOCUMENT

COMMUNITY AND REVISION INFORMATION		PROJECT DESCRIPTION	BASIS OF REQUEST
COMMUNITY	City Of Moorpark Ventura County California	CHANNELIZATION CULVERT	HYDRAULIC ANALYSIS HYDROLOGIC ANALYSIS
	COMMUNITY NO.: 060712		
IDENTIFIER	Walnut Canyon---City Of Moorpark	APPROXIMATE LATITUDE & LONGITUDE: 34.287, -118.883 SOURCE: USGS QUADRANGLE DATUM: NAD 83	

ANNOTATED MAPPING ENCLOSURES	ANNOTATED STUDY ENCLOSURES
TYPE: FIRM* NO.: 06111C0817E DATE: January 20, 2010	DATE OF EFFECTIVE FLOOD INSURANCE STUDY: January 20, 2010 PROFILE(S): 198P and 199P SUMMARY OF DISCHARGES TABLE: 5

Enclosures reflect changes to flooding sources affected by this revision.
* FIRM - Flood Insurance Rate Map

FLOODING SOURCE(S) & REVISED REACH(ES)

Walnut Canyon Drain - From approximately 950 feet downstream of High Street to approximately 2,850 feet upstream of Casey Road

SUMMARY OF REVISIONS

Flooding Source	Effective Flooding	Revised Flooding	Increases	Decreases
Walnut Canyon Drain	Zone AE	Zone AE	NONE	YES
	BFEs	BFEs	YES	YES
	Zone X (shaded)	Zone X (shaded)	YES	NONE
	Zone AO	Zone X (shaded)	NONE	YES

* BFEs - Base Flood Elevations

DETERMINATION

This document provides the determination from the Department of Homeland Security's Federal Emergency Management Agency (FEMA) regarding a request for a Letter of Map Revision (LOMR) for the area described above. Using the information submitted, we have determined that a revision to the flood hazards depicted in the Flood Insurance Study (FIS) report and/or National Flood Insurance Program (NFIP) map is warranted. This document revises the effective NFIP map, as indicated in the attached documentation. Please use the enclosed annotated map panels revised by this LOMR for floodplain management purposes and for all flood insurance policies and renewals in your community.

This determination is based on the flood data presently available. The enclosed documents provide additional information regarding this determination. If you have any questions about this document, please contact the FEMA Map Information Exchange (FMIX) toll free at 1-877-336-2627 (1-877-FEMA MAP) or by letter addressed to the LOMC Clearinghouse, 7390 Coca Cola Drive, Ste 204, Hanover, MD 21076. Additional Information about the NFIP is available on our website at http://www.fema.gov/nfip.

Beth A Norton

Beth A. Norton, Program Specialist
Engineering Management Branch
Federal Insurance and Mitigation Administration

Federal Emergency Management Agency

Washington, D.C. 20472

LETTER OF MAP REVISION
DETERMINATION DOCUMENT (CONTINUED)

COMMUNITY INFORMATION

APPLICABLE NFIP REGULATIONS/COMMUNITY OBLIGATION

We have made this determination pursuant to Section 206 of the Flood Disaster Protection Act of 1973 (P.L. 93-234) and in accordance with the National Flood Insurance Act of 1968, as amended (Title XIII of the Housing and Urban Development Act of 1968, P.L. 90-448), 42 U.S.C. 4001-4128, and 44 CFR Part 65. Pursuant to Section 1361 of the National Flood Insurance Act of 1968, as amended, communities participating in the NFIP are required to adopt and enforce floodplain management regulations that meet or exceed NFIP criteria. These criteria, including adoption of the FIS report and FIRM, and the modifications made by this LOMR, are the minimum requirements for continued NFIP participation and do not supersede more stringent State/Commonwealth or local requirements to which the regulations apply.

NFIP regulations Subparagraph 60.3(b)(7) requires communities to ensure that the flood-carrying capacity within the altered or relocated portion of any watercourse is maintained. This provision is incorporated into your community's existing floodplain management ordinances; therefore, responsibility for maintenance of the altered or relocated watercourse, including any related appurtenances such as bridges, culverts, and other drainage structures, rests with your community. We may request that your community submit a description and schedule of maintenance activities necessary to ensure this requirement.

COMMUNITY REMINDERS

We based this determination on the 1-percent-annual-chance discharges computed in the submitted hydrologic model. Future development of projects upstream could cause increased discharges, which could cause increased flood hazards. A comprehensive restudy of your community's flood hazards would consider the cumulative effects of development on discharges and could, therefore, indicate that greater flood hazards exist in this area.

Your community must regulate all proposed floodplain development and ensure that permits required by Federal and/or State/Commonwealth law have been obtained. State/Commonwealth or community officials, based on knowledge of local conditions and in the interest of safety, may set higher standards for construction or may limit development in floodplain areas. If your State/Commonwealth or community has adopted more restrictive or comprehensive floodplain management criteria, those criteria take precedence over the minimum NFIP requirements.

We will not print and distribute this LOMR to primary users, such as local insurance agents or mortgage lenders; instead, the community will serve as a repository for the new data. We encourage you to disseminate the information in this LOMR by preparing a news release for publication in your community's newspaper that describes the revision and explains how your community will provide the data and help interpret the NFIP maps. In that way, interested persons, such as property owners, insurance agents, and mortgage lenders, can benefit from the information.

This determination is based on the flood data presently available. The enclosed documents provide additional information regarding this determination. If you have any questions about this document, please contact the FEMA Map Information Exchange (FMIX) toll free at 1-877-336-2627 (1-877-FEMA MAP) or by letter addressed to the LOMC Clearinghouse, 7390 Coca Cola Drive, Ste 204, Hanover, MD 21076. Additional Information about the NFIP is available on our website at http://www.fema.gov/nfip.

Beth A Norton

Beth A. Norton, Program Specialist
Engineering Management Branch
Federal Insurance and Mitigation Administration

Federal Emergency Management Agency

Washington, D.C. 20472

LETTER OF MAP REVISION
DETERMINATION DOCUMENT (CONTINUED)

We have designated a Consultation Coordination Officer (CCO) to assist your community. The CCO will be the primary liaison between your community and FEMA. For information regarding your CCO, please contact:

Ms. Sally M. Ziolkowski
Director, Mitigation Division
Federal Emergency Management Agency, Region IX
1111 Broadway Street, Suite 1200
Oakland, CA 94607-4052
(510) 627-7175

STATUS OF THE COMMUNITY NFIP MAPS

We will not physically revise and republish the FIRM and FIS report for your community to reflect the modifications made by this LOMR at this time. When changes to the previously cited FIRM panel(s) and FIS report warrant physical revision and republication in the future, we will incorporate the modifications made by this LOMR at that time.

This determination is based on the flood data presently available. The enclosed documents provide additional information regarding this determination. If you have any questions about this document, please contact the FEMA Map Information Exchange (FMIX) toll free at 1-877-336-2627 (1-877-FEMA MAP) or by letter addressed to the LOMC Clearinghouse, 7390 Coca Cola Drive, Ste 204, Hanover, MD 21076. Additional Information about the NFIP is available on our website at http://www.fema.gov/nfip.

Beth A Norton

Beth A. Norton, Program Specialist
Engineering Management Branch
Federal Insurance and Mitigation Administration

Federal Emergency Management Agency

Washington, D.C. 20472

LETTER OF MAP REVISION
DETERMINATION DOCUMENT (CONTINUED)

PUBLIC NOTIFICATION OF REVISION

PUBLIC NOTIFICATION

FLOODING SOURCE	LOCATION OF REFERENCED ELEVATION	BFE (FEET NAVD 88)		MAP PANEL NUMBER(S)
		EFFECTIVE	REVISED	
Walnut Canyon Drain	Just downstream of High Street	509	511	06111C0817E
	Approximately 1,300 feet upstream of Casey Road	594	589	06111C0817E

A notice of changes will be published in the *Federal Register*. This information also will be published in your local newspaper on or about the dates listed below and through FEMA's Flood Hazard Mapping Website at https://www.floodmaps.fema.gov/fhm/Scripts/bfe_main.asp.

LOCAL NEWSPAPER Name: *The Ventura County Star*
Dates: **March 13, 2012 and March 20, 2012**

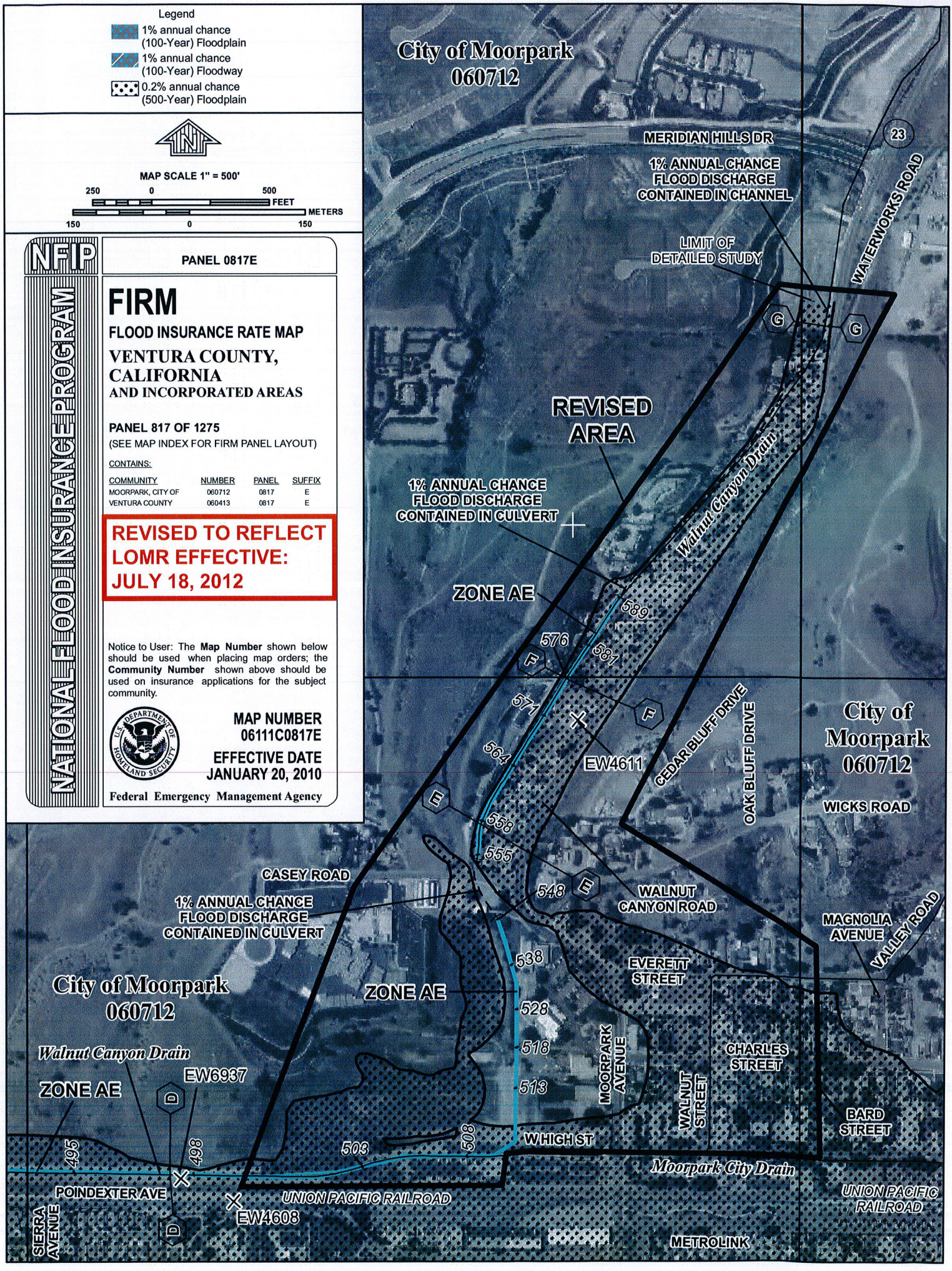
Within 90 days of the second publication in the local newspaper, a citizen may request that we reconsider this determination. Any request for reconsideration must be based on scientific or technical data. Therefore, this letter will be effective only after the 90-day appeal period has elapsed and we have resolved any appeals that we receive during this period. Until this LOMR is effective, the revised floo hazard determination information presented in this LOMR may be changed.

This determination is based on the flood data presently available. The enclosed documents provide additional information regarding this determination. If you have any questions about this document, please contact the FEMA Map Information Exchange (FMIX) toll free at 1-877-336-2627 (1-877-FEMA MAP) or by letter addressed to the LOMC Clearinghouse, 7390 Coca Cola Drive, Ste 204, Hanover, MD 21076. Additional Information about the NFIP is available on our website at http://www.fema.gov/nfip.

Beth A Norton

Beth A. Norton, Program Specialist
Engineering Management Branch
Federal Insurance and Mitigation Administration

EXHIBIT M


Legend
1% annual chance (100-Year) Floodplain
1% annual chance (100-Year) Floodway
0.2% annual chance (500-Year) Floodplain
MAP SCALE 1" = 500'
250 0 500 FEET
150 0 150 METERS
NFIP
NATIONAL FLOOD INSURANCE PROGRAM
PANEL 0817E
FIRM
FLOOD INSURANCE RATE MAP
VENTURA COUNTY, CALIFORNIA
AND INCORPORATED AREAS
PANEL 817 OF 1275
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)
CONTAINS:
COMMUNITY NUMBER PANEL SUFFIX
MOORPARK, CITY OF 060712 0817 E
VENTURA COUNTY 060413 0817 E
REVISED TO REFLECT LOMR EFFECTIVE: JULY 18, 2012
Notice to User: The Map Number shown below should be used when placing map orders; the Community Number shown above should be used on insurance applications for the subject community.
MAP NUMBER 06111C0817E
EFFECTIVE DATE JANUARY 20, 2010
Federal Emergency Management Agency
City of Moorpark 060712
MERIDIAN HILLS DR
1% ANNUAL CHANCE FLOOD DISCHARGE CONTAINED IN CHANNEL
LIMIT OF DETAILED STUDY
WATERWORKS ROAD
23
REVISED AREA
1% ANNUAL CHANCE FLOOD DISCHARGE CONTAINED IN CULVERT
Walnut Canyon Drain
ZONE AE
589
576
587
571
564
558
555
548
538
528
518
513
508
503
498
495
EW4611
EW6937
EW4608
CEDAR BLUFF DRIVE
OAK BLUFF DRIVE
WICKS ROAD
CASEY ROAD
WALNUT CANYON ROAD
MAGNOLIA AVENUE
VALLEY ROAD
EVERETT STREET
MOORPARK AVENUE
CHARLES STREET
WALNUT STREET
BARD STREET
WHICH ST
Moorpark City Drain
POINDEXTER AVE
SIERRA AVENUE
UNION PACIFIC RAILROAD
METROLINK

APPENDIX J – TRAFFIC IMAPCT STUDY

LINSCOTT LAW & GREENSPAN engineers

TRAFFIC IMPACT STUDY
EVERETT STREET TERRACES PROJECT

City of Moorpark, California
February 17, 2016

Prepared for:

Everett Street Terraces
1001 Newbury Road
Thousand Oaks, CA 91320

LLG Ref. 5-13-0055-1

REGISTERED PROFESSIONAL ENGINEER
DAVID S. SHENDER
No. C45324
Exp. 09/30/16
CIVIL
STATE OF CALIFORNIA

Prepared by:

Tin Nguyen
Transportation Engineer II

Under the Supervision of:

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APPENDICES

APPENDIX	
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B.	Future Cumulative Traffic Volumes – Supplemental Traffic Data
C.	ICU and Levels of Service Explanation ICU Data Worksheets – AM and PM Peak Hours

TRAFFIC IMPACT STUDY

EVERETT STREET TERRACES PROJECT

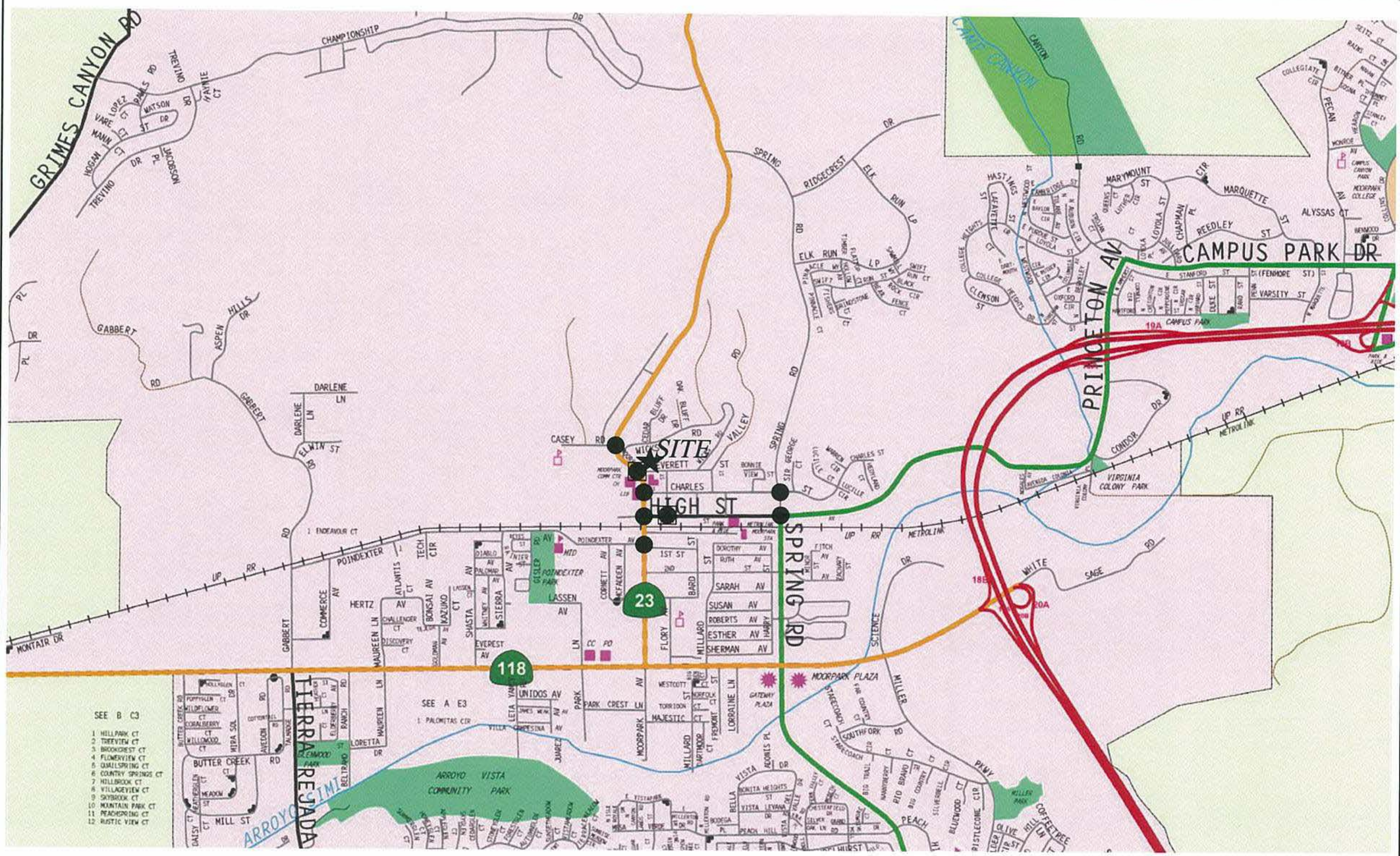
City of Moorpark, California
February 17, 2016

1.0 INTRODUCTION

This traffic analysis has been conducted to identify and evaluate the potential traffic impacts generated by the proposed Everett Street Terraces project. The proposed project is located on the north side of Everett Street, east of Moorpark Avenue in the City of Moorpark, California. The proposed project site location and general vicinity are shown in ***Figure 1–1***.

The traffic analysis follows City of Moorpark traffic study guidelines (i.e., *Guidelines for Preparing Traffic and Circulation Studies,* 1993). This traffic analysis evaluates the potential project-related traffic impacts associated with the proposed development at eight key intersections in the vicinity of the project site. The study intersections were determined in consultation with the City of Moorpark staff. The Intersection Capacity Utilization (ICU) method was used to determine volume-to-capacity ratios and corresponding Levels of Service (LOS) at the study intersections.

This study (i) presents existing traffic volumes, (ii) forecasts existing plus project traffic volumes, (iii) determines project-related impacts, (iv) forecasts cumulative future traffic volumes with the related projects and the proposed project, and (v) provides fair-share calculations toward cumulative mitigation measures, where appropriate.



NOT TO SCALE

MAP SOURCE: RAND MCNALLY & COMPANY

- ★ PROJECT SITE
- ● STUDY INTERSECTION
- ☐ REVIEW FOR SIGNAL WARRANTS

FIGURE 1-1
VICINITY MAP

LINSCOTT, LAW & GREENSPAN, engineers

EVERETT STREET TERRACES PROJECT

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2.0 PROJECT DESCRIPTION

2.1 Site Location

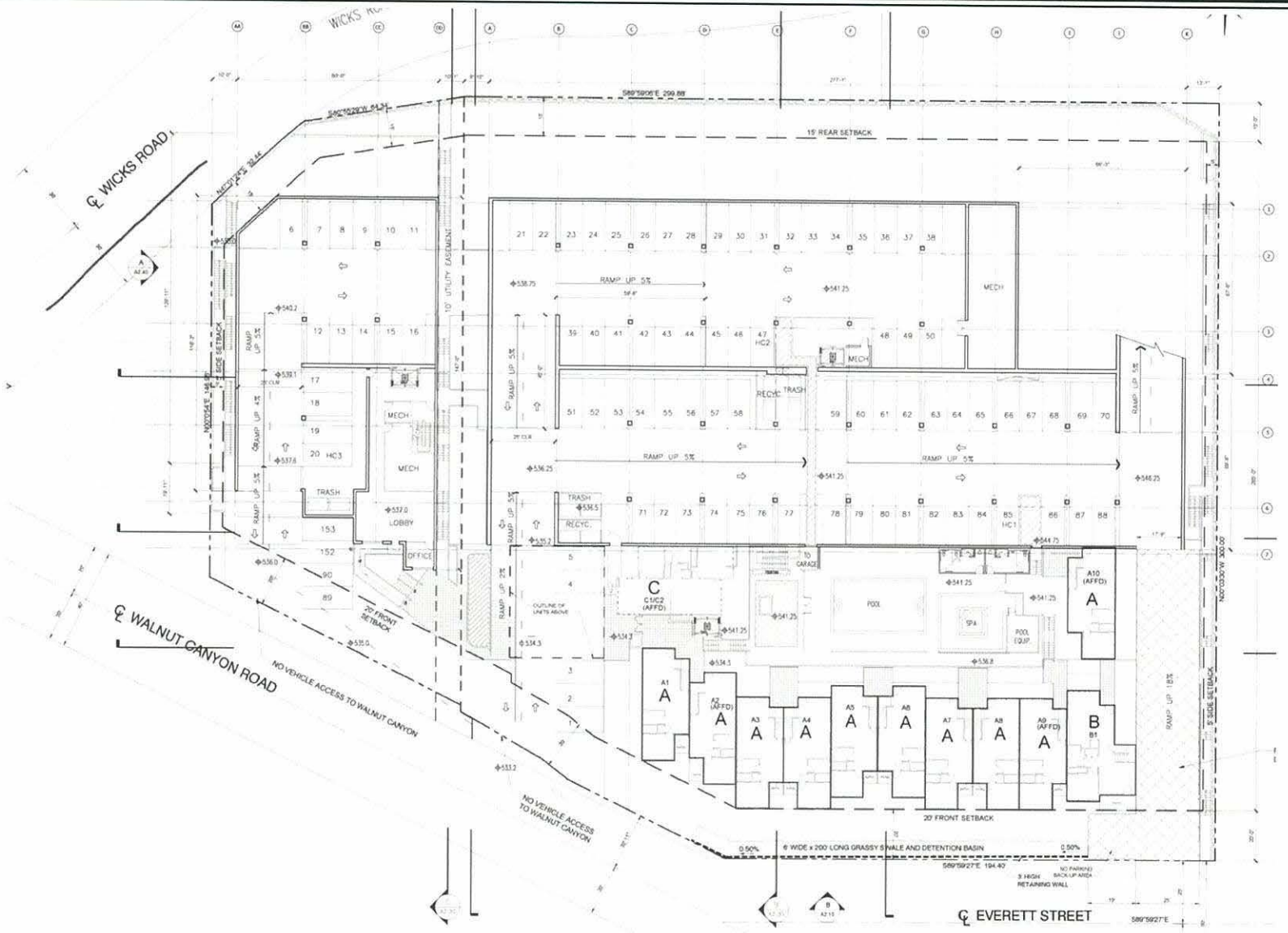
The proposed project is located on the north side of Everett Street, east of Moorpark Avenue in the City of Moorpark. The project site is bounded by residential uses to the north and east, Everett Street to the south, and Moorpark Avenue to the west.

2.2 Existing Project Site

The project site is located at the northeast corner of the Everett Street/Moorpark Avenue intersection. The overall project site comprises approximately 2 acres and a portion of the site was previously occupied by six single-family homes. The six existing single-family homes have been removed to accommodate the proposed project.

2.3 Proposed Project Description

The Everett Street Terraces project consists of the development of a residential condominium complex with 60 dwelling units. The condominium complex will consist of 2-bedroom and 3-bedroom units. The site plan for the proposed project is illustrated in ***Figure 2–1***.



NOT TO SCALE

MAP SOURCE: JOHN NEWTON & ASSOCIATES, INC.

FIGURE 2-1
PROJECT SITE PLAN

LINSCOTT, LAW & GREENSPAN, engineers

EVERETT STREET TERRACES PROJECT

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3.0 SITE ACCESS AND CIRCULATION

The site access scheme for the proposed project is displayed in *Figure 2–1*. Descriptions of the existing site access and proposed project site access and circulation schemes are provided in the following subsections.

3.1 Existing Site Access

Vehicular access to the existing project site is presently provided via multiple access points on Everett Street and Moorpark Avenue along the project frontage. Two driveways are currently provided on the east side of Moorpark Avenue, which borders the project site to the west. Two driveways are currently provided on the north side of Everett Street, which borders the project site to the south. All existing project driveways currently accommodate left-turn and right-turn ingress and egress turning movements.

3.2 Proposed Project Site Access and Circulation

The proposed project site access scheme is displayed in *Figure 2–1*. Vehicular access to the project will be provided via one driveway on the north side of Everett Street at the most easterly portion of the project site.

4.0 EXISTING STREET SYSTEM

4.1 Regional Highway System

Regional access to the project site is provided by the State Route 118 (Ronald Reagan) Freeway and State Route 23 (Moorpark) Freeway, as shown in *Figure 1–1*. Full freeway ramp connections are provided on both the State Route 118 and State Route 23 Freeways at Los Angeles Avenue. Brief descriptions of the State Route 118 Freeway and State Route 23 Freeway are provided in the following paragraphs.

State Route 118 (Ronald Reagan) Freeway is a major freeway connecting Moorpark with the San Fernando Valley and the Los Angeles Basin. In the vicinity of the project, the State Route 118 Freeway provides two travel lanes in each direction. Both northbound and southbound ramps are provided on State Route 118 at Los Angeles Avenue.

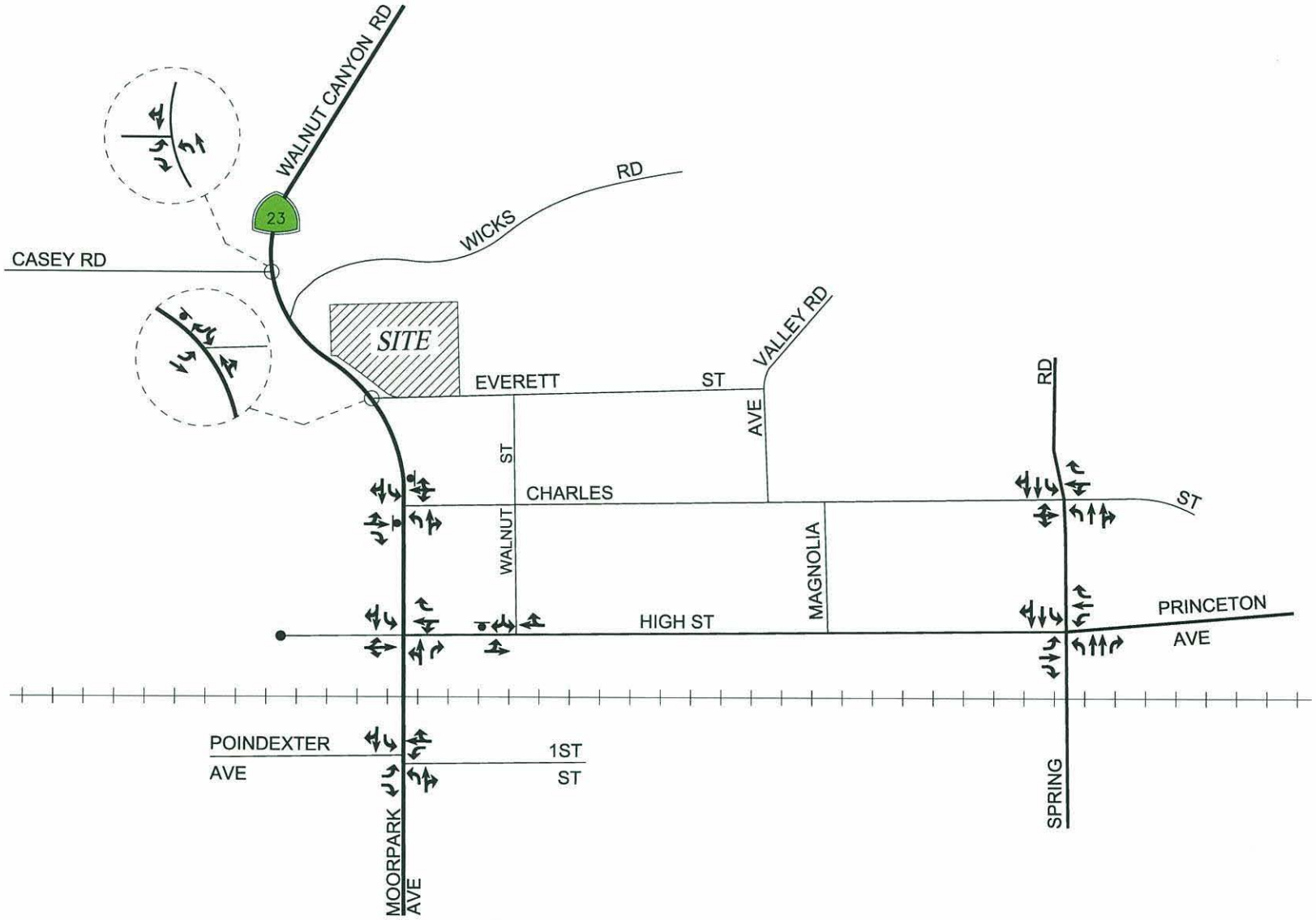
State Route 23 (Moorpark) Freeway extends from the junction with the State Route 118 Freeway southerly to the US-101 (Ventura) Freeway in the City of Thousand Oaks. State Route 23 Freeway provides two to three travel lanes in each direction in the vicinity of the project. Both northbound and southbound ramps are provided on State Route 23 at Los Angeles Avenue.

4.2 Local Street System

Immediate access to the project site is provided via Everett Street. The following eight study intersections were selected by City of Moorpark staff for analysis of potential impacts related to the proposed project:

1. Walnut Canyon Road-Moorpark Avenue / Casey Road
2. Moorpark Avenue / Everett Street
3. Moorpark Avenue / Charles Street
4. Moorpark Avenue / High Street
5. Moorpark Avenue / Poindexter Avenue – 1st Street
6. Walnut Street / High Street
7. Spring Road / Charles Street
8. Spring Road / High Street – Princeton Avenue

Five of the eight study intersections selected for analysis are currently controlled by traffic signals. The remaining three intersections – Moorpark Avenue/Everett Street, Moorpark Avenue/Charles Street and Walnut Street/High Street – are currently controlled by stop signs. The existing lane configurations at the eight study intersections are displayed in ***Figure 4–1***.



N

NOT TO SCALE

PROJECT SITE

STOP SIGN

FIGURE 4-1
EXISITING LANE CONFIGURATIONS

LINSCOTT, LAW & GREENSPAN, engineers

EVERETT STREET TERRACES PROJECT

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4.3 Roadway Descriptions

Brief descriptions of the important roadways in the project site vicinity are provided in the following paragraphs.

Moorpark Avenue is a north-south roadway that borders the project site to the west. One through travel lane is provided in each direction on Moorpark Avenue in the project vicinity. North of Casey Road, Moorpark Avenue becomes Walnut Canyon Road. South of Los Angeles Avenue, Moorpark Avenue terminates just north of the Arroyo Simi. Exclusive left-turn lanes are provided in the northbound direction at the Casey Road intersection and in both directions at the Poindexter Avenue, High Street, and Charles Street intersections. A separate right-turn lane is provided in the northbound direction on Moorpark Avenue at the High Street intersection. Curbside parking is prohibited along both sides of Moorpark Avenue in the project vicinity. Moorpark Avenue is posted for a 30 miles per hour speed limit near the project site. Moorpark Avenue/Walnut Canyon Road is a State highway (SR-23).

Walnut Street is a north-south roadway that is located east of the project site. Walnut Street extends from Everett Street on the north to High Street on the south. One through travel lane is provided in each direction on Walnut Street in the project vicinity. Parking is allowed along both sides of Walnut Street in the project vicinity, except between Charles Street and High Street where two-hour angled parking is provided from 9:00 AM to 9:00 PM along both sides of the street. There is no posted speed limit on Walnut Street within the project study area, thus it is assumed to be a prima facie speed limit of 25 miles per hour.

Spring Road is a north-south roadway that is located east of the project site. Spring Road extends from Tierra Rejada Road on the south to Walnut Canyon Road on the north. Two through travel lanes are provided in each direction on Spring Road north of Los Angeles Avenue. South of Los Angeles Avenue, one through travel lane is provided in each direction on Spring Road. Exclusive left-turn lanes are provided on Spring Road at the High Street and Charles Street intersections. Curbside parking is prohibited along both sides of Spring Road in the project vicinity. Spring Road is posted for a 45 miles per hour speed limit north of High Street – Princeton Avenue and a 40 miles per hour speed limit south of High Street – Princeton Avenue near the project site.

Casey Road is an east-west roadway that is located north of the project site. One through travel lane is provided in each direction on Casey Road in the project vicinity. Separate left-turn and right-turn lanes are provided in the eastbound direction on Casey Road at the Moorpark Avenue intersection. Casey Road is posted for a 25 miles per hour speed limit near the project site.

Charles Street is an east-west roadway that is located south of the project site. One through travel lane is provided in each direction on Charles Street in the project vicinity. Curbside parking is allowed along both sides of Charles Street within the project study area. Charles Street is posted for a 25 miles per hour speed limit near the project site.

High Street is an east-west roadway that is located south of the project site. High Street extends from Spring Road on the east to just west of Moorpark Avenue. East of Spring Road, High Street becomes Princeton Avenue. One through travel lane is provided in each direction on High Street in the project vicinity. An exclusive left turn lane is provided in eastbound on High Street at the Spring Road intersection. An exclusive westbound right-turn lane is provided on High Street at the Moorpark Avenue intersection and in the eastbound direction at the Spring Road intersection. Two-hour parking is provided from 6:00 AM to 6:00 PM along both sides of High Street in the project vicinity. High Street is posted for a 30 miles per hour speed limit near the project site.

Princeton Avenue is an east-west roadway that is located south of the project site. Princeton Avenue extends from Spring Road on the west to Campus Park Drive to the east. West of Spring Road, Princeton Avenue becomes High Street. One through travel lane is provided in each direction on Princeton Avenue in the project vicinity. Exclusive left-turn and right-turn lanes are provided in the westbound direction of Princeton Avenue at the Spring Road intersection. Curbside parking is prohibited along both sides of Princeton Avenue in the project vicinity. Princeton Avenue is posted for a 40 miles per hour speed limit near the project site.

Poindexter Avenue is an east-west roadway that is located south of the project site. One through travel lane is provided in each direction on Poindexter Avenue in the project vicinity. Exclusive left turn lanes are provided in both directions on Poindexter Avenue at the Moorpark Avenue intersection. An exclusive eastbound right-turn lane is provided on Poindexter Avenue at the Moorpark Avenue intersection. Curbside parking is prohibited along both sides of Poindexter Avenue in the project vicinity. Poindexter Avenue is posted for 40 miles per hour speed limit near the project site.

4.4 Existing Public Bus Transit Service

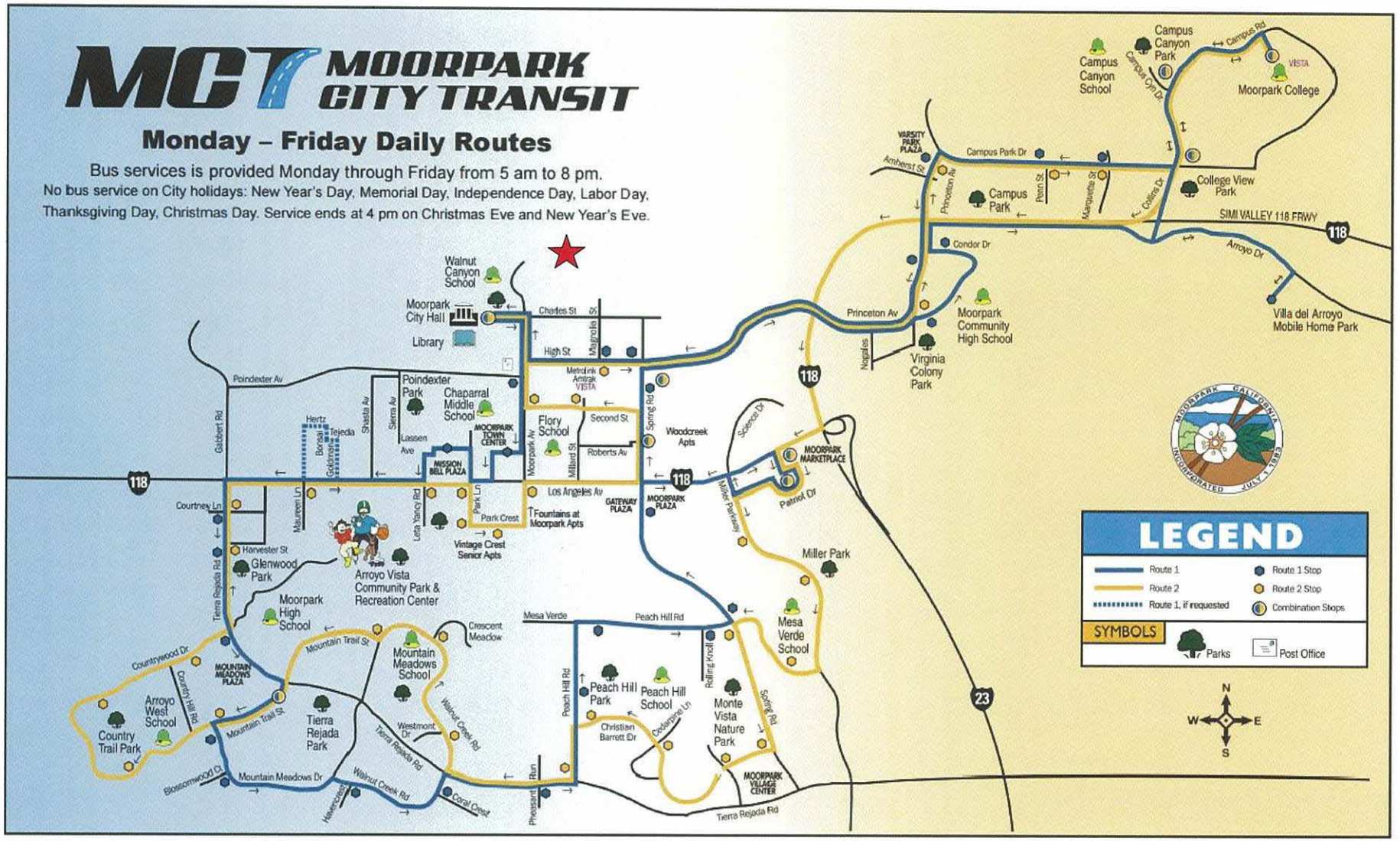
Public bus transit service in the project study area is currently provided by the Moorpark City Transit. A summary of the existing transit routes, including the transit route, destinations and peak hour headways is presented in ***Table 4–1***. The existing public transit routes in the proposed project site vicinity are illustrated in ***Figure 4–2***.

Table 4-1
EXISTING TRANSIT ROUTES [1]

08-Feb-16

ROUTE	DESTINATIONS	ROADWAY NEAR SITE	NO. OF BUSES DURING PEAK HOUR		
			DIR	AM	PM
Moorpark City Transit Route 1	Civic Center, Town Center, Mission Bell Plaza, Peach Hill Park, Virginia Colony Park, and Moorpark College	High Street, Moorpark Avenue and Spring Road	EB WB	1 1	1 1
Moorpark City Transit Route 2	Civic Center, Moorpark Marketplace, Moorpark College, and Country Trail Park	High Street, Moorpark Avenue and Spring Road	EB WB	1 1	1 1

[1] Source: Moorpark City Transit, City of Moorpark Website.



NOT TO SCALE

MAP SOURCE: CITY OF MOORPARK

PROJECT SITE

FIGURE 4-2
EXISTING PUBLIC TRANSIT ROUTES

LINSCOTT, LAW & GREENSPAN, engineers

EVERETT STREET TERRACES PROJECT

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5.0 TRAFFIC COUNTS

Manual counts of vehicular turning movements were conducted at each of the eight study intersections during the weekday morning (AM) and afternoon (PM) commuter periods to determine the peak hour traffic volumes. The manual counts were conducted by a traffic count subconsultant at the eight study intersections from 7:00 to 9:00 AM to determine the AM peak commuter hour, and from 4:00 to 6:00 PM to determine the PM peak commuter hour. Traffic volumes at the study intersections show the typical peak periods between 7:00 to 9:00 AM and 4:00 to 6:00 PM generally associated with weekday peak commuter hours.

In order to account for area-wide growth and represent conditions in the existing year, the traffic count data from 2013 was increased by a two (2.0%) annual traffic growth rate through the year 2016. The application of this growth factor allows for a conservative forecast of existing volumes in the project study area.

Moreover, it should be noted that Moorpark Avenue is heavily utilized as a truck route. Therefore, the traffic volumes along Moorpark Avenue were adjusted to account for truck traffic during the AM and PM peak hours. It is estimated that trucks represent approximately 15 percent (15%) and 10 percent (10%) of the AM and PM peak hour traffic volumes, respectively, on Moorpark Avenue. The percentage of trucks, as well as a passenger car equivalent (PCE) factor of 3.0 was utilized to adjust the traffic volumes to reflect truck traffic along Moorpark Avenue.

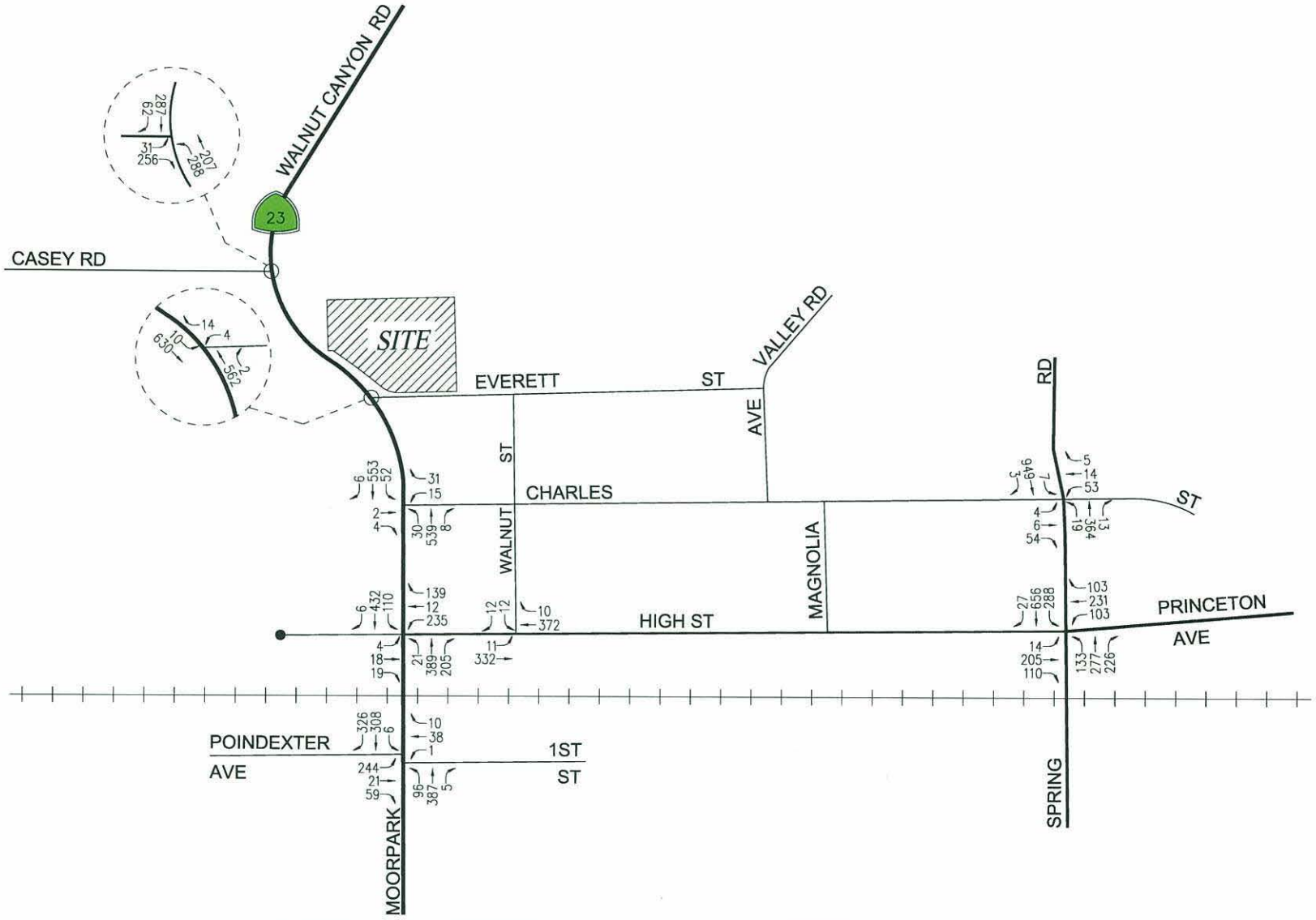
The existing weekday AM and PM peak hour traffic volumes at the eight study intersections are summarized in ***Table 5–1***. The existing traffic volumes at the study intersections during the AM and PM peak hours are shown in ***Figures 5–1*** and ***5–2***, respectively. Summary data worksheets of the manual traffic counts at the study intersections are contained in ***Appendix A***.

Table 5-1
EXISTING TRAFFIC VOLUMES [1]

09-Feb-16

NO.	INTERSECTION	DATE	DIR	AM PEAK HOUR		PM PEAK HOUR	
				BEGAN	VOLUME [2]	BEGAN	VOLUME [2]
1	Walnut Canyon Road- Moorpark Avenue/ Casey Road	06/12/2013	NB SB EB WB	7:45	495 349 287 0	4:30	309 207 61 0
2	Moorpark Avenue/ Everett Street	06/12/2013	NB SB EB WB	7:30	564 640 0 18	4:30	330 277 0 15
3	Moorpark Avenue/ Charles Street	06/12/2013	NB SB EB WB	7:45	577 611 6 46	4:30	356 280 38 36
4	Moorpark Avenue/ High Stret	06/12/2013	NB SB EB WB	7:30	615 548 41 386	4:30	686 291 144 381
5	Moorpark Avenue/ Poindexter Avenue	06/12/2013	NB SB EB WB	7:30	488 640 324 49	4:30	466 580 391 41
6	Walnut Street/ High Street	06/12/2013	NB SB EB WB	7:30	0 24 344 382	4:30	0 45 476 396
7	Spring Road/ Charles Street	06/12/2013	NB SB EB WB	7:15	396 959 64 72	4:30	946 542 59 31
8	Spring Road/ High Street- Princeton Avenue	06/12/2013	NB SB EB WB	7:45	636 971 329 437	4:30	880 575 461 686

[1] Counts conducted by The Traffic Solution
[2] Traffic count data from 2013 was increased by a 2.0% annual traffic growth rate through the year 2016.



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PROJECT SITE

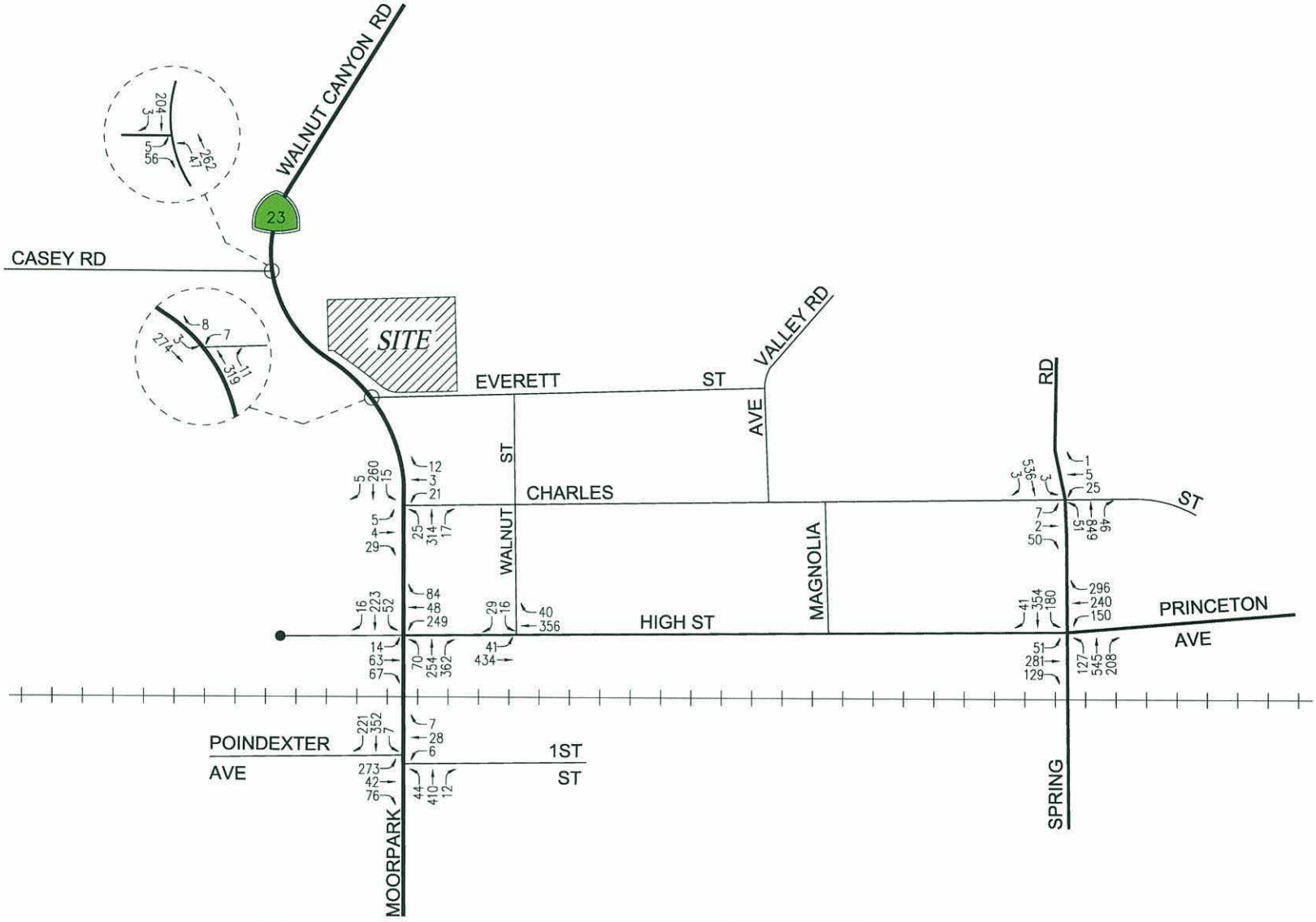
FIGURE 5-1
EXISTING TRAFFIC VOLUMES

WEEKDAY AM PEAK HOUR

EVERETT STREET TERRACES PROJECT

LINSCOTT, LAW & GREENSPAN, engineers

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FIGURE 5-2
EXISTING TRAFFIC VOLUMES

WEEKDAY PM PEAK HOUR

EVERETT STREET TERRACES PROJECT

LINSCOTT, LAW & GREENSPAN, engineers

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6.0 PROJECT TRIP GENERATION

Traffic volumes expected to be generated by the proposed project during the AM and PM peak hours, as well as on a daily basis, were estimated using rates published in the Institute of Transportation Engineers' (ITE) *Trip Generation* manual, 9th Edition, 2012. Traffic volumes expected to be generated by the proposed project were based upon number of dwelling units. ITE Land Use Code 230 (Residential Condominium) trip generation average rates were used to forecast the traffic volumes expected to be generated by the proposed project.

Traffic volumes expected to be generated by the prior uses located on the project site were also estimated using rates published in the ITE *Trip Generation* manual. ITE Land Use Code 210 (Single-Family Detached Housing) trip generation average rates were used to forecast the traffic volumes generated by the prior single family homes located on the project site.

The trip generation forecast for the proposed project is summarized in ***Table 6–1***. As presented in *Table 6-1*, the proposed project is expected to generate a net increase of 21 vehicle trips (3 inbound trips and 18 outbound trips) during the AM peak hour. During the PM peak hour, the proposed project is expected to generate a net increase of 25 vehicle trips (17 inbound trips and 8 outbound trips). Over a 24-hour period, the proposed project is forecast to generate a net increase of 292 daily trip ends during a typical weekday (146 inbound trips and 146 outbound trips).

Table 6-1
PROJECT TRIP GENERATION [1]

23-Feb-16

LAND USE	SIZE	DAILY TRIP ENDS [2] VOLUMES	AM PEAK HOUR VOLUMES [2]			PM PEAK HOUR VOLUMES [2]		
			IN	OUT	TOTAL	IN	OUT	TOTAL
Proposed Use								
Condominiums [3]	60 DU	349	4	22	26	21	10	31
Existing Use	(6) DU	(57)	(1)	(4)	(5)	(4)	(2)	(6)
Single Family Houses [4]								
NET INCREASE		**292**	**3**	**18**	**21**	**17**	**8**	**25**

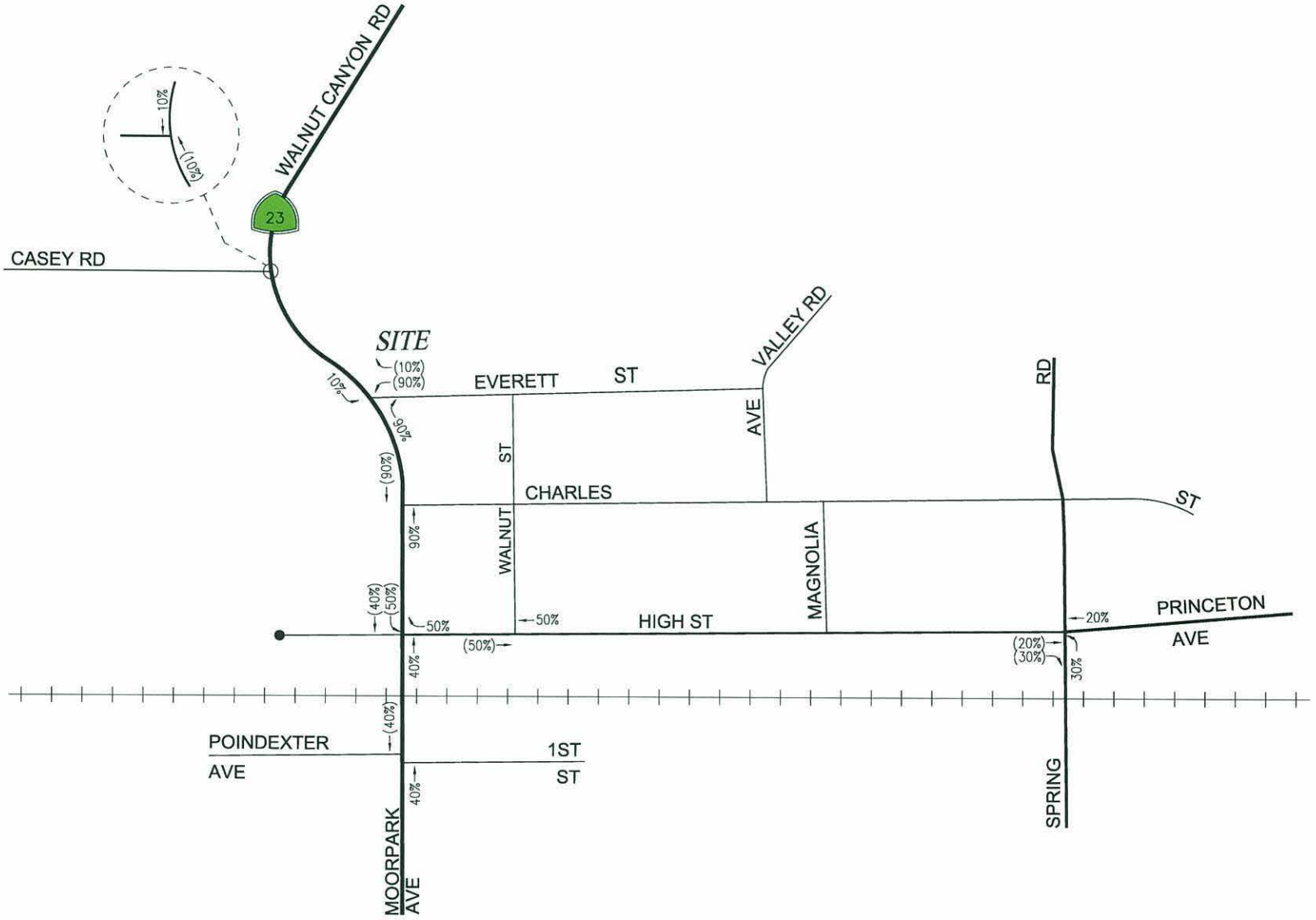
[1] Source: ITE "Trip Generation", 9th Edition, 2012.
[2] Trips are one-way traffic movements, entering or leaving.
[3] ITE Land Use Code 230 (Residential Condo/Townhouse) trip generation average rates.
- Daily Trip Rate: 5.81 trips/dwelling unit; 50% inbound/50% outbound
- AM Peak Hour Trip Rate: 0.44 trips/dwelling unit; 17% inbound/83% outbound
- PM Peak Hour Trip Rate: 0.52 trips/dwelling unit; 67% inbound/33% outbound

[4] ITE Land Use Code 210 (Single Family Detached Housing) trip generation average rates.
- Daily Trip Rate: 9.52 trips/dwelling unit; 50% inbound/50% outbound
- AM Peak Hour Trip Rate: 0.75 trips/dwelling unit; assume 25% inbound/75% outbound
- PM Peak Hour Trip Rate: 1.00 trips/dwelling unit; 63% inbound/37% outbound

7.0 PROJECT TRIP DISTRIBUTION

Project generated traffic was assigned to the local roadway system based on a traffic distribution pattern which accounted for the proposed project land uses, the existing and planned project site access schemes, existing traffic patterns, characteristics of the surrounding roadway system, and nearby population and employment centers.

The project traffic volume distribution percentages during AM and PM peak hours at the eight study intersections are illustrated in ***Figure 7–1***. The forecast project traffic volumes at the study intersections for the AM and PM peak hours are displayed in ***Figures 7–2*** and ***7–3***, respectively.



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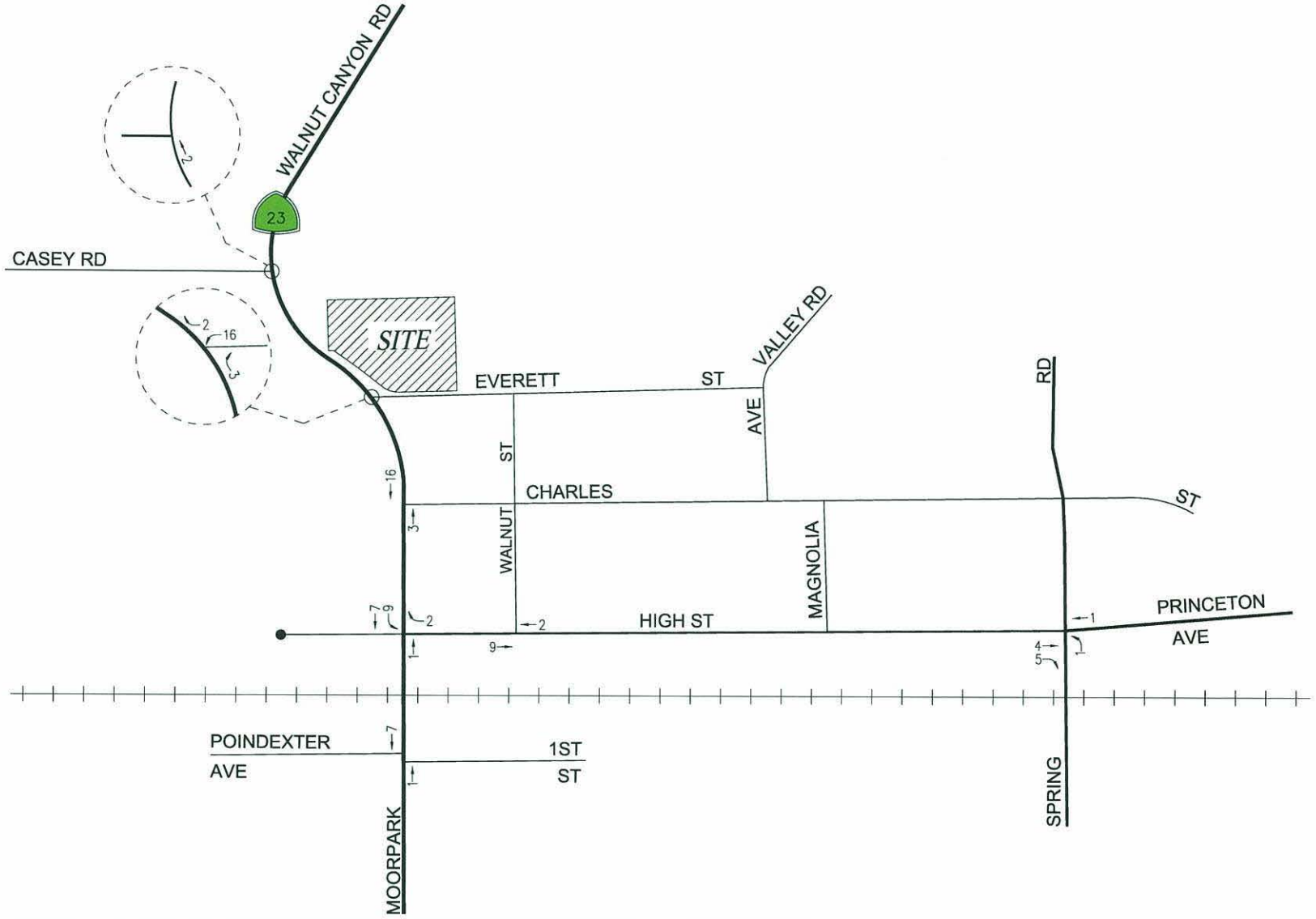
XX = INBOUND PERCENTAGES
(XX) = OUTBOUND PERCENTAGES

FIGURE 7-1
PROJECT TRIP DISTRIBUTION

LINSCOTT, LAW & GREENSPAN, engineers

EVERETT STREET TERRACES PROJECT

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PROJECT SITE

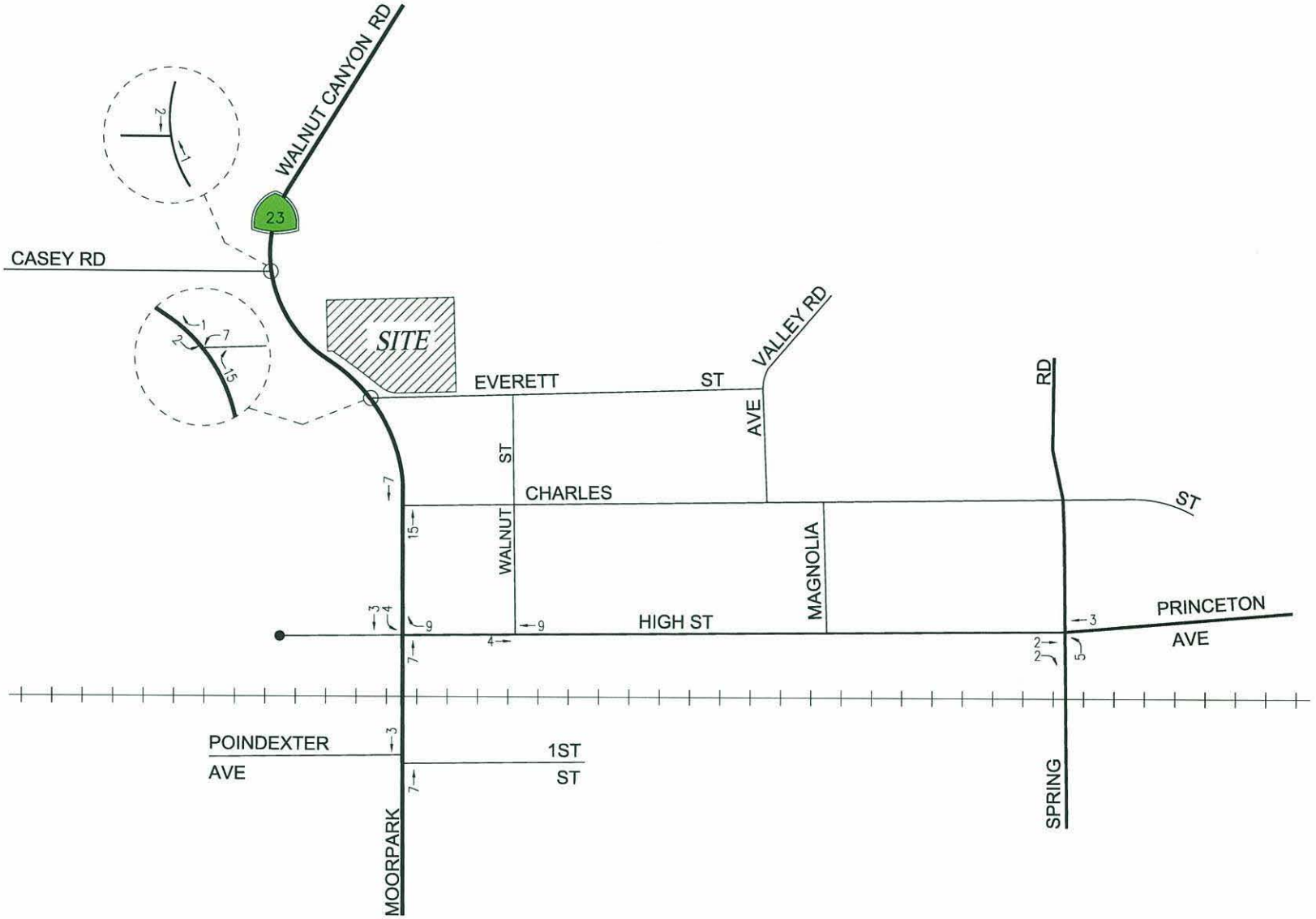
FIGURE 7-2
PROJECT TRAFFIC VOLUMES

WEEKDAY AM PEAK HOUR

EVERETT STREET TERRACES PROJECT

LINSCOTT, LAW & GREENSPAN, engineers

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PROJECT SITE

FIGURE 7-3
PROJECT TRAFFIC VOLUMES

WEEKDAY PM PEAK HOUR

EVERETT STREET TERRACES PROJECT

LINSCOTT, LAW & GREENSPAN, engineers

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8.0 CUMULATIVE DEVELOPMENT PROJECTS

Future Cumulative traffic counts at five of the eight study intersections are provided from a recent traffic study prepared for a nearby project[1] in the City of Moorpark. A forecast of on-street traffic conditions prior to occupancy of the proposed project is identified by incorporating the potential trips associated with other known development projects (related projects) in the area. With this information, the potential impact of the proposed project can be evaluated within the context of the cumulative impact of all ongoing development. The supplemental future cumulative traffic count figure is provided in ***Appendix B***.

Furthermore, related projects research based on information on file at the City of Moorpark Community Development Department, as well as recently approved traffic impact studies prepared for projects in the vicinity of the proposed project was also completed. The list of related projects was prepared in consultation with the City of Moorpark staff. The list of related projects in the project site area is presented in ***Table 8–1***. The location of the related projects is shown in ***Figure 8–1***.

Traffic volumes expected to be generated by the related projects were calculated using rates provided in the ITE *Trip Generation* manual, or were obtained from previously approved traffic impact studies. The related projects' respective traffic generation for the AM and PM peak hours, as well as on a daily basis for a typical weekday, is summarized in *Table 8–1*. The anticipated distribution of the related projects traffic volumes from the nearby traffic study was used for similar intersections and extrapolated for the remaining study intersections during the AM and PM peak hours as displayed in ***Figures 8–2*** and ***8–3***, respectively.

[1] *Aldersgate Senior Living Project Traffic and Circulation Study,* Associated Transportation Engineers, March 2014.

Table 8-1
RELATED PROJECTS LIST AND TRIP GENERATION [1]

MAP NO.	PROJECT NAME/ PROJECT NUMBER	PROJECT STATUS	ADDRESS/ LOCATION	LAND USE DATA		PROJECT DATA SOURCE	DAILY TRIP ENDS [2] VOLUMES	AM PEAK HOUR VOLUMES [2]			PM PEAK HOUR VOLUMES [2]		
				LAND-USE	SIZE			IN	OUT	TOTAL	IN	OUT	TOTAL
1	RPD 2003-04	Under Construction	North of Championship Drive West of Grimes Canyon Road	Single-Family Home	50 DU	[3]	476	10	29	39	32	19	51
2	RPD 2010-01	Proposed	South of Los Angeles Avenue East of Maureen Lane	Single-Family Home	284 DU	[3]	2,704	53	160	213	179	105	284
3	RPD 2012-01	Proposed	North of Union Pacific Railroad Tracks West of Terminus of Casey Road	Single-Family Home	755 DU	[3]	7,225	142	424	566	481	282	763
4	RPD 2009-02	Under Construction	Southeast Corner of Ridgecrest Drive and Elk Run Loop	Single-Family Home	133 DU	[3]	1,273	25	75	100	84	50	134
5	RPD 2004-02 RPD 2004-03	Under Construction	East of Spring Road North of Ridgecrest Drive	Single-Family Home	132 DU	[3]	1,257	25	74	99	83	49	132
6	RPD 1999-02	Under Construction	Meridian Hills Drive West of Walnut Canyon Road	Single-Family Home	248 DU	[3]	2,361	47	140	187	156	92	248
7	RPD 2003-01	Under Construction	West of Walnut Canyon Road South of Meridian Hills Drive	Single-Family Home	17 DU	[3]	163	3	10	13	11	6	17
8	RPD 2014-1	Approved	East of Walnut Canyon Road North of Wicks Road	Single-Family Home	110 DU	[3]	1,047	21	62	83	69	41	110
9	RPD 2004-04	Approved	Marine View Drive East of Walnut Canyon Road at Championship Drive	Single-Family Home	21 DU	[3]	200	4	12	16	13	8	21
10	Affordable Housing Project	Proposed	Between Charles Street and Everett Street Between Moonpark Avenue and Walnut Street	Apartment	24 DU	[4]	160	2	10	12	10	5	15
11	RPD 2012-02	Proposed	South of Casey Road West of Walnut Canyon Road	Apartment	200 DU	[4]	1,330	20	82	102	81	43	124
12	RPD 2010-02	Under Construction	South of Los Angeles Avenue Between Spring Road and Fremont Street	Condominium	99 DU	[5]	575	7	37	44	34	17	51
13	RPD 2014-02	Proposed	635 Los Angeles Avenue	Condominium	66 DU	[5]	384	5	24	29	23	11	34
14	CPD 2012-01	Approved	635 Los Angeles Avenue	Medical Office Building	76,000 GSF	[6]	2,746	138	37	175	71	192	263
15	IPD 2000-01 Modification No. 1	Under Construction	West of SR-23 Freeway East of Miller Parkway South of Moorpark Marketplace	Office/Industrial Park	350,000 GSF	[7]	2,436	241	53	294	63	238	301
16	TR 5609	Grading Underway	North of Union Pacific Railroad Tracks West of Gabbert Road		36 Acres	[8]	2,272	256	52	308	67	251	318
17	CUP 2003-05	Proposed	13950 Princeton Avenue	Concrete Batch Plant	10 Acres	[9]	68	10	10	20	11	11	22
18	GPA Pre-Screen 2008-01	Approved	Los Angeles Avenue West of SCE Substation	General Office Production Sound Stages Security Personnel Trips	112,850 GSF 9 Stages	[10] [10] [10]	1,242 1,836 30	153 nom. nom.	21 nom. nom.	174 nom. nom.	28 nom. nom.	140 nom. nom.	168 nom. nom.
19	City Hall/Civic Center Complex	Site Planning	83 High Street	City Hall	32,000 GSF	[11]	893	63	8	71	28	63	91
20	CPD 2012-02	Approved	13950 Peach Hill Road	Church	21,644 GSF	[12]	197	10	9	19	11	9	20
21	RPD 2013-01	Proposed	North of Casey Road West of Walnut Canyon Road	Senior Adult Housing	390 DU	[13]	1,342	27	51	78	53	45	98
TOTAL							32,217	1,262	1,351	2,613	1,588	1,677	3,265

nom. nominal

[1] Source: City of Moorpark Residential, Commercial, Industrial, and Public Projects Quarterly Status Report for July 2015

[2] Trips are one-way traffic movements, entering or leaving.

[3] ITE Land Use Code 210 (Single-Family Detached Housing) trip generation average rates.
- Daily Trip Rate: 9.52 trips/dwelling unit; 50% inbound/50% outbound
- AM Peak Hour Trip Rate: 0.75 trips/dwelling unit; 25% inbound/75% outbound
- PM Peak Hour Trip Rate: 1.00 trip/dwelling unit; 63% inbound/37% outbound

[4] ITE Land Use Code 220 (Apartment) trip generation average rates.
- Daily Trip Rate: 6.65 trips/dwelling unit; 50% inbound/50% outbound
- AM Peak Hour Trip Rate: 0.51 trips/dwelling unit; 20% inbound/80% outbound
- PM Peak Hour Trip Rate: 0.62 trip/dwelling unit; 65% inbound/35% outbound

[5] ITE Land Use Code 230 (Residential Condominium/Townhouse) trip generation average rates.
- Daily Trip Rate: 5.81 trips/dwelling unit; 50% inbound/50% outbound
- AM Peak Hour Trip Rate: 0.44 trips/dwelling unit; 17% inbound/83% outbound
- PM Peak Hour Trip Rate: 0.52 trip/dwelling unit; 67% inbound/33% outbound

[6] ITE Land Use Code 720 (Medical-Dental Office Building) trip generation average rates.
- Daily Trip Rate: 36.13 trips/1000 square feet; 50% inbound/50% outbound
- AM Peak Hour Trip Rate: 2.3 trips/1000 square feet; 79% inbound/21% outbound
- PM Peak Hour Trip Rate: 3.46 trip/1000 square feet; 61% inbound/39% outbound

[7] ITE Land Use Code 130 (Industrial Park) trip generation average rates.
- Daily Trip Rate: 6.96 trips/1000 square feet; 50% inbound/50% outbound
- AM Peak Hour Trip Rate: .84 trips/1000 square feet; 82% inbound/18% outbound
- PM Peak Hour Trip Rate: .86 trip/1000 square feet; 21% inbound/79% outbound

[8] ITE Land Use Code 130 (Industrial Park) trip generation average rates.
- Daily Trip Rate: 63.11 trips/acre; 50% inbound/50% outbound
- AM Peak Hour Trip Rate: 8.55 trips/acre; 83% inbound/17% outbound
- PM Peak Hour Trip Rate: 8.84 trip/acre; 21% inbound/79% outbound

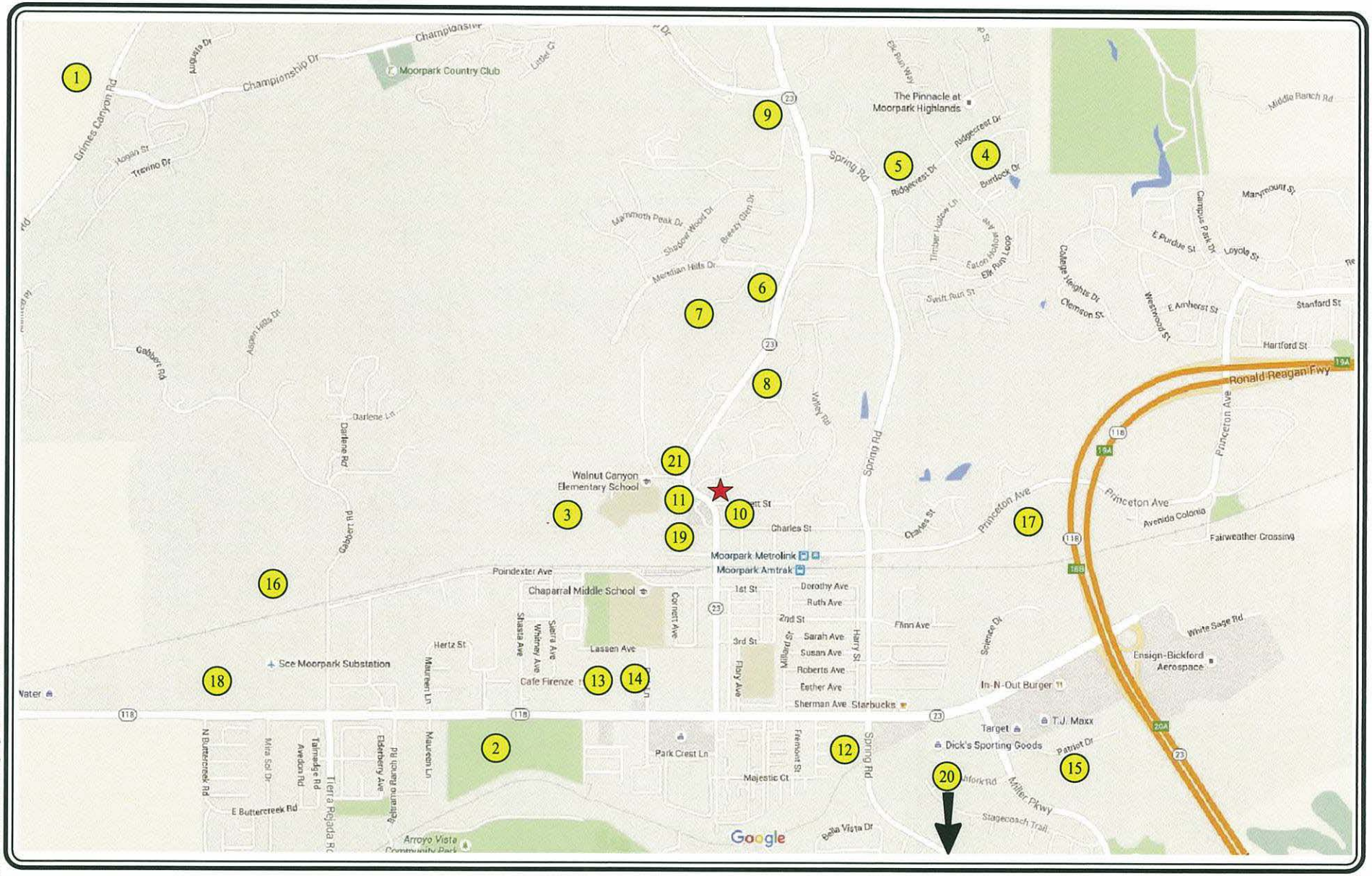
[9] ITE Land Use Code 120 (Heavy Industrial) trip generation average rates.
- Daily Trip Rate: 6.75 trips/acre; 50% inbound/50% outbound
- AM Peak Hour Trip Rate: 1.98 trips/acre; 50% inbound/50% outbound
- PM Peak Hour Trip Rate: 2.16 trip/acre; 21% inbound/79% outbound

[10] *Moorpark West Studios Traffic Impact Analysis* , RBF Consulting, February 2010

[11] ITE Land Use Code 733 (Government Office Complex) trip generation average rates.
- Daily Trip Rate: 27.92 trips/1000 square feet; 50% inbound/50% outbound
- AM Peak Hour Trip Rate: 2.21 trips/1000 square feet; 89% inbound/11% outbound
- PM Peak Hour Trip Rate: 2.85 trip/1000 square feet; 31% inbound/69% outbound

[12] ITE Land Use Code 560 (Church) trip generation average rates.
- Daily Trip Rate: 9.11 trips/1000 square feet; 50% inbound/50% outbound
- AM Peak Hour Trip Rate: 0.87 trips/1000 square feet; 55% inbound/45% outbound
- PM Peak Hour Trip Rate: 0.94 trips/1000 square feet; 54% inbound/46% outbound

[13] ITE Land use Code 252 (Senior Adult Housing) trip generation average rates.
- Daily Trip Rate: 3.44 trips/dwelling unit; 50% inbound/50% outbound
- AM Peak Hour Trip Rate: 0.20 trips/dwelling unit; 34% inbound/66% outbound
- PM Peak Hour Trip Rate: 0.25 trips/dwelling unit; 54% inbound/46% outbound



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MAP SOURCE: GOOGLE MAPS

XX RELATED PROJECT

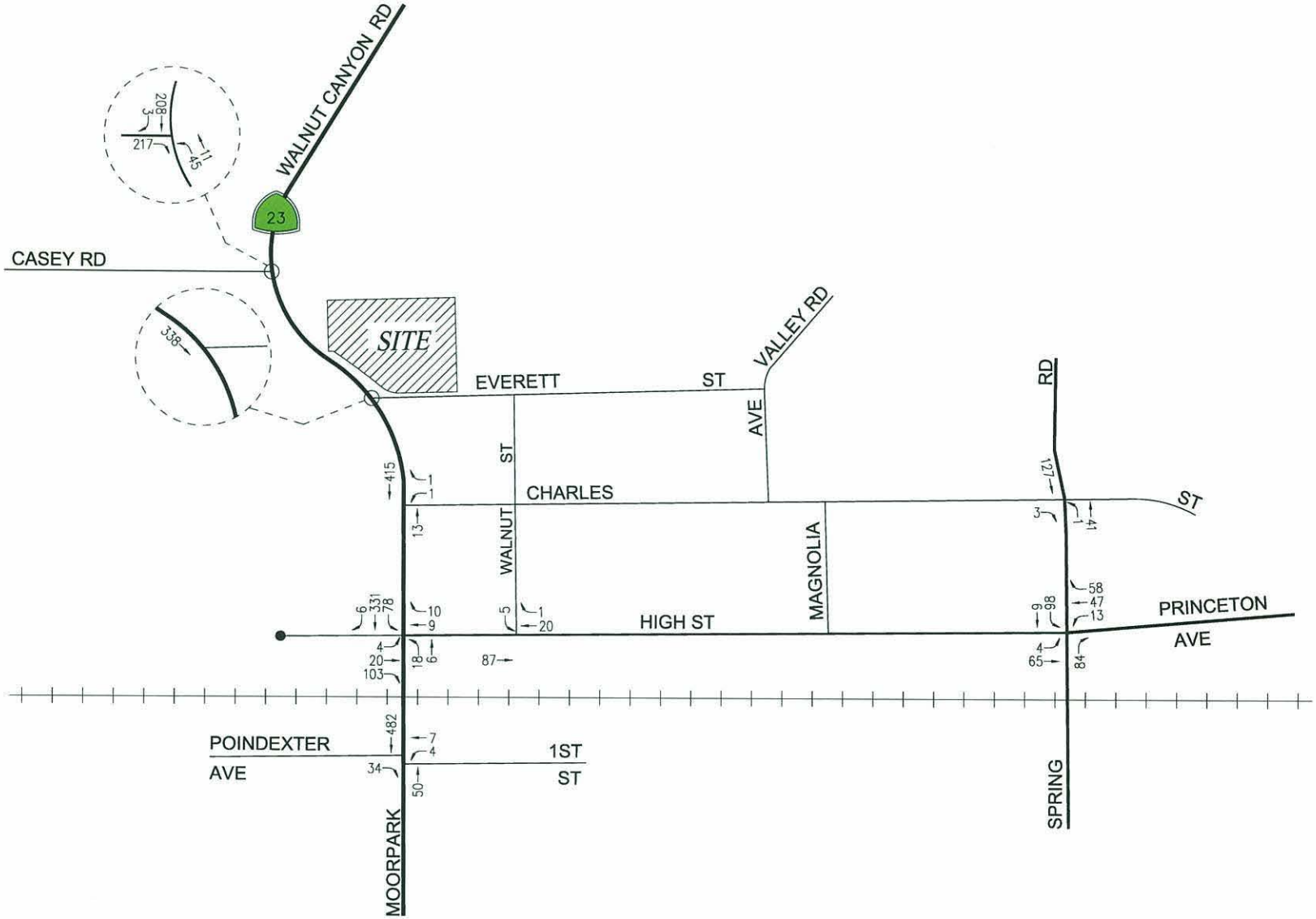
PROJECT SITE

FIGURE 8-1
LOCATION OF RELATED PROJECTS

LINSCOTT, LAW & GREENSPAN, engineers

EVERETT STREET TERRACES PROJECT

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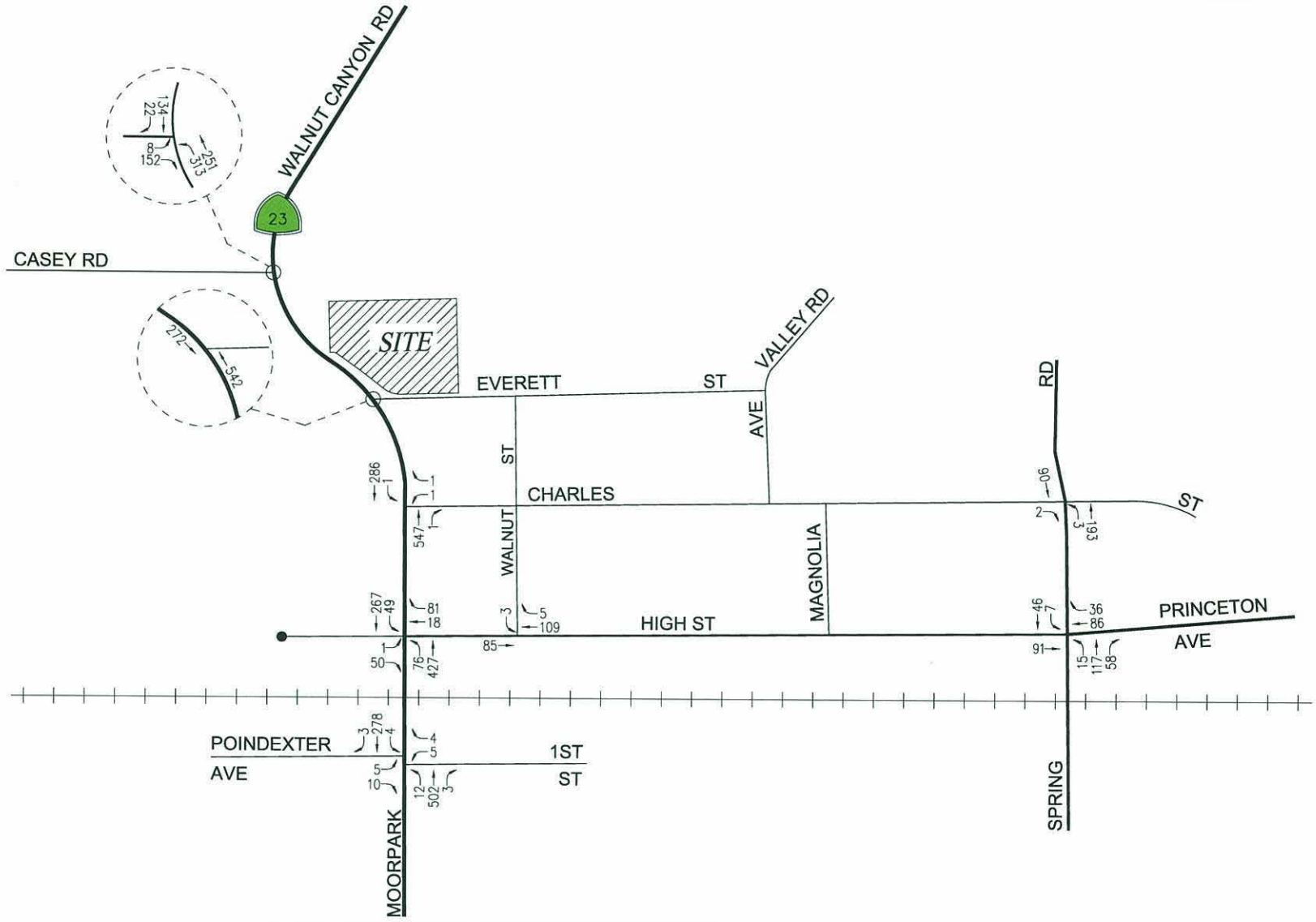
FIGURE 8-2
RELATED PROJECTS TRAFFIC VOLUMES

WEEKDAY AM PEAK HOUR

EVERETT STREET TERRACES PROJECT

LINSCOTT, LAW & GREENSPAN, engineers

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PROJECT SITE

FIGURE 8-3
RELATED PROJECTS TRAFFIC VOLUMES

WEEKDAY PM PEAK HOUR

EVERETT STREET TERRACES PROJECT

LINSCOTT, LAW & GREENSPAN, engineers

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9.0 TRAFFIC IMPACT ANALYSIS METHODOLOGY

The eight study intersections were evaluated using the Intersection Capacity Utilization (ICU) method of analysis which determines Volume-to-Capacity (*v/c*) ratio on a critical lane basis. The overall intersection *v/c* ratio is subsequently assigned a Level of Service (LOS) value to describe intersection operations. The Levels of Service vary from LOS A (free flow) to LOS F (jammed condition). As a design constraint for the City of Moorpark, it is intended that a LOS of C or better be maintained. A description of the ICU method and corresponding Levels of Service is provided in ***Appendix B***.

9.1 Impact Criteria and Thresholds

The relative impact of the added project traffic volumes expected to be generated by the proposed project during the AM and PM peak hours was evaluated based on analysis of future operating conditions at the eight study intersections, without and with the proposed project. The previously discussed capacity analysis procedures were utilized to evaluate the future *v/c* relationships and service level characteristics at each study intersection.

The significance of the potential project generated traffic impacts at each study intersection was identified using guidelines included in the City of Moorpark's *Guidelines for Preparing Traffic and Circulation Studies*, 1993. According to the City's guidelines, a LOS degradation of one level or greater attributable to the project will be considered significant enough to require mitigation measures. A LOS degradation of less than one level may be considered significant, depending on circumstances. As a design constraint, it is intended that a LOS of C or better be maintained.

Based on City of Moorpark criteria, lane capacities of 1,500 vehicles per hour (vph) for left-turn and right-turn lanes, 1,600 vph for through lanes, and 2,600 vph for dual left or right turn lanes were used in the ICU calculations. Additionally, a clearance interval of 0.10 is also included in the ICU calculations.

9.2 Traffic Impact Analysis Scenarios

Traffic impacts at the study intersections were analyzed for the following conditions:

(a) Existing conditions.

(b) Condition (a) with completion and occupancy of the proposed project.

(c) Condition (b) with implementation of project mitigation measures, where necessary.

(d) Cumulative conditions with completion and occupancy of the related projects and the proposed project.

(e) Condition (d) with implementation of cumulative mitigation measures, where necessary.

The traffic volumes for each new condition were added to the volumes in the prior condition to determine the change in capacity utilization at the eight study intersections.

Summaries of the *v/c* ratios and LOS values for the study intersections during the AM and PM peak hours are shown in ***Table 9–1***. The ICU data worksheets for the analyzed intersections are contained in *Appendix B*.

Table 9-1
SUMMARY OF VOLUME TO CAPACITY RATIOS
AND LEVELS OF SERVICE
AM AND PM PEAK HOURS

08-Feb-16

NO.	INTERSECTION	PEAK HOUR	[1] EXISTING V/C	[1] EXISTING LOS	[2] EXISTING PLUS PROJECT V/C	[2] EXISTING PLUS PROJECT LOS	CHANGE V/C [(2)-(1)]	SIGNIF. IMPACT	[3] FUTURE CUMULATIVE V/C	[3] FUTURE CUMULATIVE LOS	[4] FUTURE W/CUMULATIVE MITIGATION V/C	[4] FUTURE W/CUMULATIVE MITIGATION LOS
1	Walnut Canyon Road-Moorpark Avenue/ Casey Road	AM	0.530	A	0.530	A	0.000	NO	0.987	E	0.693	B
		PM	0.301	A	0.302	A	0.001	NO	0.577	A	0.577	A
2	Moorpark Avenue/ Everett Street	AM	0.503	A	0.507	A	0.004	NO	0.718	C	0.718	C
		PM	0.314	A	0.329	A	0.015	NO	0.667	B	0.451	A
3	Moorpark Avenue/ Charles Street	AM	0.488	A	0.490	A	0.002	NO	0.737	C	0.737	C
		PM	0.349	A	0.359	A	0.010	NO	0.675	B	0.675	B
4	Moorpark Avenue/ High Street	AM	0.610	B	0.617	B	0.007	NO	0.878	D	0.608	B
		PM	0.651	B	0.654	B	0.003	NO	1.010	F	0.706	C
5	Moorpark Avenue/ Poindexter Avenue	AM	0.752	C	0.757	C	0.005	NO	1.063	F	0.633	B
		PM	0.691	B	0.693	B	0.002	NO	0.901	E	0.544	A
6	Walnut Street/ High Street	AM	0.360	A	0.361	A	0.001	NO	0.385	A	0.385	A
		PM	0.426	A	0.428	A	0.002	NO	0.462	A	0.462	A
7	Spring Road/ Charles Street	AM	0.484	A	0.484	A	0.000	NO	0.492	A	0.492	A
		PM	0.435	A	0.435	A	0.000	NO	0.465	A	0.465	A
8	Spring Road/ Princeton Avenue	AM	0.639	B	0.642	B	0.003	NO	0.813	D	0.763	C
		PM	0.666	B	0.667	B	0.001	NO	0.765	C	0.689	B

10.0 TRAFFIC ANALYSIS

10.1 Existing Conditions

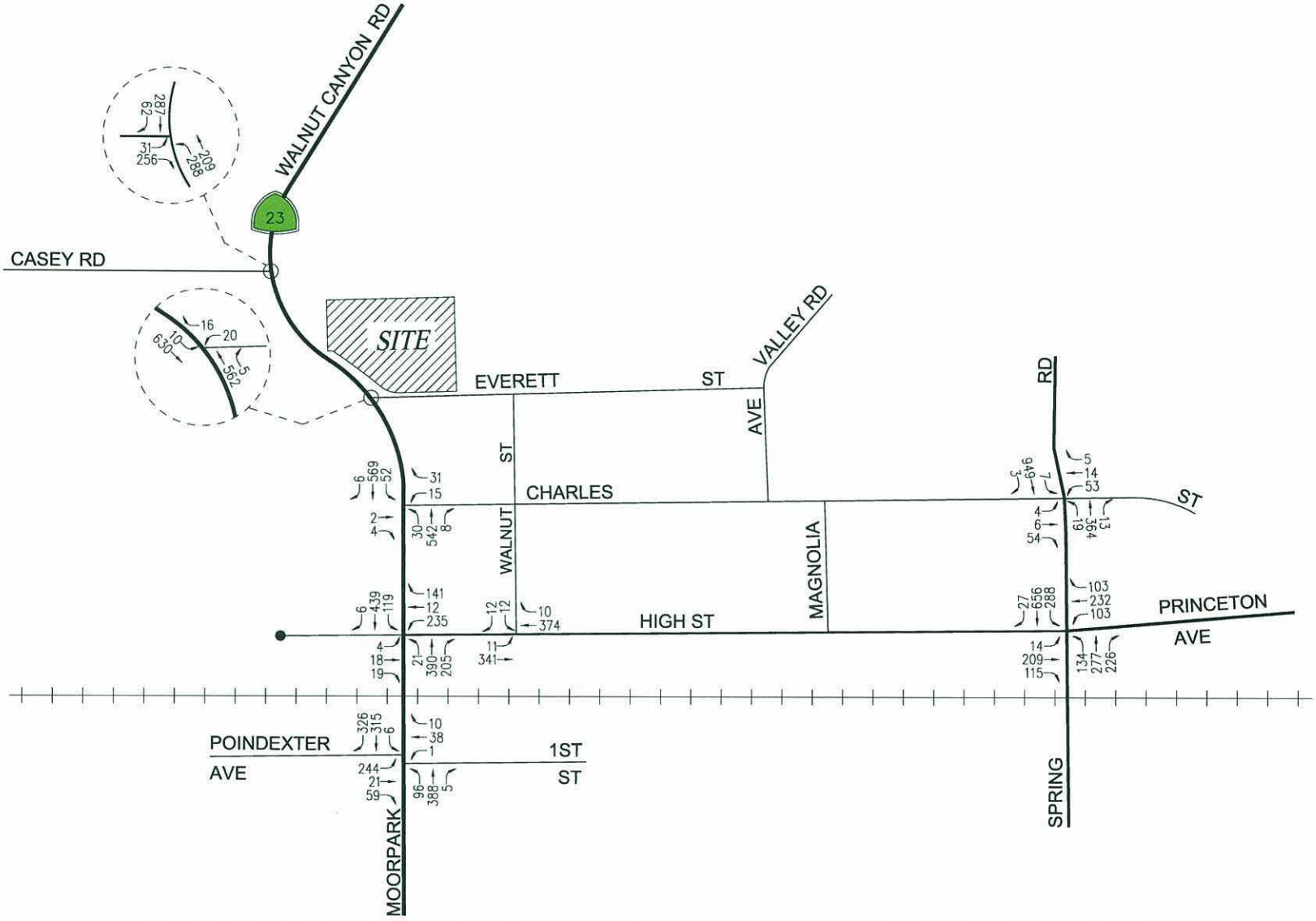
As indicated in column [1] of *Table 9–1*, all eight study intersections are presently operating at LOS C or better during the AM and PM peak hours under existing conditions. As previously mentioned, the existing traffic volumes at the study intersections during the AM and PM peak hours are displayed in *Figures 5–1 and 5–2*, respectively.

10.2 Existing With Project Conditions

In order to determine the operating conditions of the street system under existing with project conditions, traffic generated by the proposed project was added to the existing traffic conditions. As shown in column [2] of *Table 9–1*, the study intersections are expected to continue to operate at LOS C or better during the AM and PM peak hours with the addition of project traffic. The existing with project traffic volumes at the study intersections during the AM and PM peak hours are shown in ***Figures 10–1*** and ***10–2***, respectively.

10.3 Project Mitigation

As shown in *Table 9–1*, application of the City's threshold criteria to the "Existing With Project" scenario indicates that no significant project impacts are anticipated during either the AM or PM peak hours. Incremental, but not significant changes in the calculated V/C ratios are noted at the study intersections. Therefore, no traffic mitigation measures are required or recommended.



NOT TO SCALE

PROJECT SITE

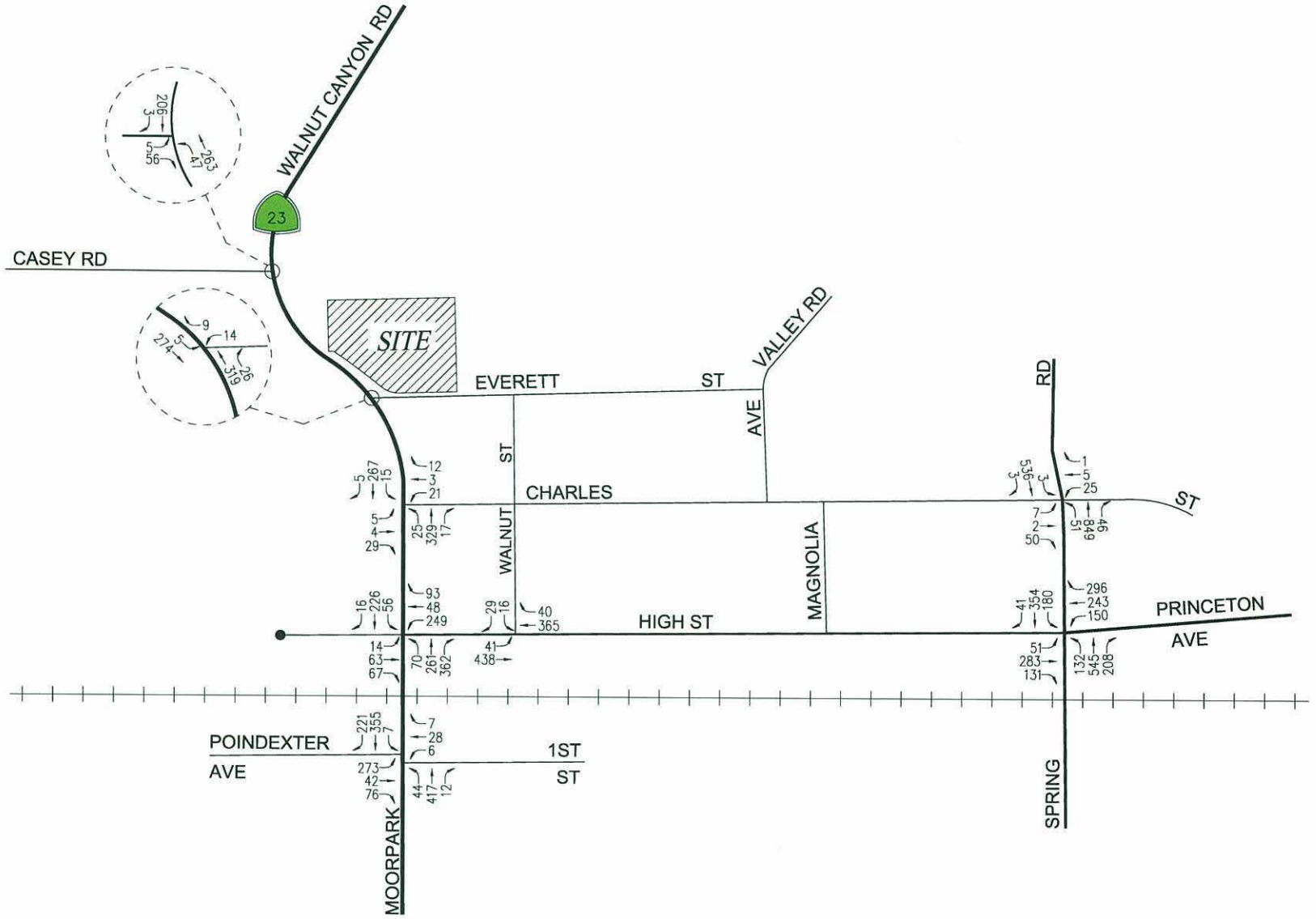
FIGURE 10-1
EXISITNG WITH PROJECT TRAFFIC VOLUMES

WEEKDAY AM PEAK HOUR

EVERETT STREET TERRACES PROJECT

LINSCOTT, LAW & GREENSPAN, engineers

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N
NOT TO SCALE

PROJECT SITE

FIGURE 10-2
EXISITNG WITH PROJECT TRAFFIC VOLUMES

WEEKDAY PM PEAK HOUR

EVERETT STREET TERRACES PROJECT

LINSCOTT, LAW & GREENSPAN, engineers

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10.4 Future Cumulative Conditions

The traffic volumes associated with the cumulative conditions reflect the additional traffic due to the construction and occupancy of all foreseeable development projects in the project vicinity, including the proposed project. As previously mentioned, the list of other development projects is summarized in *Table 8–1* (locations shown on *Figure 8–1*).

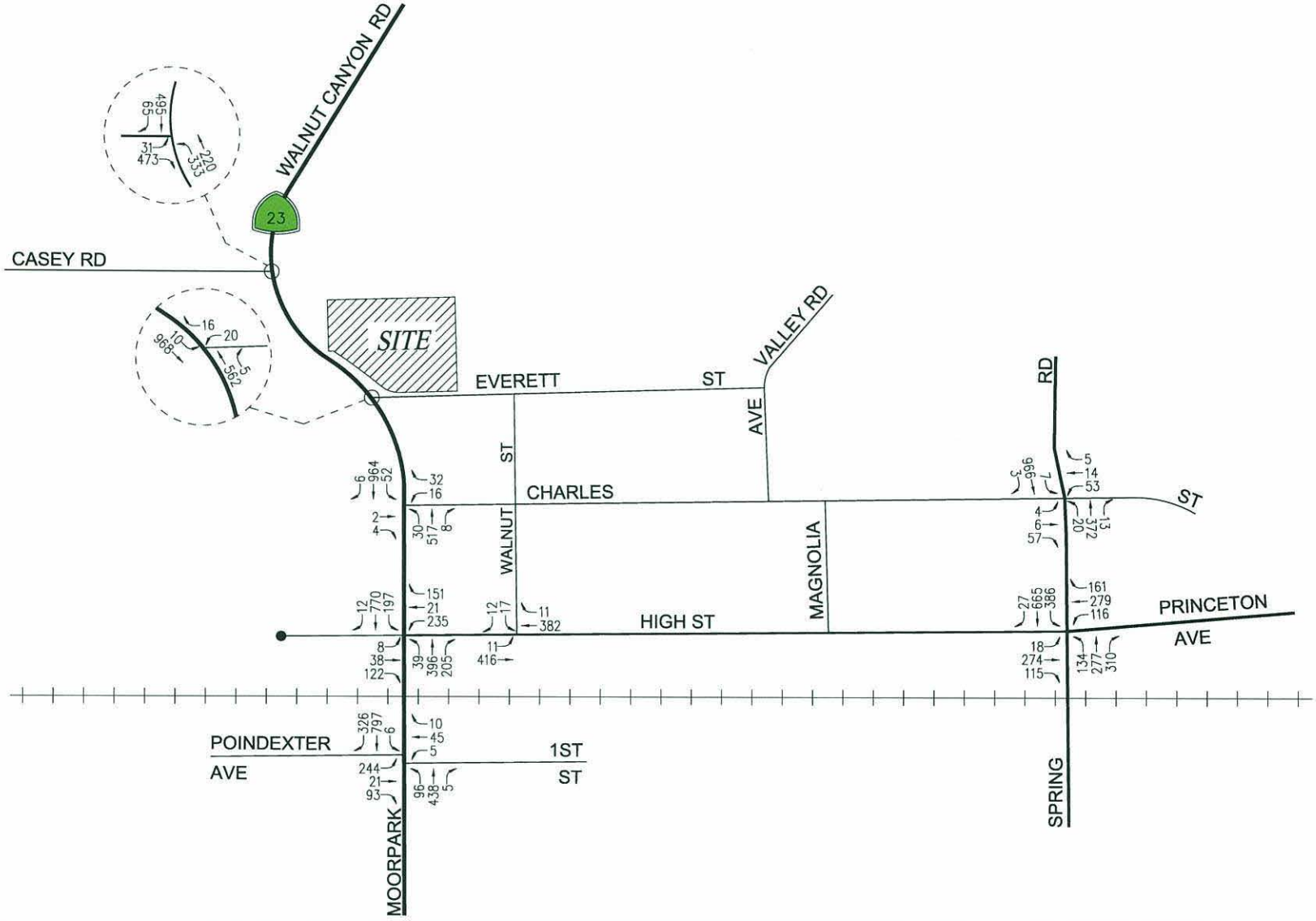
The *v/c* ratios at all seven study intersections are incrementally increased with the addition of traffic generated by the related projects, as well as the proposed project. As presented in column [3] of *Table 9–1*, three of the seven study intersections are expected to continue operating at LOS C or better during the AM and PM peak hours with the addition of traffic due to the related projects and the proposed project. The following four study intersections are expected to operate at LOS D or worse during the peak hours under the year cumulative conditions as shown below:

Int. No. 1: Walnut Canyon Road-Moorpark Avenue/ Casey Road	AM Peak Hour: *v/c* = 0.987, LOS E
Int. No. 4: Moorpark Avenue/High Street	AM Peak Hour: *v/c* = 0.878, LOS D PM Peak Hour: *v/c* = 1.010, LOS F
Int. No. 5: Moorpark Avenue/Poindexter Avenue	AM Peak Hour: *v/c* = 1.063, LOS F PM Peak Hour: *v/c* = 0.901, LOS E
Int. No. 8: Spring Road/High Street-Princeton Avenue	AM Peak Hour: *v/c* = 0.813, LOS D

The future year cumulative traffic volumes at the study intersections during the AM and PM peak hours are illustrated in ***Figures 10–3*** and ***10–4***, respectively.

10.5 Cumulative Mitigation Measures

As indicated in the previous section, four of the seven study intersections are anticipated to operate at LOS D or worse during the AM and/or PM peak hours in the cumulative conditions. A review of potential mitigation measures, which will improve the overall operating conditions at these locations, have been conducted. In general, off-site improvement measures identified for future cumulative conditions should not be the sole responsibility of an individual project, but rather the development may contribute towards the cost of implementation of such improvements based on the project's share or usage of the facilities being improved. It is recognized that as a design constraint for the City of Moorpark, it is intended that a LOS C or better be maintained to the extent possible. The cumulative mitigation measures recommended at the study intersections are described in the following paragraphs.



NOT TO SCALE

PROJECT SITE

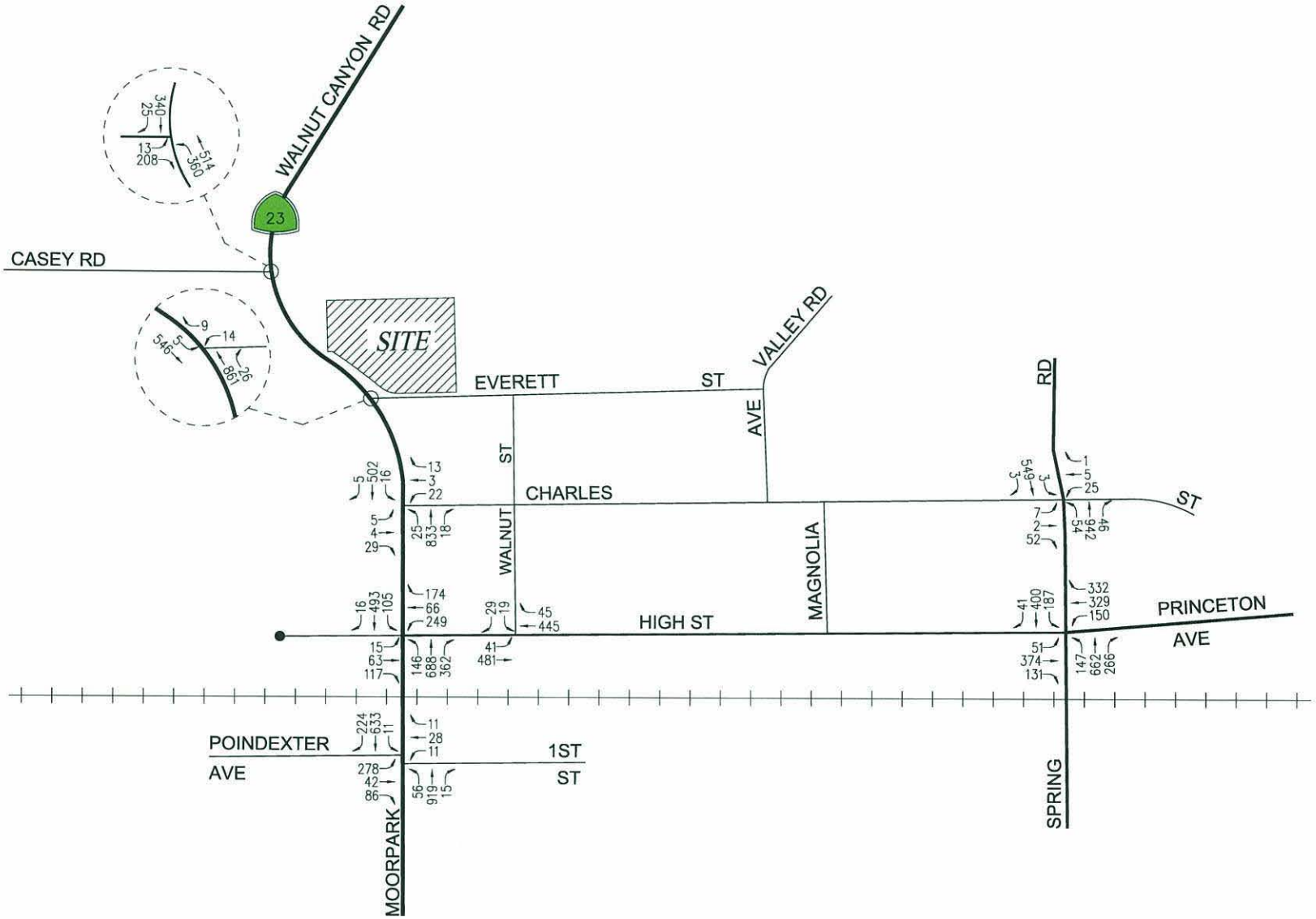
FIGURE 10-3
FUTURE CUMULATIVE TRAFFIC VOLUMES

WEEKDAY AM PEAK HOUR

EVERETT STREET TERRACES PROJECT

LINSCOTT, LAW & GREENSPAN, engineers

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NOT TO SCALE

PROJECT SITE

FIGURE 10-4
FUTURE CUMULATIVE TRAFFIC VOLUMES

WEEKDAY PM PEAK HOUR

EVERETT STREET TERRACES PROJECT

LINSCOTT, LAW & GREENSPAN, engineers

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Intersection No. 1: Walnut Canyon Road-Moorpark Avenue/Casey Road

The cumulative improvement measure at this location consists of the implementation of a previous City of Moorpark Public Works Department Capital Project. The improvement measure at the Walnut Canyon Road-Moorpark Avenue/Casey Road intersection includes the traffic signal modification to provide an eastbound right-turn overlap phase to coincide with the northbound left-turn phase.

As shown in column [4] of *Table 9–1*, implementation of the recommended cumulative mitigation measures is expected to improve the *v/c* ratio at this intersection to 0.693 (LOS B) from 0.987 (LOS E) during the AM peak hour.

Intersection No. 4: Moorpark Avenue/High Street

The cumulative improvement measure at this location consists of the implementation of a previous City of Moorpark Public Works Department Capital Project. The improvement measure involves the widening of Moorpark Avenue to provide additional lanes between Casey Road and Third Street. The improvement measure at the Moorpark Avenue/High Street intersection includes the installation of additional northbound and southbound lanes as well as a traffic signal modification to provide a westbound right-turn overlap phase to coincide with the southbound left-turn phase. The resulting lane configurations on Moorpark Avenue at the intersection on the northbound approach would consist of one shared left/through lane, one through lane and one right-turn only lane and on the southbound approach would consist of one left-turn only one through lane and one shared through/right only lane.

As shown in column [4] of *Table 9–1*, implementation of the recommended cumulative mitigation measures are expected to improve the *v/c* ratio at this intersection maintained the v/c ratio to 0.608 (LOS B) from 0.878 (LOS D) during the AM peak hour and to 0.706 (LOS C) from 1.010 (LOS F) during the PM peak hour.

Intersection No. 5: Moorpark Avenue/Poindexter Avenue

The cumulative improvement measure at this location consists of the implementation of a previous City of Moorpark Public Works Department Capital Project. The improvement measure involves the widening of Moorpark Avenue to provide additional lanes between Casey Road and Third Street. The improvement measure at the Moorpark/Poindexter Avenue intersection includes the installation of additional southbound and northbound lanes. The resulting lane configuration on Moorpark Avenue for both the southbound and northbound approaches to the intersection would consist of one left-turn lane, one through lane and one shared through/right-turn lane. In addition, the cumulative measure at this location would consist of the conversion of the eastbound right-turn only lane to a shared left/through/right-turn lane. The resulting lane configuration on Moorpark Avenue on the eastbound approach to the intersection would consist of one left-turn lane and one shared left/through/right-turn lane

As shown in column [4] of *Table 9–1*, implementation of the recommended cumulative mitigation measures is expected to improve the v/c ratio at this intersection to 0.623 (LOS B) from 1.063 (LOS F) during the AM peak hour and to 0.544 (LOS A) from 0.901 (LOS E) during the PM peak hour.

Intersection No. 8: Spring Road/High Street-Princeton Avenue

The cumulative improvement measure at this location consists of restriping the eastbound approach. The improvement involves the restriping the eastbound right-turn only lane into a shared through and right-turn lane. The resulting lane configuration on High Street on the eastbound approach of the intersection would consist of one left-turn only lane, one through lane, one through lane and one shared through and right-turn lane.

As shown in column [4] of *Table 9–1*, implementation of the recommended cumulative mitigation measures is expected to improve the v/c ratio at this intersection to 0.763 (LOS C) from 0.813 (LOS D) during the AM peak hour.

11.0 FAIR SHARE ANALYSIS

The methodology and the calculations of the project's pro-rata percentage at the study intersections which require cumulative regional improvements are summarized in ***Table 11–1***. The method used for these calculations was based on the sum of the total weekday morning and afternoon (AM and PM) peak hours project generated traffic volumes on the approaches to each affected study intersection divided by the project plus other development (related) projects traffic volumes on those same approaches for the same AM and PM peak hours. It should be noted that existing traffic volumes are not included in the calculations.

As shown in *Table 11–1*, the proposed project's fair share contribution toward the cumulative regional improvements ranges from 0.4% at the Walnut Canyon Road-Moorpark Avenue/Casey Road intersection to 2.6% at the Spring Road/High Street-Princeton Avenue and Moorpark Avenue/High Street intersections.

Table 11-1
PRO-RATA PERCENTAGE OF CUMULATIVE IMPROVEMENT MEASURES

09-Feb-16

Pro-Rata Percentage Methodology

A project's pro-rata percentage of cumulative mitigation costs at study intersections conditioned for the subject project should be calculated using AM and PM peak hour traffic volumes. The project's percentage share is derived by dividing project traffic by project plus other related projects traffic. It should be noted that existing traffic and ambient growth traffic volumes are not included in the calculations.

$$\frac{\text{Project Traffic}}{\text{Project + Other Related Projects Traffic}}$$

The following equation is provided to assist in calculating the project's pro-rata percentage to implement roadway mitigation improvement measures:

$$P = \frac{Vp}{Vp + (Vc - Ve)}$$

where:

- P = Project's pro-rate percentage for cumulative mitigation measure
- Vp = AM & PM Peak Hour volume at the intersection generated by the project
- Vc = Cumulative (other related projects) AM & PM Peak Hour traffic volume at the intersection
- Ve = Existing AM & PM Peak Hour traffic volume (must be subtracted when included in cumulative AM & PM Peak Hour traffic volume)

Study Intersection(s) Calculations

	Intersection	AM & PM Traffic Volumes		Calculation		Percentage of Impact
1.	Walnut Canyon Road-Moorpark Avenue/ Casey Road	Vp = 5 Vc = 3,077 Ve = 1,708	P =	5 / (5) + (3,077 - 1,708)	=	**0.4 %**
4.	Moorpark Avenue/ High Street	Vp = 42 Vc = 4,688 Ve = 3,092	P =	42 / (42) + (4,688 - 3,092)	=	**2.6 %**
5.	Moorpark Avenue/ Poindexter Avenue	Vp = 18 Vc = 4,400 Ve = 2,979	P =	18 / (18) + (4,400 - 2,979)	=	**1.3 %**
8.	Spring Road/ High Street-Princeton Avenue	Vp = 23 Vc = 5,832 Ve = 4,975	P =	23 / (23) + (5,832 - 4,975)	=	**2.6 %**

12.0 CONCLUSIONS

This traffic analysis has been conducted to identify and evaluate the potential impacts of traffic generated by the proposed Everett Street Terraces project. In order to evaluate the potential traffic impacts to the local street system, eight intersections were analyzed to determine changes in operations following occupancy and utilization of the proposed project. It is concluded that the proposed project is not anticipated to create a significant impact at any of the study intersections, thus, no mitigation measures are required or recommended.

The project, along with the identified cumulative development projects, is anticipated to contribute to the degradation of intersection operations in the future cumulative traffic conditions. Potential cumulative improvement measures have been identified that are anticipated to improve the operating conditions. It is anticipated that the proposed project would contribute funds on a fair-share basis towards the implementation of the cumulative measures.

APPENDIX A

MANUAL TRAFFIC COUNT DATA

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: CA13_5332_001

Day: WEDNESDAY

City: City of Moorpark

Date: 6/12/2013

AM

NS/EW Streets:	Walnut Canyon Rd-Moorpark Ave			Walnut Canyon Rd-Moorpark Ave			Casey Rd			Casey Rd			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 1	NT 1	NR 0	SL 0	ST 1	SR 0	EL 1	ET 0	ER 1	WL 0	WT 0	WR 0	TOTAL
7:00 AM	8	16			40	0	0		5				69
7:15 AM	8	20			47	0	0		7				82
7:30 AM	35	17			65	2	1		15				135
7:45 AM	77	40			49	12	8		48				234
8:00 AM	111	35			47	28	11		88				320
8:15 AM	64	38			58	15	7		82				264
8:30 AM	19	37			54	3	3		23				139
8:45 AM	17	29			34	2	3		4				89

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	339	232	0	0	394	62	33	0	272	0	0	0	1332
APPROACH %'s :	59.37%	40.63%	0.00%	0.00%	86.40%	13.60%	10.82%	0.00%	89.18%	#DIV/0!	#DIV/0!	#DIV/0!	

PEAK HR START TIME :	745 AM												TOTAL
PEAK HR VOL :	271	150	0	0	208	58	29	0	241	0	0	0	957
PEAK HR FACTOR :		0.721			0.887			0.682			0.000		0.748

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: CA13_5332_001

Day: WEDNESDAY

City: City of Moorpark

Date: 6/12/2013

PM

NS/EW Streets:	Walnut Canyon Rd-Moorpark Ave			Walnut Canyon Rd-Moorpark Ave			Casey Rd			Casey Rd			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	1	0	0	1	0	1	0	1	0	0	0	
4:00 PM	2	48			36	4	2		8				100
4:15 PM	4	42			25	0	0		7				78
4:30 PM	5	48			46	0	0		9				108
4:45 PM	11	60			39	1	3		15				129
5:00 PM	13	50			43	0	0		13				119
5:15 PM	15	48			32	2	2		16				115
5:30 PM	6	45			35	1	0		9				96
5:45 PM	6	45			31	2	2		13				99
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	62	386	0	0	287	10	9	0	90	0	0	0	844
APPROACH %'s :	13.84%	86.16%	0.00%	0.00%	96.63%	3.37%	9.09%	0.00%	90.91%	#DIV/0!	#DIV/0!	#DIV/0!	
PEAK HR START TIME :	430 PM												TOTAL
PEAK HR VOL :	44	206	0	0	160	3	5	0	53	0	0	0	471
PEAK HR FACTOR :		0.880			0.886			0.806			0.000		0.913

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: CA13_5332_002

Day: WEDNESDAY

City: City of Moorpark

Date: 6/12/2013

AM

NS/EW Streets:	Moorpark Ave			Moorpark Ave			Everett St			Everett St			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 0	NT 1	NR 0	SL 0	ST 1	SR 0	EL 0	ET 0	ER 0	WL 1	WT 0	WR 1	TOTAL
7:00 AM		25	1	2	45					1		1	75
7:15 AM		26	1	0	56					1		1	85
7:30 AM		52	1	3	83					2		2	143
7:45 AM		128	0	1	100					1		3	233
8:00 AM		137	1	2	134					1		6	281
8:15 AM		91	0	3	140					0		2	236
8:30 AM		59	3	1	74					4		1	142
8:45 AM		44	0	0	39					3		0	86
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	0	562	7	12	671	0	0	0	0	13	0	16	1281
APPROACH %'s :	0.00%	98.77%	1.23%	1.76%	98.24%	0.00%	#DIV/0!	#DIV/0!	#DIV/0!	44.83%	0.00%	55.17%	
PEAK HR START TIME :	730 AM												TOTAL
PEAK HR VOL :	0	408	2	9	457	0	0	0	0	4	0	13	893
PEAK HR FACTOR :		0.743			0.815			0.000			0.607		0.794

CONTROL : 1-Way Stop (WB)

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: CA13_5332_002

Day: WEDNESDAY

City: City of Moorpark

Date: 6/12/2013

PM

NS/EW Streets:	Moorpark Ave			Moorpark Ave			Everett St			Everett St			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 0	NT 1	NR 0	SL 0	ST 1	SR 0	EL 0	ET 0	ER 0	WL 1	WT 0	WR 1	TOTAL
4:00 PM		51	2	0	46					3		0	102
4:15 PM		50	3	0	35					3		2	93
4:30 PM		56	2	1	56					2		1	118
4:45 PM		73	1	1	54					0		2	131
5:00 PM		60	2	1	56					2		3	124
5:15 PM		62	5	0	49					3		2	121
5:30 PM		53	2	0	43					3		2	103
5:45 PM		47	5	1	44					3		0	100
TOTAL VOLUMES :	NL 0	NT 452	NR 22	SL 4	ST 383	SR 0	EL 0	ET 0	ER 0	WL 19	WT 0	WR 12	TOTAL 892
APPROACH %'s :	0.00%	95.36%	4.64%	1.03%	98.97%	0.00%	#DIV/0!	#DIV/0!	#DIV/0!	61.29%	0.00%	38.71%	
PEAK HR START TIME :	430 PM												TOTAL
PEAK HR VOL :	0	251	10	3	215	0	0	0	0	7	0	8	494
PEAK HR FACTOR :		0.882			0.956			0.000			0.750		0.943

CONTROL : 1-Way Stop (WB)

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: CA13_5332_003

Day: WEDNESDAY

City: City of Moorpark

Date: 6/12/2013

AM

NS/EW Streets:	Moorpark Ave			Moorpark Ave			Charles St			Charles St			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	1	0	1	1	0	0.5	0.5	1	0	1	0	
7:00 AM	2	24	2	3	42	0		0	1	9	0	1	84
7:15 AM	4	27	4	2	56	0		0	1	8	0	1	103
7:30 AM	10	49	0	2	82	0		1	0	10	1	5	160
7:45 AM	16	115	0	15	84	1		0	0	6	0	12	249
8:00 AM	3	129	3	10	124	2		0	2	2	0	9	284
8:15 AM	5	85	1	14	122	2		1	0	1	0	5	236
8:30 AM	4	62	4	10	71	1		1	2	5	0	3	163
8:45 AM	5	43	1	0	41	1		0	2	4	0	1	98
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	49	534	15	56	622	7	0	3	8	45	1	37	1377
APPROACH %'s :	8.19%	89.30%	2.51%	8.18%	90.80%	1.02%	0.00%	27.27%	72.73%	54.22%	1.20%	44.58%	
PEAK HR START TIME :	745 AM												TOTAL
PEAK HR VOL :	28	391	8	49	401	6	0	2	4	14	0	29	932
PEAK HR FACTOR :		0.791			0.826			0.500			0.597		0.820

CONTROL : 2-Way Stop (EB,WB)

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: CA13_5332_003

Day: WEDNESDAY

City: City of Moorpark

Date: 6/12/2013

PM

NS/EW Streets:	Moorpark Ave			Moorpark Ave			Charles St			Charles St			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	1	0	1	1	0	0.5	0.5	1	0	1	0	
4:00 PM	9	53	3	4	42	2	0	0	10	8	2	0	133
4:15 PM	5	51	3	3	36	2	1	2	11	5	0	1	120
4:30 PM	8	57	4	6	52	1	1	1	6	0	1	1	138
4:45 PM	8	66	6	6	45	2	2	1	11	10	1	6	164
5:00 PM	5	60	4	0	55	1	1	2	7	4	1	1	141
5:15 PM	3	64	2	2	52	1	1	0	3	6	0	3	137
5:30 PM	4	54	6	2	44	0	0	3	3	5	0	2	123
5:45 PM	4	49	5	3	43	1	1	3	17	5	0	3	134
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	46	454	33	26	369	10	7	12	68	43	5	17	1090
APPROACH %'s :	8.63%	85.18%	6.19%	6.42%	91.11%	2.47%	8.05%	13.79%	78.16%	66.15%	7.69%	26.15%	
PEAK HR START TIME :	430 PM												TOTAL
PEAK HR VOL :	24	247	16	14	204	5	5	4	27	20	3	11	580
PEAK HR FACTOR :		0.897			0.945			0.643			0.500		0.884

CONTROL : 2-Way Stop (EB,WB)

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: CA13_5332_004

Day: WEDNESDAY

City: City of Moorpark

Date: 6/12/2013

AM

NS/EW Streets:	Moorpark Ave			Moorpark Ave			High St			High St			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0.5	0.5	1	1	1	0	0	1	0	0.5	0.5	1	
7:00 AM	2	19	21	11	41	1	0	2	1	46	2	7	153
7:15 AM	5	20	29	6	55	0	1	0	4	39	3	12	174
7:30 AM	4	33	54	15	82	2	2	4	3	76	3	22	300
7:45 AM	6	91	46	20	64	2	0	4	9	69	3	32	346
8:00 AM	3	98	52	34	88	0	0	7	1	42	1	37	363
8:15 AM	7	60	41	35	79	2	2	2	5	34	4	40	311
8:30 AM	5	41	49	16	77	2	0	3	7	54	3	26	283
8:45 AM	7	45	35	9	38	2	0	2	4	34	5	10	191
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	39	407	327	146	524	11	5	24	34	394	24	186	2121
APPROACH %'s :	5.05%	52.65%	42.30%	21.44%	76.95%	1.62%	7.94%	38.10%	53.97%	65.23%	3.97%	30.79%	
PEAK HR START TIME :	730 AM												TOTAL
PEAK HR VOL :	20	282	193	104	313	6	4	17	18	221	11	131	1320
PEAK HR FACTOR :		0.809			0.867			0.750			0.873		0.909

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: CA13_5332_004

Day: WEDNESDAY

City: City of Moorpark

Date: 6/12/2013

PM

NS/EW Streets:	Moorpark Ave			Moorpark Ave			High St			High St			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 0.5	NT 0.5	NR 1	SL 1	ST 1	SR 0	EL 0	ET 1	ER 0	WL 0.5	WT 0.5	WR 1	TOTAL
4:00 PM	16	49	75	9	48	1	4	13	16	55	12	14	312
4:15 PM	15	38	71	17	40	3	4	13	16	60	14	14	305
4:30 PM	27	41	82	7	36	5	3	15	15	50	13	27	321
4:45 PM	14	52	82	12	53	2	6	19	20	63	19	19	361
5:00 PM	13	57	97	11	47	4	1	10	11	59	8	18	336
5:15 PM	12	49	80	19	39	4	3	15	17	63	5	15	321
5:30 PM	2	43	80	14	42	0	2	0	10	59	5	21	278
5:45 PM	8	48	68	22	42	1	1	4	12	52	4	12	274
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	107	377	635	111	347	20	24	89	117	461	80	140	2508
APPROACH %'s :	9.56%	33.69%	56.75%	23.22%	72.59%	4.18%	10.43%	38.70%	50.87%	67.69%	11.75%	20.56%	
PEAK HR START TIME :	430 PM												TOTAL
PEAK HR VOL :	66	199	341	49	175	15	13	59	63	235	45	79	1339
PEAK HR FACTOR :		0.907			0.892			0.750			0.889		0.927

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: CA13_5332_005

Day: WEDNESDAY

City: City of Moorpark

Date: 6/12/2013

AM

NS/EW Streets:	Moorpark Ave			Moorpark Ave			Poindexter Ave-1st St			Poindexter Ave-1st St			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	1	0	1	1	0	1	0	1	1	0.5	0.5	
7:00 AM	6	29	0	1	37	58	28	0	8	1	9	0	177
7:15 AM	7	34	2	0	38	58	26	3	6	0	12	0	186
7:30 AM	20	57	1	2	45	118	64	8	9	0	14	1	339
7:45 AM	23	89	2	2	47	84	64	2	10	0	8	4	335
8:00 AM	14	77	1	1	72	57	66	3	20	0	5	2	318
8:15 AM	33	58	1	1	59	48	36	7	17	1	9	2	272
8:30 AM	16	53	0	2	62	78	39	7	43	0	9	0	309
8:45 AM	11	38	2	1	43	31	30	2	19	0	1	2	180
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	130	435	9	10	403	532	353	32	132	2	67	11	2116
APPROACH %'s :	22.65%	75.78%	1.57%	1.06%	42.65%	56.30%	68.28%	6.19%	25.53%	2.50%	83.75%	13.75%	
PEAK HR START TIME :	730 AM												TOTAL
PEAK HR VOL :	90	281	5	6	223	307	230	20	56	1	36	9	1264
PEAK HR FACTOR :		0.825			0.812			0.860			0.767		0.932

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: CA13_5332_008

Day: WEDNESDAY

City: City of Moorpark

Date: 6/12/2013

AM

NS/EW Streets:	Spring Rd			Spring Rd			High St-Princeton Ave			High St-Princeton Ave			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	1.5	0.5	1	1.5	0.5	1	1	1	1	1	1	
7:00 AM	11	37	28	30	96	3	2	20	13	16	39	26	321
7:15 AM	9	50	35	57	110	8	0	23	5	15	48	25	385
7:30 AM	11	34	41	66	129	10	1	48	6	15	70	21	452
7:45 AM	30	47	42	79	123	9	2	48	19	21	73	26	519
8:00 AM	37	64	59	57	136	5	6	49	32	15	41	20	521
8:15 AM	33	42	50	66	109	3	3	52	26	30	66	23	503
8:30 AM	25	48	62	69	107	8	2	44	27	31	38	28	489
8:45 AM	14	38	51	49	92	7	5	44	17	22	48	25	412
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	170	360	368	473	902	53	21	328	145	165	423	194	3602
APPROACH %'s :	18.93%	40.09%	40.98%	33.12%	63.17%	3.71%	4.25%	66.40%	29.35%	21.10%	54.09%	24.81%	
PEAK HR START TIME :	745 AM												TOTAL
PEAK HR VOL :	125	201	213	271	475	25	13	193	104	97	218	97	2032
PEAK HR FACTOR :		0.842			0.914			0.891			0.858		0.975

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: CA13_5332_005

Day: WEDNESDAY

City: City of Moorpark

Date: 6/12/2013

PM

NS/EW Streets:	Moorpark Ave			Moorpark Ave			Poindexter Ave-1st St			Poindexter Ave-1st St			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	1	0	1	1	0	1	0	1	1	0.5	0.5	
4:00 PM	10	66	1	3	84	39	55	11	16	0	4	3	292
4:15 PM	13	78	2	0	63	38	54	5	13	0	8	0	274
4:30 PM	8	81	3	0	81	51	65	13	22	1	2	1	328
4:45 PM	8	79	3	3	61	54	63	12	15	2	6	1	307
5:00 PM	11	78	1	1	72	55	79	7	17	0	11	2	334
5:15 PM	14	84	4	3	63	48	50	8	18	3	7	3	305
5:30 PM	11	69	2	2	62	47	47	3	13	1	3	3	263
5:45 PM	3	61	4	4	60	38	46	4	13	1	5	1	240
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	78	596	20	16	546	370	459	63	127	8	46	14	2343
APPROACH %'s :	11.24%	85.88%	2.88%	1.72%	58.58%	39.70%	70.72%	9.71%	19.57%	11.76%	67.65%	20.59%	
PEAK HR START TIME :	430 PM												TOTAL
PEAK HR VOL :	41	322	11	7	277	208	257	40	72	6	26	7	1274
PEAK HR FACTOR :		0.917			0.932			0.896			0.750		0.954

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: CA13_5332_006

Day: WEDNESDAY

City: City of Moorpark

Date: 6/12/2013

AM

NS/EW Streets:	Walnut St			Walnut St			High St			High St			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	1	0	0	1	0	0	1	0	0	1	0	
7:00 AM	0		0	1		4	1	33	0	0	62	0	101
7:15 AM	1		2	1		1	2	42	0	1	51	5	106
7:30 AM	0		0	1		3	2	76	0	0	104	3	189
7:45 AM	0		0	5		5	5	71	0	0	92	3	181
8:00 AM	0		0	2		1	2	93	0	0	90	2	190
8:15 AM	0		0	3		2	1	73	1	0	65	1	146
8:30 AM	0		0	4		3	0	67	0	0	75	3	152
8:45 AM	0		0	1		1	1	38	0	0	44	4	89
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	1	0	2	18	0	20	14	493	1	1	583	21	1154
APPROACH %'s :	33.33%	0.00%	66.67%	47.37%	0.00%	52.63%	2.76%	97.05%	0.20%	0.17%	96.36%	3.47%	
PEAK HR START TIME :	730 AM												TOTAL
PEAK HR VOL :	0	0	0	11	0	11	10	313	1	0	351	9	706
PEAK HR FACTOR :		0.000			0.550			0.853			0.841		0.929

CONTROL : 2-Way Stop (NB,SB)

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: CA13_5332_006

Day: WEDNESDAY

City: City of Moorpark

Date: 6/12/2013

PM

NS/EW Streets:	Walnut St			Walnut St			High St			High St			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	1	0	0	1	0	0	1	0	0	1	0	
4:00 PM	0			0		7	11	93	1	0	78	12	202
4:15 PM	0			1		6	5	92	0	0	83	4	191
4:30 PM	0			5		8	11	103	0	0	81	14	222
4:45 PM	0			6		6	10	103	0	0	95	9	229
5:00 PM	0			3		5	9	99	0	0	81	5	202
5:15 PM	1			1		8	9	104	1	0	78	10	212
5:30 PM	0			6		3	0	85	2	0	71	7	174
5:45 PM	0			1		4	3	94	0	2	59	6	169
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	1	0	0	23	0	47	58	773	4	2	626	67	1601
APPROACH %'s :	100.00%	0.00%	0.00%	32.86%	0.00%	67.14%	6.95%	92.57%	0.48%	0.29%	90.07%	9.64%	
PEAK HR START TIME :	430 PM												TOTAL
PEAK HR VOL :	1	0	0	15	0	27	39	409	1	0	335	38	865
PEAK HR FACTOR :		0.250			0.808			0.985			0.897		0.944

CONTROL : 2-Way Stop (NB,SB)

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: CA13_5332_007

Day: WEDNESDAY

City: City of Moorpark

Date: 6/12/2013

AM

NS/EW Streets:	Spring Rd			Spring Rd			Charles St			Charles St			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	1.5	0.5	1	2	0	0.5	0.5	0	0.5	0.5	1	
7:00 AM	7	58	2	0	113	1	0	1	13	10	3	1	209
7:15 AM	3	67	3	3	156	2	2	2	14	15	1	2	270
7:30 AM	3	53	4	1	190	0	0	0	10	14	2	2	279
7:45 AM	5	65	0	1	180	1	2	1	11	11	8	1	286
8:00 AM	7	79	5	2	162	0	0	3	16	10	2	0	286
8:15 AM	4	60	3	1	156	0	0	1	21	18	3	1	268
8:30 AM	2	75	4	1	151	1	3	1	24	8	1	1	272
8:45 AM	8	55	2	1	115	1	0	0	7	7	2	0	198
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	39	512	23	10	1223	6	7	9	116	93	22	8	2068
APPROACH %'s :	6.79%	89.20%	4.01%	0.81%	98.71%	0.48%	5.30%	6.82%	87.88%	75.61%	17.89%	6.50%	
PEAK HR START TIME :	715 AM												TOTAL
PEAK HR VOL :	18	264	12	7	688	3	4	6	51	50	13	5	1121
PEAK HR FACTOR :		0.808			0.914			0.803			0.850		0.980

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: CA13_5332_007

Day: WEDNESDAY

City: City of Moorpark

Date: 6/12/2013

PM

NS/EW Streets:	Spring Rd			Spring Rd			Charles St			Charles St			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	1.5	0.5	1	2	0	0.5	0.5	0	0.5	0.5	1	
4:00 PM	2	135	9	1	71	1	0	0	9	7	1	1	237
4:15 PM	8	153	12	0	64	0	0	0	7	3	1	0	248
4:30 PM	8	162	9	0	121	0	1	1	15	6	0	1	324
4:45 PM	11	183	9	2	90	1	2	1	10	4	1	0	314
5:00 PM	15	153	9	0	109	2	2	0	14	5	2	0	311
5:15 PM	14	169	16	1	101	0	2	0	8	9	2	0	322
5:30 PM	8	156	13	0	99	1	4	3	9	7	0	2	302
5:45 PM	11	181	16	0	78	0	1	0	7	8	0	1	303
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	77	1292	93	4	733	5	12	5	79	49	7	5	2361
APPROACH %'s :	5.27%	88.37%	6.36%	0.54%	98.79%	0.67%	12.50%	5.21%	82.29%	80.33%	11.48%	8.20%	
PEAK HR START TIME :	430 PM												TOTAL
PEAK HR VOL :	48	667	43	3	421	3	7	2	47	24	5	1	1271
PEAK HR FACTOR :		0.933			0.882			0.824			0.682		0.981

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: CA13_5332_008

Day: WEDNESDAY

City: City of Moorpark

Date: 6/12/2013

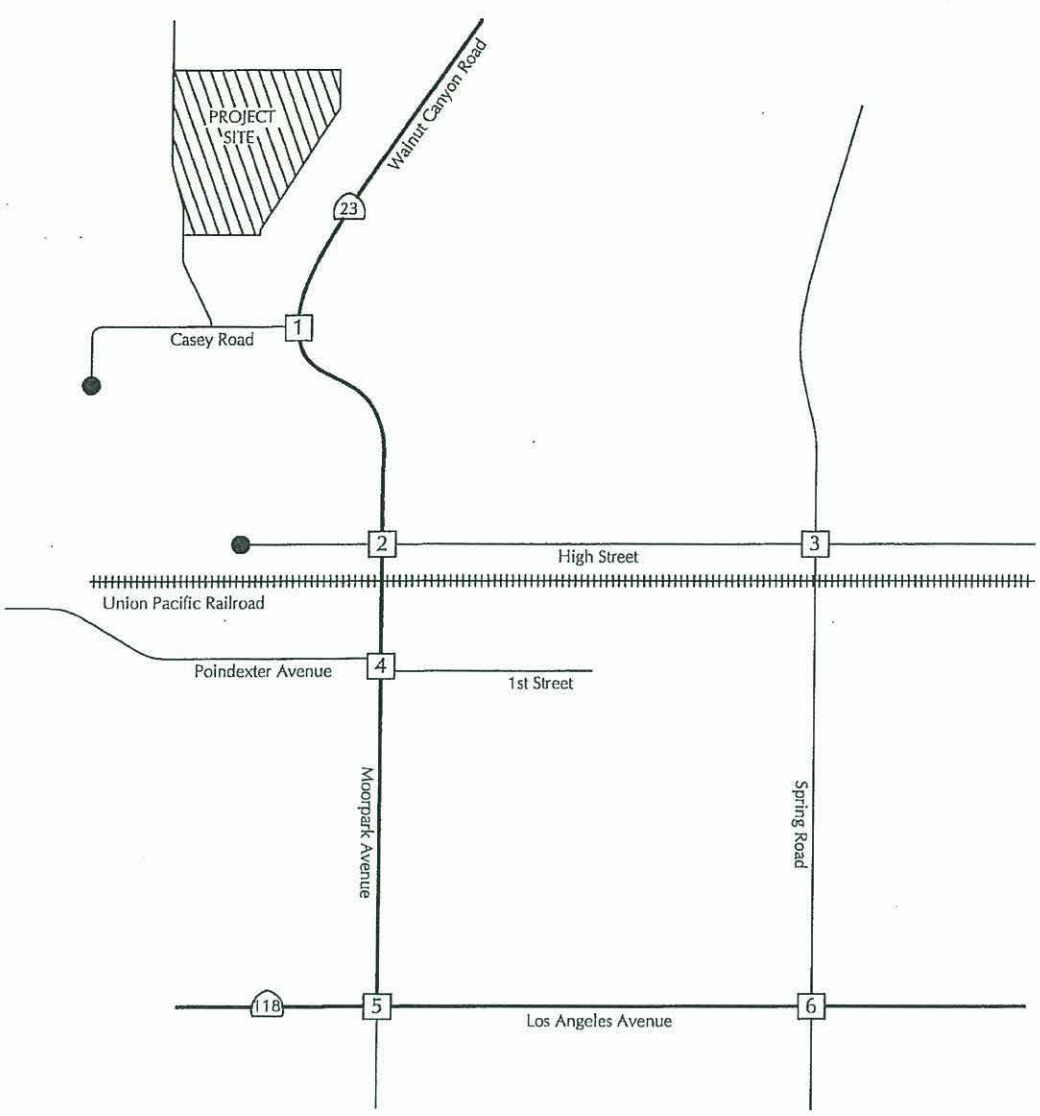
PM

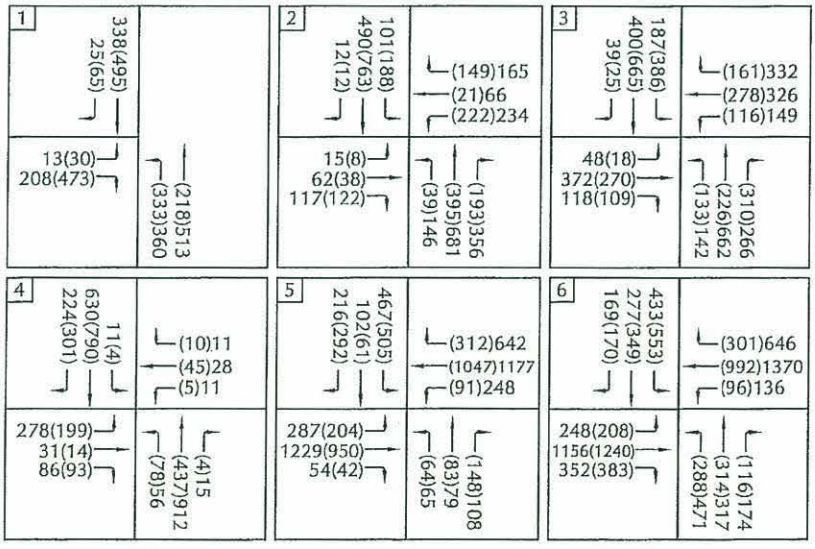
NS/EW Streets:	Spring Rd			Spring Rd			High St-Princeton Ave			High St-Princeton Ave			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 1	NT 1.5	NR 0.5	SL 1	ST 1.5	SR 0.5	EL 1	ET 1	ER 1	WL 1	WT 1	WR 1	TOTAL
4:00 PM	22	78	47	43	51	5	8	77	25	36	57	59	508
4:15 PM	42	102	47	24	39	4	5	66	16	25	51	67	488
4:30 PM	32	100	50	46	90	12	11	52	22	30	43	67	555
4:45 PM	29	115	44	32	60	6	18	70	54	26	73	69	596
5:00 PM	23	103	49	52	69	13	10	95	21	36	47	66	584
5:15 PM	36	110	53	40	59	8	9	48	25	49	63	77	577
5:30 PM	30	101	47	38	72	8	10	48	23	30	41	70	518
5:45 PM	31	118	48	35	56	6	21	61	51	26	75	68	596
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	245	827	385	310	496	62	92	517	237	258	450	543	4422
APPROACH %'s :	16.82%	56.76%	26.42%	35.71%	57.14%	7.14%	10.87%	61.11%	28.01%	20.62%	35.97%	43.41%	
PEAK HR START TIME :	430 PM												TOTAL
PEAK HR VOL :	120	428	196	170	278	39	48	265	122	141	226	279	2312
PEAK HR FACTOR :		0.935			0.823			0.766			0.854		0.970

CONTROL : Signalized

APPENDIX B

SUPPLEMENTAL FUTURE CUMULATIVE TRAFFIC COUNT DATA





LEGEND

└(XX)XX - (A.M.)P.M. Peak Hour Volume

ASSOCIATED TRANSPORTATION ENGINEERS

CUMULATIVE + PROJECT TRAFFIC VOLUMES

FIGURE 9

MMF - #14001

APPENDIX C

ICU AND LEVELS OF SERVICE EXPLANATION
ICU DATA WORKSHEETS – WEEKDAY AM AND PM PEAK HOURS

INTERSECTION CAPACITY UTILIZATION (ICU) DESCRIPTION

Level of Service is a term used to describe prevailing conditions and their effect on traffic. Broadly interpreted, the Levels of Service concept denotes any one of a number of differing combinations of operating conditions which may occur as a roadway is accommodating various traffic volumes. Level of Service is a qualitative measure of the effect of such factors as travel speed, travel time, traffic interruptions, freedom to maneuver, safety, driving comfort and convenience.

Six Levels of Service, A through F, have been defined in the 1965 *Highway Capacity Manual*, published by the Transportation Research Board. Level of Service A describes a condition of free flow, with low traffic volumes and relatively high speeds, while Level of Service F describes forced traffic flow at low speeds with jammed conditions and queues which cannot clear during the green phases.

The Intersection Capacity Utilization (ICU) method of intersection capacity analysis has been used in our studies. It directly relates traffic demand and available capacity for key intersection movements, regardless of present signal timing. The capacity per hour of green time for each approach is calculated based on the methods of the *Highway Capacity Manual*. The proportion of total signal time needed by each key movement is determined and compared to the total time available (100 percent of the hour). The result of summing the requirements of the conflicting key movements plus an allowance for clearance times is expressed as a decimal fraction. Conflicting key traffic movements are those opposing movements whose combined green time requirements are greatest.

The resulting ICU represents the proportion of the total hour required to accommodate intersection demand volumes if the key conflicting traffic movements are operating at capacity. Other movements may be operating near capacity, or may be operating at significantly better levels. The ICU may be translated to a Level of Service as tabulated below.

The Levels of Service (abbreviated from the *Highway Capacity Manual*) are listed here with their corresponding ICU and Load Factor equivalents. Load Factor is that proportion of the signal cycles during the peak hour which are fully loaded; i.e. when all of the vehicles waiting at the beginning of green are not able to clear on that green phase.

Intersection Capacity Utilization Characteristics

Level of Service	Load Factor	Equivalent ICU
A	0.0	0.00 - 0.60
B	0.0 - 0.1	0.61 - 0.70
C	0.1 - 0.3	0.71 - 0.80
D	0.3 - 0.7	0.81 - 0.90
E	0.7 - 1.0	0.91 - 1.00
F	Not Applicable	Not Applicable

SERVICE LEVEL A
There are no loaded cycles and few are even close to loaded at this service level. No approach phase is fully utilized by traffic and no vehicle waits longer than one red indication.

SERVICE LEVEL B
This level represents stable operation where an occasional approach phase is fully utilized and a substantial number are approaching full use. Many drivers begin to feel restricted within platoons of vehicles.

SERVICE LEVEL C
At this level stable operation continues. Loading is still intermittent but more frequent than at Level B. Occasionally drivers may have to wait through more than one red signal indication and backups may develop behind turning vehicles. Most drivers feel somewhat restricted, but not objectionably so.

SERVICE LEVEL D
This level encompasses a zone of increasing restriction approaching instability at the intersection. Delays to approaching vehicles may be substantial during short peaks within the peak hour, but enough cycles with lower demand occur to permit periodic clearance of queues, thus preventing excessive backups. Drivers frequently have to wait through more than one red signal. This level is the lower limit of acceptable operation to most drivers.

SERVICE LEVEL E
This represents near capacity and capacity operation. At capacity (ICU = 1.0) it represents the most vehicles that the particular intersection can accommodate. However, full utilization of every signal cycle is seldom attained no matter how great the demand. At this level all drivers wait through more than one red signal, and frequently through several.

SERVICE LEVEL F
Jammed conditions. Traffic backed up from a downstream location on one of the street restricts or prevents movement of traffic through the intersection under consideration.

LINSCOTT, LAW & GREENSPAN, ENGINEERS
20931 Burbank Blvd., Ste C, Woodland Hills, CA 91367
(818) 835.8648 Fax (818) 835.8649

INTERSECTION CAPACITY UTILIZATION

N-S St: Walnut Canyon Road/Moorpark Avenue
E-W St: Casey Road
Project: Everett Street Terraces Project / 5-13-0055-1
File: ICU1

Walnut Canyon Road/Moorpark Avenue @ Casey Road
Peak hr: AM
Annual Growth: 2.00%

Date: 02/08/2016

	EXIST. TRAFFIC			EXISTING PLUS PROJECT					EXIST. W/PROJECT + MITIGATION				'FUTURE WITH RELATED PROJECTS				'FUTURE WITH CUMULATIVE MITIGATION			
	1	2	V/C	Added	Shifted	Total		V/C	Added	Total	2	V/C	Added	Total	2	V/C	Added	Total	2	V/C
Movement	Volume	Capacity	Ratio	Volume	Vol.	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio
Nb Left	288	1500	0.192 *	0	0	288	1500	0.192 *	0	288	1500	0.192 *	45	333	1500	0.222	0	333	1500	0.222 *
Nb Thru	207	1600	0.129	2	0	209	1600	0.131	0	209	1600	0.131	11	220	1600	0.138	0	220	1600	0.138
Nb Right	0	0	-	0	0	0	0	-	0	0	0	-	0	0	0	-	0	0	0	-
Sb Left	0	0	0.000	0	0	0	0	0.000	0	0	0	0.000	0	0	0	0.000	0	0	0	0.000
Sb Thru	287	1600	0.218 *	0	0	287	1600	0.218 *	0	287	1600	0.218 *	208	495	1600	0.350 *	0	495	1600	0.350 *
Sb Right	62	0	-	0	0	62	0	-	0	62	0	-	3	65	0	-	0	65	0	-
Eb Left	31	1500	0.021	0	0	31	1500	0.021	0	31	1500	0.021	0	31	1500	0.021	0	31	1500	0.021
Eb Thru	0	0	0.000	0	0	0	0	0.000	0	0	0	0.000	0	0	0	0.000	0	0	0	0.000
Eb Right	256	1500	0.171	0	0	256	1500	0.171	0	256	1500	0.171	217	473	1500	0.315 *	0	473	1500	0.093
Wb Left	0	0	0.000	0	0	0	0	0.000	0	0	0	0.000	0	0	0	0.000 *	0	0	0	0.000
Wb Thru	0	0	0.000	0	0	0	0	0.000	0	0	0	0.000	0	0	0	0.000	0	0	0	0.000
Wb Right	0	0	-	0	0	0	0	-	0	0	0	-	0	0	0	-	0	0	0	-
Yellow Allowance:			0.100 *					0.100 *				0.100 *				0.100 *				0.100 *
ICU			0.530					0.530				0.530				0.987				0.693
LOS			A					A				A				E				B

* Key conflicting movement as a part of ICU
1 Counts conducted by NDS
2 Capacity expressed in veh/hour of green

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INTERSECTION CAPACITY UTILIZATION

N-S St: Walnut Canyon Road/Moorpark Avenue
E-W St: Casey Road
Project: Everett Street Terraces Project / 5-13-0055-1
File: ICU1

Walnut Canyon Road/Moorpark Avenue @ Casey Road
Peak hr: PM
Annual Growth: 2.00%

Date: 02/08/2016

	EXIST. TRAFFIC			EXISTING PLUS PROJECT					EXIST. W/PROJECT + MITIGATION				'FUTURE WITH RELATED PROJECTS				'FUTURE WITH CUMULATIVE MITIGATION			
	1		2		Shifted	Total		V/C	Added	Total	2	V/C	Added	Total	2	V/C	Added	Total	2	V/C
Movement	Volume	Capacity	Ratio	Volume	Vol.	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio
Nb Left	47	1500	0.031	0	0	47	1500	0.031	0	47	1500	0.031	313	360	1500	0.240 *	0	360	1500	0.240 *
Nb Thru	262	1600	0.164 *	1	0	263	1600	0.164 *	0	263	1600	0.164 *	251	514	1600	0.321	0	514	1600	0.321
Nb Right	0	0	-	0	0	0	0	-	0	0	0	-	0	0	0	-	0	0	0	-
Sb Left	0	0	0.000 *	0	0	0	0	0.000 *	0	0	0	0.000 *	0	0	0	0.000	0	0	0	0.000
Sb Thru	204	1600	0.129	2	0	206	1600	0.131	0	206	1600	0.131	134	340	1600	0.228 *	0	340	1600	0.228 *
Sb Right	3	0	-	0	0	3	0	-	0	3	0	-	22	25	0	-	0	25	0	-
Eb Left	5	1500	0.004	0	0	5	1500	0.004	0	5	1500	0.004	8	13	1500	0.009	0	13	1500	0.009
Eb Thru	0	0	0.000	0	0	0	0	0.000	0	0	0	0.000	0	0	0	0.000	0	0	0	0.000
Eb Right	56	1500	0.037 *	0	0	56	1500	0.037 *	0	56	1500	0.037 *	152	208	1500	0.139	0	208	1500	0.000
Wb Left	0	0	0.000 *	0	0	0	0	0.000 *	0	0	0	0.000 *	0	0	0	0.000	0	0	0	0.000
Wb Thru	0	0	0.000	0	0	0	0	0.000	0	0	0	0.000	0	0	0	0.000	0	0	0	0.000
Wb Right	0	0	-	0	0	0	0	-	0	0	0	-	0	0	0	-	0	0	0	-
Yellow Allowance:			0.100 *					0.100 *				0.100 *				0.100 *				0.100 *
ICU			0.301					0.302				0.302				0.577				0.577
LOS			A					A				A				A				A

* Key conflicting movement as a part of ICU
1 Counts conducted by NDS
2 Capacity expressed in veh/hour of green

05:53 PM

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INTERSECTION CAPACITY UTILIZATION

N-S St: Moorpark Avenue
E-W St: Everett Street
Project: Everett Street Terraces Project / 5-13-0055-1
File: ICU2

Moorpark Avenue @ Everett Street
Peak hr: AM
Annual Growth: 2.00%

Date: 02/08/2016

	EXIST. TRAFFIC			EXISTING PLUS PROJECT					EXIST. W/PROJECT + MITIGATION				'FUTURE WITH RELATED PROJECTS				'FUTURE WITH CUMULATIVE MITIGATION			
	1	2	V/C	Added	Shifted	Total		V/C	Added	Total	2	V/C	Added	Total	2	V/C	Added	Total	2	V/C
Movement	Volume	Capacity	Ratio	Volume	Vol.	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio
Nb Left	0	0	0.000 *	0	0	0	0	0.000 *	0	0	0	0.000 *	0	0	0	0.000 *	0	0	0	0.000 *
Nb Thru	562	1600	0.353	0	0	562	1600	0.355	0	562	1600	0.355	0	562	1600	0.355	0	562	3200	0.177
Nb Right	2	0	-	3	0	5	0	-	0	5	0	-	0	5	0	-	0	5	0	-
Sb Left	10	1500	0.006	0	0	10	1500	0.006	0	10	1500	0.006	0	10	1500	0.006	0	10	1500	0.006
Sb Thru	630	1600	0.394 *	0	0	630	1600	0.394 *	0	630	1600	0.394 *	338	968	1600	0.605 *	0	968	1600	0.605 *
Sb Right	0	0	-	0	0	0	0	-	0	0	0	-	0	0	0	-	0	0	0	-
Eb Left	0	0	0.000 *	0	0	0	0	0.000	0	0	0	0.000	0	0	0	0.000	0	0	0	0.000
Eb Thru	0	0	0.000	0	0	0	0	0.000	0	0	0	0.000	0	0	0	0.000	0	0	0	0.000
Eb Right	0	0	-	0	0	0	0	-	0	0	0	-	0	0	0	-	0	0	0	-
Wb Left	4	1500	0.003	16	0	20	1500	0.013	0	20	1500	0.013	0	20	1500	0.013	0	20	1500	0.013
Wb Thru	0	0	0.000	0	0	0	0	0.000	0	0	0	0.000	0	0	0	0.000	0	0	0	0.000
Wb Right	14	1500	0.009 *	2	0	16	1500	0.011	0	16	1500	0.011	0	16	1500	0.011	0	16	1500	0.011
Yellow Allowance:			0.100 *					0.100 *				0.100 *				0.100 *				0.100 *
ICU			0.503					0.507				0.507				0.718				0.718
LOS			A					A				A				C				C

* Key conflicting movement as a part of ICU
1 Counts conducted by NDS
2 Capacity expressed in veh/hour of green

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INTERSECTION CAPACITY UTILIZATION

N-S St: Moorpark Avenue
E-W St: Everett Street
Project: Everett Street Terraces Project / 5-13-0055-1
File: ICU2

Moorpark Avenue @ Everett Street
Peak hr: PM
Annual Growth: 2.00%

Date: 02/08/2016

	EXIST. TRAFFIC			EXISTING PLUS PROJECT					EXIST. W/PROJECT + MITIGATION				'FUTURE WITH RELATED PROJECTS				'FUTURE WITH CUMULATIVE MITIGATION			
	1	2	V/C	Added	Shifted	Total		V/C	Added	Total	2	V/C	Added	Total	2	V/C	Added	Total	2	V/C
Movement	Volume	Capacity	Ratio	Volume	Vol.	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio
Nb Left	0	0	0.000	0	0	0	0	0.000	0	0	0	0.000	0	0	0	0.000	0	0	0	0.000 *
Nb Thru	319	1600	0.206 *	0	0	319	1600	0.216 *	0	319	1600	0.216 *	542	861	1600	0.554 *	0	861	3200	0.277
Nb Right	11	0	-	15	0	26	0	-	0	26	0	-	0	26	0	-	0	26	0	-
Sb Left	3	1500	0.002	2	0	5	1500	0.003 *	0	5	1500	0.003 *	0	5	1500	0.003 *	0	5	1500	0.003
Sb Thru	274	1600	0.171	0	0	274	1600	0.171	0	274	1600	0.171	272	546	1600	0.341	0	546	1600	0.341 *
Sb Right	0	0	-	0	0	0	0	-	0	0	0	-	0	0	0	-	0	0	0	-
Eb Left	0	0	0.000 *	0	0	0	0	0.000	0	0	0	0.000	0	0	0	0.000	0	0	0	0.000
Eb Thru	0	0	0.000	0	0	0	0	0.000	0	0	0	0.000	0	0	0	0.000	0	0	0	0.000
Eb Right	0	0	-	0	0	0	0	-	0	0	0	-	0	0	0	-	0	0	0	-
Wb Left	7	1500	0.005	7	0	14	1500	0.010	0	14	1500	0.010	0	14	1500	0.010	0	14	1500	0.010
Wb Thru	0	0	0.000	0	0	0	0	0.000	0	0	0	0.000	0	0	0	0.000	0	0	0	0.000
Wb Right	8	1500	0.006 *	1	0	9	1500	0.006	0	9	1500	0.006	0	9	1500	0.006	0	9	1500	0.006
Yellow Allowance:			0.100 *					0.100 *				0.100 *				0.100 *				0.100 *
ICU			0.314					0.329				0.329				0.667				0.451
LOS			A					A				A				B				A

* Key conflicting movement as a part of ICU
1 Counts conducted by NDS
2 Capacity expressed in veh/hour of green

05:53 PM

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INTERSECTION CAPACITY UTILIZATION

N-S St: Moorpark Avenue
E-W St: Charles Street
Project: Everett Street Terraces Project / 5-13-0055-1
File: ICU3

Moorpark Avenue @ Charles Street
Peak hr: AM
Annual Growth: 2.00%

Date: 02/08/2016

	EXIST. TRAFFIC			EXISTING PLUS PROJECT					EXIST. W/PROJECT + MITIGATION				'FUTURE WITH RELATED PROJECTS				'FUTURE WITH CUMULATIVE MITIGATION			
	1	2	V/C	Added	Shifted	Total		V/C	Added	Total	2	V/C	Added	Total	2	V/C	Added	Total	2	V/C
Movement	Volume	Capacity	Ratio	Volume	Vol.	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio
Nb Left	30	1500	0.020	0	0	30	1500	0.020 *	0	30	1500	0.020 *	0	30	1500	0.020 *	0	30	1500	0.020 *
Nb Thru	539	1600	0.342 *	3	0	542	1600	0.344	0	542	1600	0.344	13	517	1600	0.328	0	517	1600	0.328
Nb Right	8	0	-	0	0	8	0	-	0	8	0	-	0	8	0	-	0	8	0	-
Sb Left	52	1500	0.035 *	0	0	52	1500	0.035	0	52	1500	0.035	0	52	1500	0.035	0	52	1500	0.035
Sb Thru	553	1600	0.350	16	0	569	1600	0.360 *	0	569	1600	0.360 *	415	964	1600	0.606 *	0	964	1600	0.606 *
Sb Right	6	0	-	0	0	6	0	-	0	6	0	-	0	6	0	-	0	6	0	-
Eb Left	0	0	0.000	0	0	0	0	0.000	0	0	0	0.000	0	0	0	0.000	0	0	0	0.000
Eb Thru	2	1600	0.001 *	0	0	2	1600	0.001 *	0	2	1600	0.001 *	0	2	1600	0.001 *	0	2	1600	0.001 *
Eb Right	4	1500	0.003	0	0	4	1500	0.003	0	4	1500	0.003	0	4	1500	0.003	0	4	1500	0.003
Wb Left	15	0	0.009 *	0	0	15	0	0.009 *	0	15	0	0.009 *	1	16	0	0.010 *	0	16	0	0.010 *
Wb Thru	0	1600	0.009	0	0	0	1600	0.009	0	0	1600	0.009	0	0	1600	0.010	0	0	1600	0.010
Wb Right	31	1500	0.021	0	0	31	1500	0.021	0	31	1500	0.021	1	32	1500	0.021	0	32	1500	0.021
Yellow Allowance:			0.100 *					0.100 *				0.100 *				0.100 *				0.100 *
ICU			0.488					0.490				0.490				0.737				0.737
LOS			A					A				A				C				C

* Key conflicting movement as a part of ICU
1 Counts conducted by NDS
2 Capacity expressed in veh/hour of green

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INTERSECTION CAPACITY UTILIZATION

N-S St: Moorpark Avenue
E-W St: Charles Street
Project: Everett Street Terraces Project / 5-13-0055-1
File: ICU3

Moorpark Avenue @ Charles Street
Peak hr: PM
Annual Growth: 2.00%

Date: 02/08/2016

	EXIST. TRAFFIC			EXISTING PLUS PROJECT					EXIST. W/PROJECT + MITIGATION				'FUTURE WITH RELATED PROJECTS				'FUTURE WITH CUMULATIVE MITIGATION			
	1	2	V/C	Added	Shifted	Total		V/C	Added	Total	2	V/C	Added	Total	2	V/C	Added	Total	2	V/C
Movement	Volume	Capacity	Ratio	Volume	Vol.	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio
Nb Left	25	1500	0.017	0	0	25	1500	0.017	0	25	1500	0.017	0	25	1500	0.017	0	25	1500	0.017
Nb Thru	314	1600	0.207 *	15	0	329	1600	0.216 *	0	329	1600	0.216 *	547	833	1600	0.532 *	0	833	1600	0.532 *
Nb Right	17	0	-	0	0	17	0	-	0	17	0	-	1	18	0	-	0	18	0	-
Sb Left	15	1500	0.010 *	0	0	15	1500	0.010 *	0	15	1500	0.010 *	1	16	1500	0.011 *	0	16	1500	0.011 *
Sb Thru	260	1600	0.166	7	0	267	1600	0.170	0	267	1600	0.170	286	502	1600	0.317	0	502	1600	0.317
Sb Right	5	0	-	0	0	5	0	-	0	5	0	-	0	5	0	-	0	5	0	-
Eb Left	5	0	0.003	0	0	5	0	0.003	0	5	0	0.003	0	5	0	0.003	0	5	0	0.003
Eb Thru	4	1600	0.006	0	0	4	1600	0.006	0	4	1600	0.006	0	4	1600	0.006	0	4	1600	0.006
Eb Right	29	1500	0.019 *	0	0	29	1500	0.019 *	0	29	1500	0.019 *	0	29	1500	0.019 *	0	29	1500	0.019 *
Wb Left	21	0	0.013 *	0	0	21	0	0.013 *	0	21	0	0.013 *	1	22	0	0.014 *	0	22	0	0.014 *
Wb Thru	3	1600	0.015	0	0	3	1600	0.015	0	3	1600	0.015	0	3	1600	0.016	0	3	1600	0.016
Wb Right	12	1500	0.008	0	0	12	1500	0.008	0	12	1500	0.008	1	13	1500	0.008	0	13	1500	0.008
Yellow Allowance:			0.100 *					0.100 *				0.100 *				0.100 *				0.100 *
ICU			0.349					0.359				0.359				0.675				0.675
LOS			A					A				A				B				B

* Key conflicting movement as a part of ICU
1 Counts conducted by NDS
2 Capacity expressed in veh/hour of green

05:53 PM

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INTERSECTION CAPACITY UTILIZATION

N-S St: Moorpark Avenue
E-W St: High Street
Project: Everett Street Terraces Project / 5-13-0055-1
File: ICU4

Moorpark Avenue @ High Street
Peak hr: AM
Annual Growth: 2.00%

Date: 02/08/2016

	EXIST. TRAFFIC			EXISTING PLUS PROJECT					EXIST. W/PROJECT + MITIGATION				'FUTURE WITH RELATED PROJECTS				'FUTURE WITH CUMULATIVE MITIGATION			
	1	2	V/C	Added	Shifted	Total		V/C	Added	Total	2	V/C	Added	Total	2	V/C	Added	Total	2	V/C
Movement	Volume	Capacity	Ratio	Volume	Vol.	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio
Nb Left	21	0	0.013	0	0	21	0	0.013	0	21	0	0.013	18	39	0	0.024 *	0	39	0	0.012
Nb Thru	389	1600	0.257 *	1	0	390	1600	0.257 *	0	390	1600	0.257 *	6	396	1600	0.272	0	396	3200	0.136 *
Nb Right	205	1500	0.137	0	0	205	1500	0.137	0	205	1500	0.137	0	205	1500	0.137	0	205	1500	0.137
Sb Left	110	1500	0.074 *	9	0	119	1500	0.080 *	0	119	1500	0.080 *	78	197	1500	0.131	0	197	1500	0.131 *
Sb Thru	432	1600	0.274	7	0	439	1600	0.278	0	439	1600	0.278	331	770	1600	0.489 *	0	770	3200	0.244
Sb Right	6	0	-	0	0	6	0	-	0	6	0	-	6	12	0	-	0	12	0	-
Eb Left	4	0	0.003	0	0	4	0	0.003	0	4	0	0.003	4	8	0	0.005	0	8	0	0.005
Eb Thru [3]	18	1600	0.026 *	0	0	18	1600	0.026 *	0	18	1600	0.026 *	20	38	1600	0.105 *	0	38	1600	0.029
Eb Right	19	0	-	0	0	19	0	-	0	19	0	-	103	122	0	-	0	122	1500	0.081 *
Wb Left	235	0	0.147	0	0	235	0	0.147	0	235	0	0.147	0	235	0	0.147	0	235	0	0.147
Wb Thru [3]	12	1600	0.154 *	0	0	12	1600	0.154 *	0	12	1600	0.154 *	9	21	1600	0.160 *	0	21	1600	0.160 *
Wb Right	139	1500	0.093	2	0	141	1500	0.094	0	141	1500	0.094	10	151	1500	0.101	0	151	1500	0.000
Yellow Allowance:			0.100 *					0.100 *				0.100 *				0.100 *				0.100 *
ICU			0.610					0.617				0.617				0.878				0.608
LOS			B					B				B				D				B

*Key conflicting movement as a part of ICU
1 Counts conducted by NDS
2 Capacity expressed in veh/hour of green
3 *Eastbound and Westbound operate with split phasing.*

05:53 PM

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INTERSECTION CAPACITY UTILIZATION

N-S St: Moorpark Avenue
E-W St: High Street
Project: Everett Street Terraces Project / 5-13-0055-1
File: ICU4

Moorpark Avenue @ High Street
Peak hr: PM
Annual Growth: 2.00%

Date: 02/08/2016

	EXIST. TRAFFIC			EXISTING PLUS PROJECT					EXIST. W/PROJECT + MITIGATION				'FUTURE WITH RELATED PROJECTS				'FUTURE WITH CUMULATIVE MITIGATION			
	1	2	V/C	Added	Shifted	Total		V/C	Added	Total	2	V/C	Added	Total	2	V/C	Added	Total	2	V/C
Movement	Volume	Capacity	Ratio	Volume	Vol.	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio
Nb Left	70	0	0.044	0	0	70	0	0.044	0	70	0	0.044	76	146	0	0.091	0	146	0	0.046
Nb Thru	254	1600	0.202	7	0	261	1600	0.207	0	261	1600	0.207	427	688	1600	0.521 *	0	688	3200	0.261 *
Nb Right	362	1500	0.241 *	0	0	362	1500	0.241 *	0	362	1500	0.241 *	0	362	1500	0.241	0	362	1500	0.241
Sb Left	52	1500	0.035 *	4	0	56	1500	0.037 *	0	56	1500	0.037 *	49	105	1500	0.070 *	0	105	1500	0.070 *
Sb Thru	223	1600	0.149	3	0	226	1600	0.151	0	226	1600	0.151	267	493	1600	0.318	0	493	3200	0.159
Sb Right	16	0	-	0	0	16	0	-	0	16	0	-	0	16	0	-	0	16	0	-
Eb Left	14	0	0.009	0	0	14	0	0.009	0	14	0	0.009	1	15	0	0.009	0	15	0	0.009
Eb Thru [3]	63	1600	0.090 *	0	0	63	1600	0.090 *	0	63	1600	0.090 *	0	63	1600	0.122 *	0	63	1600	0.049
Eb Right	67	0	-	0	0	67	0	-	0	67	0	-	50	117	0	-	0	117	1500	0.078 *
Wb Left	249	0	0.156	0	0	249	0	0.156	0	249	0	0.156	0	249	0	0.156	0	249	0	0.156
Wb Thru [3]	48	1600	0.186 *	0	0	48	1600	0.186 *	0	48	1600	0.186 *	18	66	1600	0.197 *	0	66	1600	0.197 *
Wb Right	84	1500	0.056	9	0	93	1500	0.062	0	93	1500	0.062	81	174	1500	0.116	0	174	1500	0.046
Yellow Allowance:			0.100 *					0.100 *				0.100 *				0.100 *				0.100 *
ICU			0.651					0.654				0.654				1.010				0.706
LOS			B					B				B				F				C

*Key conflicting movement as a part of ICU
1 Counts conducted by NDS
2 Capacity expressed in veh/hour of green
3 Eastbound and Westbound operate with split phasing.

05:53 PM

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20931 Burbank Blvd., Ste C, Woodland Hills, CA 91367
(818) 835.8648 Fax (818) 835.8649

INTERSECTION CAPACITY UTILIZATION

N-S St: Moorpark Avenue
E-W St: Poindexter Avenue/1st Street
Project: Everett Street Terraces Project / 5-13-0055-1
File: ICU5

Moorpark Avenue @ Poindexter Avenue/1st Street
Peak hr: AM
Annual Growth: 2.00%

Date: 02/08/2016

	EXIST. TRAFFIC			EXISTING PLUS PROJECT					EXIST. W/PROJECT + MITIGATION				'FUTURE WITH RELATED PROJECTS				'FUTURE WITH CUMULATIVE MITIGATION			
	1	2	V/C	Added	Shifted	Total		V/C	Added	Total	2	V/C	Added	Total	2	V/C	Added	Total	2	V/C
Movement	Volume	Capacity	Ratio	Volume	Vol.	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio
Nb Left	96	1500	0.064 *	0	0	96	1500	0.064 *	0	96	1500	0.064 *	0	96	1500	0.064 *	0	96	1500	0.064 *
Nb Thru	387	1600	0.245	1	0	388	1600	0.246	0	388	1600	0.246	50	438	1600	0.277	0	438	3200	0.139
Nb Right	5	0	-	0	0	5	0	-	0	5	0	-	0	5	0	-	0	5	0	-
Sb Left	6	1500	0.004	0	0	6	1500	0.004	0	6	1500	0.004	0	6	1500	0.004	0	6	1500	0.004
Sb Thru	308	1600	0.396 *	7	0	315	1600	0.400 *	0	315	1600	0.400 *	482	797	1600	0.702 *	0	797	3200	0.351 *
Sb Right	326	0	-	0	0	326	0	-	0	326	0	-	0	326	0	-	0	326	0	-
Eb Left	244	1500	0.163 *	0	0	244	1500	0.163 *	0	244	1500	0.163 *	0	244	1500	0.163 *	0	244	0	0.079
Eb Thru	21	1600	0.050	0	0	21	1600	0.050	0	21	1600	0.050	0	21	1600	0.071	0	21	3100	0.116 *
Eb Right	59	0	-	0	0	59	0	-	0	59	0	-	34	93	0	-	0	93	0	-
Wb Left	1	1500	0.001	0	0	1	1500	0.001	0	1	1500	0.001	4	5	1500	0.003	0	5	1500	0.003 *
Wb Thru	38	1600	0.030 *	0	0	38	1600	0.030 *	0	38	1600	0.030 *	7	45	1600	0.034 *	0	45	1600	0.034
Wb Right	10	0	-	0	0	10	0	-	0	10	0	-	0	10	0	-	0	10	0	-
Yellow Allowance:			0.100 *					0.100 *				0.100 *				0.100 *				0.100 *
ICU			0.752					0.757				0.757				1.063				0.633
LOS			C					C				C				F				B

*Key conflicting movement as a part of ICU
1 Counts conducted by NDS
2 Capacity expressed in veh/hour of green

05:53 PM

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INTERSECTION CAPACITY UTILIZATION

N-S St: Moorpark Avenue
E-W St: Poindexter Avenue/1st Street
Project: Everett Street Terraces Project / 5-13-0055-1
File: ICU5

Moorpark Avenue @ Poindexter Avenue/1st Street
Peak hr: PM
Annual Growth: 2.00%

Date: 02/08/2016

	EXIST. TRAFFIC			EXISTING PLUS PROJECT					EXIST. W/PROJECT + MITIGATION				'FUTURE WITH RELATED PROJECTS				'FUTURE WITH CUMULATIVE MITIGATION			
	1	2	V/C	Added	Shifted	Total		V/C	Added	Total	2	V/C	Added	Total	2	V/C	Added	Total	2	V/C
Movement	Volume	Capacity	Ratio	Volume	Vol.	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio
Nb Left	44	1500	0.029 *	0	0	44	1500	0.029 *	0	44	1500	0.029 *	12	56	1500	0.037	0	56	1500	0.037 *
Nb Thru	410	1600	0.263	7	0	417	1600	0.268	0	417	1600	0.268	502	919	1600	0.584 *	0	919	3200	0.292
Nb Right	12	0	-	0	0	12	0	-	0	12	0	-	3	15	0	-	0	15	0	-
Sb Left	7	1500	0.005	0	0	7	1500	0.005	0	7	1500	0.005	4	11	1500	0.007 *	0	11	1500	0.007
Sb Thru	352	1600	0.358 *	3	0	355	1600	0.360 *	0	355	1600	0.360 *	278	633	1600	0.536	0	633	3200	0.268 *
Sb Right	221	0	-	0	0	221	0	-	0	221	0	-	3	224	0	-	0	224	0	-
Eb Left	273	1500	0.182 *	0	0	273	1500	0.182 *	0	273	1500	0.182 *	5	278	1500	0.185 *	0	278	0	0.090
Eb Thru	42	1600	0.074	0	0	42	1600	0.074	0	42	1600	0.074	0	42	1600	0.080	0	42	3100	0.131 *
Eb Right	76	0	-	0	0	76	0	-	0	76	0	-	10	86	0	-	0	86	0	-
Wb Left	6	1500	0.004	0	0	6	1500	0.004	0	6	1500	0.004	5	11	1500	0.007	0	11	1500	0.007 *
Wb Thru	28	1600	0.022 *	0	0	28	1600	0.022 *	0	28	1600	0.022 *	0	28	1600	0.024 *	0	28	1600	0.024
Wb Right	7	0	-	0	0	7	0	-	0	7	0	-	4	11	0	-	0	11	0	-
Yellow Allowance:			0.100 *					0.100 *				0.100 *				0.100 *				0.100 *
ICU			0.691					0.693				0.693				0.901				0.544
LOS			B					B				B				E				A

*Key conflicting movement as a part of ICU
1 Counts conducted by NDS
2 Capacity expressed in veh/hour of green

05:53 PM

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INTERSECTION CAPACITY UTILIZATION

N-S St: Walnut Street
E-W St: High Street
Project: Everett Street Terraces Project / 5-13-0055-1
File: ICU6

Walnut Street @ High Street
Peak hr: AM
Annual Growth: 2.00%

Date: 02/08/2016

	EXIST. TRAFFIC			EXISTING PLUS PROJECT					EXIST. W/PROJECT + MITIGATION				'FUTURE WITH RELATED PROJECTS				'FUTURE WITH CUMULATIVE MITIGATION			
	1	2	V/C	Added	Shifted	Total		V/C	Added	Total	2	V/C	Added	Total	2	V/C	Added	Total	2	V/C
Movement	Volume	Capacity	Ratio	Volume	Vol.	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio
Nb Left	0	0	0.000 *	0	0	0	0	0.000 *	0	0	0	0.000 *	0	0	0	0.000 *	0	0	0	0.000 *
Nb Thru	0	0	0.000	0	0	0	0	0.000	0	0	0	0.000	0	0	0	0.000	0	0	0	0.000
Nb Right	0	0	-	0	0	0	0	-	0	0	0	-	0	0	0	-	0	0	0	-
Sb Left	12	0	0.007	0	0	12	0	0.007	0	12	0	0.007	5	17	0	0.010	0	17	0	0.010
Sb Thru	0	1600	0.015 *	0	0	0	1600	0.015 *	0	0	1600	0.015 *	0	0	1600	0.018 *	0	0	1600	0.018 *
Sb Right	12	0	-	0	0	12	0	-	0	12	0	-	0	12	0	-	0	12	0	-
Eb Left	11	0	0.007 *	0	0	11	0	0.007 *	0	11	0	0.007 *	0	11	0	0.007	0	11	0	0.007
Eb Thru	332	1600	0.215	9	0	341	1600	0.221	0	341	1600	0.221	87	416	1600	0.268 *	0	416	1600	0.268 *
Eb Right	1	0	-	0	0	1	0	-	0	1	0	-	0	1	0	-	0	1	0	-
Wb Left	0	0	0.000	0	0	0	0	0.000	0	0	0	0.000	0	0	0	0.000 *	0	0	0	0.000 *
Wb Thru	372	1600	0.239 *	2	0	374	1600	0.240 *	0	374	1600	0.240 *	20	382	1600	0.246	0	382	1600	0.246
Wb Right	10	0	-	0	0	10	0	-	0	10	0	-	1	11	0	-	0	11	0	-
Yellow Allowance:			0.100 *					0.100 *				0.100 *				0.100 *				0.100 *
ICU			0.360					0.361				0.361				0.385				0.385
LOS			A					A				A				A				A

* Key conflicting movement as a part of ICU
1 Counts conducted by NDS
2 Capacity expressed in veh/hour of green

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INTERSECTION CAPACITY UTILIZATION

N-S St: Walnut Street
E-W St: High Street
Project: Everett Street Terraces Project / 5-13-0055-1
File: ICU6

Walnut Street @ High Street
Peak hr: PM
Annual Growth: 2.00%

Date: 02/08/2016

	EXIST. TRAFFIC			EXISTING PLUS PROJECT					EXIST. W/PROJECT + MITIGATION				'FUTURE WITH RELATED PROJECTS				'FUTURE WITH CUMULATIVE MITIGATION			
	1		2 V/C	Added	Shifted	Total		V/C	Added	Total	2	V/C	Added	Total	2	V/C	Added	Total	2	V/C
Movement	Volume	Capacity	Ratio	Volume	Vol.	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio
Nb Left	0	0	0.000 *	0	0	0	0	0.000 *	0	0	0	0.000 *	0	0	0	0.000 *	0	0	0	0.000 *
Nb Thru	0	0	0.000	0	0	0	0	0.000	0	0	0	0.000	0	0	0	0.000	0	0	0	0.000
Nb Right	0	0	-	0	0	0	0	-	0	0	0	-	0	0	0	-	0	0	0	-
Sb Left	16	0	0.010	0	0	16	0	0.010	0	16	0	0.010	3	19	0	0.012	0	19	0	0.012
Sb Thru	0	1600	0.028 *	0	0	0	1600	0.028 *	0	0	1600	0.028 *	0	0	1600	0.030 *	0	0	1600	0.030 *
Sb Right	29	0	-	0	0	29	0	-	0	29	0	-	0	29	0	-	0	29	0	-
Eb Left	41	0	0.026	0	0	41	0	0.026	0	41	0	0.026	0	41	0	0.026 *	0	41	0	0.026 *
Eb Thru	434	1600	0.298 *	4	0	438	1600	0.300 *	0	438	1600	0.300 *	85	481	1600	0.327	0	481	1600	0.327
Eb Right	1	0	-	0	0	1	0	-	0	1	0	-	0	1	0	-	0	1	0	-
Wb Left	0	0	0.000 *	0	0	0	0	0.000 *	0	0	0	0.000 *	0	0	0	0.000	0	0	0	0.000
Wb Thru	356	1600	0.247	9	0	365	1600	0.253	0	365	1600	0.253	109	445	1600	0.307 *	0	445	1600	0.307 *
Wb Right	40	0	-	0	0	40	0	-	0	40	0	-	5	45	0	-	0	45	0	-
Yellow Allowance:			0.100 *					0.100 *				0.100 *				0.100 *				0.100 *
ICU			0.426					0.428				0.428				0.462				0.462
LOS			A					A				A				A				A

* Key conflicting movement as a part of ICU
1 Counts conducted by NDS
2 Capacity expressed in veh/hour of green

05:53 PM

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INTERSECTION CAPACITY UTILIZATION

N-S St: Spring Road
E-W St: Charles Street
Project: Everett Street Terraces Project / 5-13-0055-1
File: ICU7

Spring Road @ Charles Street
Peak hr: AM
Annual Growth: 2.00%

Date: 02/08/2016

	EXIST. TRAFFIC			EXISTING PLUS PROJECT					EXIST. W/PROJECT + MITIGATION				'FUTURE WITH RELATED PROJECTS				'FUTURE WITH CUMULATIVE MITIGATION			
	1	2	V/C	Added	Shifted	Total		V/C	Added	Total	2	V/C	Added	Total	2	V/C	Added	Total	2	V/C
Movement	Volume	Capacity	Ratio	Volume	Vol.	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio
Nb Left	19	1500	0.013 *	0	0	19	1500	0.013 *	0	19	1500	0.013 *	1	20	1500	0.013 *	0	20	1500	0.013 *
Nb Thru	364	3200	0.118	0	0	364	3200	0.118	0	364	3200	0.118	41	372	3200	0.120	0	372	3200	0.120
Nb Right	13	0	-	0	0	13	0	-	0	13	0	-	0	13	0	-	0	13	0	-
Sb Left	7	1500	0.005	0	0	7	1500	0.005	0	7	1500	0.005	0	7	1500	0.005	0	7	1500	0.005
Sb Thru	949	3200	0.297 *	0	0	949	3200	0.297 *	0	949	3200	0.297 *	127	966	3200	0.303 *	0	966	3200	0.303 *
Sb Right	3	0	-	0	0	3	0	-	0	3	0	-	0	3	0	-	0	3	0	-
Eb Left	4	0	0.003	0	0	4	0	0.003	0	4	0	0.003	0	4	0	0.003	0	4	0	0.003
Eb Thru	6	1600	0.040 *	0	0	6	1600	0.040 *	0	6	1600	0.040 *	0	6	1600	0.042 *	0	6	1600	0.042 *
Eb Right	54	0	-	0	0	54	0	-	0	54	0	-	3	57	0	-	0	57	0	-
Wb Left	53	0	0.033 *	0	0	53	0	0.033 *	0	53	0	0.033 *	0	53	0	0.033 *	0	53	0	0.033 *
Wb Thru	14	1600	0.042	0	0	14	1600	0.042	0	14	1600	0.042	0	14	1600	0.042	0	14	1600	0.042
Wb Right	5	1500	0.004	0	0	5	1500	0.004	0	5	1500	0.004	0	5	1500	0.004	0	5	1500	0.004
Yellow Allowance:			0.100 *					0.100 *				0.100 *				0.100 *				0.100 *
ICU			0.484					0.484				0.484				0.492				0.492
LOS			A					A				A				A				A

*Key conflicting movement as a part of ICU
1 Counts conducted by NDS
2 Capacity expressed in veh/hour of green

05:53 PM

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INTERSECTION CAPACITY UTILIZATION

N-S St: Spring Road
E-W St: Charles Street
Project: Everett Street Terraces Project / 5-13-0055-1
File: ICU7

Spring Road @ Charles Street
Peak hr: PM
Annual Growth: 2.00%

Date: 02/08/2016

	EXIST. TRAFFIC			EXISTING PLUS PROJECT					EXIST. W/PROJECT + MITIGATION				'FUTURE WITH RELATED PROJECTS				'FUTURE WITH CUMULATIVE MITIGATION			
	1		2		Shifted	Total			Added				Added				Added			
Movement	Volume	Capacity	V/C Ratio	Added Volume	Vol.	Volume	Capacity	V/C Ratio	Volume	Total Volume	2 Capacity	V/C Ratio	Volume	Total Volume	2 Capacity	V/C Ratio	Volume	Total Volume	2 Capacity	V/C Ratio
Nb Left	51	1500	0.034	0	0	51	1500	0.034	0	51	1500	0.034	3	54	1500	0.036	0	54	1500	0.036
Nb Thru	849	3200	0.280 *	0	0	849	3200	0.280 *	0	849	3200	0.280 *	193	942	3200	0.309 *	0	942	3200	0.309 *
Nb Right	46	0	-	0	0	46	0	-	0	46	0	-	0	46	0	-	0	46	0	-
Sb Left	3	1500	0.002 *	0	0	3	1500	0.002 *	0	3	1500	0.002 *	0	3	1500	0.002 *	0	3	1500	0.002 *
Sb Thru	536	3200	0.168	0	0	536	3200	0.168	0	536	3200	0.168	90	549	3200	0.172	0	549	3200	0.172
Sb Right	3	0	-	0	0	3	0	-	0	3	0	-	0	3	0	-	0	3	0	-
Eb Left	7	0	0.005	0	0	7	0	0.005	0	7	0	0.005	0	7	0	0.005	0	7	0	0.005
Eb Thru	2	1600	0.037 *	0	0	2	1600	0.037 *	0	2	1600	0.037 *	0	2	1600	0.038 *	0	2	1600	0.038 *
Eb Right	50	0	-	0	0	50	0	-	0	50	0	-	2	52	0	-	0	52	0	-
Wb Left	25	0	0.016 *	0	0	25	0	0.016 *	0	25	0	0.016 *	0	25	0	0.016 *	0	25	0	0.016 *
Wb Thru	5	1600	0.019	0	0	5	1600	0.019	0	5	1600	0.019	0	5	1600	0.019	0	5	1600	0.019
Wb Right	1	1500	0.001	0	0	1	1500	0.001	0	1	1500	0.001	0	1	1500	0.001	0	1	1500	0.001
Yellow Allowance:			0.100 *					0.100 *				0.100 *				0.100 *				0.100 *
ICU			0.435					0.435				0.435				0.465				0.465
LOS			A					A				A				A				A

*Key conflicting movement as a part of ICU
1 Counts conducted by NDS
2 Capacity expressed in veh/hour of green

05:53 PM

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INTERSECTION CAPACITY UTILIZATION

N-S St: Spring Road
E-W St: High Street/Princeton Avenue
Project: Everett Street Terraces Project / 5-13-0055-1
File: ICU8

Spring Road @ High Street/Princeton Avenue
Peak hr: AM
Annual Growth: 2.00%

Date: 02/08/2016

	EXIST. TRAFFIC			EXISTING PLUS PROJECT					EXIST. W/PROJECT + MITIGATION				'FUTURE WITH RELATED PROJECTS				'FUTURE WITH CUMULATIVE MITIGATION			
	1	2	V/C	Added	Shifted	Total		V/C	Added	Total	2	V/C	Added	Total	2	V/C	Added	Total	2	V/C
Movement	Volume	Capacity	Ratio	Volume	Vol.	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio
Nb Left	133	1500	0.088	1	0	134	1500	0.089	0	134	1500	0.089	0	134	1500	0.089	0	134	1500	0.089
Nb Thru	277	3200	0.087	0	0	277	3200	0.087	0	277	3200	0.087	0	277	3200	0.087	0	277	3200	0.087
Nb Right	226	1500	0.151 *	0	0	226	1500	0.151 *	0	226	1500	0.151 *	84	310	1500	0.207 *	0	310	1500	0.207 *
Sb Left	288	1500	0.192 *	0	0	288	1500	0.192 *	0	288	1500	0.192 *	98	386	1500	0.257 *	0	386	1500	0.257 *
Sb Thru	656	3200	0.213	0	0	656	3200	0.213	0	656	3200	0.213	9	665	3200	0.216	0	665	3200	0.216
Sb Right	27	0	-	0	0	27	0	-	0	27	0	-	0	27	0	-	0	27	0	-
Eb Left	14	1500	0.009	0	0	14	1500	0.009	0	14	1500	0.009	4	18	1500	0.012	0	18	1500	0.012
Eb Thru	205	1600	0.128 *	4	0	209	1600	0.131 *	0	209	1600	0.131 *	65	274	1600	0.171 *	0	274	3200	0.122 *
Eb Right	110	1500	0.074	5	0	115	1500	0.077	0	115	1500	0.077	0	115	1500	0.077	0	115	0	-
Wb Left	103	1500	0.069 *	0	0	103	1500	0.069 *	0	103	1500	0.069 *	13	116	1500	0.077 *	0	116	1500	0.077 *
Wb Thru	231	1600	0.145	1	0	232	1600	0.145	0	232	1600	0.145	47	279	1600	0.174	0	279	1600	0.174
Wb Right	103	1500	0.069	0	0	103	1500	0.069	0	103	1500	0.069	58	161	1500	0.107	0	161	1500	0.107
Yellow Allowance:			0.100 *					0.100 *				0.100 *				0.100 *				0.100 *
ICU			0.639					0.642				0.642				0.813				0.763
LOS			B					B				B				D				C

*Key conflicting movement as a part of ICU
1 Counts conducted by NDS
2 Capacity expressed in veh/hour of green

05:53 PM

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INTERSECTION CAPACITY UTILIZATION

N-S St: Spring Road
E-W St: High Street/Princeton Avenue
Project: Everett Street Terraces Project / 5-13-0055-1
File: ICU8

Spring Road @ High Street/Princeton Avenue
Peak hr: PM
Annual Growth: 2.00%

Date: 02/08/2016

	EXIST. TRAFFIC			EXISTING PLUS PROJECT					EXIST. W/PROJECT + MITIGATION				'FUTURE WITH RELATED PROJECTS				'FUTURE WITH CUMULATIVE MITIGATION			
	1	2	V/C	Added	Shifted	Total		V/C	Added	Total	2	V/C	Added	Total	2	V/C	Added	Total	2	V/C
Movement	Volume	Capacity	Ratio	Volume	Vol.	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio
Nb Left	127	1500	0.085	5	0	132	1500	0.088	0	132	1500	0.088	15	147	1500	0.098	0	147	1500	0.098
Nb Thru	545	3200	0.170 *	0	0	545	3200	0.170 *	0	545	3200	0.170 *	117	662	3200	0.207 *	0	662	3200	0.207 *
Nb Right	208	1500	0.139	0	0	208	1500	0.139	0	208	1500	0.139	58	266	1500	0.177	0	266	1500	0.078
Sb Left	180	1500	0.120 *	0	0	180	1500	0.120 *	0	180	1500	0.120 *	7	187	1500	0.125 *	0	187	1500	0.125 *
Sb Thru	354	3200	0.124	0	0	354	3200	0.124	0	354	3200	0.124	46	400	3200	0.138	0	400	3200	0.138
Sb Right	41	0	-	0	0	41	0	-	0	41	0	-	0	41	0	-	0	41	0	-
Eb Left	51	1500	0.034	0	0	51	1500	0.034	0	51	1500	0.034	0	51	1500	0.034	0	51	1500	0.034
Eb Thru	281	1600	0.176 *	2	0	283	1600	0.177 *	0	283	1600	0.177 *	91	374	1600	0.234 *	0	374	3200	0.158 *
Eb Right	129	1500	0.086	2	0	131	1500	0.088	0	131	1500	0.088	0	131	1500	0.088	0	131	0	-
Wb Left	150	1500	0.100 *	0	0	150	1500	0.100 *	0	150	1500	0.100 *	0	150	1500	0.100 *	0	150	1500	0.100 *
Wb Thru	240	1600	0.150	3	0	243	1600	0.152	0	243	1600	0.152	86	329	1600	0.206	0	329	1600	0.206
Wb Right	296	1500	0.197	0	0	296	1500	0.197	0	296	1500	0.197	36	332	1500	0.221	0	332	1500	0.221
Yellow Allowance:			0.100 *					0.100 *				0.100 *				0.100 *				0.100 *
ICU			0.666					0.667				0.667				0.765				0.689
LOS			B					B				B				C				B

*Key conflicting movement as a part of ICU
1 Counts conducted by NDS
2 Capacity expressed in veh/hour of green

05:53 PM

LINSCOTT LAW & GREENSPAN engineers

TRAFFIC IMPACT STUDY

EVERETT STREET TERRACES PROJECT

City of Moorpark, California
May 21, 2021

Prepared for:

Everett Street Terraces
1001 Newbury Road
Thousand Oaks, CA 91320

LLG Ref. 5-13-0055-1



Prepared by:

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B.	Historical Traffic Count Data
C.	ICU and Levels of Service Explanation ICU Data Worksheets – AM and PM Peak Hours

TRAFFIC IMPACT STUDY

EVERETT STREET TERRACES PROJECT

City of Moorpark, California
May 21, 2021

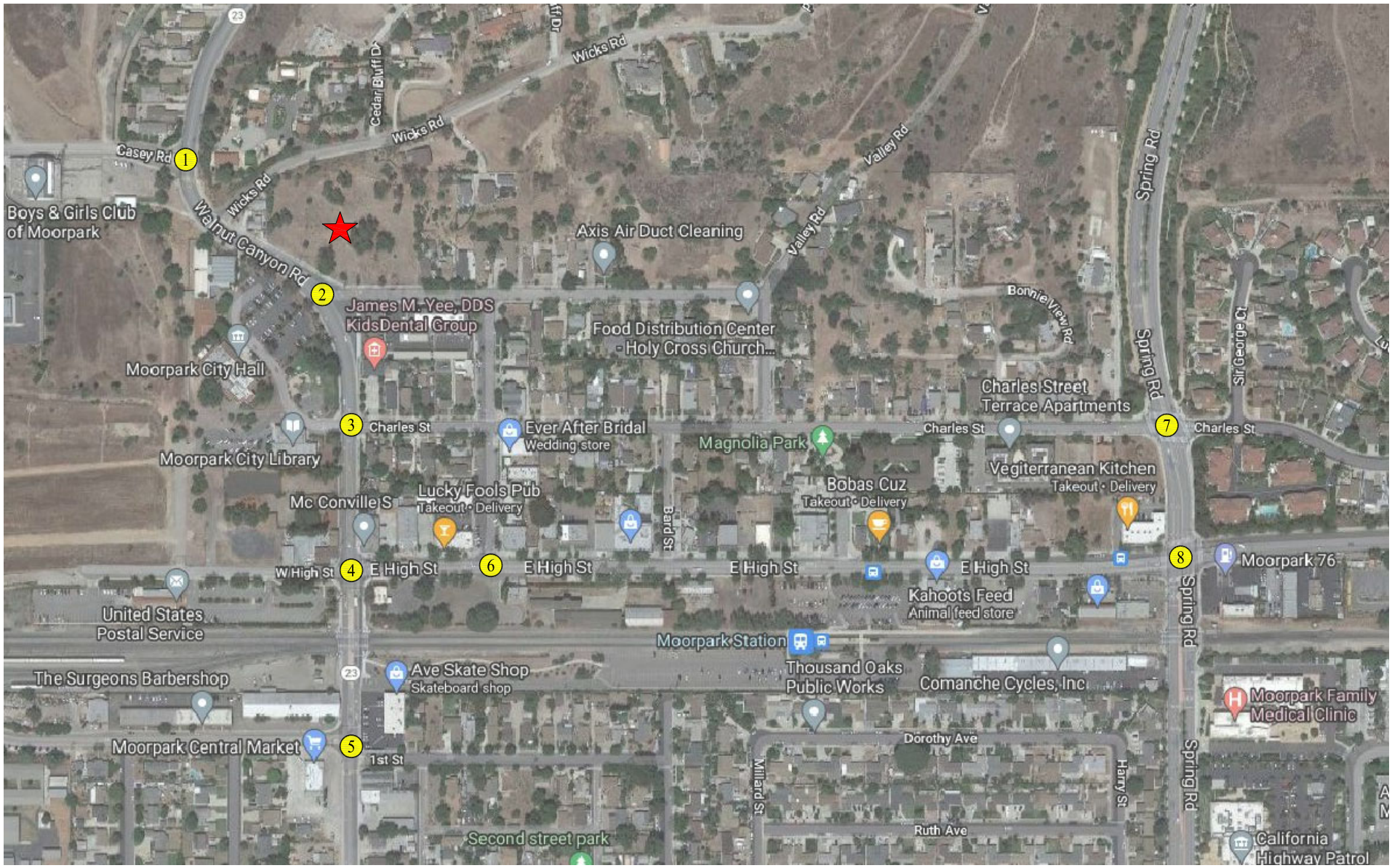
1.0 INTRODUCTION

This traffic analysis has been conducted to identify and evaluate the potential traffic impacts of the proposed Everett Street Terraces project (the "Project"). The proposed Project is located on the north side of Everett Street, east of Moorpark Avenue (the "Project Site") in the City of Moorpark, California. The proposed Project Site location and general vicinity are shown in ***Figure 1–1***.

In compliance with the California Environmental Quality Act (CEQA), the City of Moorpark (the "City") is in the process of developing new traffic study guidelines to identify vehicle miles traveled (VMT) as the primary metric for evaluating a project's transportation impacts. Therefore, this traffic analysis provides an assessment of the Project's VMT transportation impact.

In addition, this traffic analysis follows the City of Moorpark's current traffic study guidelines (i.e., *Guidelines for Preparing Traffic and Circulation Studies,* 1993). This traffic analysis evaluates the potential project-related operational deficiencies associated with the proposed development at eight key intersections in the vicinity of the Project Site. The study intersections were determined in consultation with the City of Moorpark staff. The Intersection Capacity Utilization (ICU) method was used to determine volume-to-capacity ratios and corresponding Levels of Service (LOS) at the study intersections.

This study (i) presents a VMT assessment, (ii) presents existing traffic volumes, (iii) forecasts existing plus Project traffic volumes, (iv) forecasts future cumulative baseline traffic volumes, (v) forecasts future cumulative traffic volumes with the proposed Project, (vi) determines future operations at the study intersections with Project-related traffic, and (vii) provides fair-share calculations toward cumulative improvement measures, where appropriate.



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MAP SOURCE: GOOGLE MAPS

★ PROJECT SITE

Ⓧ STUDY INTERSECTION

FIGURE 1-1
VICINITY MAP

LINSCOTT, LAW & GREENSPAN, engineers

EVERETT STREET TERRACES PROJECT

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2.0 PROJECT DESCRIPTION

2.1 Site Location

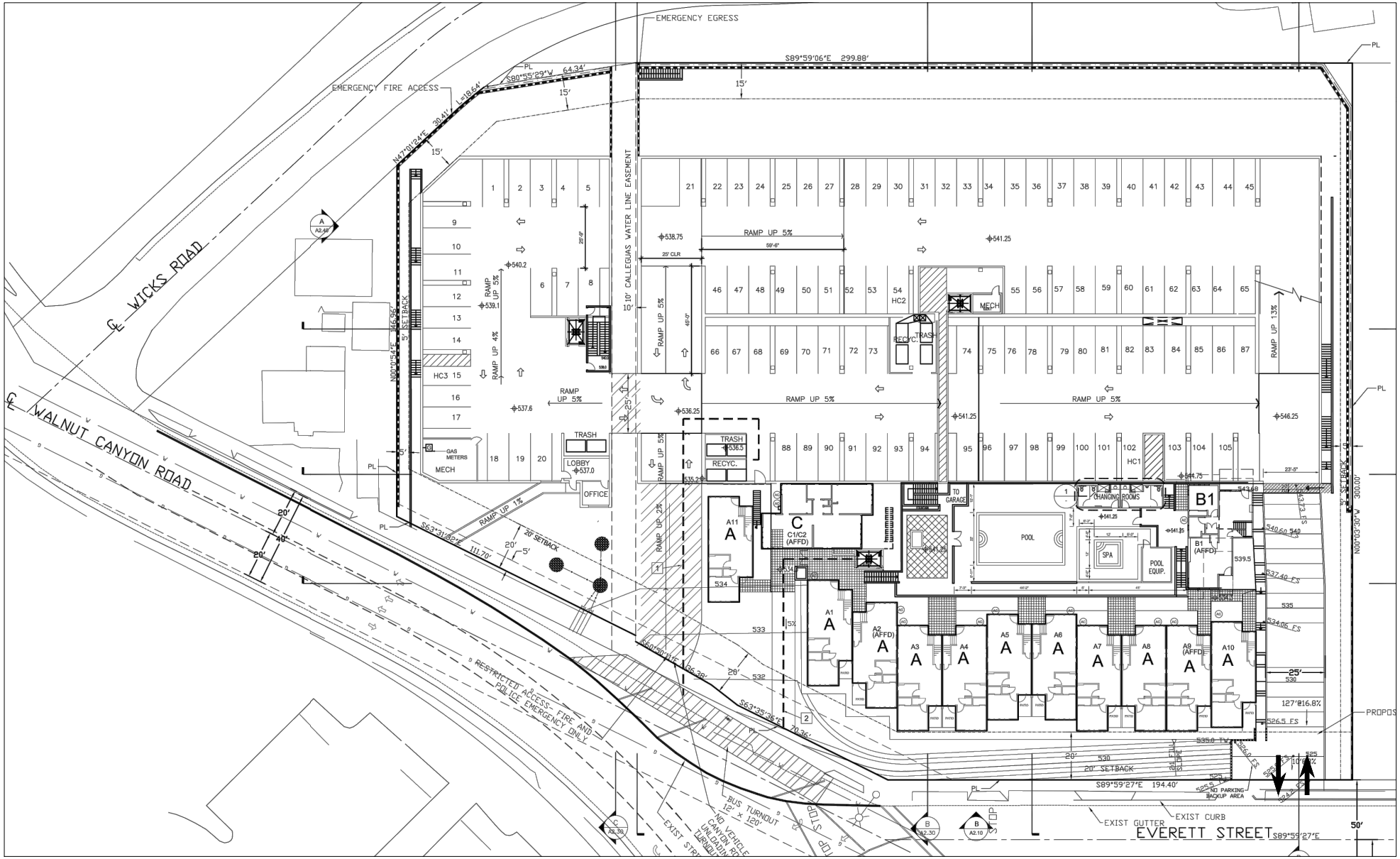
The proposed Project Site is located on the north side of Everett Street, east of Moorpark Avenue in the City of Moorpark. The Project Site is bounded by Wicks Road to the north, Everett Street to the south, residential uses to the east, and Moorpark Avenue to the west.

2.2 Existing Project Site

The Project Site is located at the northeast corner of the Everett Street / Moorpark Avenue intersection. The overall Project Site comprises approximately 2.4 acres and a portion of the site was previously occupied by six single-family homes. The six single-family homes have been removed to accommodate the proposed Project.

2.3 Proposed Project Description

The Project consists of the development of a residential condominium complex with 60 dwelling units. The condominium complex will consist of 2-bedroom and 3-bedroom units. The Project proposes to provide 153 vehicle parking spaces on-site. Construction and occupancy of the proposed Project is planned to be completed by the year 2024. The site plan for the proposed Project is illustrated in ***Figure 2–1***.



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MAP SOURCE: STUDIO ZHE

FIGURE 2-1
PROJECT SITE PLAN

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EVERETT STREET TERRACES PROJECT

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3.0 SITE ACCESS AND CIRCULATION

The site access scheme for the proposed Project is displayed in *Figure 2–1*. Descriptions of the existing site access and proposed Project site access and circulation schemes are provided in the following subsections.

3.1 Existing Site Access

Vehicular access to the existing Project Site is presently provided via multiple access points on Everett Street and Moorpark Avenue along the Project frontage. Two driveways are currently provided on the east side of Moorpark Avenue, which borders the Project Site to the west. Three driveways are currently provided on the north side of Everett Street, which borders the Project Site to the south. All existing driveways currently accommodate left-turn and right-turn ingress and egress turning movements.

3.2 Proposed Project Site Access and Circulation

The proposed Project Site access scheme is displayed in *Figure 2–1*. Vehicular access to the Project Site will be provided via one driveway on the north side of Everett Street at the most easterly portion of the Project Site. The driveway will accommodate full vehicular access (i.e., left-turn and right-turn ingress and egress turning movements). As noted in Section 10.3, a previous City of Moorpark Public Works Department Capital Project involves the widening of Moorpark Avenue to provide additional lanes between Casey Road and Third Street. No other roadway improvements or roadway realignments are proposed.

4.0 EXISTING STREET SYSTEM

4.1 Regional Highway System

Regional access to the Project Site is provided by the State Route 118 (Ronald Reagan) Freeway and State Route 23 (Moorpark) Freeway. Full freeway ramp connections are provided on both the State Route 118 and State Route 23 Freeways at Los Angeles Avenue. Brief descriptions of the State Route 118 Freeway and State Route 23 Freeway are provided in the following paragraphs.

State Route 118 (Ronald Reagan) Freeway is a major freeway connecting Moorpark with the San Fernando Valley and the Los Angeles Basin. In the vicinity of the Project, the State Route 118 Freeway provides two travel lanes in each direction. Both northbound and southbound ramps are provided on State Route 118 at Los Angeles Avenue.

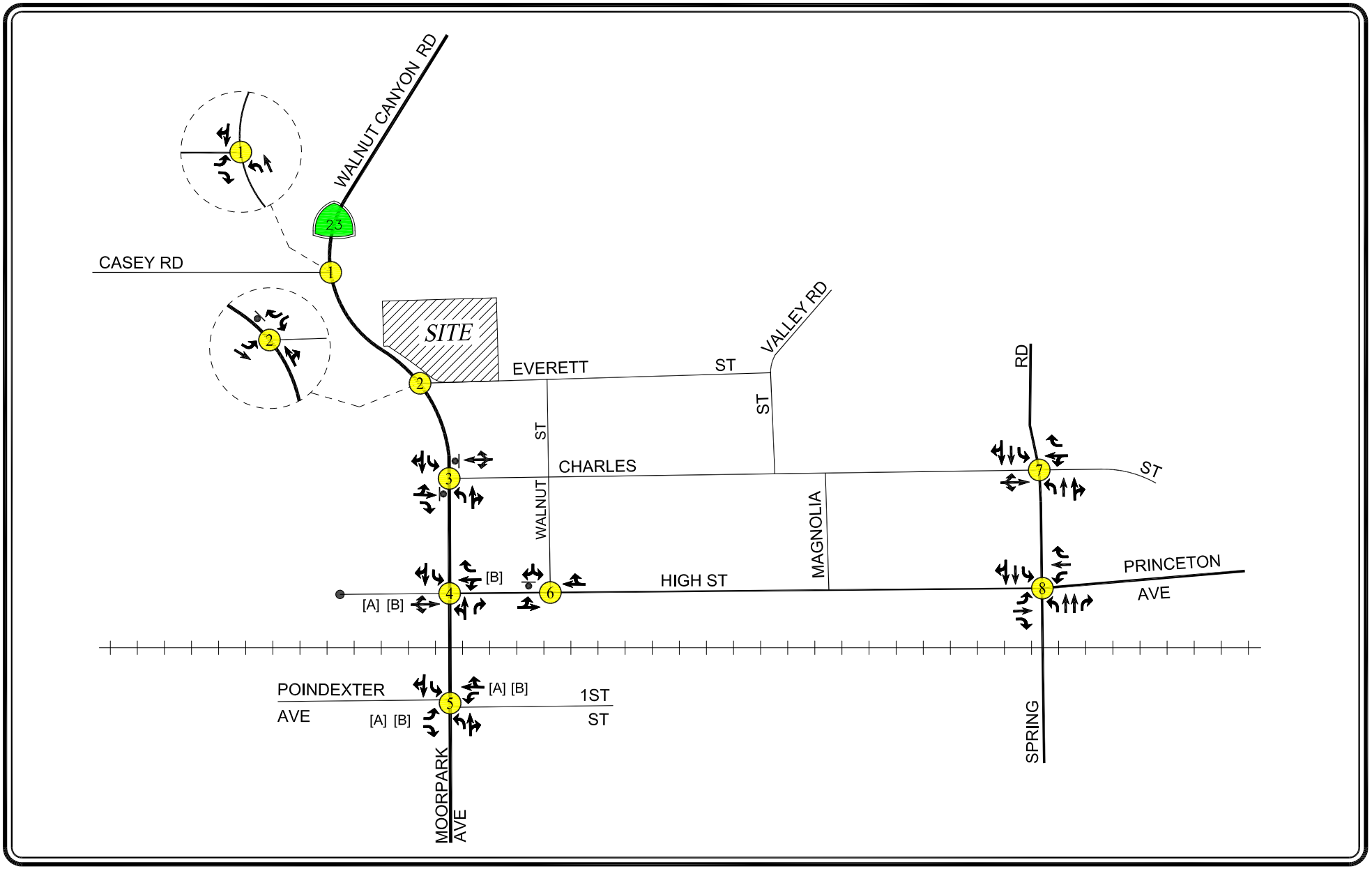
State Route 23 (Moorpark) Freeway extends from the junction with the State Route 118 Freeway southerly to the US-101 (Ventura) Freeway in the City of Thousand Oaks. State Route 23 Freeway provides two to three travel lanes in each direction in the vicinity of the Project. Both northbound and southbound ramps are provided on State Route 23 at Los Angeles Avenue.

4.2 Local Street System

Immediate access to the Project Site is provided via Everett Street. The following eight study intersections were selected by City of Moorpark staff for analysis of potential impacts related to the proposed Project:

1. Walnut Canyon Road – Moorpark Avenue / Casey Road
2. Moorpark Avenue / Everett Street
3. Moorpark Avenue / Charles Street
4. Moorpark Avenue / High Street
5. Moorpark Avenue / Poindexter Avenue – 1st Street
6. Walnut Street / High Street
7. Spring Road / Charles Street
8. Spring Road / High Street – Princeton Avenue

Five of the eight study intersections selected for analysis are currently controlled by traffic signals. The remaining three study intersections – Moorpark Avenue / Everett Street, Moorpark Avenue / Charles Street and Walnut Street / High Street – are currently controlled by stop signs. The existing lane configurations at the eight study intersections are displayed in ***Figure 4–1***.



N

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PROJECT SITE
X STUDY INTERSECTION
STOP SIGN
[A] NO RIGHT-TURN ON RED
[B] SPLIT PHASING

FIGURE 4-1
EXISTING LANE CONFIGURATIONS

LINSCOTT, LAW & GREENSPAN, engineers

EVERETT STREET TERRACES PROJECT

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4.3 Roadway Descriptions

Brief descriptions of the important roadways in the Project vicinity are provided in the following paragraphs.

Walnut Canyon Road is a north-south roadway located west of the Project Site. South of Casey Road, Walnut Canyon Road becomes Moorpark Avenue. One through travel lane is provided in each direction on Walnut Canyon Road in the Project vicinity. Curbside parking is prohibited along both sides of Walnut Canyon Road in the Project vicinity. Walnut Canyon Road is posted for a 40 miles per hour speed limit in the northbound direction and is posted for a 30 miles per hour speed limit in the southbound direction. However, in the Project vicinity, Walnut Canyon Road is posted for a 25 miles per hour speed limit to reflect a 25 miles per hour school zone. Walnut Canyon Road is a State highway (SR-23).

Moorpark Avenue is a north-south roadway that borders the Project Site to the west. North of Casey Road, Moorpark Avenue becomes Walnut Canyon Road. South of Los Angeles Avenue, Moorpark Avenue terminates just north of the Arroyo Simi River. One through travel lane is provided in each direction on Moorpark Avenue in the Project vicinity. A separate exclusive left-turn lane is provided in the northbound direction at the Casey Road intersection and in each direction at the Charles Street and Poindexter Avenue intersections. A separate exclusive left-turn lane is also provided in the southbound direction at the High Street intersection. A separate exclusive right-turn lane is provided in the northbound direction on Moorpark Avenue at the High Street intersection. Curbside parking is prohibited along both sides of Moorpark Avenue in the Project vicinity. Moorpark Avenue is posted for a 30 miles per hour speed limit. However, in the Project vicinity, Moorpark Avenue is posted for a 25 miles per hour speed limit to reflect a 25 miles per hour school zone. Moorpark Avenue is a State highway (SR-23).

Walnut Street is a north-south roadway that is located east of the Project Site. Walnut Street extends from Everett Street on the north to High Street on the south. One through travel lane is provided in each direction on Walnut Street in the Project vicinity. A shared left-turn/right-turn lane is provided in the southbound direction on Walnut Street at the High Street intersection. Parking is allowed along both sides of Walnut Street in the Project vicinity, except between Charles Street and High Street where two-hour angled parking is provided from 9:00 AM to 9:00 PM along both sides of the street. There is no posted speed limit on Walnut Street within the Project study area, thus a prima facie speed limit of 25 miles per hour is assumed, consistent with the State of California Vehicle Code Section 22352(b)(1).

Spring Road is a north-south roadway that is located east of the Project Site. Spring Road extends from Walnut Canyon Road on the north to Tierra Rejada Road on the south. Two through travel lanes are provided in each direction on Spring Road north of Los Angeles Avenue. South of Los Angeles Avenue, one through travel lane is provided in each direction on Spring Road. Separate exclusive left-turn lanes are provided on Spring Road in each direction at the Charles Street and High Street – Princeton Avenue intersections. Curbside parking is prohibited along both sides of Spring Road in the Project vicinity. Separate exclusive bicycle lanes are provided in each direction along Spring Road, except between Flinn Avenue – 2nd Street and Los

Angeles Avenue. Spring Road is posted for a 45 miles per hour speed limit north of High Street – Princeton Avenue and is posted for a 40 miles per hour speed limit south of High Street – Princeton Avenue near the Project Site.

Casey Road is an east-west roadway that is located north of the Project Site. One through travel lane is provided in each direction on Casey Road in the Project vicinity. Separate left-turn and right-turn lanes are provided in the eastbound direction on Casey Road at the Moorpark Avenue – Walnut Canyon Road intersection. Curbside parking is prohibited along the north side of Casey Road in the Project vicinity. Curbside parking is prohibited along the south side of Casey Road from 10:00 PM to 6:00 AM in the Project vicinity. Casey Road is posted for a 25 miles per hour speed limit near the Project Site.

Everett Street is an east-west roadway that borders the Project Site to the south. Everett Street extends from Moorpark Avenue on the west to Magnolia Street – Valley Road on the east. One through travel lane is provided in each direction on Everett Street in the Project vicinity. Separate exclusive left-turn and right-turn lanes are provided in the westbound direction on Everett Street at the Moorpark Avenue intersection. Curbside parking is allowed along both sides of Everett Street within the Project study area. There is no posted speed limit on Everett Street within the Project study area, thus a prima facie speed limit of 25 miles per hour is assumed, consistent with the State of California Vehicle Code Section 22352(b)(1).

Charles Street is an east-west roadway that is located south of the Project Site. One through travel lane is provided in each direction on Charles Street in the Project vicinity. Curbside parking is allowed along both sides of Charles Street within the Project study area. Charles Street is posted for a 25 miles per hour speed limit near the Project Site.

High Street is an east-west roadway that is located south of the Project Site. East of Spring Road, High Street becomes Princeton Avenue. High Street extends from just west of Moorpark Avenue to Spring Road on the east. One through travel lane is provided in each direction on High Street in the Project vicinity. A separate exclusive left-turn lane is provided in the eastbound direction on High Street at the Spring Road intersection. A separate exclusive right-turn lane is provided in the westbound direction on High Street at the Moorpark Avenue intersection and a separate exclusive right-turn lane is provided in the eastbound direction on High Street at the Spring Road intersection. Two-hour parking is provided from 6:00 AM to 6:00 PM along both sides of High Street from Moorpark Avenue to Spring Road in the Project vicinity. Separate exclusive bicycle lanes are provided in each direction along High Street between Moorpark Avenue and Spring Road. High Street is posted for a 30 miles per hour speed limit near the Project Site.

Princeton Avenue is an east-west roadway that is located south of the Project Site. West of Spring Road, Princeton Avenue becomes High Street. Princeton Avenue extends from Spring Road on the west to Campus Park Drive on the east. One through travel lane is provided in the eastbound direction on Princeton Avenue in the Project vicinity. Two through travel lanes are provided in the westbound direction on Princeton Avenue just east of Spring Road. Separate exclusive left-turn and right-turn lanes are provided in the westbound direction on Princeton

Avenue at the Spring Road intersection. Curbside parking is prohibited along both sides of Princeton Avenue in the Project vicinity. Princeton Avenue is posted for a 40 miles per hour speed limit near the Project Site.

Poindexter Avenue is an east-west roadway that is located south of the Project Site. One through travel lane is provided in each direction on Poindexter Avenue in the Project vicinity. Separate exclusive left-turn and right-turn lanes are provided in the eastbound direction on Poindexter Avenue at the Moorpark Avenue intersection. Curbside parking is prohibited along both sides of Poindexter Avenue in the Project vicinity. Separate exclusive bicycle lanes are provided in each direction along Poindexter Avenue in the Project vicinity. Poindexter Avenue is posted for 40 miles per hour speed limit. However, just west of Moorpark Avenue, Poindexter Avenue is posted for a 25 miles per hour speed limit to reflect a 25 miles per hour school zone.

1st Street is an east-west roadway that is located south of the Project Site. One through travel lane is provided in each direction on 1st Street in the Project vicinity. A separate exclusive left-turn lane is provided in the westbound direction on 1st Street at the Moorpark Avenue intersection. Curbside parking is allowed along both sides of 1st Street within the Project study area. There is no posted speed limit on 1st Street within the Project study area, thus a prima facie speed limit of 25 miles per hour is assumed, consistent with the State of California Vehicle Code Section 22352(b)(1).

4.4 Public Bus Transit Service

Public bus transit service in the Project study area is currently provided by Moorpark City Transit, Moorpark Paratransit, Moorpark Senior Dial-A-Ride, and the Ventura County Transportation Commission (VCTC). A summary of the existing transit routes that have fixed timetables, including the transit route, destinations and peak hour headways, is presented in ***Table 4–1***. The existing public transit routes in the proposed Project Site vicinity for weekday service are illustrated in ***Figure 4–2***. The public transit route in the proposed Project Site vicinity for Saturday service is illustrated in ***Figure 4–3*** per the Moorpark City Transit Evaluation.[1]

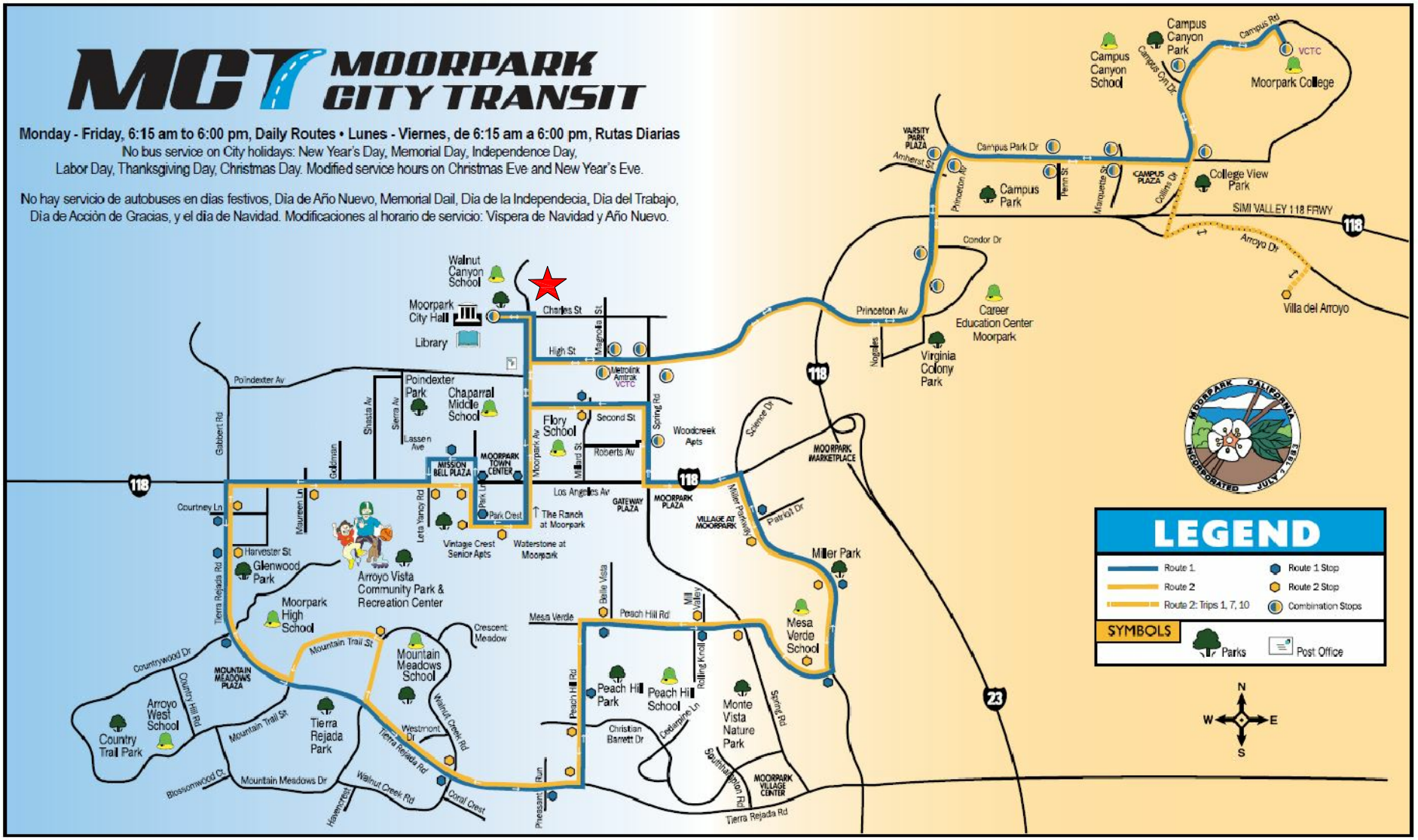
[1] *Moorpark City Transit Evaluation – Final Report*, Nelson\Nygaard Consulting Associates, Inc., May 2017.

Table 4-1
EXISTING PUBLIC TRANSIT ROUTES [1]

17-May-21

ROUTE	DESTINATIONS	ROADWAY(S) NEAR SITE	NO. OF BUSES DURING PEAK HOUR		
			DIR	AM	PM
Moorpark City Transit Route 1	Roundtrip from Moorpark College (via Campus Park Drive, Princeton Avenue, High Street, Moorpark Avenue, Tierra Rejada Road, and Spring Road)	High Street, Moorpark Avenue, and Spring Road	EB WB	1 1	1 1
Moorpark City Transit Route 2	Roundtrip from Moorpark College (via Campus Park Drive, Princeton Avenue, High Street, Spring Road, Tierra Rejada Road, and Moorpark Avenue)	High Street, Moorpark Avenue, and Spring Road	EB WB	1 1	1 1
VCTC Route 70	Simi Valley to Thousand Oaks (via SR-118 Freeway, Princeton Avenue, High Street, Moorpark Avenue, Los Angeles Avenue, and SR-23 Freeway)	High Street, Moorpark Avenue	NB SB	1 0	0 0
VCTC Route 77	Simi Valley to Ventura (via SR-118 Freeway, Princeton Avenue, High Street, Los Angeles Avenue, Somis Road and US-101 Freeway)	High Street, Moorpark Avenue	EB WB	0 0	0 1
			Total	**5**	**5**

[1] Sources: Moorpark City Transit website, 2021.
Ventura County Transportation Commission (VCTC) website, 2021.



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MAP SOURCE: CITY OF MOORPARK

PROJECT SITE

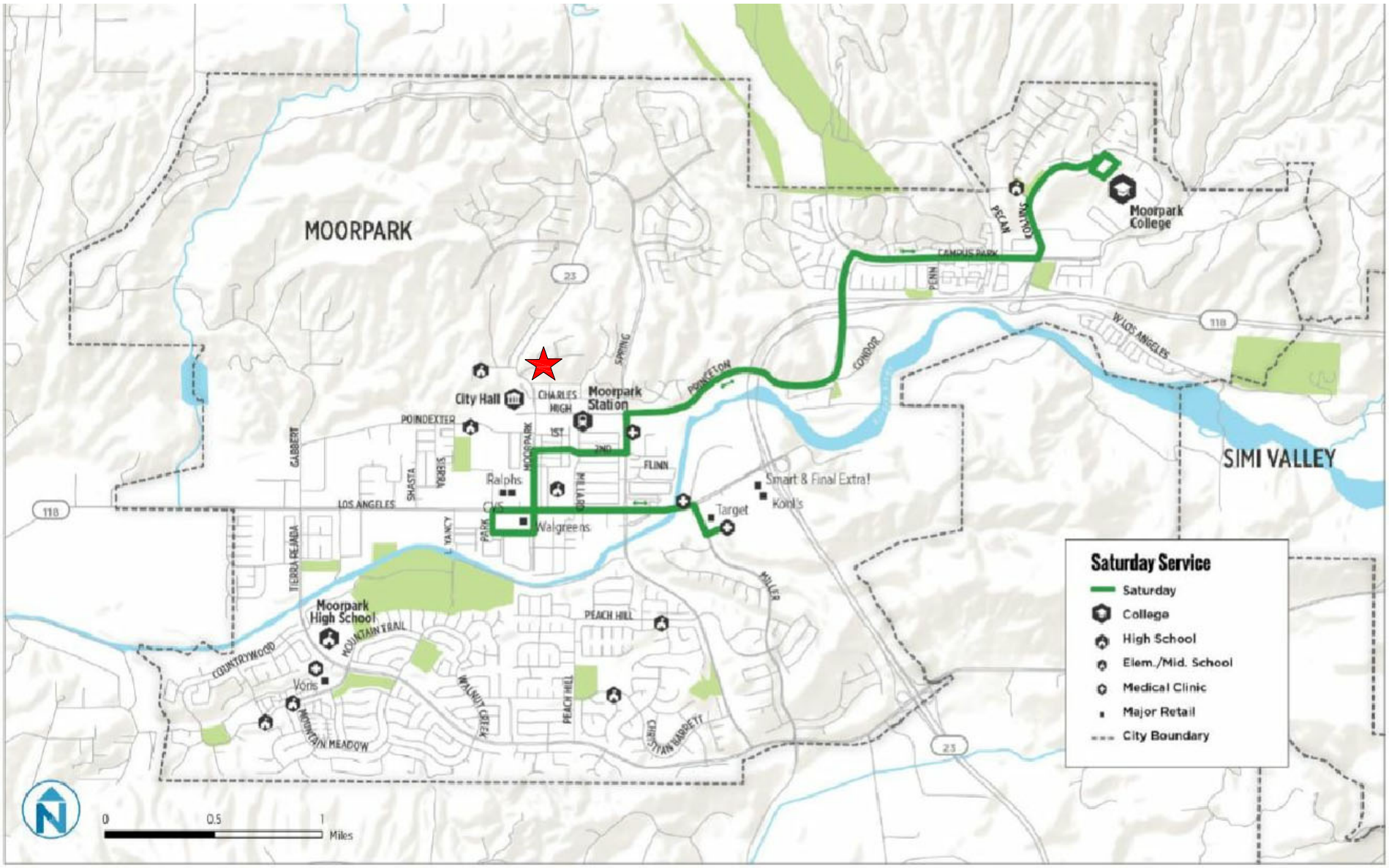
FIGURE 4-2
EXISTING PUBLIC TRANSIT ROUTES

WEEKDAY SERVICE

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MAP SOURCE: NELSON\NYGAARD CONSULTING ASSOCIATES, INC.

PROJECT SITE

FIGURE 4-3
PUBLIC TRANSIT ROUTES

SATURDAY SERVICE

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5.0 VEHICLE MILES TRAVELED ASSESSMENT

5.1 Introduction

VMT is defined as a measurement of miles traveled by vehicles within a specified region and for a specified time period. VMT is a measure of the use and efficiency of the transportation network. VMTs are calculated based on individual vehicle trips generated and their associated trip lengths. VMT accounts for two-way (round-trip) travel and is often estimated for a typical weekday for the purposes of measuring transportation impacts.

In September 2013, the Governor's Office signed Senate Bill 743 (SB 743), starting a process that fundamentally changes the way transportation impact analysis is conducted under the California Environmental Quality Act. Within the State's CEQA Guidelines, these changes include the elimination of auto delay, LOS, and similar measurements of vehicular roadway capacity and traffic congestion as the basis for determining significant traffic impacts. SB 743 identifies VMT as the most appropriate CEQA transportation metric, along with the elimination of auto delay/LOS for CEQA purposes statewide. The justification for this paradigm shift is that LOS impacts lead to improvements that increase roadway capacity and therefore induce more traffic and greenhouse gas emissions.

The City is in the process of developing new traffic study guidelines to identify VMT as the primary metric for determining transportation impacts of development projects. The new guidelines will include VMT guidelines and thresholds for measuring transportation impacts under CEQA. It is LLG's understanding that the VMT guidelines will be prepared based on the recommendations provided in the technical advisory issued by the Governor's Office of Planning and Research (OPR).[2]

5.2 Project VMT

The transportation model consultant Iteris was engaged to prepare a calculation of VMT for purposes of evaluating the Project's VMT effect. The memorandum prepared by Iteris providing details of its VMT analysis of the Project is provided in ***Appendix A***.

As indicated in the Iteris memorandum, the Ventura County Transportation Model (VCTM) was utilized to generate the VMT outputs. As the Project is a residential development, the appropriate VMT metric is calculated on a per capita basis, consistent with the OPR. As detailed in the Iteris memorandum, per capita VMT was determined at the Project Site, as well as on a Citywide basis. The comparison of the Project per capita VMT and the Citywide per capita VMT allows for an assessment of the relative VMT impacts of the Project.

[2] *Technical Advisory on Evaluating Transportation Impacts in CEQA,* Governor's Office of Planning and Research, December 2018.

Based on the VCTM, the Project Site is located within Traffic Analysis Zone (TAZ) 60129101. As indicated in the Iteris memorandum, the TAZ-level daily VMT per capita for the Project was determined to be 19.58 miles per capita. It is noted that the calculation does not consider the VMT-reducing effects associated with the Project's location within a half-mile walking distance of the Moorpark Metrolink Station, which is considered to be a Major Transit Stop as defined by CEQA (Public Resources Code, §21064.3).

In addition to the Project per capita VMT, the Iteris memorandum provides the Citywide average daily VMT per capita, which was determined to be 20.54 miles.

Based on the findings in the Iteris memorandum and in consideration of the OPR technical advisory, the VMT impacts of the Project are determined to be less than significant based on:

- The Project's daily VMT per capita is calculated to be less than the Citywide average daily VMT per capita.

- The OPR technical advisory recommends that "lead agencies generally should presume that certain projects (including residential, retail, and office projects, as well as projects that are mix of these uses) proposed within ½ mile of an existing major transit stop or an existing stop along a high quality transit corridor will have a less-than-significant impact on VMT."

Based on the finding of a less than significant VMT impact for the Project, no mitigation measures are required or recommended.

6.0 TRAFFIC COUNTS

Due to the Covid-19 pandemic, traffic count data could not be collected at the study intersections. Therefore, historical data at the study intersections, with appropriate modifications, was utilized to represent current (pre-pandemic) traffic volume conditions. For this traffic analysis, the following techniques were used to estimate current year (2021) peak hour turning movement traffic volumes at the study intersections:

- Walnut Canyon Road – Moorpark Avenue / Casey Road, Moorpark Avenue / High Street, Moorpark Avenue / Poindexter Avenue – 1st Street, Spring Road / High Street – Princeton Avenue: Peak hour traffic volume data collected at these intersections in 2019 and referenced from a related development project[3] (the Hitch Ranch study) were increased by a 1.0% annual traffic growth rate through the year 2021 to estimate current year traffic volumes. Further discussion of the annual traffic growth rate is provided in Section 8.0.

- Moorpark Avenue / Everett Street, Moorpark Avenue / Charles Street, Walnut Street / High Street, Spring Road / Charles Street: Peak hour traffic volume data at these intersections were referenced from a prior traffic study prepared for the Project in 2016.[4] The peak hour traffic volume data in the 2016 study was determined from peak hour traffic count data collected at these intersections in 2013. The traffic count data from 2013 was increased by a two (2.0%) annual traffic growth rate through the year 2016. The traffic volumes along Moorpark Avenue were then further adjusted to account for truck traffic during the AM and PM peak hours. It is estimated that trucks represent approximately 15 percent (15%) and 10 percent (10%) of the AM and PM peak hour traffic volumes, respectively, on Moorpark Avenue. The percentage of trucks, as well as a passenger car equivalent (PCE) factor of 3.0 was utilized to adjust the traffic volumes to reflect truck traffic along Moorpark Avenue and estimate the 2016 traffic volumes. The 2016 peak hour traffic volume data at these intersections were then increased by a 1.0% annual traffic growth rate through the year 2021 to estimate current year traffic volumes.

The existing weekday AM and PM peak hour traffic volumes at the eight study intersections are summarized in ***Table 6–1***. The existing traffic volumes at the study intersections during the AM and PM peak hours are shown in ***Figures 6–1*** and ***6–2***, respectively. Summary data worksheets of the historical traffic counts at the study intersections are contained in ***Appendix B***.

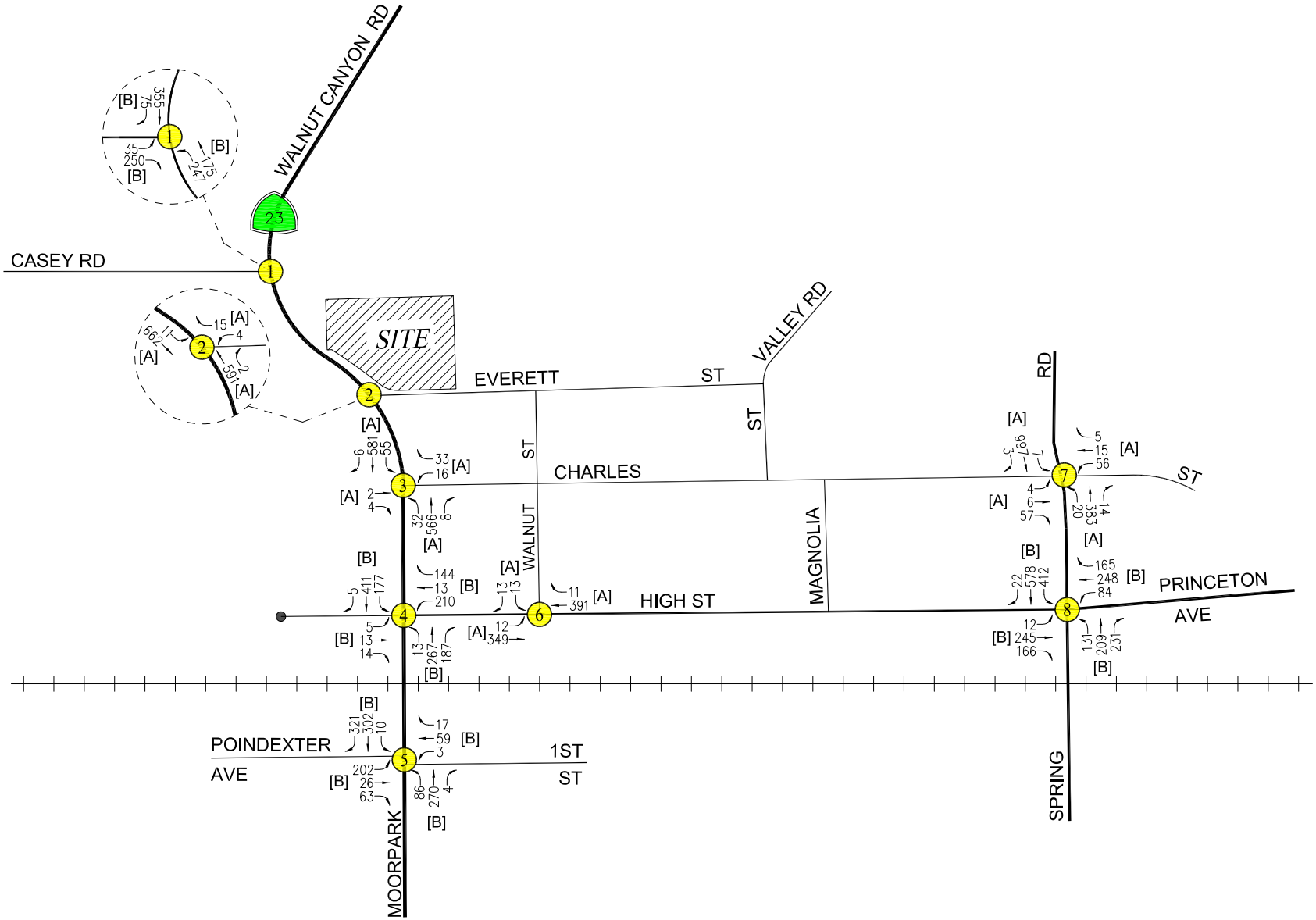
[3] *Traffic Impact Analysis for the Proposed Hitch Ranch Specific Plan,* Impact Sciences, August 2020.
[4] *Traffic Impact Study for the Everett Street Terraces Project,* Linscott, Law & Greenspan, Engineers, February 2016.

Table 6-1
EXISTING TRAFFIC VOLUMES [1]

20-May-21

NO.	INTERSECTION	DATE	DIR	AM PEAK HOUR		PM PEAK HOUR	
				BEGAN	VOLUME [2], [3]	BEGAN	VOLUME [2], [3]
1	Moorpark Avenue - Walnut Canyon Road / Casey Road	04/17/2019	NB	7:45	422	4:30	411
			SB		430		202
			EB		285		101
			WB		0		0
2	Moorpark Avenue / Everett Street	06/12/2013	NB	7:30	593	4:30	347
			SB		673		291
			EB		0		0
			WB		19		15
3	Moorpark Avenue / Charles Street	06/12/2013	NB	7:45	606	4:30	374
			SB		642		294
			EB		6		39
			WB		49		38
4	Moorpark Avenue / High Street	04/17/2019	NB	7:45	467	5:00	623
			SB		593		313
			EB		32		65
			WB		367		412
5	Moorpark Avenue / Poindexter Avenue - 1st Street	04/03/2019	NB	8:00	360	4:30	448
			SB		633		572
			EB		291		392
			WB		79		53
6	Walnut Street / High Street	06/12/2013	NB	7:30	0	4:30	0
			SB		26		47
			EB		361		499
			WB		402		416
7	Spring St / Charles St	06/12/2013	NB	7:15	417	4:30	994
			SB		1,007		569
			EB		67		62
			WB		76		32
8	Spring Street / Princeton Avenue	04/03/2019	NB	7:45	571	4:30	1,076
			SB		1,012		553
			EB		423		506
			WB		497		866

[1] National Data & Surveying Services
[2] Traffic count data from 2013 was increased by a 2.0% annual traffic growth rate through the year 2016. The 2016 volumes were then increased by a 1.0% annual growth rate through the year 2021.
[3] Traffic count data from 2019 was increased by a 1.0% annual traffic growth rate through the year 2021.



NOT TO SCALE

PROJECT SITE
STUDY INTERSECTION
[A] 2016 TURNING MOVEMENT COUNTS WITH 1.0% GROWTH FACTOR THROUGH 2021
[B] 2019 TURNING MOVEMENT COUNTS WITH 1.0% GROWTH FACTOR THROUGH 2021

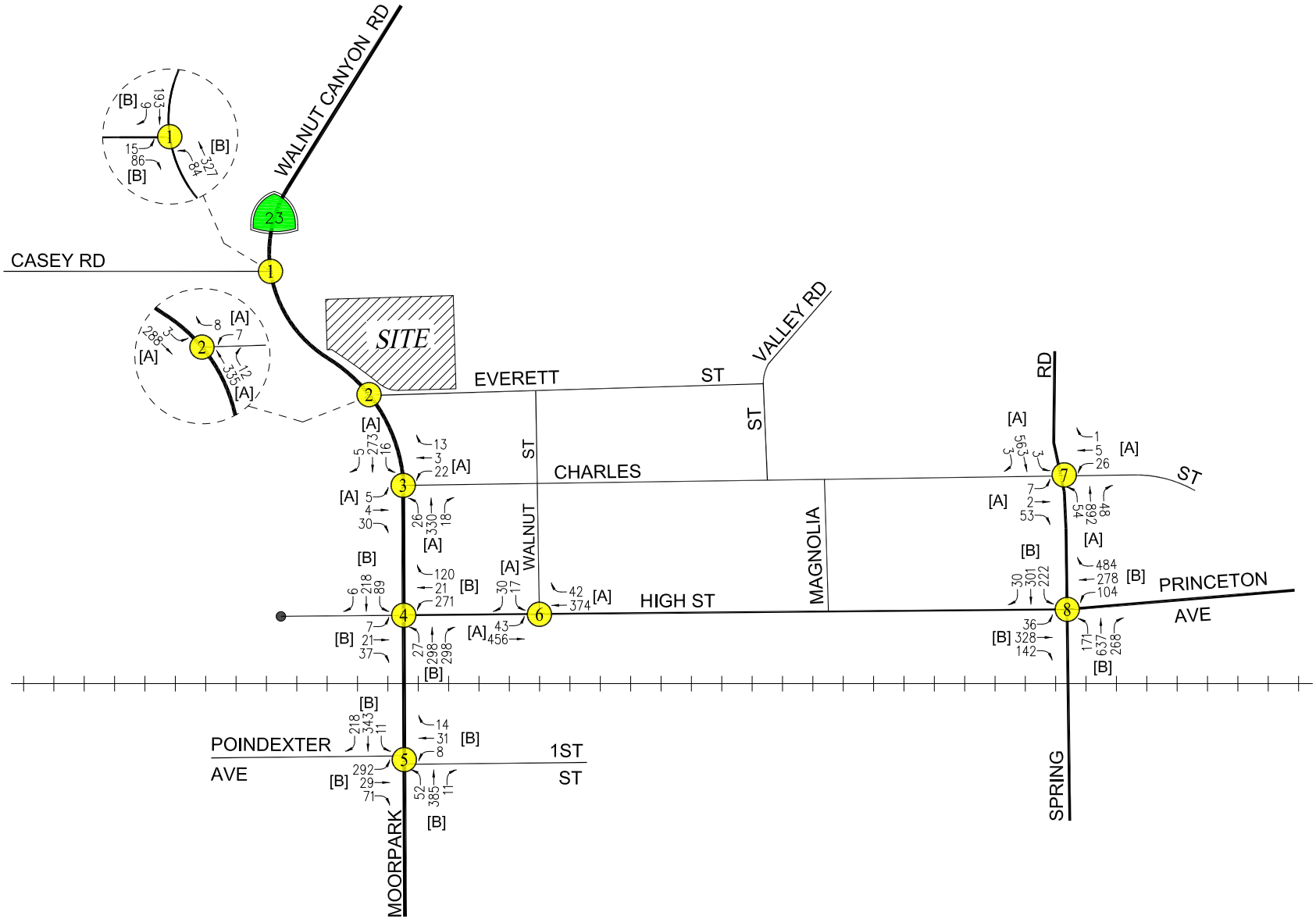
LINSCOTT, LAW & GREENSPAN, engineers

FIGURE 6-1
EXISTING TRAFFIC VOLUMES

WEEKDAY AM PEAK HOUR

EVERETT STREET TERRACES PROJECT

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PROJECT SITE

(X) STUDY INTERSECTION

[A] 2016 TURNING MOVEMENT COUNTS WITH 1.0% GROWTH FACTOR THROUGH 2021

[B] 2019 TURNING MOVEMENT COUNTS WITH 1.0% GROWTH FACTOR THROUGH 2021

NOT TO SCALE

FIGURE 6-2
EXISTING TRAFFIC VOLUMES

WEEKDAY PM PEAK HOUR

EVERETT STREET TERRACES PROJECT

LINSCOTT, LAW & GREENSPAN, engineers

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7.0 TRAFFIC FORECASTING METHODOLOGY

In order to estimate the traffic operational characteristics related to the proposed Project, a multi-step process has been utilized. The first step is trip generation, which estimates the total arriving and departing traffic volumes on a peak hour and daily basis. The traffic generation potential is forecast by applying the appropriate vehicle trip generation equations or rates to the Project development tabulation.

The second step of the forecasting process is trip distribution, which identifies the origins and destinations of inbound and outbound Project traffic volumes. These origins and destinations are typically based on demographics and existing/anticipated travel patterns in the study area.

The third step is traffic assignment, which involves the allocation of Project traffic to study area streets and intersections. Traffic assignment is typically based on minimization of travel time, which may or may not involve the shortest route, depending on prevailing operating conditions and travel speeds. Traffic distribution patterns are indicated by general percentage orientation, while traffic assignment allocates specific volume forecasts to individual roadway links and intersection turning movements throughout the study area.

With the forecasting process complete and Project traffic assignments developed, the traffic effects of the proposed Project are isolated by comparing operational (i.e., Levels of Service) conditions at the selected key intersections using existing and expected future traffic volumes without and with forecast Project traffic. The need for site-specific and/or cumulative local area traffic improvements can then be evaluated.

7.1 Project Traffic Generation

Traffic volumes expected to be generated by the proposed Project during the AM and PM peak hours, as well as on a daily basis, were estimated using rates published in the Institute of Transportation Engineers' (ITE) *Trip Generation* manual, 10th Edition, 2017. Traffic volumes expected to be generated by the proposed Project were based upon number of dwelling units. ITE Land Use Code 220 (Multifamily Housing [Low-Rise]) trip generation average rates were used to forecast the traffic volumes expected to be generated by the proposed Project.

The trip generation forecast for the proposed Project is summarized in ***Table 7–1***. As presented in *Table 7-1*, the proposed Project is expected to generate a net increase of 28 vehicle trips (6 inbound trips and 22 outbound trips) during the AM peak hour. During the PM peak hour, the proposed Project is expected to generate a net increase of 34 vehicle trips (21 inbound trips and 13 outbound trips). Over a 24-hour period, the proposed Project is forecast to generate a net increase of 439 daily trip ends during a typical weekday (approximately 220 inbound trips and 219 outbound trips).

Table 7-1
PROJECT TRIP GENERATION [1]

16-May-21

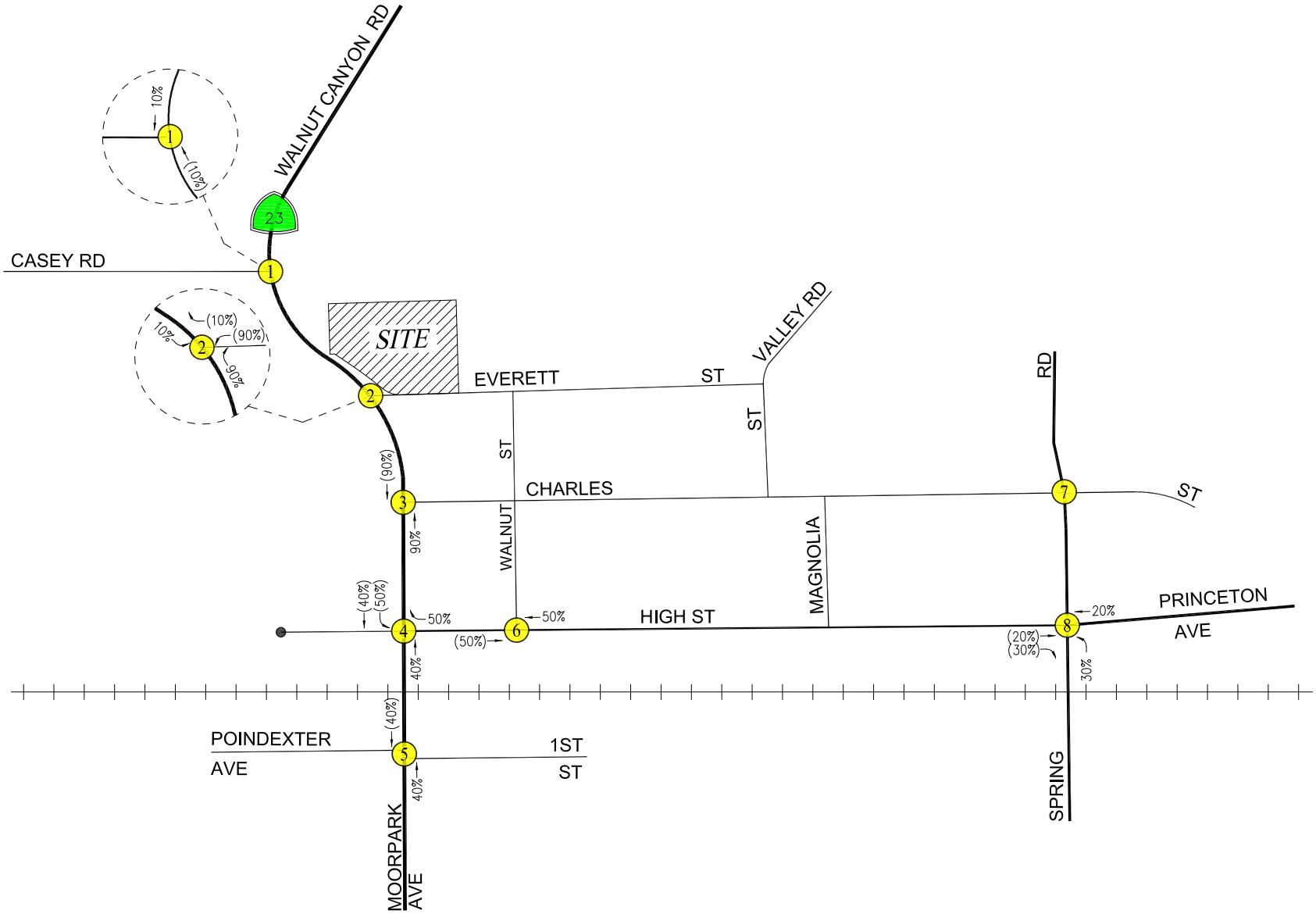
LAND USE	SIZE	DAILY TRIP ENDS [2] VOLUMES	AM PEAK HOUR VOLUMES [2]			PM PEAK HOUR VOLUMES [2]		
			IN	OUT	TOTAL	IN	OUT	TOTAL
Proposed Project								
Condominiums [3]	60 DU	439	6	22	28	21	13	34
NET PROJECT TRIPS		**439**	**6**	**22**	**28**	**21**	**13**	**34**

[1] Source: ITE "Trip Generation Manual", 10th Edition, 2017.
[2] Trips are one-way traffic movements, entering or leaving.
[3] ITE Land Use Code 220 (Multifamily Housing [Low-Rise]) trip generation average rates.
- Daily Trip Rate: 7.32 trips/dwelling unit; 50% inbound/50% outbound
- AM Peak Hour Trip Rate: 0.46 trips/dwelling unit; 23% inbound/77% outbound
- PM Peak Hour Trip Rate: 0.56 trips/dwelling unit; 63% inbound/37% outbound

7.2 Project Traffic Distribution and Assignment

Project generated traffic was assigned to the local roadway system based on a traffic distribution pattern which accounted for the proposed Project land uses, the planned Project Site access schemes, existing traffic patterns, characteristics of the surrounding roadway system, and nearby population and employment centers.

The general, directional traffic distribution patterns for the proposed Project are presented in ***Figure 7–1***. The forecast net new weekday AM and PM peak hour traffic volumes at the study intersections associated with the proposed Project are presented in ***Figures 7–2*** and ***7–3***, respectively. The traffic volume assignments presented in *Figures 7–2* and 7*–3* reflect the traffic distribution characteristics shown in *Figure 7–1* and the Project traffic generation forecast presented in *Table 7–1*.



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PROJECT SITE

X STUDY INTERSECTION

= INBOUND PERCENTAGES

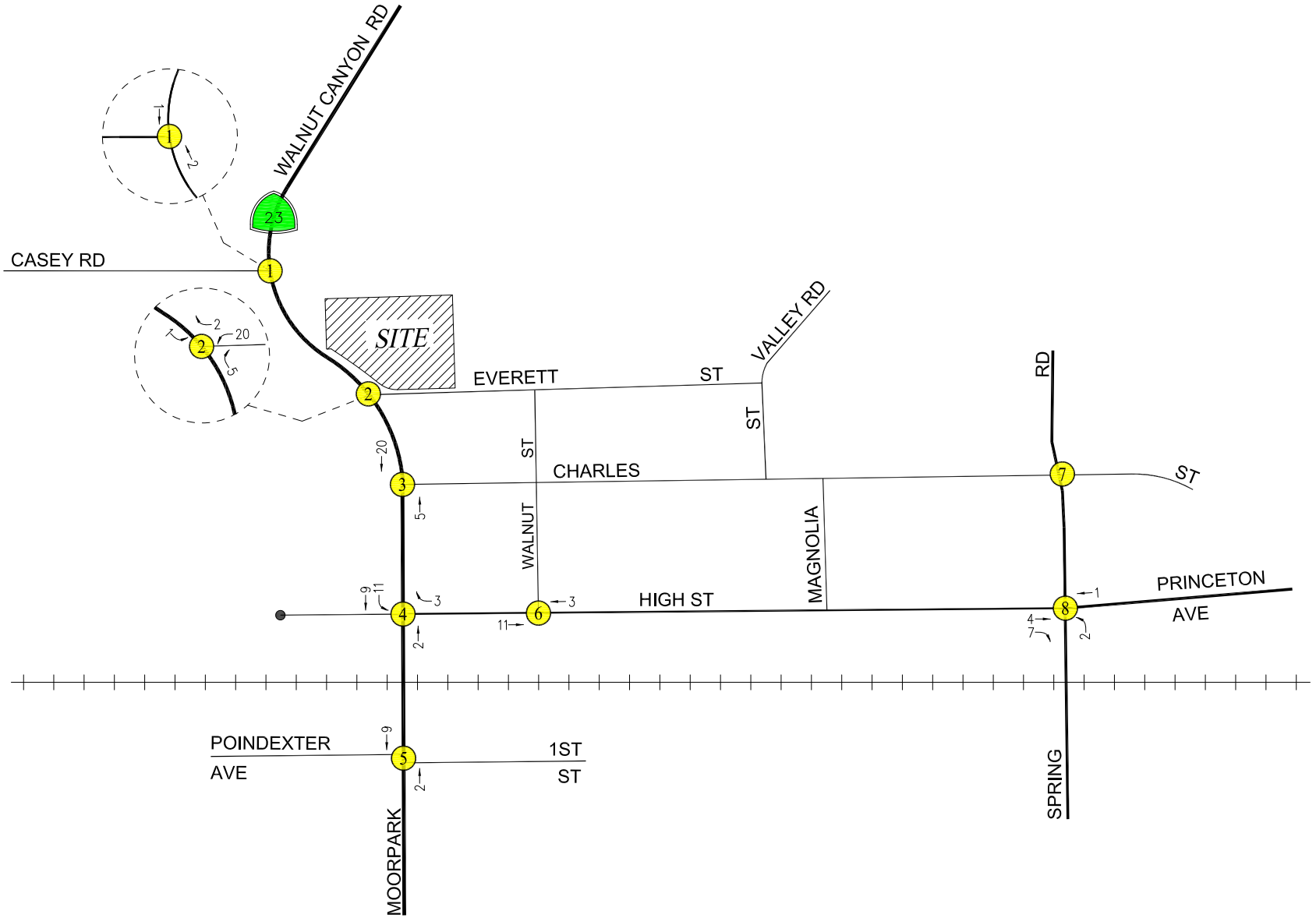
(##) = OUTBOUND PERCENTAGES

FIGURE 7-1
PROJECT TRIP DISTRIBUTION

LINSCOTT, LAW & GREENSPAN, engineers

EVERETT STREET TERRACES PROJECT

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PROJECT SITE

STUDY INTERSECTION

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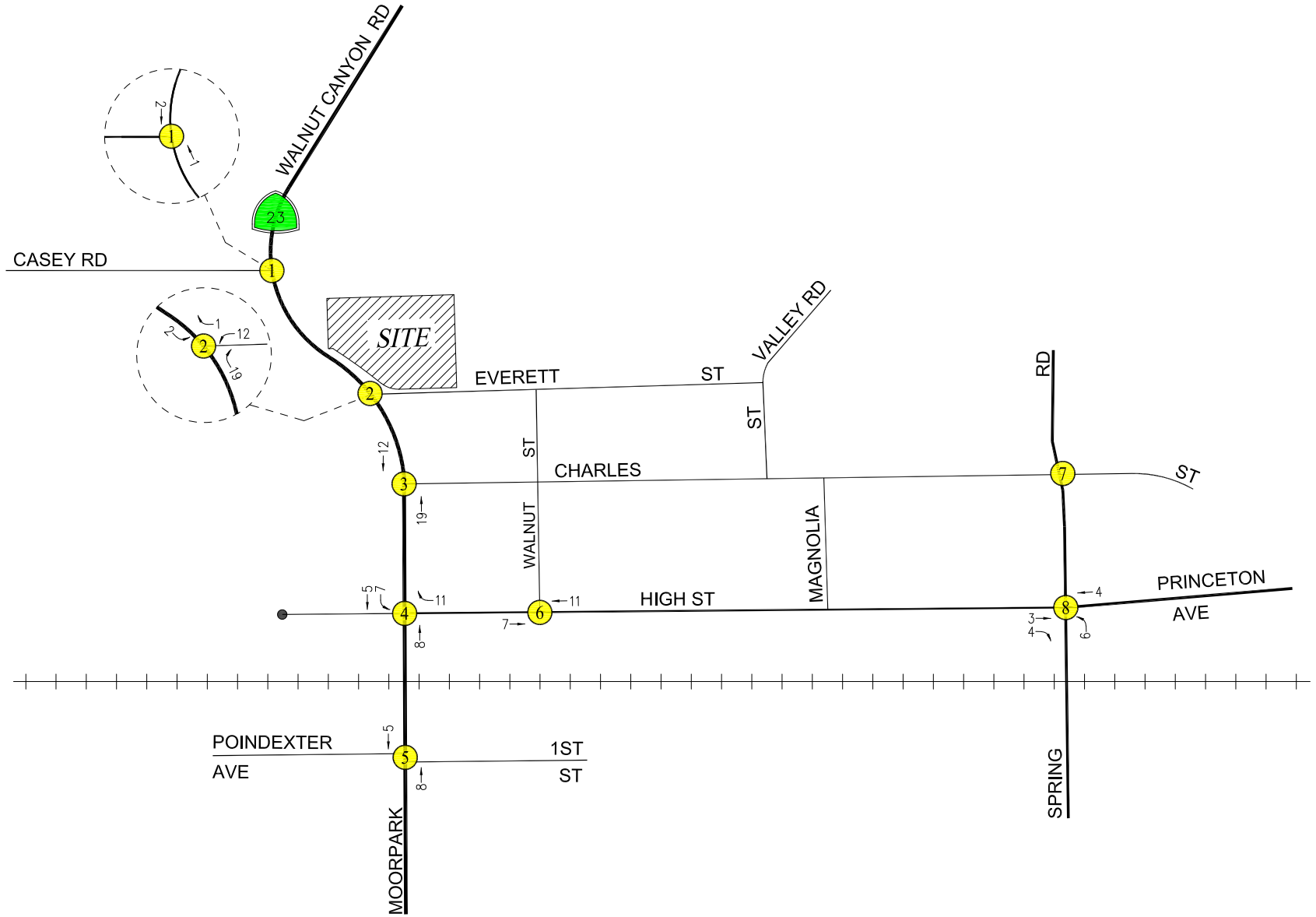
FIGURE 7-2
NET NEW PROJECT TRAFFIC VOLUMES

WEEKDAY AM PEAK HOUR

EVERETT STREET TERRACES PROJECT

LINSCOTT, LAW & GREENSPAN, engineers

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PROJECT SITE

STUDY INTERSECTION

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FIGURE 7-3
NET NEW PROJECT TRAFFIC VOLUMES

WEEKDAY PM PEAK HOUR

EVERETT STREET TERRACES PROJECT

LINSCOTT, LAW & GREENSPAN, engineers

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8.0 CUMULATIVE DEVELOPMENT PROJECTS

A forecast of on-street traffic conditions prior to occupancy of the Project was prepared by incorporating the potential trips associated with other known development projects (related projects) in the area. With this information, the potential impact of the Project can be evaluated within the context of the cumulative impact of all ongoing development. The related projects research was based on information on file at the City of Moorpark Community Development Department. The list of related projects in the Project Site area is presented in ***Table 8–1***. The location of the related projects is shown in ***Figure 8–1***.

Traffic volumes expected to be generated by the related projects were calculated using rates provided in the ITE *Trip Generation Manual*. The related projects' respective traffic generation for the weekday AM and PM peak hours, as well as on a daily basis for a typical weekday, is summarized in *Table 8–1*. The distribution of the related projects traffic volumes to the study intersections during the weekday AM and PM peak hours are displayed in ***Figures 8–2*** and ***8–3***, respectively.

8.1 Ambient Traffic Growth Factor

In order to account for unknown related projects not included in this analysis, the existing traffic volumes were increased at an annual rate of 1.0 percent (1.0%) per year to the year 2024 (i.e., the anticipated year of Project build-out). The ambient growth factor was determined in accordance with the ambient growth factor of 1.0% identified in the Hitch Ranch study.

Table 8-1
RELATED PROJECTS LIST AND TRIP GENERATION [1]

19-Apr-21

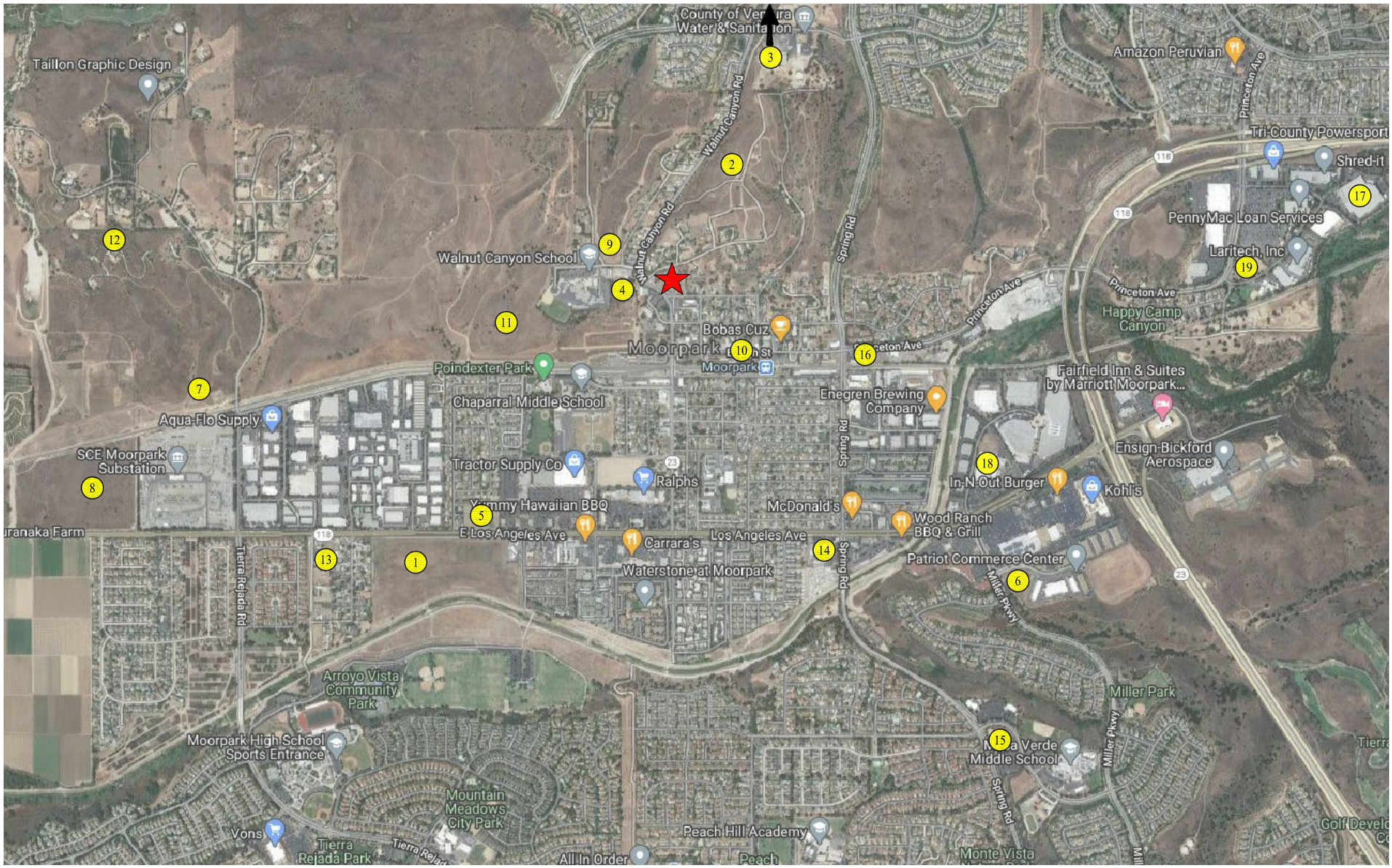
MAP NO.	PROJECT NAME/ PROJECT NUMBER	PROJECT STATUS	ADDRESS/ LOCATION	LAND USE DATA		PROJECT DATA SOURCE	DAILY TRIP ENDS [2] VOLUMES	AM PEAK HOUR VOLUMES [2]			PM PEAK HOUR VOLUMES [2]		
				LAND-USE	SIZE			IN	OUT	TOTAL	IN	OUT	TOTAL
1	Pacific Arroyo	Approved	South of Los Angeles Avenue East of Maureen Lane	Single-Family Homes	284 DU	[3]	2,681	53	157	210	177	104	281
2	Vistas at Moorpark	Approved	East of Walnut Canyon Road North of Wicks Road	Single-Family Homes	110 DU	[3]	1,038	20	61	81	69	40	109
3	Canyon Crest	Approved	Marine View Drive East of Walnut Canyon Road at Championship Drive	Single-Family Homes	21 DU	[3]	198	4	12	16	13	8	21
4	Essex Moorpark Apartments	Approved	South of Casey Road West of Walnut Canyon Road	Apartments	200 DU	[4]	1,464	21	71	92	71	41	112
5	Green Island Villas	Approved	635 Los Angeles Avenue	Condominiums	69 DU	[4]	505	7	25	32	25	14	39
6	Patriot Commerce Center	Approved	West of SR-23 Freeway East of Miller Parkway South of Moorpark Marketplace	Industrial Building	94,001 GSF	[5]	466	58	8	66	8	51	59
7	TT 5906	Approved	North of Union Pacific Railroad Tracks West of Gabbert Road	Industrial Park	1,568,000 GSF	[6]	5,284	508	119	627	132	495	627
8	Moorpark West Studios	Approved	Los Angeles Avenue West of SCE Substation	Office	112,850 GSF	[7]	1,242	153	21	174	28	140	168
				Production Sound Stages	9 Stages	[7]	1,836	nom.	nom.	nom.	nom.	nom.	nom.
				Security Personnel Trips		[7]	30	nom.	nom.	nom.	nom.	nom.	nom.
9	Casey Road Senior Community	Approved	North of Casey Road West of Walnut Canyon Road	Senior Adult Housing	390 DU	[8]	1,443	27	51	78	56	45	101
10	High Street Station	Approved	226 High Street	Apartments	79 DU	[4]	578	8	28	36	28	16	44
				Commercial	13,656 GSF	[9]	516	8	5	13	25	27	52
11	Hitch Ranch Specific Plan	Proposed	North of Union Pacific Railroad Tracks West of Terminus of Casey Road	Apartments	299 DU	[10]	6,948	117	359	476	389	250	639
				Single-Family Homes	456 DU								
				Public Park	5 Acres								
12	North Ranch	Proposed	5979 Gabbert Road	Single-Family Homes	139 DU	[3]	1,312	26	77	103	87	51	138
13	Beltramo Ranch	Proposed	South of Los Angeles Avenue East of Tierra Rejada Road West of Maureen Lane	Single-Family Homes	52 DU	[3]	491	10	28	38	32	19	51
14	4875 Spring Road Residential Project	Approved	4875 Spring Road	Condominiums	95 DU	[4]	695	10	34	44	33	20	53
15	Oakmont Senior Living	Under Construction	13960 Peach Hill Road	Senior Adult Housing	77 DU	[8]	285	5	10	15	11	9	20

Table 8-1 (Continued)
RELATED PROJECTS LIST AND TRIP GENERATION [1]

MAP NO.	PROJECT NAME/ PROJECT NUMBER	PROJECT STATUS	ADDRESS/ LOCATION	LAND USE DATA		PROJECT DATA SOURCE	DAILY TRIP ENDS [2] VOLUMES	AM PEAK HOUR VOLUMES [2]			PM PEAK HOUR VOLUMES [2]		
				LAND-USE	SIZE			IN	OUT	TOTAL	IN	OUT	TOTAL
16	13816 Princeton Avenue Auto Repair Shop Project	Proposed	13816 Princeton Avenue	Auto Repair Shop	5,492 GSF	[11]	89	8	3	11	5	7	12
17	6000 Condor Drive Warehousing/Distribution Facility	Proposed	6000 Condor Drive	Warehousing Distribution Warehouse	189,364 GSF (189,364) GSF	[12] [12], [13]	342 (329)	23 (29)	5 (16)	28 (45)	41 (12)	20 (37)	61 (49)
18	400 Science Drive Industrial Project	Approved	400 Science Drive	Industrial Building	35,330 GSF	[5]	175	22	3	25	3	19	22
19	5850 Condor Drive Industrial Project	Approved	5850 Condor Drive	Industrial Building	48,211 GSF	[5]	239	30	4	34	4	26	30
TOTAL							27,528	1,089	1,065	2,154	1,225	1,365	2,590

nom. nominal

[1] Source: City of Moorpark Land Use and Development Projects Quarterly Status Report for August 2020.
[2] Trips are one-way traffic movements, entering or leaving.
[3] ITE Land Use Code 210 (Single-Family Detached Housing) trip generation average rates.
[4] ITE Land Use Code 220 (Multifamily Housing [Low-Rise]) trip generation average rates.
[5] ITE Land Use Code 110 (General Light Industrial) trip generation average rates.
[6] ITE Land Use Code 130 (Industrial Park) trip generation average rates.
[7] Source: Moorpark West Studios Traffic Impact Analysis, prepared by RBF Consulting, February 2010.
[8] ITE Land Use Code 252 (Senior Adult Housing - Attached) trip generation average rates.
[9] ITE Land Use Code 820 (Shopping Center) trip generation average rates.
[10] Source: Traffic Impact Analysis for the Proposed Hitch Ranch Specific Plan, prepared by Impact Sciences, August 2020.
[11] ITE Land Use Code 943 (Automobile Parts and Service Center) trip generation average rates.
[12] Source: Traffic Impact Study for 6000 Condor Drive Warehousing/Distribution Facility, prepared by NV5 Engineers and Consultants, Inc., December 2020.
[13] ITE Land Use Code 150 (Warehousing) trip generation average rates.



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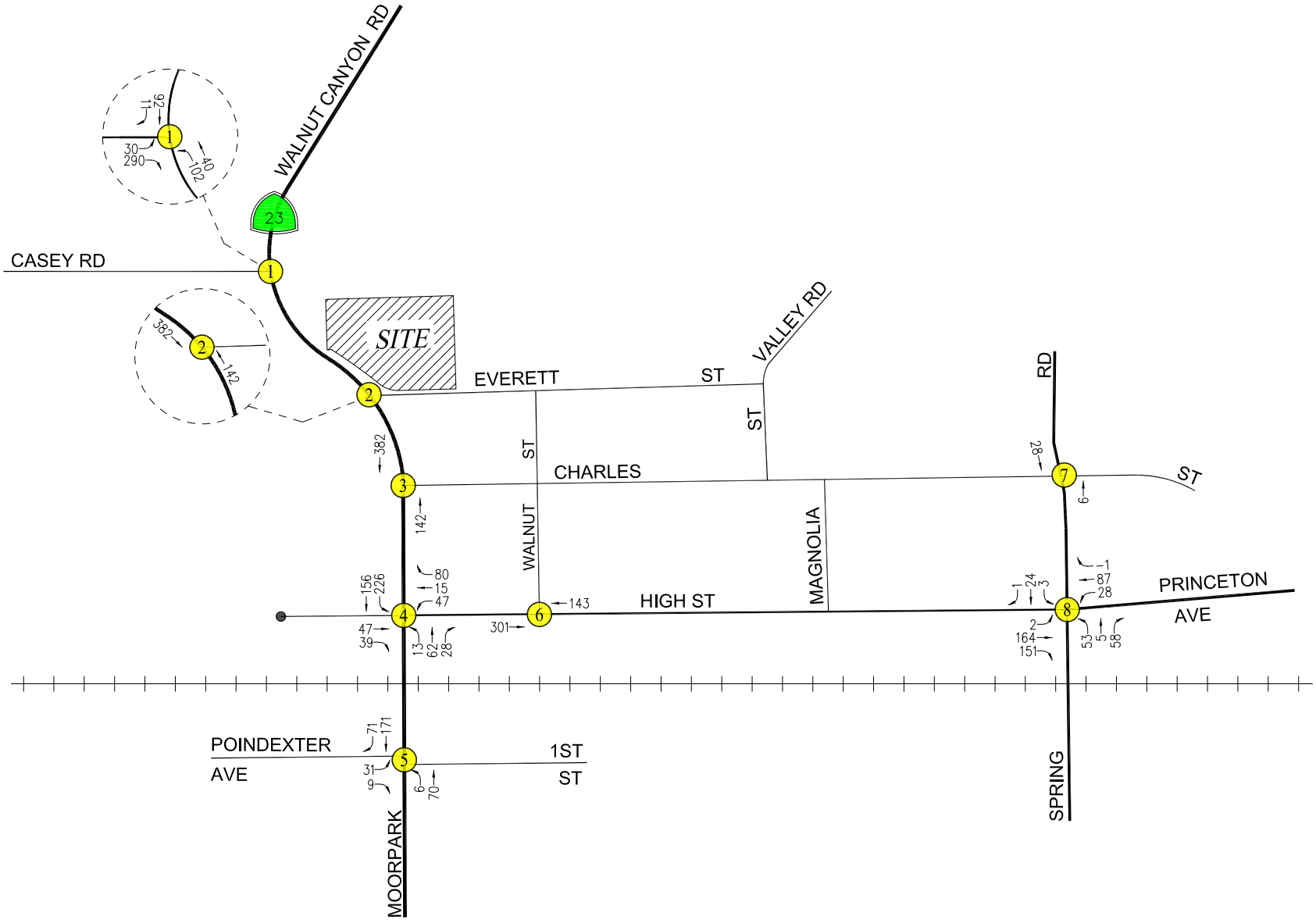
MAP SOURCE: GOOGLE MAPS
★ PROJECT SITE
Ⓧ RELATED PROJECT

FIGURE 8-1
LOCATION OF RELATED PROJECTS

LINSCOTT, LAW & GREENSPAN, engineers

EVERETT STREET TERRACES PROJECT

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PROJECT SITE

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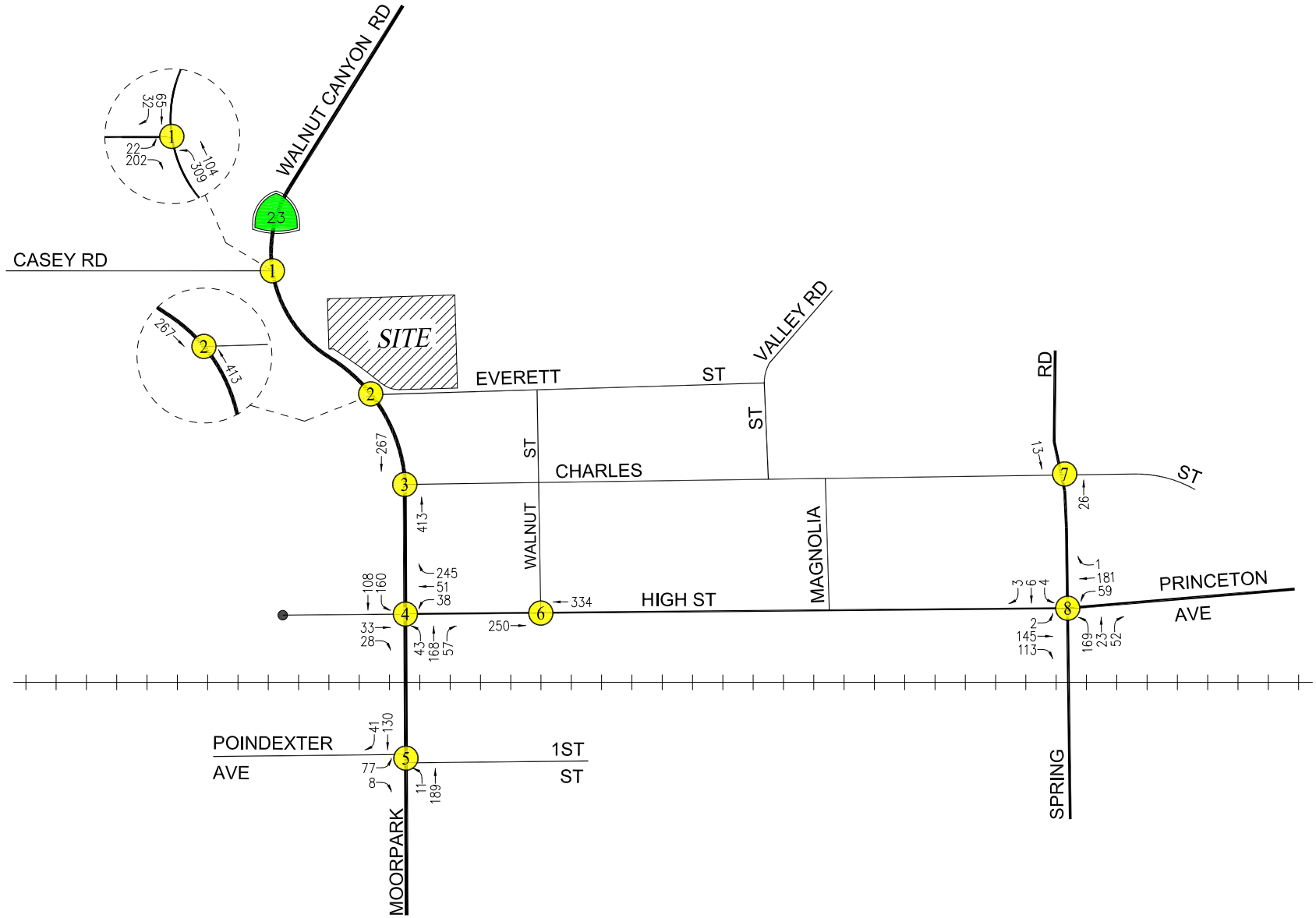
FIGURE 8-2
RELATED PROJECTS TRAFFIC VOLUMES

WEEKDAY AM PEAK HOUR

EVERETT STREET TERRACES PROJECT

LINSCOTT, LAW & GREENSPAN, engineers

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PROJECT SITE

STUDY INTERSECTION

FIGURE 8-3
RELATED PROJECTS TRAFFIC VOLUMES

WEEKDAY PM PEAK HOUR

EVERETT STREET TERRACES PROJECT

LINSCOTT, LAW & GREENSPAN, engineers

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9.0 TRAFFIC OPERATIONS ANALYSIS METHODOLOGY

The eight study intersections were evaluated using the Intersection Capacity Utilization (ICU) method of analysis which determines Volume-to-Capacity (*v/c*) ratio on a critical lane basis. The overall intersection *v/c* ratio is subsequently assigned a Level of Service (LOS) value to describe intersection operations. The Levels of Service vary from LOS A (free flow) to LOS F (jammed condition). As a design constraint for the City of Moorpark, it is intended that a LOS of C or better be maintained. A description of the ICU method and corresponding Levels of Service is provided in ***Appendix C***.

9.1 Intersection Operations Criteria

The relative effects of the added Project traffic volumes expected to be generated by the proposed Project during the AM and PM peak hours were evaluated based on analysis of future operating conditions at the eight study intersections, without and with the proposed Project. The previously discussed capacity analysis procedures were utilized to evaluate the future *v/c* relationships and service level characteristics at each study intersection.

As the City is in the process of developing new traffic study guidelines, the potential effects of Project-generated traffic operations at each study intersection were identified using guidelines included in the City of Moorpark's *Guidelines for Preparing Traffic and Circulation Studies*, 1993. According to the City's guidelines, a LOS degradation of one level or greater attributable to the Project will be considered significant enough to require improvement measures. A LOS degradation of less than one level may be considered significant, depending on circumstances. As a design constraint, it is intended that a LOS of C or better be maintained.

Based on City of Moorpark criteria, lane capacities of 1,500 vehicles per hour (vph) for left-turn and right-turn lanes, 1,600 vph for through lanes, and 2,600 vph for dual left or right turn lanes were used in the ICU calculations. Additionally, a clearance interval of 0.10 is also included in the ICU calculations.

It is noted that the City's thresholds discussed above apply for the purpose of site circulation and conformance with the General Plan but are not intended for CEQA. The VMT assessment is presented in Section 5.0 herein for CEQA purposes.

9.2 Traffic Analysis Scenarios

LOS calculations have been prepared for the following scenarios for the eight study intersections located within the City of Moorpark:

(a) Existing (2021) conditions.

(b) Condition (a) with completion and occupancy of the proposed Project.

(c) Condition (b) with implementation of Project measures where necessary.

(d) Condition (a) plus one percent (1.0%) annual ambient traffic growth through year 2024 and with completion and occupancy of the related projects (i.e., future cumulative baseline).

(e) Condition (d) with completion and occupancy of the Project.

(f) Condition (e) with implementation of cumulative improvement measures, where necessary.

The traffic volumes for each new condition were added to the volumes in the prior condition to determine the change in capacity utilization at the eight study intersections.

Summaries of the *v/c* ratios and LOS values for the study intersections during the AM and PM peak hours are shown in ***Table 9–1***. The ICU data worksheets for the analyzed intersections are contained in *Appendix C*.

Table 9-1
SUMMARY OF VOLUME TO CAPACITY RATIOS
AND LEVELS OF SERVICE
AM AND PM PEAK HOURS

15-May-21

			[1]		[2]				[3]		[4]				[5]			
			YEAR 2021		YEAR 2021				YEAR 2024		YEAR 2024				YEAR 2024			
			EXISTING		EXISTING W/ PROJECT		CHANGE IN		FUTURE PRE-PROJECT		FUTURE W/ PROJECT		CHANGE IN		W/ PROJECT + CUMULATIVE IMPROVEMENTS		CHANGE IN	
NO.	INTERSECTION	PEAK HOUR	DELAY OR V/C	LOS [a]	DELAY OR V/C	LOS	DELAY OR V/C [(2)-(1)]	CRITERIA EXCEEDED [b]	DELAY OR V/C	LOS [a]	DELAY OR V/C	LOS	DELAY OR V/C [(4)-(3)]	CRITERIA EXCEEDED [b]	DELAY OR V/C	LOS [a]	DELAY OR V/C [(5)-(4)]	IMPR-OVED
1	Walnut Canyon Road-Moorpark Avenue /	AM	0.700	B	0.701	C	0.001	NO	1.044	F	1.044	F	0.000	NO	0.807	D	-0.237	YES
	Casey Road	PM	0.362	A	0.362	A	0.000	NO	0.748	C	0.749	C	0.001	NO	0.581	A	-0.168	YES
2	Moorpark Avenue /	AM	0.524	A	0.530	A	0.006	NO	0.775	C	0.781	C	0.006	NO	0.781	C	0.000	N/A
	Everett Street	PM	0.324	A	0.345	A	0.021	NO	0.589	A	0.610	B	0.021	NO	0.610	B	0.000	N/A
3	Moorpark Avenue /	AM	0.526	A	0.531	A	0.005	NO	0.771	C	0.783	C	0.012	NO	0.783	C	0.000	N/A
	Charles Street	PM	0.362	A	0.374	A	0.012	NO	0.628	B	0.640	B	0.012	NO	0.640	B	0.000	N/A
4	Moorpark Avenue /	AM	0.686	B	0.693	B	0.007	NO	0.931	E	0.938	E	0.007	NO	0.766	C	-0.172	YES
	High Street	PM	0.653	B	0.661	B	0.008	NO	0.931	E	0.939	E	0.008	NO	0.793	C	-0.146	YES
5	Moorpark Avenue /	AM	0.834	D	0.841	D	0.007	NO	1.072	F	1.079	F	0.007	NO	0.689	B	-0.390	YES
	Poindexter Avenue - 1st Street	PM	0.917	E	0.925	E	0.008	NO	1.218	F	1.226	F	0.008	NO	0.802	D	-0.424	YES
6	Walnut Street /	AM	0.375	A	0.377	A	0.002	NO	0.538	A	0.544	A	0.006	NO	0.544	A	0.000	N/A
	High Street	PM	0.441	A	0.446	A	0.005	NO	0.634	B	0.641	B	0.007	NO	0.641	B	0.000	N/A
7	Spring Road /	AM	0.503	A	0.503	A	0.000	NO	0.524	A	0.524	A	0.000	NO	0.524	A	0.000	N/A
	Charles Street	PM	0.451	A	0.451	A	0.000	NO	0.469	A	0.469	A	0.000	NO	0.469	A	0.000	N/A
8	Spring Road /	AM	0.738	C	0.740	C	0.002	NO	0.919	E	0.921	E	0.002	NO	0.893	D	-0.028	YES
	High Street - Princeton Avenue	PM	0.794	C	0.794	C	0.000	NO	0.886	D	0.888	D	0.002	NO	0.833	D	-0.055	YES

[a] Signalized Intersection Levels of Service were based on the following criteria:

V/C Ratio	LOS
<= 0.60	A
0.61-0.70	B
0.71-0.80	C
0.81-0.90	D
0.91-1.00	E
> 1.00	F

[b] According to the City of Moorpark, intersection operations are evaluated based on the following criteria:

Level of Service	Project-Related Change in LOS
D/E/F	Degradation of one level or greater

10.0 CITY OF MOORPARK TRAFFIC ANALYSIS

The traffic analysis prepared for the eight study intersections located within the City of Moorpark using the ICU methodology and application of the City of Moorpark traffic operations criteria is summarized in *Table 9-1*. The ICU data worksheets for the analyzed intersections are contained in *Appendix C*.

10.1 Existing Conditions

10.1.1 *Existing Conditions*

As indicated in column [1] of *Table 9–1*, seven of the eight study intersections located within the City of Moorpark are presently operating at LOS C or better during the AM and PM peak hours under existing conditions. The following intersection is presently operating at LOS D or worse during the peak hours shown below under existing conditions:

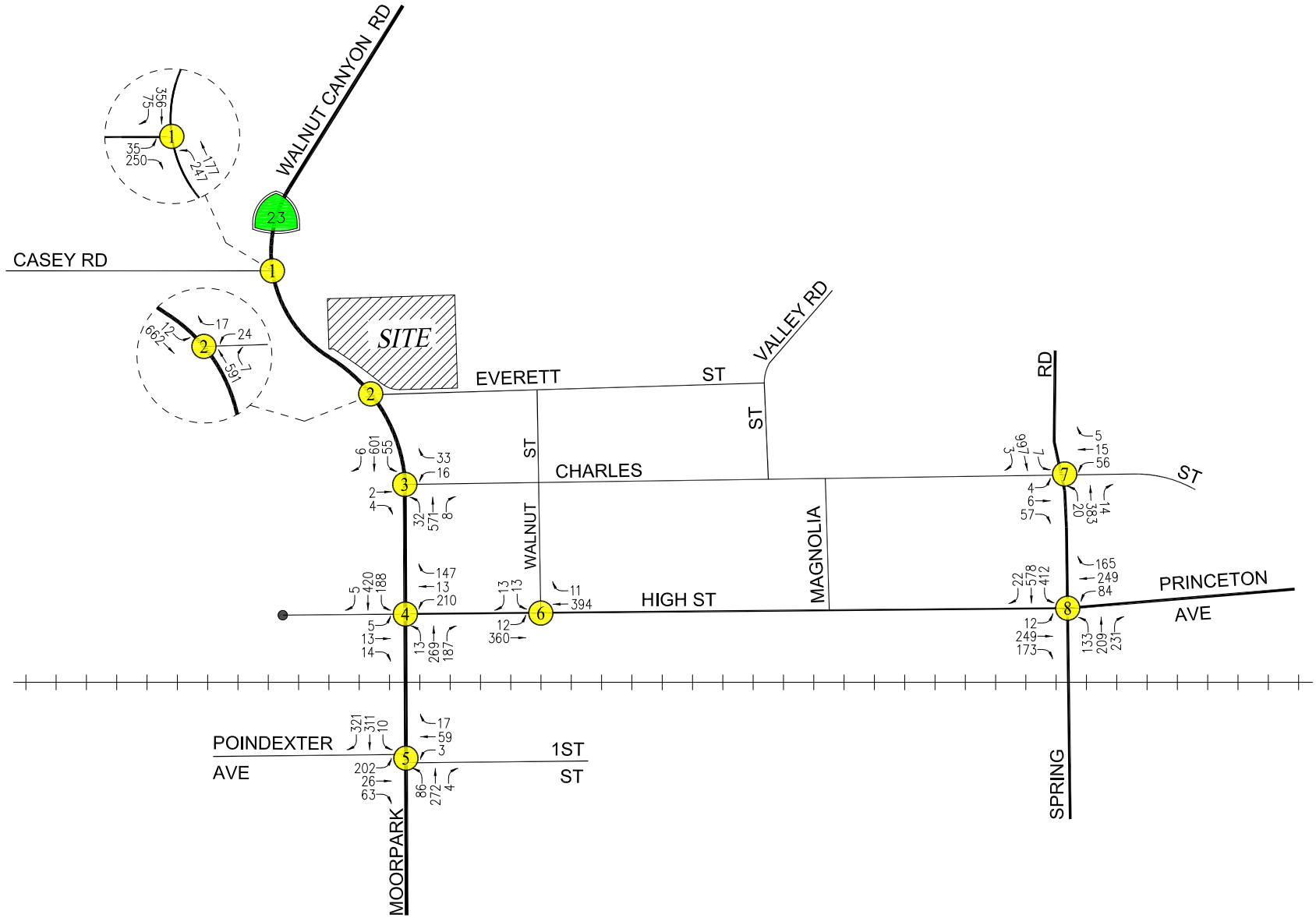
- Int. No. 5: Moorpark Avenue / Poindexter Avenue – 1st Street — AM Peak Hour: *v/c* = 0.834, LOS D; PM Peak Hour: *v/c* = 0.917, LOS E

The existing traffic volumes at the study intersections during the weekday AM and PM peak hours are displayed in *Figures 6–1 and 6–2*, respectively.

10.1.2 *Existing with Project Conditions*

As shown in column [2] of *Table 9-1*, application of the City's operations criteria to the "Existing with Project" scenario indicates that Project-related traffic is not expected to exceed the traffic operations criteria at any of the eight study intersections. It is noted that the Walnut Canyon Road – Moorpark Avenue / Casey Road intersection degrades from LOS B to LOS C in the AM peak hour with the addition of Project-related traffic. However, since this intersection does not degrade to LOS D or worse, Project-related traffic is not expected to exceed the traffic operations criteria at this intersection. In addition, it is noted that while the Moorpark Avenue / Poindexter Avenue – 1st Street intersection remains at LOS D and LOS E in the AM and PM peak hours, respectively, Project-related traffic is not expected to exceed the traffic operations criteria since the LOS does not degrade by one level or greater from existing conditions.

Incremental, but not significant changes in the calculated *v/c* ratios are noted at the remaining six study intersections. Therefore, no measures are required or recommended with respect to these intersections under the "Existing with Project" conditions. The existing with project traffic volumes at the study intersections during the AM and PM peak hours are shown in ***Figures 10–1*** and ***10–2***, respectively.



PROJECT SITE

STUDY INTERSECTION

NOT TO SCALE

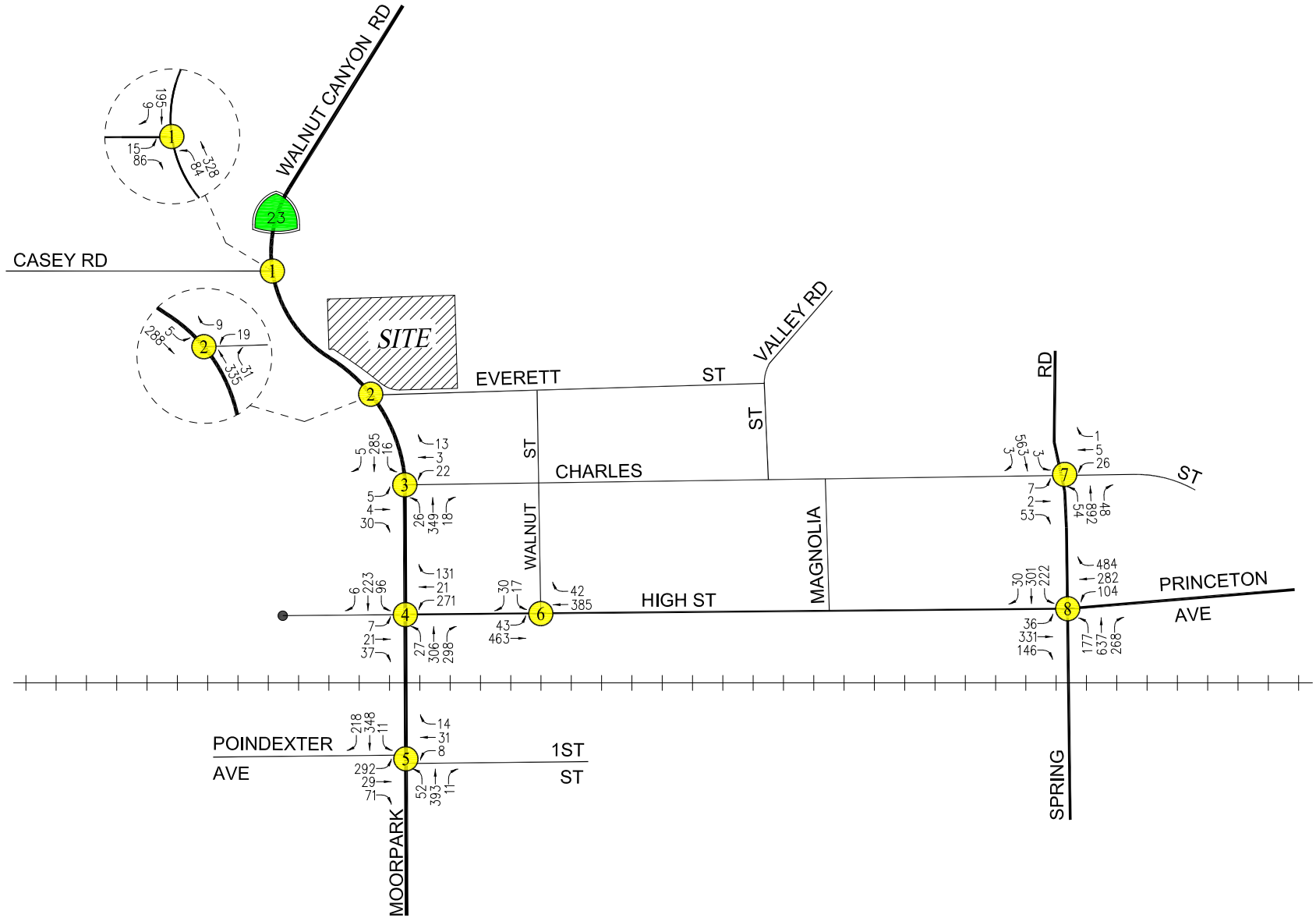
FIGURE 10-1
EXISTING WITH PROJECT TRAFFIC VOLUMES

WEEKDAY AM PEAK HOUR

EVERETT STREET TERRACES PROJECT

LINSCOTT, LAW & GREENSPAN, engineers

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PROJECT SITE

STUDY INTERSECTION

NOT TO SCALE

FIGURE 10-2
EXISTING WITH PROJECT TRAFFIC VOLUMES

WEEKDAY PM PEAK HOUR

EVERETT STREET TERRACES PROJECT

LINSCOTT, LAW & GREENSPAN, engineers

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10.2 Future Conditions

10.2.1 *Future Cumulative Baseline Conditions*

The future cumulative baseline conditions were forecast based on the addition of traffic generated by the completion and occupancy of related projects, as well as the growth in traffic due to the combined effects of continuing development, intensification of existing developments and other factors (i.e., ambient growth). The *v/c* ratios at all of the study intersections are incrementally increased with the addition of ambient traffic and traffic generated by the related projects listed in *Table 8-1*.

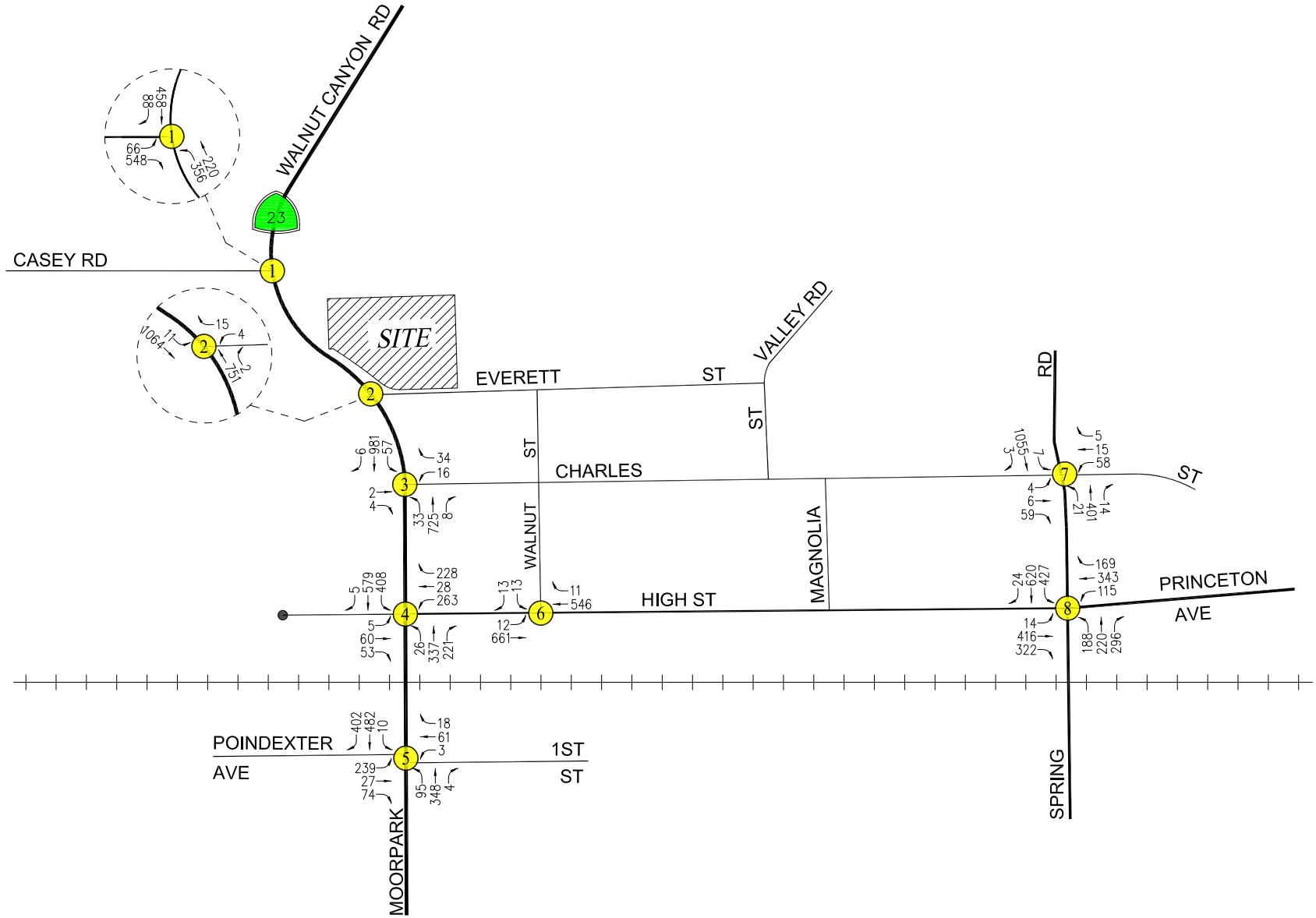
As presented in column [3] of *Table 9–1*, four of the eight study intersections located within the City of Moorpark are expected to operate at LOS C or better during the weekday AM and PM peak hours with the addition of growth in ambient traffic and related project traffic under the future cumulative baseline conditions. The following study intersections are expected to operate at LOS D or worse during the peak hours shown below under future cumulative baseline conditions:

- Int. No. 1: Walnut Canyon Road - Moorpark Avenue / Casey Road — AM Peak Hour: *v/c* = 1.044, LOS F
- Int. No. 4: Moorpark Avenue / High Street — AM Peak Hour: *v/c* = 0.931, LOS E; PM Peak Hour: *v/c* = 0.931, LOS E
- Int. No. 5: Moorpark Avenue / Poindexter Avenue – 1st Street — AM Peak Hour: *v/c* = 1.072, LOS F; PM Peak Hour: *v/c* = 1.218, LOS F
- Int. No. 8: Spring Road / High Street – Princeton Avenue — AM Peak Hour: *v/c* = 0.919, LOS E; PM Peak Hour: *v/c* = 0.886, LOS D

The future cumulative baseline (existing, ambient growth and related projects) traffic volumes at the study intersections during the weekday AM and PM peak hours are presented in ***Figures 10–3*** and ***10–4***, respectively.

10.2.2 *Future Cumulative with Project Conditions*

The "Future Cumulative with Project" conditions were forecast based on the addition of traffic generated by the Project plus the addition of ambient traffic and completion and occupancy of related projects. As shown in column [4] of *Table 9-1*, application of the City's operations criteria to the "Future Cumulative with Project" scenario indicates that Project-related traffic is not expected to exceed the traffic operations criteria at any of the eight study intersections. It is noted that the Moorpark Avenue / Everett Street intersection degrades from LOS A to LOS B in the PM peak hour with the addition of Project-related traffic. However, since this intersection does not degrade to LOS D or worse, Project-related traffic is not expected to exceed the traffic operations criteria at this intersection. In addition, it is noted that while the four study intersections noted above remain at LOS D or worse, Project-related traffic is not expected to



NOT TO SCALE

PROJECT SITE

STUDY INTERSECTION

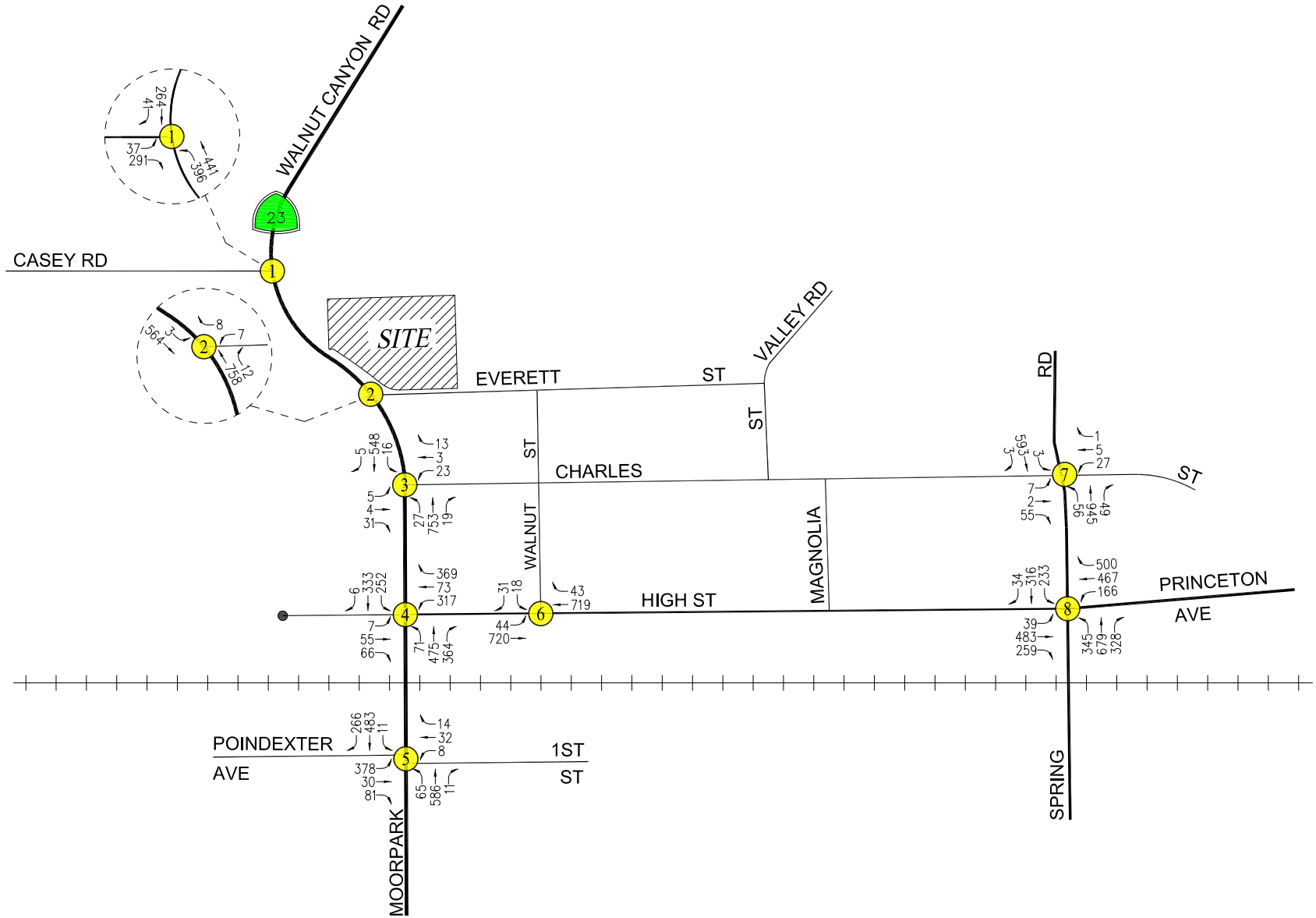
FIGURE 10-3
FUTURE CUMULATIVE BASELINE TRAFFIC VOLUMES

WEEKDAY AM PEAK HOUR

EVERETT STREET TERRACES PROJECT

LINSCOTT, LAW & GREENSPAN, engineers

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PROJECT SITE

STUDY INTERSECTION

NOT TO SCALE

FIGURE 10-4
FUTURE CUMULATIVE BASELINE TRAFFIC VOLUMES

WEEKDAY PM PEAK HOUR

EVERETT STREET TERRACES PROJECT

LINSCOTT, LAW & GREENSPAN, engineers

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exceed the traffic operations criteria at these intersections since the LOS does not degrade by one level or greater from future cumulative baseline conditions.

The future cumulative with project (existing, ambient growth, related projects and Project) traffic volumes at the study intersections during the weekday AM and PM peak hours are presented in ***Figures 10–5*** and ***10–6***, respectively.

10.3 Future Cumulative Improvement Measures

As indicated in the previous section, four of the eight study intersections are anticipated to operate at LOS D or worse during the AM and/or PM peak hours under future cumulative baseline and "Future Cumulative with Project" conditions. While it has been concluded that Project-related traffic is not expected to exceed the traffic operations criteria at any of the eight study intersections, a review of potential improvement measures, which will improve the overall operating conditions at these locations, has been conducted. In general, off-site improvement measures identified for future cumulative conditions should not be the sole responsibility of an individual project, but rather the development may contribute towards the cost of implementation of such improvements based on the project's share or usage of the facilities being improved. It is recognized that as a design constraint for the City of Moorpark, it is intended that a LOS C or better be maintained to the extent possible. The cumulative improvement measures recommended at the study intersections are based on previous capital projects that have yet to be implemented and are described in the following paragraphs.

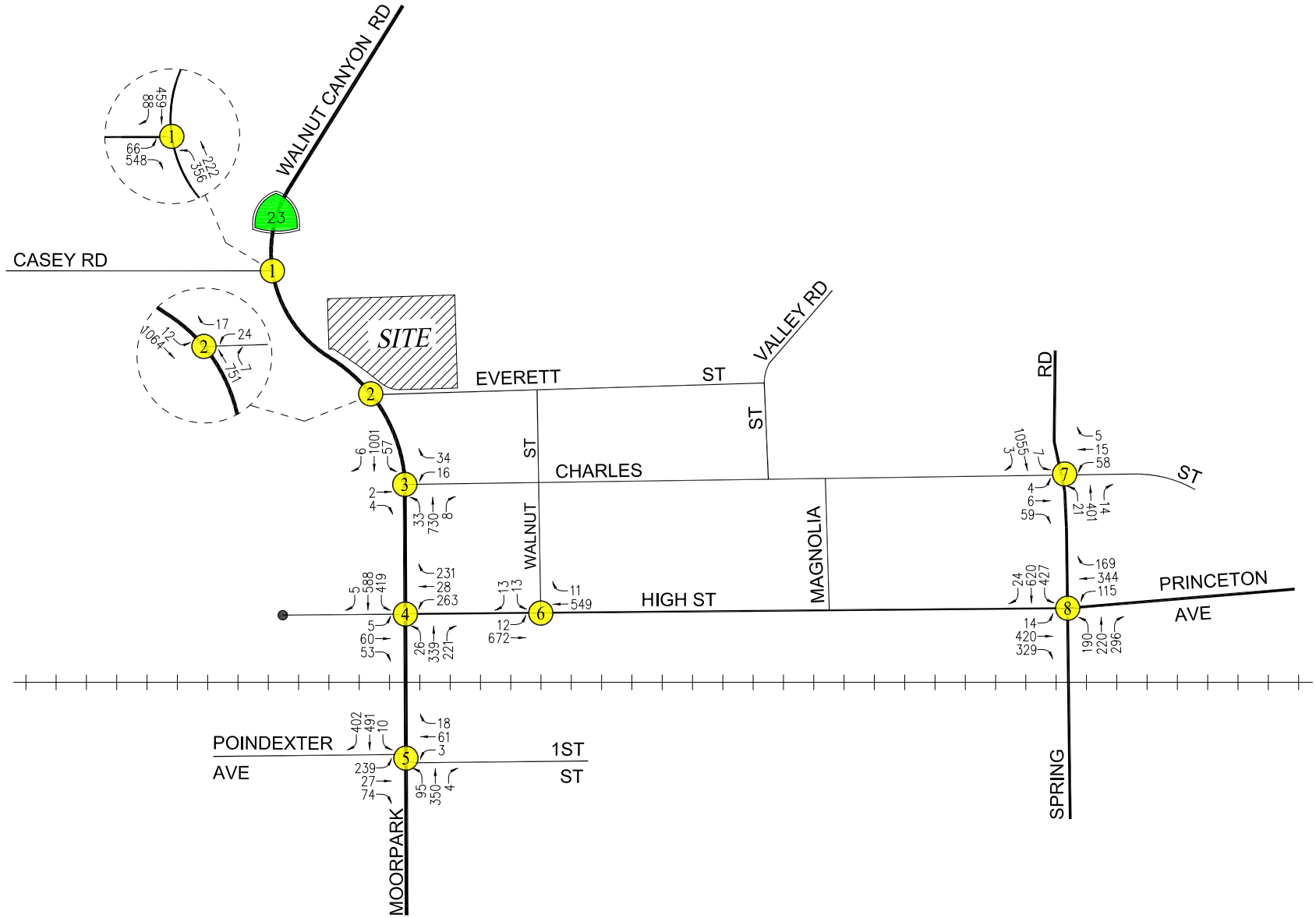
Intersection No. 1: Walnut Canyon Road – Moorpark Avenue / Casey Road

The cumulative improvement measure at this location consists of the implementation of a previous City of Moorpark Public Works Department Capital Project. The improvement measure at the Walnut Canyon Road-Moorpark Avenue / Casey Road intersection includes the traffic signal modification to provide an eastbound right-turn overlap phase to coincide with the northbound left-turn phase.

As shown in column [5] of *Table 9–1*, implementation of the recommended cumulative improvement measures is expected to improve the *v/c* ratio at this intersection to 0.807 (LOS D) from 1.044 (LOS F) during the AM peak hour under "Future Cumulative with Project" conditions.

Intersection No. 4: Moorpark Avenue / High Street

The cumulative improvement measure at this location consists of the implementation of a previous City of Moorpark Public Works Department Capital Project. The improvement measure involves the widening of Moorpark Avenue to provide additional lanes between Casey Road and Third Street. The improvement measure at the Moorpark Avenue / High Street intersection includes the installation of additional northbound and southbound lanes as well as a traffic signal modification to provide a westbound right-turn overlap phase to coincide with the southbound left-turn phase. The resulting lane configurations on Moorpark Avenue at the



PROJECT SITE

STUDY INTERSECTION

NOT TO SCALE

FIGURE 10-5

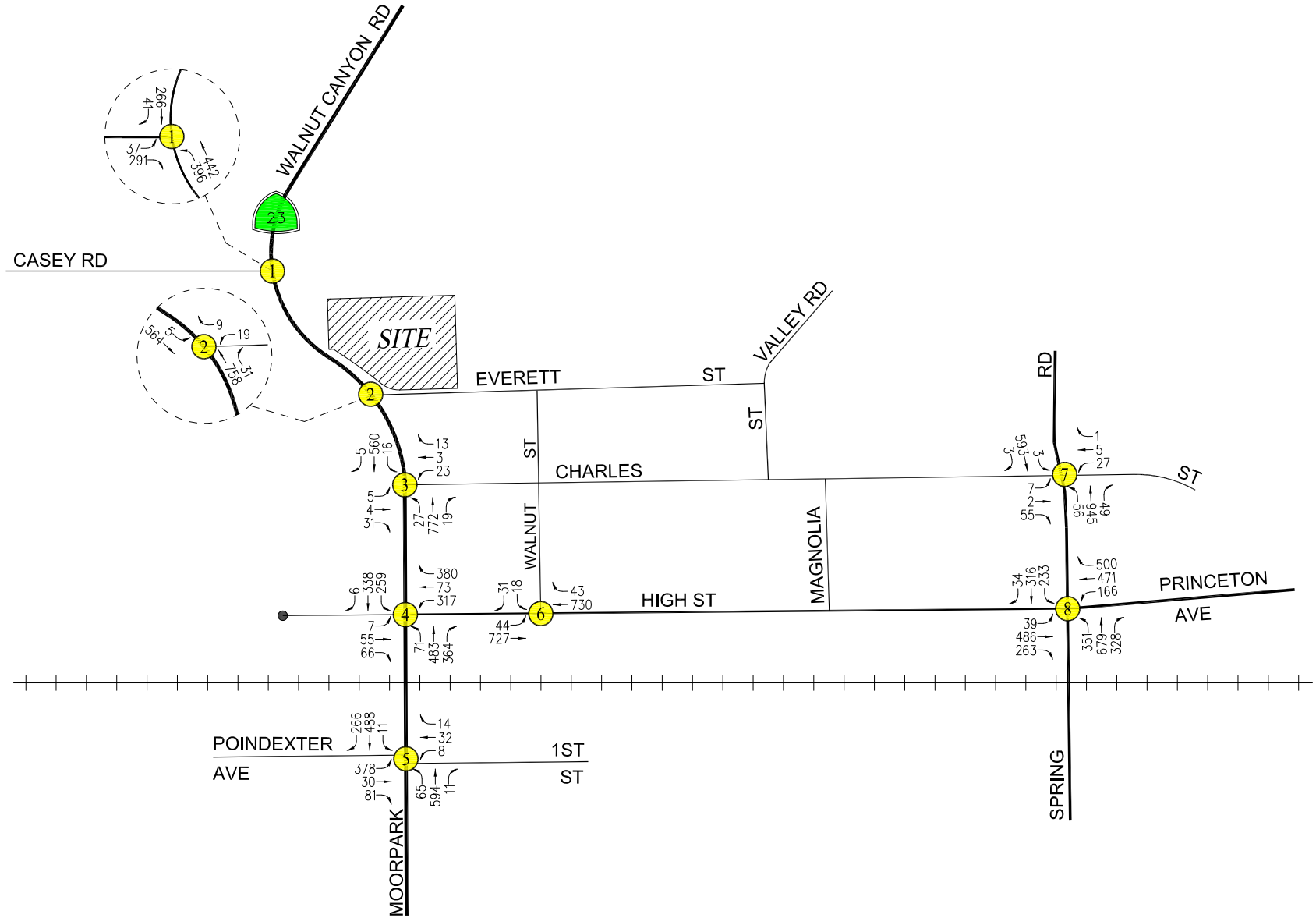
FUTURE CUMULATIVE WITH PROJECT TRAFFIC VOLUMES

WEEKDAY AM PEAK HOUR

EVERETT STREET TERRACES PROJECT

LINSCOTT, LAW & GREENSPAN, engineers

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NOT TO SCALE

PROJECT SITE

STUDY INTERSECTION

FIGURE 10-6

FUTURE CUMULATIVE WITH PROJECT TRAFFIC VOLUMES

WEEKDAY PM PEAK HOUR

EVERETT STREET TERRACES PROJECT

LINSCOTT, LAW & GREENSPAN, engineers

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intersection on the northbound approach would consist of one shared left/through lane, one through lane and one right-turn only lane and on the southbound approach would consist of one left-turn only lane, one through lane and one shared through/right-turn lane.

As shown in column [5] of *Table 9–1*, implementation of the recommended cumulative improvement measures is expected to improve the *v/c* ratio at this intersection to 0.766 (LOS C) from 0.938 (LOS E) during the AM peak hour and to 0.793 (LOS C) from 0.939 (LOS E) during the PM peak hour under "Future Cumulative with Project" conditions.

Intersection No. 5: Moorpark Avenue / Poindexter Avenue – 1st Street

The cumulative improvement measure at this location consists of the implementation of a previous City of Moorpark Public Works Department Capital Project. The improvement measure involves the widening of Moorpark Avenue to provide additional lanes between Casey Road and Third Street. The improvement measure at the Moorpark Avenue / Poindexter Avenue – 1st Street intersection includes the installation of additional southbound and northbound lanes. The resulting lane configuration on Moorpark Avenue for both the southbound and northbound approaches to the intersection would consist of one left-turn lane, one through lane and one shared through/right-turn lane. In addition, the cumulative measure at this location would consist of the conversion of the eastbound right-turn only lane to a shared left/through/right-turn lane. The resulting lane configuration on Moorpark Avenue on the eastbound approach to the intersection would consist of one left-turn lane and one shared left/through/right-turn lane.

As shown in column [5] of *Table 9–1*, implementation of the recommended cumulative improvement measures is expected to improve the *v/c* ratio at this intersection to 0.689 (LOS B) from 1.079 (LOS F) during the AM peak hour and to 0.802 (LOS D) from 1.226 (LOS F) during the PM peak hour under "Future Cumulative with Project" conditions.

Intersection No. 8: Spring Road / High Street – Princeton Avenue

The cumulative improvement measure at this location consists of restriping the eastbound approach. The improvement involves restriping the eastbound right-turn only lane into a shared through and right-turn lane. The resulting lane configuration on High Street on the eastbound approach of the intersection would consist of one left-turn only lane, one through lane, and one shared through and right-turn lane.

As shown in column [5] of *Table 9–1*, implementation of the recommended cumulative improvement measures is expected to improve the *v/c* ratio at this intersection to 0.893 (LOS D) from 0.921 (LOS E) during the AM peak hour and to 0.833 (LOS D) from 0.888 (LOS D) during the PM peak hour under "Future Cumulative with Project" conditions.

11.0 FAIR SHARE ANALYSIS

The methodology and the calculations of the Project's pro-rata percentage at the study intersections which require cumulative regional improvements are summarized in ***Table 11–1***. The method used for these calculations was based on the sum of the total weekday morning and afternoon (AM and PM) peak hours Project-generated traffic volumes on the approaches to each affected study intersection divided by the Project plus other development (related) projects traffic volumes on those same approaches for the same AM and PM peak hours. It should be noted that existing traffic volumes are not included in the calculations.

As shown in *Table 11–1*, the proposed Project's fair share contribution toward the cumulative regional improvements ranges from 0.5% at the Walnut Canyon Road – Moorpark Avenue / Casey Road intersection to 3.3% at the Moorpark Avenue / High Street intersection.

Table 11-1
PRO-RATA PERCENTAGE OF CUMULATIVE IMPROVEMENT MEASURES

20-May-21

Pro-Rata Percentage Methodology

A project's pro-rata percentage of cumulative mitigation costs at study intersections conditioned for the subject project should be calculated using AM and PM peak hour traffic volumes. The project's percentage share is derived by dividing project traffic by project plus other related projects traffic. It should be noted that existing traffic and ambient growth traffic volumes are not included in the calculations.

$$\frac{\text{Project Traffic}}{\text{Project + Other Related Projects Traffic}}$$

The following equation is provided to assist in calculating the project's pro-rata percentage to implement roadway mitigation improvement measures:

$$P = \frac{Vp}{Vp + Vc}$$

where:
- P = Project's pro-rate percentage for cumulative mitigation measure
- Vp = AM & PM Peak Hour volume at the intersection generated by the project
- Vc = Cumulative (other related projects) AM & PM Peak Hour traffic volume at the intersection

Study Intersection(s) Calculations

	Intersection	AM & PM Traffic Volumes		Calculation		Percentage of Impact
1.	Walnut Canyon Road - Moorpark Avenue / Casey Road	Vp = 6 Vc = 1,299	P =	6 / (6) + (1,299)	=	**0.5 %**
4.	Moorpark Avenue / High Street	Vp = 56 Vc = 1,644	P =	56 / (56) + (1,644)	=	**3.3 %**
5.	Moorpark Avenue / Poindexter Avenue - 1st Street	Vp = 24 Vc = 814	P =	24 / (24) + (814)	=	**2.9 %**
8.	Spring Road / High Street - Princeton Avenue	Vp = 31 Vc = 1,333	P =	31 / (31) + (1,333)	=	**2.3 %**

12.0 CONCLUSIONS

This traffic analysis has been conducted to identify and evaluate the potential impacts of traffic generated by the proposed Everett Street Terraces Project. The City is in the process of developing new traffic study guidelines that will include VMT guidelines and thresholds for measuring transportation impacts under CEQA. A VMT assessment has therefore been prepared in accordance with the Governor's OPR technical advisory. Based on the guidance provided in the OPR advisory, VMT impacts of the Project are determined to be less than significant.

The City's current traffic study guidelines require that a Level of Service (LOS) analysis be performed for the purpose of identifying potential operational deficiencies at intersections in the vicinity of the Project Site. Accordingly, eight intersections were analyzed to determine changes in operations following occupancy and utilization of the proposed Project. It is concluded that the proposed Project is not anticipated to exceed operations criteria from the City of Moorpark at any of the study intersections under existing conditions.

The Project, along with the identified cumulative development projects, is anticipated to contribute to the degradation of intersection operations in the future cumulative traffic conditions. Potential cumulative improvement measures have been identified that are anticipated to improve the operating conditions. It is anticipated that the proposed Project would contribute funds on a fair-share basis towards the implementation of the cumulative measures.

APPENDIX A

ITERIS TECHNICAL MEMORANDUM

iteris®

213.488.0345
iteris.com

801 South Grand Avenue, Suite 750
Los Angeles, CA 90017

TECHNICAL MEMORANDUM

To:	Linscott, Law, and Greenspan (LLG) Engineers	**From:**	Iteris, Inc.
Date:	April 27, 2021		
RE:	Everett Street Terraces Project – Vehicle Miles Traveled Outputs		

INTRODUCTION

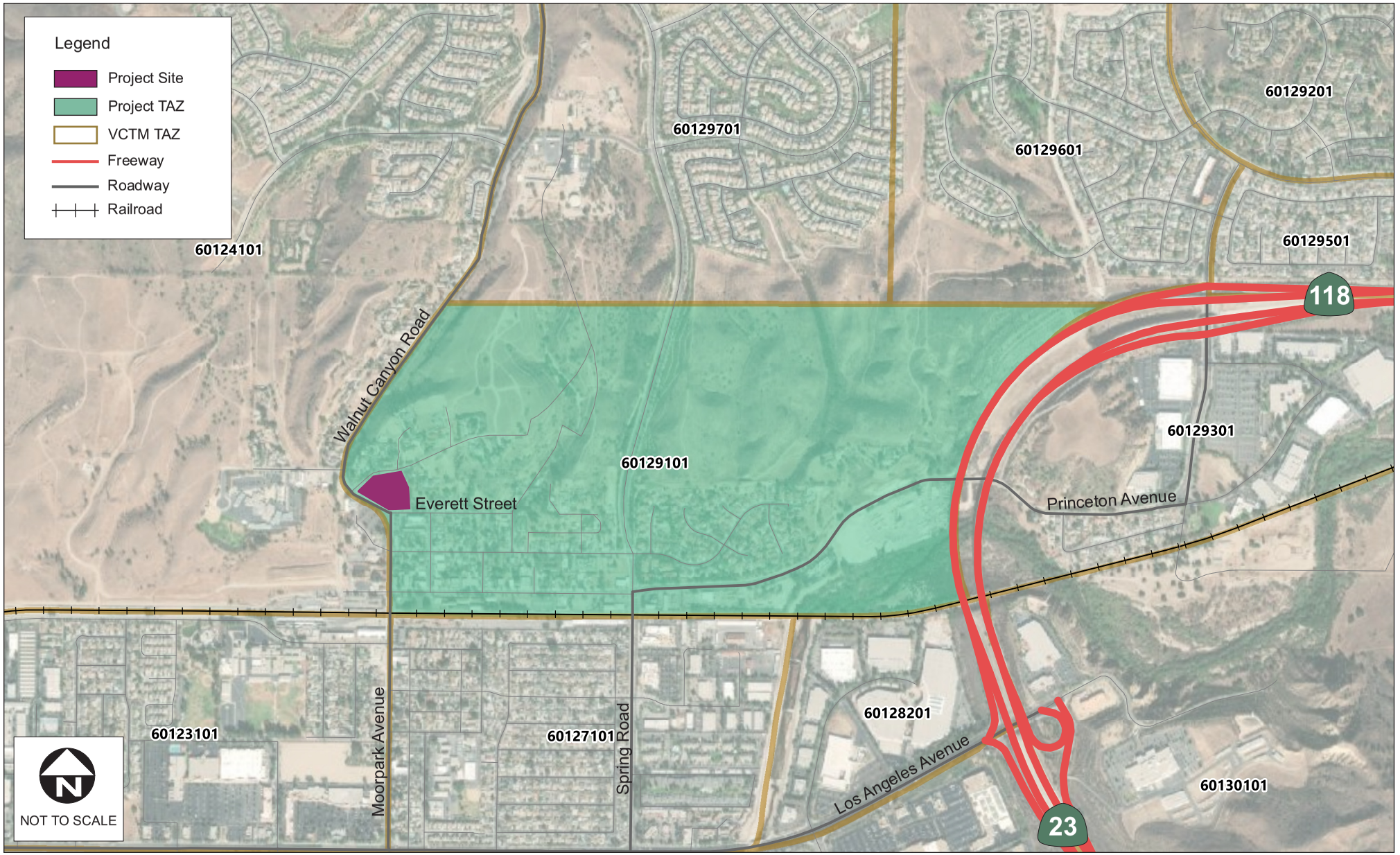
This memorandum presents Iteris' Vehicle Miles Traveled (VMT) analysis of the Everett Street Terraces project in the City of Moorpark. The Everett Street Terraces project consists of 60 residential condominium units. The project site is located at the northeast corner of the intersection of Moorpark Avenue and Everett Street.

CEQA analysis for determining potential significant transportation impacts from vehicles transitioned in 2020 from an automobile delay or capacity measure to a Vehicle Miles Traveled (VMT) metric as required by Senate Bill (SB) 743. VMT is an area-wide performance measure which helps compare the overall performance of a project or project alternatives and is also used as a metric to ultimately assess the transportation environmental impacts of a project. VMT is generally calculated using a travel demand model that captures the movement of all trips over a highway network. For this analysis, the time period was defined as a 24 hour period on a typical weekday.

METHODOLOGY

Iteris utilized the Ventura County Transportation Model (VCTM) to generate VMT statistics. This land-use based model, which is a subarea model of the Southern California Association of Government's (SCAG) travel demand model, is consistent with the 2016 SCAG RTP/SCS travel-demand model assumptions. The model consists of a 2016 base year scenario and 2040 future year scenario. For the purposes of this analysis, the 2016 base year scenario was utilized.

The VCTM consists of a detailed traffic analysis zone (TAZ) structure in the City of Moorpark. The model consists of 19 TAZ's within the City. **Figure 1** shows the location of the proposed project's TAZ (60129101).



iteris®

Everett Terraces Project
CEQA Transportation Analysis
City of Moorpark

Figure 1
Project Location and Transportation Analysis Zones (TAZ)

VMT ANALYSIS

The proposed project is residential, thus VMT will be reported as Residential VMT per Capita, calculated as such: Home-Based Production VMT / Residential Population. In order to determine the project's potential level of impact, a new VCTM scenario including the proposed project land use within TAZ 60129101 was prepared, utilizing the existing/baseline year of the model. From this new model scenario output, the following three metrics were calculated:

- Countywide average daily VMT per capita; and
- Citywide average daily VMT per capita; and
- Project TAZ-level daily VMT per capita.

The new VCTM scenario resulted in the following outputs:

- Countywide average daily VMT per capita, for use within this analysis only, is 15.62; and
- Citywide average daily VMT per capita, for use within this analysis only, is 20.54; and
- Project TAZ-level daily VMT per capita is 19.58.

APPENDIX B

HISTORICAL TRAFFIC COUNT DATA

Prepared by National Data & Surveying Services

Walnut Canyon Rd & Casey Rd

Peak Hour Turning Movement Count

ID: 19-05109-004
City: Moorpark

Day: Wednesday
Date: 04/17/2019

	PEAK HOURS	COUNT PERIODS
AM	07:45 AM - 08:45 AM	07:00 AM - 10:00 AM
NOON	NONE	NONE
PM	04:30 PM - 05:30 PM	04:30 PM - 07:30 PM

Walnut Canyon Rd — SOUTHBOUND

	Right	Thru	Left	U-Turn	Departing
AM	74	348	0	0	205
NOON	0	0	0	0	0
PM	9	189	0	0	336
Lanes	0	1	0	0	

Casey Rd — EASTBOUND

	AM	NOON	PM	Lanes
Departing	316	0	90	
U-Turn	0	0	0	0
Left	34	0	15	1
Thru	0	0	0	0
Right	245	0	84	1

Casey Rd — WESTBOUND

	PM	NOON	AM	Lanes
U-Turn	0	0	0	0
Left	0	0	0	0
Thru	0	0	0	0
Right	0	0	0	0
Departing	0	0	0	

Walnut Canyon Rd — NORTHBOUND

	Departing	U-Turn	Left	Thru	Right
Lanes		0	1	1	0
PM	272	0	82	321	0
NOON	0	0	0	0	0
AM	592.5	0	242	172	0

CONTROL

Signalized

	AM	NOON	PM
TEV	###	0	698
PHF	0.81		0.82

Total Vehicles (AM)

Approach	Left	Thru	Right
Southbound	0	360	76
Eastbound	28	0	256
Westbound	0	0	0
Northbound	241	162	0

Total Vehicles (Noon)

Approach	Left	Thru	Right
Southbound	N/A	N/A	N/A
Eastbound	N/A	N/A	N/A
Westbound	N/A	N/A	N/A
Northbound	N/A	N/A	N/A

Total Vehicles (PM)

Approach	Left	Thru	Right
Southbound	0	198	11
Eastbound	13	0	86
Westbound	0	0	0
Northbound	78	324	0

Bikes (AM)

Approach	Left	Thru	Right
Southbound	0	0	0
Eastbound	0	0	0
Westbound	0	0	0
Northbound	0	0	0

Bikes (NOON)

Approach	Left	Thru	Right
Southbound	N/A	N/A	N/A
Eastbound	N/A	N/A	N/A
Westbound	N/A	N/A	N/A
Northbound	N/A	N/A	N/A

Bikes (PM)

Approach	Left	Thru	Right
Southbound	0	0	0
Eastbound	0	0	0
Westbound	0	0	0
Northbound	0	0	0

Pedestrians (Crosswalks)

Crosswalk	PM	NOON	AM	AM	NOON	PM
North leg	0	0	0	0	0	0
West leg	2	0	8	1	0	2
East leg	0	0	0	0	0	0
South leg	1	0	3	4	0	0

Diagonal	PM	NOON	AM
Northwest	0	0	0
Northeast	0	0	0
Southwest	0	0	0
Southeast	0	0	0

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: CA13_5332_002 **Day:** WEDNESDAY

City: City of Moorpark **Date:** 6/12/2013

AM

NS/EW Streets:	Moorpark Ave			Moorpark Ave			Everett St			Everett St			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	1	0	0	1	0	0	0	0	1	0	1	
7:00 AM		25	1	2	45					1		1	75
7:15 AM		26	1	0	56					1		1	85
7:30 AM		52	1	3	83					2		2	143
7:45 AM		128	0	1	100					1		3	233
8:00 AM		137	1	2	134					1		6	281
8:15 AM		91	0	3	140					0		2	236
8:30 AM		59	3	1	74					4		1	142
8:45 AM		44	0	0	39					3		0	86
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	0	562	7	12	671	0	0	0	0	13	0	16	1281
APPROACH %'s :	0.00%	98.77%	1.23%	1.76%	98.24%	0.00%	#DIV/0!	#DIV/0!	#DIV/0!	44.83%	0.00%	55.17%	
PEAK HR START TIME :	730 AM												TOTAL
PEAK HR VOL :	0	408	2	9	457	0	0	0	0	4	0	13	893
PEAK HR FACTOR :		0.743			0.815			0.000			0.607		0.794

CONTROL : 1-Way Stop (WB)

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: CA13_5332_002 **Day:** WEDNESDAY

City: City of Moorpark **Date:** 6/12/2013

PM

NS/EW Streets:	Moorpark Ave			Moorpark Ave			Everett St			Everett St			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	1	0	0	1	0	0	0	0	1	0	1	
4:00 PM		51	2	0	46					3		0	102
4:15 PM		50	3	0	35					3		2	93
4:30 PM		56	2	1	56					2		1	118
4:45 PM		73	1	1	54					0		2	131
5:00 PM		60	2	1	56					2		3	124
5:15 PM		62	5	0	49					3		2	121
5:30 PM		53	2	0	43					3		2	103
5:45 PM		47	5	1	44					3		0	100
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	0	452	22	4	383	0	0	0	0	19	0	12	892
APPROACH %'s :	0.00%	95.36%	4.64%	1.03%	98.97%	0.00%	#DIV/0!	#DIV/0!	#DIV/0!	61.29%	0.00%	38.71%	
PEAK HR START TIME :	430 PM												TOTAL
PEAK HR VOL :	0	251	10	3	215	0	0	0	0	7	0	8	494
PEAK HR FACTOR :		0.882			0.956			0.000			0.750		0.943

CONTROL : 1-Way Stop (WB)

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: CA13_5332_003 **Day:** WEDNESDAY

City: City of Moorpark **Date:** 6/12/2013

AM

NS/EW Streets:	Moorpark Ave			Moorpark Ave			Charles St			Charles St			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	1	0	1	1	0	0.5	0.5	1	0	1	0	
7:00 AM	2	24	2	3	42	0		0	1	9	0	1	84
7:15 AM	4	27	4	2	56	0		0	1	8	0	1	103
7:30 AM	10	49	0	2	82	0		1	0	10	1	5	160
7:45 AM	16	115	0	15	84	1		0	0	6	0	12	249
8:00 AM	3	129	3	10	124	2		0	2	2	0	9	284
8:15 AM	5	85	1	14	122	2		1	0	1	0	5	236
8:30 AM	4	62	4	10	71	1		1	2	5	0	3	163
8:45 AM	5	43	1	0	41	1		0	2	4	0	1	98
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	49	534	15	56	622	7	0	3	8	45	1	37	1377
APPROACH %'s :	8.19%	89.30%	2.51%	8.18%	90.80%	1.02%	0.00%	27.27%	72.73%	54.22%	1.20%	44.58%	
PEAK HR START TIME :	745 AM												TOTAL
PEAK HR VOL :	28	391	8	49	401	6	0	2	4	14	0	29	932
PEAK HR FACTOR :		0.791			0.826			0.500			0.597		0.820

CONTROL : 2-Way Stop (EB,WB)

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: CA13_5332_003 **Day:** WEDNESDAY

City: City of Moorpark **Date:** 6/12/2013

PM

NS/EW Streets:	Moorpark Ave			Moorpark Ave			Charles St			Charles St			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	1	0	1	1	0	0.5	0.5	1	0	1	0	
4:00 PM	9	53	3	4	42	2	0	0	10	8	2	0	133
4:15 PM	5	51	3	3	36	2	1	2	11	5	0	1	120
4:30 PM	8	57	4	6	52	1	1	1	6	0	1	1	138
4:45 PM	8	66	6	6	45	2	2	1	11	10	1	6	164
5:00 PM	5	60	4	0	55	1	1	2	7	4	1	1	141
5:15 PM	3	64	2	2	52	1	1	0	3	6	0	3	137
5:30 PM	4	54	6	2	44	0	0	3	3	5	0	2	123
5:45 PM	4	49	5	3	43	1	1	3	17	5	0	3	134
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	46	454	33	26	369	10	7	12	68	43	5	17	1090
APPROACH %'s :	8.63%	85.18%	6.19%	6.42%	91.11%	2.47%	8.05%	13.79%	78.16%	66.15%	7.69%	26.15%	
PEAK HR START TIME :	430 PM												TOTAL
PEAK HR VOL :	24	247	16	14	204	5	5	4	27	20	3	11	580
PEAK HR FACTOR :		0.897			0.945			0.643			0.500		0.884

CONTROL : 2-Way Stop (EB,WB)

Prepared by National Data & Surveying Services

Moorpark Ave & High St

Peak Hour Turning Movement Count

ID: 19-05109-005
City: Moorpark

Day: Wednesday
Date: 04/17/2019

PEAK HOURS

AM	07:45 AM - 08:45 AM
NOON	NONE
PM	05:00 PM - 06:00 PM

COUNT PERIODS

AM	07:00 AM - 10:00 AM
NOON	NONE
PM	04:30 PM - 07:30 PM

Moorpark Ave — SOUTHBOUND

AM	5	403	174	0	407.5	AM
NOON	0	0	0	0	0	NOON
PM	6	214	87	0	417	PM

High St — EASTBOUND

AM	NOON	PM	
30	0	53	
0	0	0	0
5	0	7	0
13	0	21	1
14	0	36	0
AM	NOON	PM	

CONTROL

Signalized

TEV	###	0	###
	AM	NOON	PM
PHF	0.86		0.98

High St — WESTBOUND

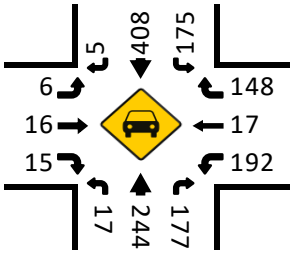
	PM	NOON	AM
1	118	0	141
0.5	21	0	13
0.5	266	0	206
0	0	0	0
	399	0	370
	PM	NOON	AM

Moorpark Ave — NORTHBOUND

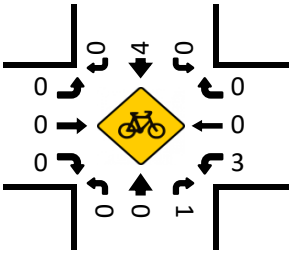
PM	515.5	0	26	292	292	PM
NOON	0	0	0	0	0	NOON
AM	622.5	0	13	262	183	AM

0 1 1 0 — 0 0.5 0.5 1

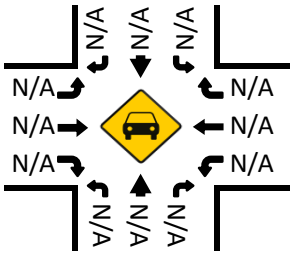
Total Vehicles (AM)



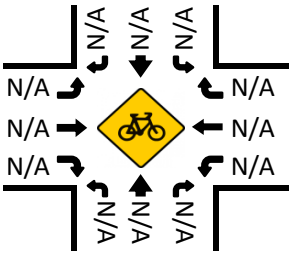
Bikes (AM)



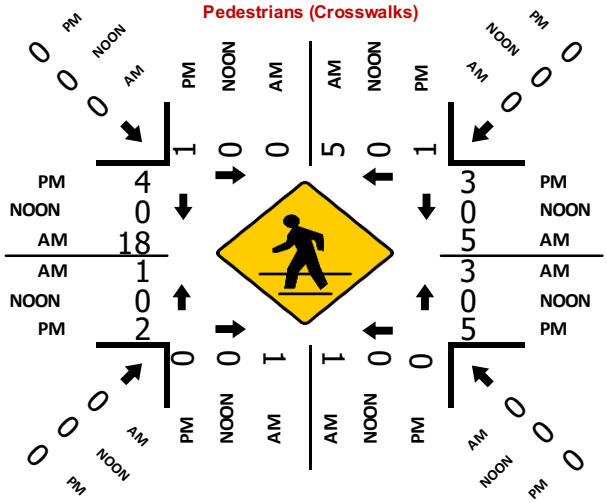
Total Vehicles (Noon)



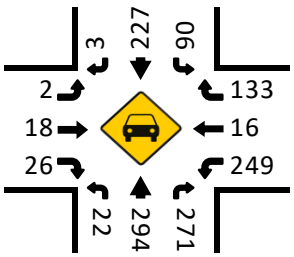
Bikes (NOON)



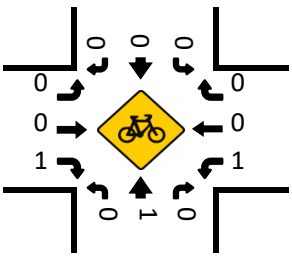
Pedestrians (Crosswalks)



Total Vehicles (PM)



Bikes (PM)



Prepared by National Data & Surveying Services

Moorpark Ave & Poindexter Ave/1st St

Peak Hour Turning Movement Count

ID: 19-05109-008
City: Moorpark

Day: Wednesday
Date: 04/03/2019

PEAK HOURS

AM: 08:00 AM - 09:00 AM
NOON: NONE
PM: 04:30 PM - 05:30 PM

COUNT PERIODS

AM: 07:00 AM - 10:00 AM
NOON: NONE
PM: 04:30 PM - 07:30 PM

CONTROL: Signalized

	AM	NOON	PM
TEV	###	0	###
PHF	0.94		0.93

SOUTHBOUND (Moorpark Ave)

AM	315	296	10	0	478.5	AM
NOON	0	0	0	0	0	NOON
PM	214	336	11	0	675.5	PM

EASTBOUND (Poindexter Ave/1st St)

	AM	NOON	PM	
	457	0	295	
0	0	0	0	0
1	198	0	286	1
0	25	0	28	0
1	62	0	70	1
	AM	NOON	PM	

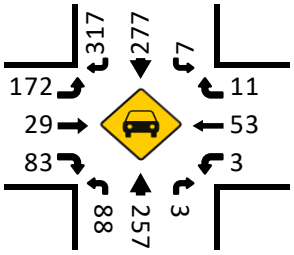
WESTBOUND (Poindexter Ave/1st St)

	PM	NOON	AM	
1	14	0	17	
0	30	0	58	
1	8	0	3	
0	0	0	0	
	50	0	39	
	PM	NOON	AM	

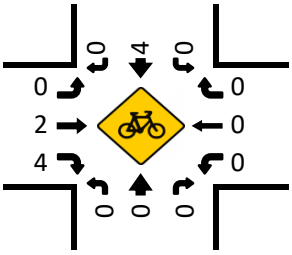
NORTHBOUND (Moorpark Ave)

PM	413.5	0	51	377	11	PM
NOON	0	0	0	0	0	NOON
AM	361	0	84	265	4	AM

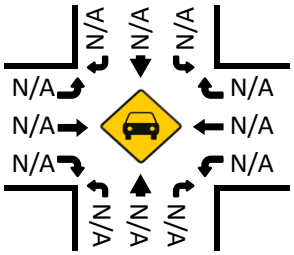
Total Vehicles (AM)



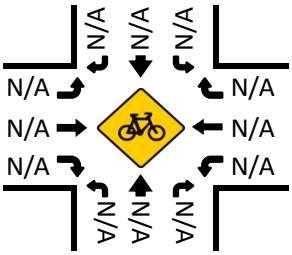
Bikes (AM)



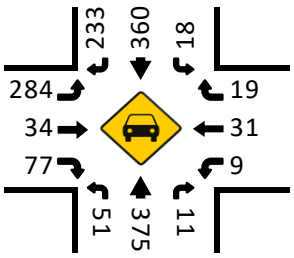
Total Vehicles (Noon)



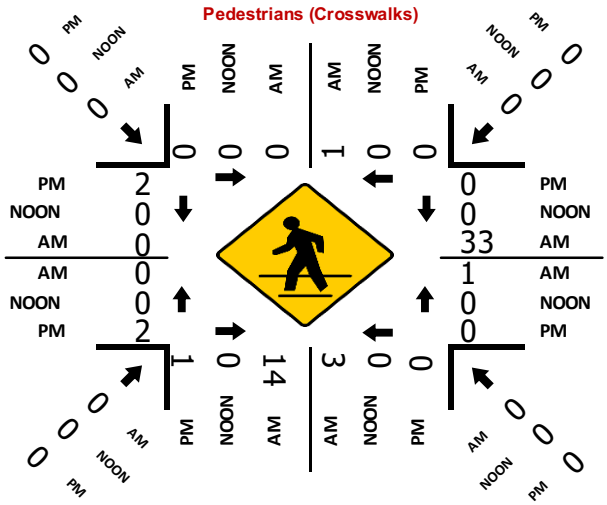
Bikes (NOON)



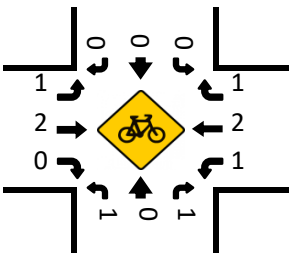
Total Vehicles (PM)



Pedestrians (Crosswalks)



Bikes (PM)



Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: CA13_5332_006 **Day:** WEDNESDAY

City: City of Moorpark **Date:** 6/12/2013

AM

NS/EW Streets:	Walnut St			Walnut St			High St			High St			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	1	0	0	1	0	0	1	0	0	1	0	
7:00 AM	0		0	1		4	1	33	0	0	62	0	101
7:15 AM	1		2	1		1	2	42	0	1	51	5	106
7:30 AM	0		0	1		3	2	76	0	0	104	3	189
7:45 AM	0		0	5		5	5	71	0	0	92	3	181
8:00 AM	0		0	2		1	2	93	0	0	90	2	190
8:15 AM	0		0	3		2	1	73	1	0	65	1	146
8:30 AM	0		0	4		3	0	67	0	0	75	3	152
8:45 AM	0		0	1		1	1	38	0	0	44	4	89
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	1	0	2	18	0	20	14	493	1	1	583	21	1154
APPROACH %'s :	33.33%	0.00%	66.67%	47.37%	0.00%	52.63%	2.76%	97.05%	0.20%	0.17%	96.36%	3.47%	
PEAK HR START TIME :	730 AM												TOTAL
PEAK HR VOL :	0	0	0	11	0	11	10	313	1	0	351	9	706
PEAK HR FACTOR :	0.000			0.550			0.853			0.841			0.929

CONTROL : 2-Way Stop (NB,SB)

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: CA13_5332_006 **Day:** WEDNESDAY

City: City of Moorpark **Date:** 6/12/2013

PM

NS/EW Streets:	Walnut St			Walnut St			High St			High St			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	1	0	0	1	0	0	1	0	0	1	0	
4:00 PM	0			0		7	11	93	1	0	78	12	202
4:15 PM	0			1		6	5	92	0	0	83	4	191
4:30 PM	0			5		8	11	103	0	0	81	14	222
4:45 PM	0			6		6	10	103	0	0	95	9	229
5:00 PM	0			3		5	9	99	0	0	81	5	202
5:15 PM	1			1		8	9	104	1	0	78	10	212
5:30 PM	0			6		3	0	85	2	0	71	7	174
5:45 PM	0			1		4	3	94	0	2	59	6	169
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	1	0	0	23	0	47	58	773	4	2	626	67	1601
APPROACH %'s :	100.00%	0.00%	0.00%	32.86%	0.00%	67.14%	6.95%	92.57%	0.48%	0.29%	90.07%	9.64%	
PEAK HR START TIME :	430 PM												TOTAL
PEAK HR VOL :	1	0	0	15	0	27	39	409	1	0	335	38	865
PEAK HR FACTOR :		0.250			0.808			0.985			0.897		0.944

CONTROL : 2-Way Stop (NB,SB)

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: CA13_5332_007 **Day:** WEDNESDAY

City: City of Moorpark **Date:** 6/12/2013

AM

NS/EW Streets:	Spring Rd			Spring Rd			Charles St			Charles St			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	1.5	0.5	1	2	0	0.5	0.5	0	0.5	0.5	1	
7:00 AM	7	58	2	0	113	1	0	1	13	10	3	1	209
7:15 AM	3	67	3	3	156	2	2	2	14	15	1	2	270
7:30 AM	3	53	4	1	190	0	0	0	10	14	2	2	279
7:45 AM	5	65	0	1	180	1	2	1	11	11	8	1	286
8:00 AM	7	79	5	2	162	0	0	3	16	10	2	0	286
8:15 AM	4	60	3	1	156	0	0	1	21	18	3	1	268
8:30 AM	2	75	4	1	151	1	3	1	24	8	1	1	272
8:45 AM	8	55	2	1	115	1	0	0	7	7	2	0	198
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	39	512	23	10	1223	6	7	9	116	93	22	8	2068
APPROACH %'s :	6.79%	89.20%	4.01%	0.81%	98.71%	0.48%	5.30%	6.82%	87.88%	75.61%	17.89%	6.50%	
PEAK HR START TIME :	715 AM												TOTAL
PEAK HR VOL :	18	264	12	7	688	3	4	6	51	50	13	5	1121
PEAK HR FACTOR :		0.808			0.914			0.803			0.850		0.980

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: CA13_5332_007 **Day:** WEDNESDAY

City: City of Moorpark **Date:** 6/12/2013

PM

NS/EW Streets:	Spring Rd			Spring Rd			Charles St			Charles St			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	1.5	0.5	1	2	0	0.5	0.5	0	0.5	0.5	1	
4:00 PM	2	135	9	1	71	1	0	0	9	7	1	1	237
4:15 PM	8	153	12	0	64	0	0	0	7	3	1	0	248
4:30 PM	8	162	9	0	121	0	1	1	15	6	0	1	324
4:45 PM	11	183	9	2	90	1	2	1	10	4	1	0	314
5:00 PM	15	153	9	0	109	2	2	0	14	5	2	0	311
5:15 PM	14	169	16	1	101	0	2	0	8	9	2	0	322
5:30 PM	8	156	13	0	99	1	4	3	9	7	0	2	302
5:45 PM	11	181	16	0	78	0	1	0	7	8	0	1	303
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	77	1292	93	4	733	5	12	5	79	49	7	5	2361
APPROACH %'s :	5.27%	88.37%	6.36%	0.54%	98.79%	0.67%	12.50%	5.21%	82.29%	80.33%	11.48%	8.20%	
PEAK HR START TIME :	430 PM												TOTAL
PEAK HR VOL :	48	667	43	3	421	3	7	2	47	24	5	1	1271
PEAK HR FACTOR :		0.933			0.882			0.824			0.682		0.981

CONTROL : Signalized

Prepared by National Data & Surveying Services

Spring Rd & High St

Peak Hour Turning Movement Count

ID: 19-05109-006
City: Moorpark

Day: Wednesday
Date: 04/03/2019

	PEAK HOURS	COUNT PERIODS
AM	07:45 AM - 08:45 AM	07:00 AM - 10:00 AM
NOON	NONE	NONE
PM	04:30 PM - 05:30 PM	04:30 PM - 07:30 PM

Spring Rd – SOUTHBOUND

	Right	Through	Left	U-turn	Exit
AM	22	567	404	0	378
NOON	0	0	0	0	0
PM	29	295	218	0	1132.5
Lanes	0.5	1.5	1	0	

High St – WESTBOUND

Movement	Lanes	PM	NOON	AM
Right	1	474	0	162
Through	1	273	0	243
Left	1	102	0	81
U-turn	0	0	0	1
Exit		802	0	871

High St – EASTBOUND

Movement	AM	NOON	PM	Lanes
Exit	392	0	470	
U-turn	0	0	0	0
Left	12	0	35	1
Through	240	0	322	1
Right	163	0	139	1

Spring Rd – NORTHBOUND

	Exit	U-turn	Left	Through	Right
Lanes		0	1	2	1
PM	535	0	168	624	263
NOON	0	0	0	0	0
AM	810.5	0	128	205	226

CONTROL

Signalized

	AM	NOON	PM
TEV	###	0	###
PHF	0.94		0.91

Total Vehicles (AM)

Approach	Left	Through	Right
Southbound	409	580	24
Eastbound	11	239	157
Westbound	82	253	167
Northbound	130	205	227

Total Vehicles (Noon)

Approach	Left	Through	Right
Southbound	N/A	N/A	N/A
Eastbound	N/A	N/A	N/A
Westbound	N/A	N/A	N/A
Northbound	N/A	N/A	N/A

Total Vehicles (PM)

Approach	Left	Through	Right
Southbound	230	272	23
Eastbound	30	310	136
Westbound	98	275	476
Northbound	157	620	265

Bikes (AM)

Approach	Left	Through	Right
Southbound	0	0	0
Eastbound	0	1	1
Westbound	0	0	0
Northbound	0	0	0

Bikes (NOON)

Approach	Left	Through	Right
Southbound	N/A	N/A	N/A
Eastbound	N/A	N/A	N/A
Westbound	N/A	N/A	N/A
Northbound	N/A	N/A	N/A

Bikes (PM)

Approach	Left	Through	Right
Southbound	1	0	2
Eastbound	0	0	0
Westbound	0	0	0
Northbound	1	0	0

Pedestrians (Crosswalks)

Crosswalk	Direction	PM	NOON	AM
North leg	West half	3	0	0
North leg	East half	1	0	0
West leg	North half	3	0	2
West leg	South half	1	0	1
East leg	North half	3	0	1
East leg	South half	0	0	1
South leg	West half	0	0	4
South leg	East half	0	0	1
Diagonal NW		0	0	0
Diagonal NE		0	0	0
Diagonal SW		0	0	0
Diagonal SE		0	0	0

APPENDIX C

ICU AND LEVELS OF SERVICE EXPLANATION
ICU DATA WORKSHEETS – WEEKDAY AM AND PM PEAK HOURS

INTERSECTION CAPACITY UTILIZATION (ICU) DESCRIPTION

Level of Service is a term used to describe prevailing conditions and their effect on traffic. Broadly interpreted, the Levels of Service concept denotes any one of a number of differing combinations of operating conditions which may occur as a roadway is accommodating various traffic volumes. Level of Service is a qualitative measure of the effect of such factors as travel speed, travel time, traffic interruptions, freedom to maneuver, safety, driving comfort and convenience.

Six Levels of Service, A through F, have been defined in the 1965 *Highway Capacity Manual*, published by the Transportation Research Board. Level of Service A describes a condition of free flow, with low traffic volumes and relatively high speeds, while Level of Service F describes forced traffic flow at low speeds with jammed conditions and queues which cannot clear during the green phases.

The Intersection Capacity Utilization (ICU) method of intersection capacity analysis has been used in our studies. It directly relates traffic demand and available capacity for key intersection movements, regardless of present signal timing, The capacity per hour of green time for each approach is calculated based on the methods of the *Highway Capacity Manual*. The proportion of total signal time needed by each key movement is determined and compared to the total time available (100 percent of the hour). The result of summing the requirements of the conflicting key movements plus an allowance for clearance times is expressed as a decimal fraction. Conflicting key traffic movements are those opposing movements whose combined green time requirements are greatest.

The resulting ICU represents the proportion of the total hour required to accommodate intersection demand volumes if the key conflicting traffic movements are operating at capacity. Other movements may be operating near capacity, or may be operating at significantly better levels. The ICU may be translated to a Level of Service as tabulated below.

The Levels of Service (abbreviated from the *Highway Capacity Manual*) are listed here with their corresponding ICU and Load Factor equivalents. Load Factor is that proportion of the signal cycles during the peak hour which are fully loaded; i.e. when all of the vehicles waiting at the beginning of green are not able to clear on that green phase.

Intersection Capacity Utilization Characteristics

Level of Service	Load Factor	Equivalent ICU
A	0.0	0.00 - 0.60
B	0.0 - 0.1	0.61 - 0.70
C	0.1 - 0.3	0.71 - 0.80
D	0.3 - 0.7	0.81 - 0.90
E	0.7 - 1.0	0.91 - 1.00
F	Not Applicable	Not Applicable

SERVICE LEVEL A
There are no loaded cycles and few are even close to loaded at this service level. No approach phase is fully utilized by traffic and no vehicle waits longer than one red indication.

SERVICE LEVEL B
This level represents stable operation where an occasional approach phase is fully utilized and a substantial number are approaching full use. Many drivers begin to feel restricted within platoons of vehicles.

SERVICE LEVEL C
At this level stable operation continues. Loading is still intermittent but more frequent than at Level B. Occasionally drivers may have to wait through more than one red signal indication and backups may develop behind turning vehicles. Most drivers feel somewhat restricted, but not objectionably so.

SERVICE LEVEL D
This level encompasses a zone of increasing restriction approaching instability at the intersection. Delays to approaching vehicles may be substantial during short peaks within the peak hour, but enough cycles with lower demand occur to permit periodic clearance of queues, thus preventing excessive backups. Drivers frequently have to wait through more than one red signal. This level is the lower limit of acceptable operation to most drivers.

SERVICE LEVEL E
This represents near capacity and capacity operation. At capacity (ICU = 1.0) it represents the most vehicles that the particular intersection can accommodate. However, full utilization of every signal cycle is seldom attained no matter how great the demand. At this level all drivers wait through more than one red signal, and frequently through several.

SERVICE LEVEL F
Jammed conditions. Traffic backed up from a downstream location on one of the street restricts or prevents movement of traffic through the intersection under consideration.

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INTERSECTION CAPACITY UTILIZATION

Walnut Canyon Road - Moorpaek Avenue @ Casey Road

N-S St:	Walnut Canyon Road - Moorpaek Avenue	Peak hr:	AM	Date:	05/04/2021
E-W St:	Casey Road	Annual Growth:	1.0%	Date of Count:	2021
Project:	5-13-0055-1 Everett Street Terraces Project			Projection Year:	2024
File:	ICU-1				

	2021 EXIST. TRAFFIC			2021 W/PROJECT SITE TRAFFIC				2024 WITHOUT PROJECT				2024 W/PROJECT				2024 W/PROJECT + IMPROVEMENTS			
	1	2	V/C	Added	Total	2	V/C	Added	Total	2	V/C	Added	Total	2	V/C	Added	Total	2	V/C
Movement	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio
Nb Left	247	1500	0.165 *	0	247	1500	0.165 *	102	356	1500	0.238 *	0	356	1500	0.238 *	0	356	1500	0.238 *
Nb Thru	175	1600	0.109	2	177	1600	0.111	40	220	1600	0.138	2	222	1600	0.139	0	222	1600	0.139
Nb Right	0	0	-	0	0	0	-	0	0	0	-	0	0	0	-	0	0	0	-
Sb Left	0	0	0.000	0	0	0	0.000	0	0	0	0.000	0	0	0	0.000	0	0	0	0.000
Sb Thru	355	1600	0.269 *	1	356	1600	0.269 *	92	458	1600	0.341 *	1	459	1600	0.342 *	0	459	1600	0.342 *
Sb Right	75	0	-	0	75	0	-	11	88	0	-	0	88	0	-	0	88	0	-
Eb Left	35	1500	0.023	0	35	1500	0.023	30	66	1500	0.044	0	66	1500	0.044	0	66	1500	0.044
Eb Thru	0	0	0.000	0	0	0	0.000	0	0	0	0.000	0	0	0	0.000	0	0	0	0.000
Eb Right [3]	250	1500	0.167 *	0	250	1500	0.167 *	290	548	1500	0.365 *	0	548	1500	0.365 *	0	548	1500	0.127 *
Wb Left	0	0	0.000 *	0	0	0	0.000 *	0	0	0	0.000 *	0	0	0	0.000 *	0	0	0	0.000 *
Wb Thru	0	0	0.000	0	0	0	0.000	0	0	0	0.000	0	0	0	0.000	0	0	0	0.000
Wb Right	0	0	-	0	0	0	-	0	0	0	-	0	0	0	-	0	0	0	-
Yellow Allowance:			0.100 *				0.100 *				0.100 *				0.100 *				0.100 *
ICU			0.700				0.701				1.044				1.044				0.807
LOS			B				C				F				F				D

03:21 PM

** Key conflicting movement as a part of ICU*
1 Counts conducted by NDS
2 Capacity expressed in veh/hour of green
3 The improvement measure includes the traffic signal modification to provide an eastbound right-turn overlap phase to coincide with the northbound left-turn phase.

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INTERSECTION CAPACITY UTILIZATION

Walnut Canyon Road - Moorpaek Avenue @ Casey Road

N-S St:	Walnut Canyon Road - Moorpaek Avenue	Peak hr:	PM	Date:	05/04/2021
E-W St:	Casey Road	Annual Growth:	1.0%	Date of Count:	2021
Project:	5-13-0055-1 Everett Street Terraces Project			Projection Year:	2024
File:	ICU-1				

	2021 EXIST. TRAFFIC			2021 W/PROJECT SITE TRAFFIC				2024 WITHOUT PROJECT				2024 W/PROJECT				2024 W/PROJECT + IMPROVEMENTS			
	1	2	V/C	Added	Total	2	V/C	Added	Total	2	V/C	Added	Total	2	V/C	Added	Total	2	V/C
Movement	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio
Nb Left	84	1500	0.056	0	84	1500	0.056	309	396	1500	0.264 *	0	396	1500	0.264 *	0	396	1500	0.264 *
Nb Thru	327	1600	0.204 *	1	328	1600	0.205 *	104	441	1600	0.276	1	442	1600	0.276	0	442	1600	0.276
Nb Right	0	0	-	0	0	0	-	0	0	0	-	0	0	0	-	0	0	0	-
Sb Left	0	0	0.000 *	0	0	0	0.000 *	0	0	0	0.000	0	0	0	0.000	0	0	0	0.000
Sb Thru	193	1600	0.126	2	195	1600	0.128	65	264	1600	0.191 *	2	266	1600	0.192 *	0	266	1600	0.192 *
Sb Right	9	0	-	0	9	0	-	32	41	0	-	0	41	0	-	0	41	0	-
Eb Left	15	1500	0.010	0	15	1500	0.010	22	37	1500	0.025	0	37	1500	0.025	0	37	1500	0.025
Eb Thru	0	0	0.000	0	0	0	0.000	0	0	0	0.000	0	0	0	0.000	0	0	0	0.000
Eb Right [3]	86	1500	0.057 *	0	86	1500	0.057 *	202	291	1500	0.194 *	0	291	1500	0.194 *	0	291	1500	0.000
Wb Left	0	0	0.000 *	0	0	0	0.000 *	0	0	0	0.000 *	0	0	0	0.000 *	0	0	0	0.000
Wb Thru	0	0	0.000	0	0	0	0.000	0	0	0	0.000	0	0	0	0.000	0	0	0	0.000
Wb Right	0	0	-	0	0	0	-	0	0	0	-	0	0	0	-	0	0	0	-
Yellow Allowance:			0.100 *				0.100 *				0.100 *				0.100 *				0.100 *
ICU			0.362				0.362				0.748				0.749				0.581
LOS			A				A				C				C				A

03:21 PM

** Key conflicting movement as a part of ICU*
1 Counts conducted by NDS
2 Capacity expressed in veh/hour of green
3 The improvement measure includes the traffic signal modification to provide an eastbound right-turn overlap phase to coincide with the northbound left-turn phase.

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INTERSECTION CAPACITY UTILIZATION

Moorpark Avenue @ Everett Street

N-S St: Moorpark Avenue
E-W St: Everett Street
Project: 5-13-0055-1 Everett Street Terraces Project
File: ICU-2

Peak hr: AM
Annual Growth: 1.0%

Date: 05/04/2021
Date of Count: 2021
Projection Year: 2024

	2021 EXIST. TRAFFIC			2021 W/PROJECT SITE TRAFFIC				2024 WITHOUT PROJECT				2024 W/PROJECT			
	1	2	V/C	Added	Total	2	V/C	Added	Total	2	V/C	Added	Total	2	V/C
Movement	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio
Nb Left	0	0	0.000 *	0	0	0	0.000 *	0	0	0	0.000 *	0	0	0	0.000 *
Nb Thru	591	1600	0.371	0	591	1600	0.374	142	751	1600	0.470	0	751	1600	0.474
Nb Right	2	0	-	5	7	0	-	0	2	0	-	5	7	0	-
Sb Left	11	1500	0.007	1	12	1500	0.008	0	11	1500	0.008	1	12	1500	0.008
Sb Thru	662	1600	0.414 *	0	662	1600	0.414 *	382	1064	1600	0.665 *	0	1064	1600	0.665 *
Sb Right	0	0	-	0	0	0	-	0	0	0	-	0	0	0	-
Eb Left	0	0	0.000 *	0	0	0	0.000	0	0	0	0.000 *	0	0	0	0.000
Eb Thru	0	0	0.000	0	0	0	0.000	0	0	0	0.000	0	0	0	0.000
Eb Right	0	0	-	0	0	0	-	0	0	0	-	0	0	0	-
Wb Left	4	1500	0.003	20	24	1500	0.016	0	4	1500	0.003	20	24	1500	0.016
Wb Thru	0	0	0.000	0	0	0	0.000	0	0	0	0.000	0	0	0	0.000
Wb Right	15	1500	0.010 *	2	17	1500	0.011	0	15	1500	0.010 *	2	17	1500	0.012
Yellow Allowance:			0.100 *				0.100 *				0.100 *				0.100 *
ICU			0.524				0.530				0.775				0.781
LOS			A				A				C				C

** Key conflicting movement as a part of ICU*
1 Counts conducted by. NDS
2 Capacity expressed in veh/hour of green

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INTERSECTION CAPACITY UTILIZATION

Moorpark Avenue @ Everett Street

N-S St: Moorpark Avenue
E-W St: Everett Street
Project: 5-13-0055-1 Everett Street Terraces Project
File: ICU-2

Peak hr: PM
Annual Growth: 1.0%

Date: 05/04/2021
Date of Count: 2021
Projection Year: 2024

	2021 EXIST. TRAFFIC			2021 W/PROJECT SITE TRAFFIC				2024 WITHOUT PROJECT				2024 W/PROJECT			
	1	2	V/C	Added	Total	2	V/C	Added	Total	2	V/C	Added	Total	2	V/C
Movement	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio
Nb Left	0	0	0.000	0	0	0	0.000	0	0	0	0.000	0	0	0	0.000
Nb Thru	335	1600	0.217 *	0	335	1600	0.229 *	413	758	1600	0.482 *	0	758	1600	0.493 *
Nb Right	12	0	-	19	31	0	-	0	12	0	-	19	31	0	-
Sb Left	3	1500	0.002 *	2	5	1500	0.003 *	0	3	1500	0.002 *	2	5	1500	0.003 *
Sb Thru	288	1600	0.180	0	288	1600	0.180	267	564	1600	0.352	0	564	1600	0.352
Sb Right	0	0	-	0	0	0	-	0	0	0	-	0	0	0	-
Eb Left	0	0	0.000 *	0	0	0	0.000	0	0	0	0.000 *	0	0	0	0.000
Eb Thru	0	0	0.000	0	0	0	0.000	0	0	0	0.000	0	0	0	0.000
Eb Right	0	0	-	0	0	0	-	0	0	0	-	0	0	0	-
Wb Left	7	1500	0.005	12	19	1500	0.013	0	7	1500	0.005	12	19	1500	0.013
Wb Thru	0	0	0.000	0	0	0	0.000	0	0	0	0.000	0	0	0	0.000
Wb Right	8	1500	0.005 *	1	9	1500	0.006	0	8	1500	0.005 *	1	9	1500	0.006
Yellow Allowance:			0.100 *				0.100 *				0.100 *				0.100 *
ICU			0.324				0.345				0.589				0.610
LOS			A				A				A				B

** Key conflicting movement as a part of ICU*
1 Counts conducted by. NDS
2 Capacity expressed in veh/hour of green

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INTERSECTION CAPACITY UTILIZATION

Moorpark Avenue @ Charles Street

N-S St: Moorpark Avenue
E-W St: Charles Street
Project: 5-13-0055-1 Everett Street Terraces Project
File: ICU-3

Peak hr: AM
Annual Growth: 1.0%

Date: 05/04/2021
Date of Count: 2021
Projection Year: 2024

	2021 EXIST. TRAFFIC			2021 W/PROJECT SITE TRAFFIC				2024 WITHOUT PROJECT				2024 W/PROJECT			
	1	2	V/C	Added	Total	2	V/C	Added	Total	2	V/C	Added	Total	2	V/C
Movement	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio
Nb Left	32	1500	0.021	0	32	1500	0.021 *	0	33	1500	0.022 *	0	33	1500	0.022 *
Nb Thru	566	1600	0.359 *	5	571	1600	0.362	142	725	1600	0.458	5	730	1600	0.461
Nb Right	8	0	-	0	8	0	-	0	8	0	-	0	8	0	-
Sb Left	55	1500	0.037 *	0	55	1500	0.037	0	57	1500	0.038	0	57	1500	0.038
Sb Thru	581	1600	0.367	20	601	1600	0.379 *	382	981	1600	0.617 *	20	1001	1600	0.629 *
Sb Right	6	0	-	0	6	0	-	0	6	0	-	0	6	0	-
Eb Left	0	0	0.000 *	0	0	0	0.000 *	0	0	0	0.000 *	0	0	0	0.000 *
Eb Thru	2	1600	0.001	0	2	1600	0.001	0	2	1600	0.001	0	2	1600	0.001
Eb Right	4	1500	0.003	0	4	1500	0.003	0	4	1500	0.003	0	4	1500	0.003
Wb Left	16	0	0.010	0	16	0	0.010	0	16	0	0.010	0	16	0	0.010
Wb Thru	0	1600	0.031 *	0	0	1600	0.031 *	0	0	1600	0.032 *	0	0	1600	0.032 *
Wb Right	33	0	-	0	33	0	-	0	34	0	-	0	34	0	-
Yellow Allowance:			0.100 *				0.100 *				0.100 *				0.100 *
ICU			0.526				0.531				0.771				0.783
LOS			A				A				C				C

** Key conflicting movement as a part of ICU*
1 Counts conducted by. NDS
2 Capacity expressed in veh/hour of green

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INTERSECTION CAPACITY UTILIZATION

Moorpark Avenue @ Charles Street

N-S St: Moorpark Avenue
E-W St: Charles Street
Project: 5-13-0055-1 Everett Street Terraces Project
File: ICU-3

Peak hr: PM
Annual Growth: 1.0%

Date: 05/04/2021
Date of Count: 2021
Projection Year: 2024

	2021 EXIST. TRAFFIC			2021 W/PROJECT SITE TRAFFIC				2024 WITHOUT PROJECT				2024 W/PROJECT			
	1	2	V/C	Added	Total	2	V/C	Added	Total	2	V/C	Added	Total	2	V/C
Movement	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio
Nb Left	26	1500	0.017	0	26	1500	0.017	0	27	1500	0.018	0	27	1500	0.018
Nb Thru	330	1600	0.218 *	19	349	1600	0.229 *	413	753	1600	0.482 *	19	772	1600	0.494 *
Nb Right	18	0	-	0	18	0	-	0	19	0	-	0	19	0	-
Sb Left	16	1500	0.011 *	0	16	1500	0.011 *	0	16	1500	0.011 *	0	16	1500	0.011 *
Sb Thru	273	1600	0.174	12	285	1600	0.181	267	548	1600	0.346	12	560	1600	0.353
Sb Right	5	0	-	0	5	0	-	0	5	0	-	0	5	0	-
Eb Left	5	0	0.003	0	5	0	0.003	0	5	0	0.003	0	5	0	0.003
Eb Thru	4	1600	0.006	0	4	1600	0.006	0	4	1600	0.006	0	4	1600	0.006
Eb Right	30	1500	0.020 *	0	30	1500	0.020 *	0	31	1500	0.021 *	0	31	1500	0.021 *
Wb Left	22	0	0.014 *	0	22	0	0.014 *	0	23	0	0.014 *	0	23	0	0.014 *
Wb Thru	3	1600	0.024	0	3	1600	0.024	0	3	1600	0.024	0	3	1600	0.024
Wb Right	13	0	-	0	13	0	-	0	13	0	-	0	13	0	-
Yellow Allowance:			0.100 *				0.100 *				0.100 *				0.100 *
ICU			0.362				0.374				0.628				0.640
LOS			A				A				B				B

** Key conflicting movement as a part of ICU*
1 Counts conducted by. NDS
2 Capacity expressed in veh/hour of green

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INTERSECTION CAPACITY UTILIZATION

Moorpark Avenue @ High Street

N-S St: Moorpark Avenue
E-W St: High Street
Project: 5-13-0055-1 Everett Street Terraces Project
File: ICU-4

Peak hr: AM
Annual Growth: 1.0%

Date: 05/05/2021
Date of Count: 2021
Projection Year: 2024

	2021 EXIST. TRAFFIC			2021 W/PROJECT SITE TRAFFIC				2024 WITHOUT PROJECT				2024 W/PROJECT				2024 W/PROJECT + IMPROVEMENTS			
	1	2	V/C	Added	Total	2	V/C	Added	Total	2	V/C	Added	Total	2	V/C	Added	Total	2	V/C
Movement	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio
Nb Left	13	0	0.008	0	13	0	0.008	13	26	0	0.016	0	26	0	0.016	0	26	0	0.008
Nb Thru	267	1600	0.175 *	2	269	1600	0.176 *	62	337	1600	0.227 *	2	339	1600	0.228 *	0	339	3200	0.114
Nb Right	187	1500	0.125	0	187	1500	0.125	28	221	1500	0.147	0	221	1500	0.147	0	221	1500	0.147 *
Sb Left	177	1500	0.118 *	11	188	1500	0.125 *	226	408	1500	0.272 *	11	419	1500	0.280 *	0	419	1500	0.280 *
Sb Thru	411	1600	0.260	9	420	1600	0.266	156	579	1600	0.365	9	588	1600	0.371	0	588	3200	0.185
Sb Right	5	0	-	0	5	0	-	0	5	0	-	0	5	0	-	0	5	0	-
Eb Left	5	0	0.003	0	5	0	0.003	0	5	0	0.003	0	5	0	0.003	0	5	0	0.003
Eb Thru [3]	13	1600	0.020 *	0	13	1600	0.020 *	47	60	1600	0.074 *	0	60	1600	0.074 *	0	60	1600	0.074 *
Eb Right	14	0	-	0	14	0	-	39	53	0	-	0	53	0	-	0	53	0	-
Wb Left	210	0	0.131	0	210	0	0.131	47	263	0	0.165	0	263	0	0.165	0	263	0	0.165
Wb Thru [3]	13	1600	0.139 *	0	13	1600	0.139 *	15	28	1600	0.182 *	0	28	1600	0.182 *	0	28	1600	0.182 *
Wb Right [4]	144	1500	0.096	3	147	1500	0.098	80	228	1500	0.152	3	231	1500	0.154	0	231	1500	0.000
Yellow Allowance:			0.100 *				0.100 *				0.100 *				0.100 *				0.100 *
ICU			0.686				0.693				0.931				0.938				0.766
LOS			B				B				E				E				C

02:24 PM

* *Key conflicting movement as a part of ICU*
1 *Counts conducted by* NDS
2 *Capacity expressed in veh/hour of green*
3 *Eastbound and westbound operate with split phasing.*
4 *The improvement measure includes the traffic signal modification to provide a westbound right-turn overlap phase to coincide with the southbound left-turn phase.*

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INTERSECTION CAPACITY UTILIZATION

Moorpark Avenue @ High Street

N-S St: Moorpark Avenue
E-W St: High Street
Project: 5-13-0055-1 Everett Street Terraces Project
File: ICU-4

Peak hr: PM
Annual Growth: 1.0%

Date: 05/05/2021
Date of Count: 2021
Projection Year: 2024

	2021 EXIST. TRAFFIC			2021 W/PROJECT SITE TRAFFIC				2024 WITHOUT PROJECT				2024 W/PROJECT				2024 W/PROJECT + IMPROVEMENTS			
	1	2	V/C	Added	Total	2	V/C	Added	Total	2	V/C	Added	Total	2	V/C	Added	Total	2	V/C
Movement	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio
Nb Left	27	0	0.017	0	27	0	0.017	43	71	0	0.044	0	71	0	0.044	0	71	0	0.022
Nb Thru	298	1600	0.203 *	8	306	1600	0.208 *	168	475	1600	0.341 *	8	483	1600	0.346 *	0	483	3200	0.173
Nb Right	298	1500	0.199	0	298	1500	0.199	57	364	1500	0.243	0	364	1500	0.243	0	364	1500	0.243 *
Sb Left	89	1500	0.059 *	7	96	1500	0.064 *	160	252	1500	0.168 *	7	259	1500	0.172 *	0	259	1500	0.172 *
Sb Thru	218	1600	0.140	5	223	1600	0.143	108	333	1600	0.212	5	338	1600	0.215	0	338	3200	0.107
Sb Right	6	0	-	0	6	0	-	0	6	0	-	0	6	0	-	0	6	0	-
Eb Left	7	0	0.004	0	7	0	0.004	0	7	0	0.005	0	7	0	0.005	0	7	0	0.005
Eb Thru [3]	21	1600	0.041 *	0	21	1600	0.041 *	33	55	1600	0.080 *	0	55	1600	0.080 *	0	55	1600	0.080 *
Eb Right	37	0	-	0	37	0	-	28	66	0	-	0	66	0	-	0	66	0	-
Wb Left	271	0	0.169	0	271	0	0.169	38	317	0	0.198	0	317	0	0.198	0	317	0	0.198 *
Wb Thru [3]	21	1600	0.183 *	0	21	1600	0.183 *	51	73	1600	0.244	0	73	1600	0.244	0	73	1600	0.244
Wb Right [4]	120	1500	0.080	11	131	1500	0.087	245	369	1500	0.246 *	11	380	1500	0.253 *	0	380	1500	0.081
Yellow Allowance:			0.100 *				0.100 *				0.100 *				0.100 *				0.100 *
ICU			0.653				0.661				0.931				0.939				0.793
LOS			B				B				E				E				C

02:24 PM

** Key conflicting movement as a part of ICU*
1 Counts conducted by NDS
2 Capacity expressed in veh/hour of green
3 Eastbound and westbound operate with split phasing.
4 The improvement measure includes the traffic signal modification to provide a westbound right-turn overlap phase to coincide with the southbound left-turn phase.

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INTERSECTION CAPACITY UTILIZATION

Moorpark Avenue @ Poindexter Avenue - First Street

N-S St:	Moorpark Avenue	Peak hr:	AM	Date:	05/05/2021
E-W St:	Poindexter Avenue - First Street	Annual Growth:	1.0%	Date of Count:	2021
Project:	5-13-0055-1 Everett Street Terraces Project			Projection Year:	2024
File:	ICU-5				

	2021 EXIST. TRAFFIC			2021 W/PROJECT SITE TRAFFIC				2024 WITHOUT PROJECT				2024 W/PROJECT				2024 W/PROJECT + IMPROVEMENTS			
	1	2	V/C	Added	Total	2	V/C	Added	Total	2	V/C	Added	Total	2	V/C	Added	Total	2	V/C
Movement	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio
Nb Left	86	1500	0.057 *	0	86	1500	0.057 *	6	95	1500	0.063 *	0	95	1500	0.063 *	0	95	1500	0.063 *
Nb Thru	270	1600	0.171	2	272	1600	0.173	70	348	1600	0.220	2	350	1600	0.221	0	350	3200	0.111
Nb Right	4	0	-	0	4	0	-	0	4	0	-	0	4	0	-	0	4	0	-
Sb Left	10	1500	0.007	0	10	1500	0.007	0	10	1500	0.007	0	10	1500	0.007	0	10	1500	0.007
Sb Thru	302	1600	0.389 *	9	311	1600	0.395 *	171	482	1600	0.552 *	9	491	1600	0.558 *	0	491	3200	0.279 *
Sb Right	321	0	-	0	321	0	-	71	402	0	-	0	402	0	-	0	402	0	-
Eb Left	202	1500	0.135 *	0	202	1500	0.135 *	31	239	1500	0.159 *	0	239	1500	0.159 *	0	239	1500	0.159 *
Eb Thru [3]	26	0	0.000	0	26	0	0.000	0	27	0	0.000	0	27	0	0.000	0	27	1600	0.063
Eb Right	63	1500	0.042	0	63	1500	0.042	9	74	1500	0.049	0	74	1500	0.049	0	74	0	-
Wb Left	3	0	0.002	0	3	0	0.002	0	3	0	0.002	0	3	0	0.002	0	3	0	0.002
Wb Thru [3]	59	1600	0.039 *	0	59	1600	0.039 *	0	61	1600	0.040 *	0	61	1600	0.040 *	0	61	1600	0.040 *
Wb Right	17	1500	0.011	0	17	1500	0.011	0	18	1500	0.012	0	18	1500	0.012	0	18	1500	0.012
Yellow Allowance:			0.100 *				0.100 *				0.100 *				0.100 *				0.100 *
ICU			0.834				0.841				1.072				1.079				0.689
LOS			D				D				F				F				B

03:01 PM

* *Key conflicting movement as a part of ICU*
1 Counts conducted by NDS
2 Capacity expressed in veh/hour of green
3 Eastbound and westbound operate with split phasing.

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INTERSECTION CAPACITY UTILIZATION

Moorpark Avenue @ Poindexter Avenue - First Street

N-S St:	Moorpark Avenue	Peak hr:	PM	Date:	05/05/2021
E-W St:	Poindexter Avenue - First Street	Annual Growth:	1.0%	Date of Count:	2021
Project:	5-13-0055-1 Everett Street Terraces Project			Projection Year:	2024
File:	ICU-5				

	2021 EXIST. TRAFFIC			2021 W/PROJECT SITE TRAFFIC				2024 WITHOUT PROJECT				2024 W/PROJECT				2024 W/PROJECT + IMPROVEMENTS			
	1	2	V/C	Added	Total	2	V/C	Added	Total	2	V/C	Added	Total	2	V/C	Added	Total	2	V/C
Movement	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio
Nb Left	52	1500	0.035 *	0	52	1500	0.035 *	11	65	1500	0.043 *	0	65	1500	0.043 *	0	65	1500	0.043 *
Nb Thru	385	1600	0.248	8	393	1600	0.253	189	586	1600	0.373	8	594	1600	0.378	0	594	3200	0.189
Nb Right	11	0	-	0	11	0	-	0	11	0	-	0	11	0	-	0	11	0	-
Sb Left	11	1500	0.007	0	11	1500	0.007	0	11	1500	0.008	0	11	1500	0.008	0	11	1500	0.008
Sb Thru	343	1600	0.351 *	5	348	1600	0.354 *	130	483	1600	0.468 *	5	488	1600	0.471 *	0	488	3200	0.236 *
Sb Right	218	0	-	0	218	0	-	41	266	0	-	0	266	0	-	0	266	0	-
Eb Left	292	1500	0.195 *	0	292	1500	0.195 *	77	378	1500	0.252 *	0	378	1500	0.252 *	0	378	1500	0.252 *
Eb Thru [3]	29	0	0.000	0	29	0	0.000	0	30	0	0.000	0	30	0	0.000	0	30	1600	0.069
Eb Right	71	1500	0.047	0	71	1500	0.047	8	81	1500	0.054	0	81	1500	0.054	0	81	0	-
Wb Left	8	0	0.005	0	8	0	0.005	0	8	0	0.005	0	8	0	0.005	0	8	0	0.005
Wb Thru [3]	31	1600	0.024 *	0	31	1600	0.024 *	0	32	1600	0.025 *	0	32	1600	0.025 *	0	32	1600	0.025 *
Wb Right	14	1500	0.009	0	14	1500	0.009	0	14	1500	0.010	0	14	1500	0.010	0	14	1500	0.010
Yellow Allowance:			0.100 *				0.100 *				0.100 *				0.100 *				0.100 *
ICU			0.917				0.925				1.218				1.226				0.802
LOS			E				E				F				F				D

03:01 PM

* *Key conflicting movement as a part of ICU*
1 Counts conducted by NDS
2 Capacity expressed in veh/hour of green
3 Eastbound and westbound operate with split phasing.

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INTERSECTION CAPACITY UTILIZATION

Walnut Street @ High Street

N-S St: Walnut Street
E-W St: High Street
Project: 5-13-0055-1 Everett Street Terraces Project
File: ICU-6

Peak hr: AM
Annual Growth: 1.0%

Date: 05/05/2021
Date of Count: 2021
Projection Year: 2024

	2021 EXIST. TRAFFIC			2021 W/PROJECT SITE TRAFFIC				2024 WITHOUT PROJECT				2024 W/PROJECT			
	1	2	V/C	Added	Total	2	V/C	Added	Total	2	V/C	Added	Total	2	V/C
Movement	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio
Nb Left	0	0	0.000 *	0	0	0	0.000 *	0	0	0	0.000 *	0	0	0	0.000 *
Nb Thru	0	0	0.000	0	0	0	0.000	0	0	0	0.000	0	0	0	0.000
Nb Right	0	0	-	0	0	0	-	0	0	0	-	0	0	0	-
Sb Left	13	0	0.008	0	13	0	0.008	0	13	0	0.008	0	13	0	0.008
Sb Thru	0	1600	0.016 *	0	0	1600	0.016 *	0	0	1600	0.017 *	0	0	1600	0.017 *
Sb Right	13	0	-	0	13	0	-	0	13	0	-	0	13	0	-
Eb Left	12	0	0.008 *	0	12	0	0.008 *	0	12	0	0.008	0	12	0	0.008
Eb Thru	349	1600	0.226	11	360	1600	0.233	301	661	1600	0.421 *	11	672	1600	0.428 *
Eb Right	0	0	-	0	0	0	-	0	0	0	-	0	0	0	-
Wb Left	0	0	0.000	0	0	0	0.000	0	0	0	0.000 *	0	0	0	0.000 *
Wb Thru	391	1600	0.251 *	3	394	1600	0.253 *	143	546	1600	0.348	3	549	1600	0.350
Wb Right	11	0	-	0	11	0	-	0	11	0	-	0	11	0	-
Yellow Allowance:			0.100 *				0.100 *				0.100 *				0.100 *
ICU			0.375				0.377				0.538				0.544
LOS			A				A				A				A

** Key conflicting movement as a part of ICU*
1 Counts conducted by NDS
2 Capacity expressed in veh/hour of green

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INTERSECTION CAPACITY UTILIZATION

Walnut Street @ High Street

N-S St: Walnut Street
E-W St: High Street
Project: 5-13-0055-1 Everett Street Terraces Project
File: ICU-6

Peak hr: PM
Annual Growth: 1.0%

Date: 05/05/2021
Date of Count: 2021
Projection Year: 2024

	2021 EXIST. TRAFFIC			2021 W/PROJECT SITE TRAFFIC				2024 WITHOUT PROJECT				2024 W/PROJECT			
	1	2	V/C	Added	Total	2	V/C	Added	Total	2	V/C	Added	Total	2	V/C
Movement	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio
Nb Left	0	0	0.000 *	0	0	0	0.000 *	0	0	0	0.000 *	0	0	0	0.000 *
Nb Thru	0	0	0.000	0	0	0	0.000	0	0	0	0.000	0	0	0	0.000
Nb Right	0	0	-	0	0	0	-	0	0	0	-	0	0	0	-
Sb Left	17	0	0.011	0	17	0	0.011	0	18	0	0.011	0	18	0	0.011
Sb Thru	0	1600	0.029 *	0	0	1600	0.029 *	0	0	1600	0.030 *	0	0	1600	0.030 *
Sb Right	30	0	-	0	30	0	-	0	31	0	-	0	31	0	-
Eb Left	43	0	0.027	0	43	0	0.027	0	44	0	0.028 *	0	44	0	0.028 *
Eb Thru	456	1600	0.312 *	7	463	1600	0.316 *	250	720	1600	0.477	7	727	1600	0.482
Eb Right	0	0	-	0	0	0	-	0	0	0	-	0	0	0	-
Wb Left	0	0	0.000 *	0	0	0	0.000 *	0	0	0	0.000	0	0	0	0.000
Wb Thru	374	1600	0.260	11	385	1600	0.267	334	719	1600	0.477 *	11	730	1600	0.483 *
Wb Right	42	0	-	0	42	0	-	0	43	0	-	0	43	0	-
Yellow Allowance:			0.100 *				0.100 *				0.100 *				0.100 *
ICU			0.441				0.446				0.634				0.641
LOS			A				A				B				B

* *Key conflicting movement as a part of ICU*
1 Counts conducted by NDS
2 Capacity expressed in veh/hour of green

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INTERSECTION CAPACITY UTILIZATION

Spring Road @ Charles Street

N-S St: Spring Road
E-W St: Charles Street
Project: 5-13-0055-1 Everett Street Terraces Project
File: ICU-7

Peak hr: AM
Annual Growth: 1.0%

Date: 05/05/2021
Date of Count: 2021
Projection Year: 2024

	2021 EXIST. TRAFFIC			2021 W/PROJECT SITE TRAFFIC				2024 WITHOUT PROJECT				2024 W/PROJECT			
	1	2	V/C	Added	Total	2	V/C	Added	Total	2	V/C	Added	Total	2	V/C
Movement	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio
Nb Left	20	1500	0.013 *	0	20	1500	0.013 *	0	21	1500	0.014 *	0	21	1500	0.014 *
Nb Thru	383	3200	0.124	0	383	3200	0.124	6	401	3200	0.130	0	401	3200	0.130
Nb Right	14	0	-	0	14	0	-	0	14	0	-	0	14	0	-
Sb Left	7	1500	0.005	0	7	1500	0.005	0	7	1500	0.005	0	7	1500	0.005
Sb Thru	997	3200	0.313 *	0	997	3200	0.313 *	28	1055	3200	0.331 *	0	1055	3200	0.331 *
Sb Right	3	0	-	0	3	0	-	0	3	0	-	0	3	0	-
Eb Left	4	0	0.003	0	4	0	0.003	0	4	0	0.003	0	4	0	0.003
Eb Thru	6	1600	0.042 *	0	6	1600	0.042 *	0	6	1600	0.043 *	0	6	1600	0.043 *
Eb Right	57	0	-	0	57	0	-	0	59	0	-	0	59	0	-
Wb Left	56	0	0.035 *	0	56	0	0.035 *	0	58	0	0.036 *	0	58	0	0.036 *
Wb Thru	15	1600	0.044	0	15	1600	0.044	0	15	1600	0.046	0	15	1600	0.046
Wb Right	5	1500	0.003	0	5	1500	0.003	0	5	1500	0.003	0	5	1500	0.003
Yellow Allowance:			0.100 *				0.100 *				0.100 *				0.100 *
ICU			0.503				0.503				0.524				0.524
LOS			A				A				A				A

** Key conflicting movement as a part of ICU*
1 Counts conducted by NDS
2 Capacity expressed in veh/hour of green

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INTERSECTION CAPACITY UTILIZATION

Spring Road @ Charles Street

N-S St: Spring Road
E-W St: Charles Street
Project: 5-13-0055-1 Everett Street Terraces Project
File: ICU-7

Peak hr: PM
Annual Growth: 1.0%

Date: 05/05/2021
Date of Count: 2021
Projection Year: 2024

	2021 EXIST. TRAFFIC			2021 W/PROJECT SITE TRAFFIC				2024 WITHOUT PROJECT				2024 W/PROJECT			
	1	2	V/C	Added	Total	2	V/C	Added	Total	2	V/C	Added	Total	2	V/C
Movement	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio
Nb Left	54	1500	0.036	0	54	1500	0.036	0	56	1500	0.037	0	56	1500	0.037
Nb Thru	892	3200	0.294 *	0	892	3200	0.294 *	26	945	3200	0.311 *	0	945	3200	0.311 *
Nb Right	48	0	-	0	48	0	-	0	49	0	-	0	49	0	-
Sb Left	3	1500	0.002 *	0	3	1500	0.002 *	0	3	1500	0.002 *	0	3	1500	0.002 *
Sb Thru	563	3200	0.177	0	563	3200	0.177	13	593	3200	0.186	0	593	3200	0.186
Sb Right	3	0	-	0	3	0	-	0	3	0	-	0	3	0	-
Eb Left	7	0	0.004	0	7	0	0.004	0	7	0	0.005	0	7	0	0.005
Eb Thru	2	1600	0.039 *	0	2	1600	0.039 *	0	2	1600	0.040 *	0	2	1600	0.040 *
Eb Right	53	0	-	0	53	0	-	0	55	0	-	0	55	0	-
Wb Left	26	0	0.016 *	0	26	0	0.016 *	0	27	0	0.017 *	0	27	0	0.017 *
Wb Thru	5	1600	0.019	0	5	1600	0.019	0	5	1600	0.020	0	5	1600	0.020
Wb Right	1	1500	0.001	0	1	1500	0.001	0	1	1500	0.001	0	1	1500	0.001
Yellow Allowance:			0.100 *				0.100 *				0.100 *				0.100 *
ICU			0.451				0.451				0.469				0.469
LOS			A				A				A				A

* *Key conflicting movement as a part of ICU*
1 Counts conducted by NDS
2 Capacity expressed in veh/hour of green

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INTERSECTION CAPACITY UTILIZATION

Spring Road @ High Street - Princeton Avenue

N-S St: Spring Road
E-W St: High Street - Princeton Avenue
Project: 5-13-0055-1 Everett Street Terraces Project
File: ICU-8

Peak hr: AM
Annual Growth: 1.0%

Date: 05/05/2021
Date of Count: 2021
Projection Year: 2024

	2021 EXIST. TRAFFIC			2021 W/PROJECT SITE TRAFFIC				2024 WITHOUT PROJECT				2024 W/PROJECT				2024 W/PROJECT + IMPROVEMENTS			
	1	2	V/C	Added	Total	2	V/C	Added	Total	2	V/C	Added	Total	2	V/C	Added	Total	2	V/C
Movement	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio
Nb Left	131	1500	0.087	2	133	1500	0.089	53	188	1500	0.125	2	190	1500	0.127	0	190	1500	0.127
Nb Thru	209	3200	0.065	0	209	3200	0.065	5	220	3200	0.069	0	220	3200	0.069	0	220	3200	0.069
Nb Right	231	1500	0.154 *	0	231	1500	0.154 *	58	296	1500	0.197 *	0	296	1500	0.197 *	0	296	1500	0.197 *
Sb Left	412	1500	0.275 *	0	412	1500	0.275 *	3	427	1500	0.285 *	0	427	1500	0.285 *	0	427	1500	0.285 *
Sb Thru	578	3200	0.188	0	578	3200	0.188	24	620	3200	0.201	0	620	3200	0.201	0	620	3200	0.201
Sb Right	22	0	-	0	22	0	-	1	24	0	-	0	24	0	-	0	24	0	-
Eb Left	12	1500	0.008	0	12	1500	0.008	2	14	1500	0.010	0	14	1500	0.010	0	14	1500	0.010
Eb Thru	245	1600	0.153 *	4	249	1600	0.156 *	164	416	1600	0.260 *	4	420	1600	0.263 *	0	420	3200	0.234 *
Eb Right	166	1500	0.111	7	173	1500	0.115	151	322	1500	0.215	7	329	1500	0.219	0	329	0	-
Wb Left	84	1500	0.056 *	0	84	1500	0.056 *	28	115	1500	0.076 *	0	115	1500	0.076 *	0	115	1500	0.076 *
Wb Thru	248	1600	0.155	1	249	1600	0.156	87	343	1600	0.214	1	344	1600	0.215	0	344	1600	0.215
Wb Right	165	1500	0.110	0	165	1500	0.110	-1	169	1500	0.113	0	169	1500	0.113	0	169	1500	0.113
Yellow Allowance:			0.100 *				0.100 *				0.100 *				0.100 *				0.100 *
ICU			0.738				0.740				0.919				0.921				0.893
LOS			C				C				E				E				D

03:28 PM

* *Key conflicting movement as a part of ICU*
1 Counts conducted by NDS
2 Capacity expressed in veh/hour of green

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INTERSECTION CAPACITY UTILIZATION

Spring Road @ High Street - Princeton Avenue

N-S St: Spring Road
E-W St: High Street - Princeton Avenue
Project: 5-13-0055-1 Everett Street Terraces Project
File: ICU-8

Peak hr: PM
Annual Growth: 1.0%

Date: 05/05/2021
Date of Count: 2021
Projection Year: 2024

	2021 EXIST. TRAFFIC			2021 W/PROJECT SITE TRAFFIC				2024 WITHOUT PROJECT				2024 W/PROJECT				2024 W/PROJECT + IMPROVEMENTS			
	1	2	V/C	Added	Total	2	V/C	Added	Total	2	V/C	Added	Total	2	V/C	Added	Total	2	V/C
Movement	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio
Nb Left	171	1500	0.114	6	177	1500	0.118	169	345	1500	0.230	6	351	1500	0.234	0	351	1500	0.234
Nb Thru	637	3200	0.199 *	0	637	3200	0.199 *	23	679	3200	0.212	0	679	3200	0.212	0	679	3200	0.212
Nb Right	268	1500	0.179	0	268	1500	0.179	52	328	1500	0.219 *	0	328	1500	0.219 *	0	328	1500	0.219 *
Sb Left	222	1500	0.148 *	0	222	1500	0.148 *	4	233	1500	0.155 *	0	233	1500	0.155 *	0	233	1500	0.155 *
Sb Thru	301	3200	0.103	0	301	3200	0.103	6	316	3200	0.109	0	316	3200	0.109	0	316	3200	0.109
Sb Right	30	0	-	0	30	0	-	3	34	0	-	0	34	0	-	0	34	0	-
Eb Left	36	1500	0.024 *	0	36	1500	0.024 *	2	39	1500	0.026	0	39	1500	0.026	0	39	1500	0.026 *
Eb Thru	328	1600	0.205	3	331	1600	0.207	145	483	1600	0.302 *	3	486	1600	0.304 *	0	486	3200	0.234
Eb Right	142	1500	0.095	4	146	1500	0.097	113	259	1500	0.173	4	263	1500	0.176	0	263	0	-
Wb Left	104	1500	0.069	0	104	1500	0.069	59	166	1500	0.111 *	0	166	1500	0.111 *	0	166	1500	0.111
Wb Thru	278	1600	0.174	4	282	1600	0.176	181	467	1600	0.292	4	471	1600	0.295	0	471	1600	0.295
Wb Right	484	1500	0.323 *	0	484	1500	0.323 *	1	500	1500	0.333	0	500	1500	0.333	0	500	1500	0.333 *
Yellow Allowance:			0.100 *				0.100 *				0.100 *				0.100 *				0.100 *
ICU			0.794				0.794				0.886				0.888				0.833
LOS			C				C				D				D				D

03:28 PM

** Key conflicting movement as a part of ICU*
1 Counts conducted by NDS
2 Capacity expressed in veh/hour of green

APPENDIX K – MMRP

MITIGATION MONITORING AND REPORTING PROGRAM

EVERETT STREET TERRACES PROJECT
MOORPARK, CALIFORNIA

Prepared for:

CITY OF MOORPARK
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Prepared by:



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July 2022

MITIGATION MONITORING AND REPORTING PROGRAM

Public Resources Code, Section 21081.6 (Assembly Bill 3180) requires that mitigation measures identified in environmental review documents prepared in accordance with California Environmental Quality Act (CEQA) are implemented after a project is approved. Therefore, this Mitigation Monitoring and Reporting Program (MMRP) has been prepared to ensure compliance with the adopted mitigation measures during the construction and operation phase of the Everett Street Terraces Project.

The City of Moorpark is the agency responsible for implementation of the mitigation measures identified in the MND. This MMRP provides the City of Moorpark with a convenient mechanism for quickly reviewing all the mitigation measures including the ability to focus on select information such as timing. The MMRP includes the following information for each mitigation measure:

- The phase of the project during which the required mitigation measure must be implemented;
- The phase of the project during which the required mitigation measure must be monitored; and
- The enforcement agency.

The MMRP includes a checklist to be used during the mitigation monitoring period. The checklist will verify the name of the monitor, the date of the monitoring activity, and any related remarks for each mitigation measure.

MITIGATION MONITORING AND REPORTING PROGRAM Everett Street Terraces Project							
Mitigation Measure	Implementation Phase	Monitoring Phase	Enforcement Agency	Level of Significance After Mitigation	Verification of Compliance		
					Initial	Date	Remarks
Biological Resources							
MM-BIO-1: If construction is unavoidable during February 1 through September 15, nesting bird pre-construction surveys will be conducted by a Qualified Biologist and submitted to the City three days prior to demolition and/or vegetation removal activities during nesting bird season (February 15 through August 31) within 250 feet of the Project site for passerines and 500 feet for raptors and/or listed species, where feasible. Should nesting birds be found, an exclusionary buffer will be established by a Qualified Biologist. The buffer may be up to 500 feet in diameter depending on the species of nesting bird found. This buffer will be clearly marked in the field by construction personnel under guidance of the Qualified Biologist, and construction or clearing will not be conducted within this zone until the Qualified Biologist determines that the young have fledged or the nest is no longer active. Nesting bird habitat within the Project site will be resurveyed during bird breeding season if a lapse in construction activities lasts longer than seven days. The nesting bird survey will be conducted at appropriate nesting times and concentrate on potential roosting or perch sites	Prior to construction	Prior to and during construction	City of Moorpark	Less than Significant			
MM-BIO-2: To avoid impacts to biological resources, a qualified biological monitor will be on site prior to ground-disturbing and habitat-disturbing activities to move out of harm's way any special status species or other wildlife of low mobility that would be killed or injured by Project-related construction activities. Salvaged wildlife will be removed and placed onto adjacent and suitable areas out of harms' way. In addition, grubbing will be done to avoid islands of habitat where wildlife may take refuge, and will be done from the center outward, to the extent practicable.	Prior to and during construction	Prior to and during construction	City of Moorpark	Less than Significant			
Cultural Resources							
MM-CUL-1: Prior to issuance of grading permits, the applicant shall be required to obtain the services of a qualified project archaeologist to remain on-call for the duration of the proposed ground disturbing construction activity. The archeologist selected must be approved in writing by the Community Development Director. Prior to construction commencing, all construction personnel associated with earth moving equipment, drilling, grading, or excavating, shall be provided with basic training. The training shall be completed by the applicant retained project archaeologist and shall include written notification of the restrictions regarding disturbance and/or removal of any portion of archaeological deposits and the procedures to follow should a potential resource be identified during construction activity. The construction contractor, or its designee, shall be responsible for implementation of this measure. A tribal monitor shall be provided an opportunity to attend the pre-construction briefing, if requested. The project archaeologist shall be on-call and available to contact in the event of any unanticipated discovery of archaeological or historical resources during the proposed construction activity. If any archeological or historical resources are uncovered during grading or excavation operations, all grading or excavation shall immediately cease in the immediate area, a 50-foot buffer area around the discovery shall be cordoned off, and the discovery must be left untouched. The applicant, in consultation with the project archeologist, shall assure the preservation of the resource and immediately contact the Community Development Director by phone, in writing by email or hand delivered correspondence informing the Director of the find. In the absence of the Director, the applicant shall so inform the City Manager. Additionally, all consulting (local?) Native American Tribal groups that requested notification of any unanticipated discovery of archaeological resources on the Project will be notified appropriately. The applicant retained project archeologist shall provide an assessment regarding the sensitivity of the discovery and, if avoidance is not feasible, recommend the appropriate treatment and/or recovery procedures for discovery. The applicant shall pay for all costs associated with the investigation and, if required, the treatment and/or recovery of the discovery.	Prior to and during construction	During construction	City of Moorpark	Less than Significant			

MITIGATION MONITORING AND REPORTING PROGRAM Everett Street Terraces Project							
Mitigation Measure	**Implementation Phase**	**Monitoring Phase**	**Enforcement Agency**	**Level of Significance After Mitigation**	**Verification of Compliance**		
					Initial	**Date**	**Remarks**
MM CUL-2 At the completion of all ground-disturbing activities, the project archaeologist shall prepare an Archaeological Resources Monitoring Report summarizing all monitoring efforts and observations, as performed, and any and all prehistoric or historic archaeological finds as well as providing follow-up reports of any finds to the South-Central Coastal Information Center (SCCIC), as required.	Post-construction	N/A	City of Moorpark	Less than Significant			
Geology & Soils							
MM-GEO-1: Once specific building types and foundation loads and locations are known for the Project site, the Applicant shall contract a State-registered geologist and a State-registered professional engineer to sample soil in order to prepare Project-specific recommendations regarding building foundations. Once the severity of these soil characteristics are determined, then appropriate measures contained within the geotechnical report will be incorporated into the design of the project. Feasible techniques to mitigate any defined liquefaction, settlement, and expansive soils could include, but would not be limited to, (1) in-situ densification; (2) vibro replacement; (3) compaction grouting or chemical stabilization; or (4) deep foundations and self-supporting structural slabs, (5) over-excavation and replacement with properly compacted fill, (6) use of caissons, and/or (7) design of foundation systems with appropriate thickness and reinforcing.	Prior to construction	N/A	City of Moorpark	Less than Significant			
MM PALEO-1: Prior to issuance of a Zoning Clearance for a grading permit, the applicant shall be required to obtain the services of a qualified project paleontologist to remain on-call for the duration of the proposed ground disturbing construction activity. The paleontologist selected must be approved in writing by the Community Development Director. Upon approval or request by the Community Development Director, a paleontological mitigation plan (PMP) outlining procedures for paleontological data recovery shall be prepared for the Proposed Project and submitted to the Community Development Director for review and approval. The development and implementation of the PMP shall include consultations with the Applicant's engineering geologist as well as a requirement that the curation of all specimens recovered under any scenario shall be through the Los Angeles County Museum of Natural History (LACMNH). All specimens become the property of the City of Moorpark unless the City chooses otherwise. If the City accepts ownership, the curation location may be revised. The PMP shall include developing a multilevel ranking system, or Potential Fossil Yield Classification (PFYC), as a tool to demonstrate the potential yield of fossils within a given stratigraphic unit. The PMP shall outline the monitoring and salvage protocols to address paleontological resources encountered during ground disturbing activities. As well as the appropriate recording, collection, and processing protocols to appropriately address any resources discovered. The cost of data recovery is limited to the discovery of a reasonable sample of available material. The interpretation of reasonableness rests with the Community Development Director.	Prior to and during construction	During construction	City of Moorpark	Less than Significant			
MM PALEO-2: At the completion of all ground-disturbing activities, the project paleontologist shall prepare a final paleontological mitigation report summarizing all monitoring efforts and observations, as performed in line with the PMP, and all paleontological resources encountered, if any. As well as providing follow-up reports of any specific discovery, if necessary.	Post-construction	N/A	City of Moorpark	Less than Significant			

MITIGATION MONITORING AND REPORTING PROGRAM Everett Street Terraces Project							
Mitigation Measure	**Implementation Phase**	**Monitoring Phase**	**Enforcement Agency**	**Level of Significance After Mitigation**	**Verification of Compliance**		
					Initial	**Date**	**Remarks**
Tribal Cultural Resources							
MM-TCR-1: Due to the potential that archeological resources may be present on the Project site, the City of Moorpark shall require a note on any plans that require ground disturbing excavation that there is a potential for exposing buried cultural resources, including prehistoric Native American artifacts. Construction personnel associated with earth moving equipment, drilling, grading, and excavating, shall be provided with basic training conducted by a qualified archaeologist, to be retained and compensated by the development team, with the approval of the City of Moorpark. Issues that shall be included in the basic training will be geared toward training the applicable construction crews in the identification of archaeological deposits, further described below. Training will include written notification of the restrictions regarding disturbance and/or removal of any portion of archaeological deposits and the procedures to follow should a resource be identified. The construction contractor, or its designee, shall be responsible for implementation of this measure. A Native American monitor shall be provided an opportunity to attend the pre-construction briefing if requested. A Native American monitor from a consulting Tribe under AB 52 monitor and a qualified archeologist, to be compensated by the development team, shall be available on an "on-call" basis during ground disturbing construction in native soil to review, identify and evaluate cultural resources that may be inadvertently exposed during construction. If archaeological remains or tribal cultural resources are uncovered, all construction activities within a 100-foot radius shall be halted immediately until a qualified archaeologist, in consultation with the Native American monitor, shall evaluate whether the resource requires further study. The City shall require that the applicant include a standard inadvertent discovery clause in every construction contract to inform contractors of this requirement. If any previously undiscovered resources are found during construction the City of Moorpark Community Development Department shall be contacted, and the resource shall be evaluated for significance in terms of CEQA criteria by a qualified archaeologist. Prehistoric archaeological site indicators include but are not limited to: obsidian and chert flakes and chipped stone tools; grinding and mashing implements (e.g., slabs and handstones, and mortars and pestles); bedrock outcrops and boulders with mortar cups; and locally darkened midden soils. Midden soils may contain a combination of any of the previously listed items with the possible addition of bone and shell remains, and fire-affected stones. Historic period site indicators generally include but are not limited to: fragments of glass, ceramic, and metal objects; milled and split lumber; and structure and feature remains such as building foundations and discrete trash deposits (e.g., wells, privy pits, dumps). If City and the qualified archaeologist determine the resource to be significant under CEQA, they shall determine whether preservation in place is feasible. Such preservation in place is the preferred mitigation. Contingency funding and a time allotment sufficient for recovering an archeological sample or to employ an avoidance measure may be required. If such preservation is infeasible, the qualified archaeologist shall prepare and implement a formal Archaeological Monitoring Plan (AMP) which will include a research design and archaeological data recovery plan for the resource. Development and implementation of the AMP will be determined by the City of Moorpark and treatment of any significant cultural resources shall be undertaken with the approval of the project applicant, and the City.	Prior to, during, and post- construction	During construction	City of Moorpark	Less than Significant			

MITIGATION MONITORING AND REPORTING PROGRAM Everett Street Terraces Project							
Mitigation Measure	Implementation Phase	Monitoring Phase	Enforcement Agency	Level of Significance After Mitigation	Verification of Compliance		
					Initial	Date	Remarks
TCR-1 (continued) The archaeologist shall also conduct appropriate technical analyses, prepare a comprehensive written report and file it with the appropriate information center (California Historical Resources Information System [CHRIS]), and provide for the permanent curation of the recovered materials. The City of Moorpark and/or development team shall, in good faith, consult with the Fernandeño Tataviam Band of Mission Indians and consulting Tribes on the disposition and treatment of any recovered materials. A Monitoring Closure Report shall be filed with the City of Moorpark at the conclusion of ground disturbing construction if archaeological resources were encountered and/or recovered. After the find has been appropriately mitigated (as defined by State CEQA Guidelines Section 15126.4(b)), work in the area may resume.	Prior to, during, and post- construction	During construction	City of Moorpark	Less than Significant			
TCR-2: If human remains or funerary objects are unearthed during any activities associated with the project, State Health and Safety Code Section 7050.5 requires that no further disturbance shall occur within a 100-foot buffer of the find until the County coroner has made the necessary findings as to origin and disposition pursuant to Public Resources Code Section 5097.98. If the remains are determined to be of Native American descent, the coroner has 24 hours to notify the Native American Heritage Commission (NAHC), the Fernandeño Tataviam Band of Mission Indians, and consulting Tribes. The NAHC will then contact the deceased Native American's most likely descendant, who will then serve as consultant on how to proceed with the remains (i.e., avoid, rebury).	During construction	During construction	City of Moorpark	Less than Significant			